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Ecology is for the People

Prologue

Western Ghats Ecology Expert Panel (WGEEP) had absolutely no intention of imposing any development or conservation priorities on the people from above. It had observed that we must stop excluding people from decision-making and abandon the currently prevalent pattern of “development by exclusion” coupled to “conservation by exclusion”. It had gone on to call for the elaboration of a model of conservation and development compatible with each other to replace the prevailing ‘Develop recklessly - conserve thoughtlessly’ pattern with one of ‘Develop sustainably - conserve thoughtfully.’ It had emphasized that its recommendations should serve only as a starting point for a bottom-up democratic decision-making process and that the fine-tuning of development-conservation practices to local context would require full involvement of local communities. It had further asserted that it is entirely inappropriate to depend exclusively on an expert body like WGEEP and on government agencies for deciding on and managing Ecologically Sensitive Zones. Instead their final demarcation and fine-tuning of the regulatory as well as promotional regimes must be based on extensive inputs from local communities and local bodies.

Introduction

Intense rains, floods, landslides; huge financial losses, manifold human tragedies. In 2018 many thought that this was a calamity such as strikes just once in a century, that we will get back to normality soon and can merrily continue business as usual. But the probability of two such back to back events is only 1 in 10,000. So, when in 2019 people of Kerala once again encountered the same shocking train of intense rains, floods, landslides, financial losses and manifold human tragedies people are stunned and beginning to realize that it is unwise to continue business as usual, and we must think afresh of the options before us.

An era of extremes

An event with a probability of 1 in 10,000 is exceedingly unlikely; what is more likely is that extreme events like intense rainfall are now likely to occur much more frequently than in the past. All the scientific studies pertaining to global warming suggest that indeed this must be so, that on a warmer earth all kinds of extremes, extremes of rain and drought, of heat and cold will become more and more frequent. Humans, then are responsible even for natural events like intense rainfall occurring with ever higher frequency.

The root cause of global warming is the wasteful resource and energy guzzling lifestyle that is spreading all over the earth. True, the model for such a lifestyle originated in the United States of America which even today must accept the Lion's share of the blame for global warming. But that does not absolve us from the blame of following this model, and, adding a plethora of deliberately wasteful practices to it.

Deliberate waste

Athirappilly hydel project

Consider the case of the 163-megawatt (MW) Athirappilly Hydro-electric project on the 144-km long, already heavily dammed, Chalakudy river, one of the key case studies included in the report of the Western Ghats Ecology Expert Panel (WGEEP), sometimes known as Gadgil Commission. Chalakudy, is a river of magnificent waterfalls and rapids and biodiversity-rich forests and waters. Kerala State Biodiversity Board has advised that the project be rejected since it will destroy one of the last remaining examples of low-level evergreen riverine forests in the Western Ghats and deplete the rich fish biodiversity of the Chalakudy river. The Environmental Impact Assessments prepared for the project and the public hearings conducted were flawed, and the High Court has repeatedly set them aside. Local people are against the Athirappilly project, so much so that of the more than 1,200 people attending a public hearing on 15 June 2006 , no one spoke in favour, and in the 252 written representations submitted to the public hearing panel, the ratio for and against the project was 1:9. Three of the five members of the panel were against the project and among them were the presidents of Athirappilly gram

panchayat and Chalakudy block panchayat; representatives of the people who would be directly affected by the construction of the dam.

A careful assessment of the project by the River Research Centre (RRC) brings out several technical flaws—there is not enough water to generate the power as claimed, power generation will adversely affect the irrigation now available from the river as well as the scenic waterfall and the thriving tourism business. Yet there is continual pressure from the government of Kerala for clearance of the project. So, at the request of the Ministry of Environment and Forests (MoEF) request WGEEP visited the proposed dam site, the reservoir area, the settlements of the primitive tribal group Kadars, and had consultations with members of the public at various levels. In addition, it organised a technical consultation, which was attended by experts from the Kerala State Electricity Board (KSEB), Chalakudy Parisara Samrakshana Samithi, RRC, Kerala Sastra Sahitya Parishad (KSSP), Kerala Forest Research Institute, Kerala State Biodiversity Board, Tropical Botanical Garden and Research Institute, Nature Conservation Foundation and officers from the state's departments of irrigation, Scheduled Tribes development, and forest and wildlife. This was the first time that such a discussion was held between proponents and opponents of the project. The RRC team raised a number of significant issues at this technical consultation and none of them were challenged by the KSEB.

Evidently, the technically flawed project will not contribute to meeting the energy demands of Kerala; a proper life-cycle analysis is likely to show that it will expend something like 100 units of energy in construction and operation to generate 80 units. Its only justification can come from the totally unwarranted profits that will be made by contractors and their cronies, and this is what is being pushed with the greatest vigour by the current governments, not of the people, by the people, for the people, but of the contractors, for the contractors, and by the contractors, and supported by an all-party political cartel.

[Economy, of permanence or of violence?](#)

This is just one of the many examples of highly wasteful use of resources that characterize India's and Kerala's current pattern of development. It would be salutary to recall at this stage the philosophy of J C Kumarappa, the Accountant-

Economist who worked closely with Mahatma Gandhi and wrote the insightful book, "Economy of permanence". He pointed out that the Western Capitalism had elaborated a capital-intensive economy highly wasteful of natural resources because Western nations had successfully accumulated large capital stocks through drain of their colonies, and had access to huge stocks of natural resources of whole continents like North and South America and Australia that they had taken over while wiping out the indigenous people. India, on the other hand, did not enjoy that kind of access to capital and natural resources, but had to ensure that it did justice to its huge bank of human resources. This called for prudent use of natural resources, best accomplished by empowering local communities to safeguard them, and creation of productive employment on a very large scale. Kumarappa, therefore advocated working out an innovative Indian model, focusing on rural economy, of a non-violent rather than predatory development on the Western pattern. Otherwise, he cautioned that we will end up creating an economy of violence. Writing in 1942, his emphasis naturally was on agriculture based economic activities in the rural sector. But today sand, stone, ground water as well as forests have all emerged as economic resources of substantial value, resources that must be deployed to strengthen rural economy and generate sorely needed employment.

The saga of violence of nature, and violence at the hand of humans, such as the tragic death of Vellalippil Anoop, aged 29, of Nittoor in Kozhikode district on 20 December 2013 who succumbed to head injuries when a mob, allegedly hired by the quarry mafia, threw stones and crude bombs while he was participating in a sit-in demanding implementation of the WGEEP report, suggests that Kumarappa's worst fears of a lopsided development have been realised.

Nation's four capital stocks

As the Nobel laureate Joseph Stiglitz emphasises any nation must aim at a harmonious development of its four capital stocks, not just the man-made capital that gross domestic product (GDP) highlights, but also the natural capital, human capital, and social capital. The currently favoured development model pushed with vigour by all political parties, regardless of their other ideological pronouncements, focuses exclusively on economic activity in the organised industries-services sectors. So, it will count on the positive side the rise in demand for new houses and

consequently for quarrying stone caused by the destruction of property in the floods and landslides of 2018 and 2019. In its computations, it will count not only quarrying, crushing, and truck transport as positive development gains, but also the rise in sales of drugs and demand for hospitals as a result of ill health caused by the quarrying. In the absence of proper records, other relevant elements of economic activities such as the decline in agricultural productivity and loss of employment for agricultural labour, which ought to be counted on the debit side, will be largely overlooked.

More importantly, this approach totally ignores the ongoing depletion of natural, human, and social capitals, an important concern of the WGEEP report. Thus, it turns a blind eye to the erosion of natural capital of land, water, forest, and biodiversity resources. The social capital residing in social harmony, cooperation, and trust, is also grievously suffering in the prevailing economy of violence. This pattern of development is depleting human capital relating to health, education, and employment as well. Indeed, as the economist Amit Bhaduri has pointed out, the claim that India's rapid economic growth is helping create much-needed employment is dubious—the annual rate of growth in employment in the organised sector was 2% when the GDP was growing slowly at 3%, and it actually declined to 1% when the GDP growth rate soared to 7%. So, what we are witnessing is jobless growth, with an accompanying erosion of natural, human as well as social capital.

Achieving balanced development

Our constitution asserts that the real rulers of India are its people who are sovereign and that all development and conservation efforts should be directed towards promoting their well-being. This is the starting point for all the recommendations of WGEEP, which are cast in the framework of our constitutional duties and responsibilities and the various acts on our statute. The vast majority of our people depend for their livelihoods on a robust base of natural resources and their health and well-being depend on a healthy environment. WGEEP therefore believes that pitting development against conservation is a false contradiction, and that we must elaborate a model of development as desired by people that is compatible with conservation also as desired by people. Such a model should aim to replace the prevailing “Develop recklessly - conserve thoughtlessly” pattern with

one of “Develop thoughtfully - conserve thoughtfully”. The fine-tuning of development- conservation practices to local context that this calls for would require full involvement of local communities. Our constitution demands that people have every right to say no, we do not want this type of development. On the positive side, they also have every right to fully enjoy the fruits of prudent use and conservation of the natural resources in their own localities. This people-oriented route is the only route to achieving balanced development.

Development by imposition

Plachimada

The WGEEP report emphasizes that today we are practicing “development by exclusion, accompanied by conservation by exclusion.” This is because the many powerful interests that control decision-making are not motivated to pursue a pattern of development that will create mutually supportive relationships among beneficiaries of the organized industries-services sectors and the bulk of Indians dependent for their livelihoods and well-being on a healthy base of natural resources. Plachimada Panchayat in Palakkad district, where a Coca Cola plant has polluted and depleted ground water, drying up wells and adversely impacting agricultural productivity and livelihoods furnishes a notable example of development imposed from above that the people at grass-roots opposed successfully, albeit incompletely. The people of Plachimada forced a proper inquiry into their losses; the resultant scientific studies showed that these amounted to Rs 260 crores. On the basis of this evidence, the panchayat rescinded the company’s license. The panchayat’s reasoning is important: it establishes the crucial link between governance and managing local natural resources. While cancelling the license, the panchayat evoked its constitutional rights, arguing that as a local elected government it had the duty to protect the well-being of its citizens. It had the right to cancel—or refuse permission for—anything that affected its citizens adversely. The company’s counter-argument was that the panchayat was subordinate to the state government, which had granted it the license, and that it could not operate out of its domain. The High Court of Kerala rejected this argument, affirming that people at the grassroots level do have the authority to decide on the course of development in their own locality. Reaffirming this argument, the Kerala state legislature unanimously passed a bill

named “Plachimada Coca Cola Victims Relief and Compensation Claims Special Tribunal Bill 2011”. Kerala Governor had forwarded the Compensation Claims Special Tribunal Bill 2011 for Presidential assent on March 30, 2011. Regrettably, three successive Presidents of India have not yet signed the bill and the people are not being compensated for their losses. In the meanwhile, Coca Cola, which owes the Government 84 crores in back taxes, has been reportedly awarded an Income Tax exemption of Rupees 5 crores.

Stone quarries

To cite one more instance of imposition of so-called development, consider the case of Chembanmudy in Pathanamthitta district, where a stone quarry has triggered landslips and blockages of streams that are adversely affecting land, water, forest, and biodiversity resources. Human capital of health is also being eroded, with even young children developing lung cancer. Mothers complain that the truck traffic does not permit their children to focus on studies. There is little employment for the locals. Most of the few labourers employed are from the tribal tracts of Orissa or Jharkhand, people whose livelihoods were destroyed by rampant mining in their own districts. There are horror stories making the rounds of how this disorganised labour force is ill-treated, with no compensation for accidental injuries or even death. Yet the strong protests by the entire local population and resolutions of the Chembanmudy panchayat are being totally ignored and the state government is in fact permitting quarrying closer and closer to the settlements. This, despite the fact that a vast proportion of these activities are completely illegal; a Committee of the Kerala State Legislature has estimated that 1500 of 1650 stone crushers operating in the state have no permission from either the Collector or the concerned Gramsabhas. Such a course of action is degrading social capital as well exacerbating social disharmony and mistrust.

Conservation by imposition

Just as development, conservation is also being imposed on people, with bureaucracy assigned the task of conservation misusing its authority. Such has been the experience of the people of Kerala relating to the Kerala Ecofragile Lands (EFL) Act. It is alleged that the EFL Act is draconian, allowing the bureaucracy to arbitrarily declare any lands in the proximity of Protected Areas as “ecologically

fragile” without citing any scientific reasons. It thereby vests such lands with the government, extinguishing all individual rights and titles without any compensation, leading to eviction of 8,000-plus farmers from 37,000 acres without compensation. Even tribals and marginal farmers have lost land and protests against it have been muted. Gramsabhas were not involved in the identification of these lands, and forest officials decided on lands to be taken over without any field visits. Farmers were not given notice; there was only a gazette notification. It is also alleged that the powers have been used by corrupt officials to extort bribes. The same Malayalam term is used for ecofragile lands and Ecologically Sensitive Zone (ESZ) and as a result, the same process of extortion was reportedly launched again in 2012 with the publication of the WGEEP report.

Of course, WGEEP report is strongly opposed to such conservation by imposition. However, since the report was not readily available to the public, it was easy to mislead people and claim, as the Bishop of Idukki did, “If the recommendations of the WGEEP report are implemented, lakhs of people living in the area will lose all their freedom and will be forced to vacate the area by themselves before the government evacuates them.”

Public Trust

Clearly there has been a serious breach of public trust by the governments. What is meant by the public trust they should have kept is well explained in the following judgement by Mr Justice Jayashankaran Nambiar.

Box 1: Script of the decision by Hon'ble Mr. Justice A.K.Jayasankaran Nambiar in Omana v. Anil Kumar, W.P.(C) No.20532 of 2010 & connected cases, Decided on 25th April, 2017

Before parting with these cases, and taking note of the findings of the study done at the instance of the Kerala Forest Research Institute, the salient points of which have been adverted to in the introductory paragraph of this judgment, this court is of the opinion that the time has probably come for the State Government to reconsider its policy with regard to grant of mining/quarrying leases and permits. The State Government has to remind itself of its role as a guardian of the natural resources within the State and introduce measures to check the indiscriminate grant of mining/quarrying leases and permits. While the present system of grant of

mining/quarrying leases relies, to a large extent, on the mining plan and other documents submitted by the project proponent, with the State Government's role being limited to approving the said plan and granting mining leases/ permits, the increasing instances of environmental degradation, and pollution related issues, that are voiced by the citizens of the State ought, in my opinion, to spur the State Government into adopting a pro-active role while granting mining leases and permits. It must keep in mind the doctrine of Public Trust, which was developed as a legal theory by the ancient Roman Empire, and was founded on the idea that certain common properties such as rivers, seashore, forests and the air were held by the Government in trusteeship for the free and unimpeded use of the general public. These resources were deemed to be of such great importance to the people as a whole that it was seen as wholly unjustified to make them the subject of private ownership. The said resources being a gift of nature, it was felt that they should be made freely available to everyone irrespective of the status in life. The doctrine therefore enjoins upon the Government to protect the resources for enjoyment of the general public rather than to permit their use for private ownership or commercial purposes. In *Illinois Central Railroad Co. v. People of the State of Illinois* (146 US 387: 36 L.Ed 1018 (1892)) the US Supreme Court articulated the principle that, when a State holds a resource which is available for the free use of the general public, a court will look with considerable skepticism upon any governmental conduct that is calculated either to relocate that resource to more restricted uses or subject public uses to the self-interest of private parties. Taking cue from the said decision, the doctrine of public trust was declared, by our Supreme Court, to be part of the law of the land, in *M.C.Mehta v. Kamal Nath* ((1997) 1 SCC 388). It was held that;

“The State is the trustee of all natural resources which are by nature meant for public use and enjoyment. Public at large is the beneficiary of the sea-shore, running waters, airs, forests and ecologically fragile lands. The State as a trustee is under a legal duty to protect the natural resources. These resources meant for public use cannot be converted into private ownership.” The public trust doctrine has been used, over the years, to forge a number of allied principles through which courts have, to a significant extent, checked environmental degradation, as also

large-scale depletion of precious natural resources, while at the same time ensuring that developmental activities are not completely curtailed or prohibited.

Some of these principles are;

(i) The principle of sustainable development, which advocates the striking of a balance between the need for protection of environment and the competing need to engage in developmental activities;

(ii) The precautionary principle, that requires the State to take environmental measures to anticipate, prevent and attack the causes of environment degradation, and further clarifies that lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The principle also lays the onus of proof on the actor to establish that its actions are environmentally benign;

(iii) The polluter pays principle, that penalizes a person who has caused pollution and;

(iv) The principle of inter-generational equity, that holds that the present generation has no right to deplete all the existing resources and leave nothing to the next and future generations.

The aforesaid principles are not, in my opinion, to be treated as entries in a one-time checklist maintained by the State Government, prior to the grant of permission to exploit mineral resources, or undertake any activity that has serious environmental implications, but are to be applied periodically, during the implementation stages of the permitted activity as well, so that any act, that has the potential to cause damage to the environment or destruction/depletion of the natural resource, is arrested at the earliest stage after its detection. Only through such constant supervision, of permitted activities in relation to natural resources, will the State be able to discharge its duty as a trustee of the natural resources for the benefit of its people. Ideally, therefore, the State Government should examine, on a case-to-case basis, whether there is a need to grant a quarrying lease/permit in the area or to renew such leases/permits, taking into account the availability of natural resources, the report of the Bio-Diversity Boards, the impact that such activity would have on the ecological balance of the region and other environmental factors. The

data required for such a scrutiny should also be collected and analysed by the Government itself, rather than depending on a report submitted by the project proponent, which could well be a self-serving one.

I conclude by observing that, while this court is aware of its constitutional limitations and does not propose to advise the State Government on policy issues, it does hope that the State Government will take serious note of the dangers that can result from an indiscriminate grant of mining leases and permits, and adopt proactive measures to avoid such eventualities in future.

Ecologically Sensitive Zones

As mentioned above, since the same Malayalam term is used for ecofragile lands and ESZ, there has been much misunderstanding and confusion, though WGEEP's conception of ESZ is radically different from that of ecofragile lands. The mandate of WGEEP established in March 2010 explicitly included the following: "To demarcate areas within the Western Ghats Region which need to be notified as ecologically sensitive and to recommend for notification of such areas as ecologically sensitive zones under the Environment (Protection) Act, 1986. In doing so, the Panel shall review the existing reports such as the Mohan Ram Committee Report, Hon'ble Supreme Court's decisions, recommendations of the National Board for Wildlife and consult all concerned State Governments."

It was therefore mandatory that we accept the recommendations of the Pranob Sen committee which had been specifically constituted in 2000 to establish the criteria for the declaration of ecologically sensitive zones and was the basis of Mohan Ram Committee Report. On several of the Sen committee criteria, the entire Western Ghats region had to be declared as an Ecologically Sensitive Area (ESA). However, the Sen committee had provided no guidelines relating to the management of ecologically sensitive zones. On the other hand, WGEEP was specifically mandated to make recommendations for "the conservation, protection and rejuvenation of the Western Ghats Region". Many suggested that the Western Ghats should have a regulatory regime of a go- no go nature; that certain activities would be banned within the limits of the Western Ghats, but fully permitted outside these limits. WGEEP decided to move away from such inflexibility in development processes.

Instead, it proposed that development plans should be tailored to prevalent locality, society and time-specific conditions with full participation of local communities. What should be 'go' and 'no go' development options ought to be decided on a case-by-case basis, in tune with the specific environmental and socio-economic context, and aspirations of the local communities. Therefore, WGEEP advocated a graded or layered approach, with regulatory as well as promotional measures appropriately fine-tuned to local ecological and social contexts within the broad framework of regions of highest sensitivity or Ecologically Sensitive Zone 1 (ESZ1), Regions of high sensitivity (ESZ2), and the Regions of moderate sensitivity (ESZ3).

WGEEP then had to decide on the relative extents of ESZ1, ESZ2 and ESZ3. It was mandatory that we follow other national guidelines such as those of the Forest Policy of India which prescribes that 66% of the hill areas should be maintained under forest cover. Forest cover needs to be interpreted as cover of natural vegetation since there are many areas at high elevations of the Western Ghats where the natural vegetation is grassland. Many areas are already protected on account of high ecological sensitivity as Wildlife Sanctuaries or National Parks and these should be part of ESZ1. Therefore, we decided that we should assign to ESZ1 60% of the total area of Kerala Western Ghats including the area of Wildlife Sanctuaries and National Parks.

Our job was then was to decide on the criteria for identifying localities as ESZ1. Broadly we proposed three types of criteria, namely elevation, slope and several indicators of intactness of the natural vegetation. All these criteria were discussed openly through a widely circulated scientific paper published in 2010 in India's leading scientific journal "Current Science". We received many suggestions that were taken on board for finalizing criteria for assignment of ESZ1, ESZ2 and ESZ3. In Kerala rainfall increases steeply with elevation. High rainfall and steep slopes render localities susceptible to landslides; hence our ESZ1 would be areas susceptible to landslides. The extent of intact natural vegetation is the third component for assignment of ESZ1. Landslides are under check in areas with intact natural vegetation because of the binding of the soil by roots. However, any disturbance to natural vegetation would render a locality with high rainfall and with steep slopes susceptible to landslides. Such disturbances may include quarrying or

mining, replacement of natural vegetation by plantations, levelling of the land using heavy machinery, or construction of houses and roads. Therefore, we expect that in the areas assigned by us to ESZ1 any such disturbance of natural vegetation and soil would mean greater danger of landslides. The fact that these have all been occurring in 2018 and 2019 in ESZ1 as designated by us is therefore to be expected. Our other recommendations included avoiding these kinds of disturbing activities and had our recommendations been accepted, there is no doubt that the extent and intensity of landslides being encountered today would have been much lower.

[Villages wanting ESZs](#)

The experience of bureaucratically driven nature conservation efforts coupled to development programmes driven by vested interests has been uniformly negative everywhere from the perspective of the local communities. Thus, in Maharashtra the Mahabaleshwar-Panchagani region was constituted as an Ecologically Sensitive Zone without any consultations with local communities in 2002. Naturally, people feel that ESZ is a regime imposed from outside and that it is a regime focused on rigid bureaucratic controls that are subverted by corrupt officials to harass and extort. WGEPP received written petitions complaining that a farmer is now obliged to pay a bribe of Rs 20,000 to get permission to dig a bore well on his farm. Mahabaleshwar-Panchagani region has large populations of Scheduled Tribes and traditional forest dwellers. Hence, it was imperative that Forest Rights Act should have been implemented in these areas in its true spirit as early as 2008. Nothing is done, and it appears that this is to facilitate extortion from local people. I personally inspected some trenches dug across very old village roads by Forest Department. Allegedly, the trenches are then filled on payment of bribes, to be dug again a little later. The apparent lack of local support to ESZ is also reflected in the report that at one time activists of Bombay Environmental Action Group could visit Matheran, one of the other Maharashtra ESZs promoted by them, only under police protection.

I therefore made a special effort to explain to the people of Maharashtra and Goa Western Ghats that this was not the way ecologically sensitive zones should be constituted and be managed and that this pattern of management was in fact

violative of the constitutional rights and responsibilities of local communities. I suggested that if they want certain measures of conservation of nature and certain other measures as development initiatives to be taken up in their own villages, they should meet as full gramasabhas to discuss these issues and forward their recommendations to WGEEP. In many such meetings, several gramasabhas decided that what they would want as conservation measures are very appropriate for ESZs and what they would want as development initiatives are also compatible with the protection of environment. As a result, 25 gramasabhas in Sindhudurg district of Maharashtra passed resolutions requesting that their areas be designated ecologically sensitive localities, while suggesting the kind of development and conservation initiatives that they feel are most appropriate for their localities.

Box 2: Extracts from resolution of Gram Sabha of village Talkat, Taluk Dodamarg, District Sindhudurg

It is necessary to consider following things for conservation of forest, and development of the village:

Watershed development programme: Though we have perennial streams as a water source for village, it is important to plan methods for efficient use of these resources. In summer orchards do not get enough water due to lack of planning. It is possible to build Nala bunds and small dams for water storage. Government officials have done preliminary observation and background work in the village. That's why it is very important to give priority for watershed development. Each Wadi in village is need of this.

Perennial streams are present in Western Ghats ridges in the village. It is possible to build mini-hydel projects for power generation on these streams. There is need to study this possibility. It is needed to improve present condition of Cashewnut and arecanut orchards. In the area where forest and enough water sources for horticulture are not present, we can develop agroforestry dependent on rainwater. We require training and funds from government for this.

At present we don't have nursery of plants. We can develop one indigenous plant nursery for above mentioned agroforestry. Some self-help groups will get income from this.

Village tourism: Traditional houses, orchards and greenery in our village attract tourists. Our people from Mumbai (whose native place is Talkat) come here along with their city friends. There is scope to develop village as a tourist place.

Human- Wildlife conflict: Location of Talkat village is near to forest. Orchards are surrounded by forest. The forest area in the village is blessed with rich wildlife as it is a part of forest between Amboli-Tillari. We are living with this wildlife since years. But these days we are facing nuisance from monkey, sambar, elephant and leopard. While preparing development plan we have to consider this issue. We do like to live with wildlife.

This is what we think. Government and villagers should work on development plan of Ecologically Sensitive Area. We are ready to do it. Because projects like mining are hazardous for our life as well as it will destroy our income source. Instead of such projects we would like to have our village in Ecologically Sensitive area.

Suppression and perversion

In all these years nobody has pointed to any factual inaccuracies or flaws in the logic in the WGEEP report. Nor has anybody pointed to any violations of our constitutional provisions or acts. So, what were the grounds for rejecting our report? All that could be said without distorting what was in the report was that it was impractical. What then, is practical? Is violation of all the constitutional provisions for environmental protection and sabotaging our democratic processes practical? Of course, many powerful economic interests and the political establishment aligned with them were demanding just such unlawful and undemocratic actions. This was clearly the reason why the report was rejected. But, of course, this was not what was openly said and a campaign of suppression and disinformation was launched that has continued to this day. It seems to have taken the tragic developments of 2018 and 2019 to clear the mists of disinformation, and for the people to realize that had a law abiding and democratic political establishment been in charge the scale of the damage of the last two years could have been substantially reduced.

By March 2011, the bulk of the WGEEP's work had been concluded. This was presented to the then Union Minister for Environment and Forests, Jairam Ramesh, along with all senior ministry officials. The contents as presented were fully

endorsed by the minister and his officials. This was followed by some final detailed work on the report, which was submitted as required on 30 August 2011. We were told that the report would be released at a public function on 21st September. On 19th September we were suddenly informed that the report was not going to be made public, and that we should not release or discuss it publicly. Of course, there were requests for the WGEEP report under the RTI Act, which were promptly turned down at the MoEF level. An applicant then went in appeal to the Central Information Commissioner (CIC) who passed a significant order on 9 April 2012. Inter alia, it stated:

“Disclosing a report or information does not mean that government has to follow it. It may perhaps have to explain the reasons to public for disagreeing with a report based on logic and coherent reasons. This cannot be considered as prejudicially affecting the scientific and economic interests of the State.

If such reports are put in public domain, citizens’ views and concerns can be articulated in a scientific and reasonable manner. If Government has reasons to ignore the reports, these should logically be put before people. Otherwise, citizens would believe that the Government’s decisions are arbitrary or corrupt. Such a trust deficit would never be in the interest of the Nation.

The disclosure of the WGEEP report would enable citizens to voice their opinions with the information made available in the said report. Such opinions will be based on the credible information provided by an expert panel constituted by the government. This would facilitate an informed discussion between citizens based on a report prepared with their/public money.”

The CIC ordered the report to be made public by 10 May 2012. On 4th May MoEF asked Delhi High Court for a stay on this order. The high court dismissed the ministry’s pleas on 17 May 2012, while remarking:

“The consultative process and the involvement of the civil rights groups and all those who are concerned, and who may be affected by the policy that may eventually be made, does not stop after the making of the said report by the WGEEP. In fact, after the making of the said report, the said consultative and

participatory process, ideally speaking, should become even more interactive and intense.”

When the WGEEP report was presented in essentially its final form to the minister and senior officials of the MoEF in March 2011, the panel had been assured that the report would be translated into all local languages, and taken to all the Gramsabhas and other local bodies at the block and district levels for their considered feedback before any final decisions would be taken. Moreover, WGEEP’s mandate explicitly asked it to recommend the modalities for the establishment of a Western Ghats Ecology Authority under the Environment (Protection) Act, 1986. This was to be a professional body to manage the ecology of the region and to ensure its sustainable development with the support of all the states concerned. So WGEEP expected that such an authority would preside over a democratic and transparent process of examining the report before finalising any course of action. This did not happen, nor did any state government take such an initiative on its own. If such a course had been adopted the process of obtaining feedback from the ground level could have been completed in the next 2 years in a transparent and participative fashion and then appropriate decisions could have been arrived at. These would have importantly involved working out the full location and society specific details of the action programme to be undertaken at the ground level.

People’s Planning

Kerala should be a fertile land for such an exercise. During 1991-93 the [Panchayat](#) of Kalliassery was chosen for an experiment of Panchayath Level Participatory Planning in continuation with Panchayath Resource Mapping Programme, which later came to be known as “Kalliasseri Planning Model”. Notably, the Kalliasseri Plan proposed how prudent systems of local water resource management might be revived. This became the role model for Kerala’s world-famous “People’s Planning Campaign”(PPC) of 1996. PPC had involved all the panchayats of the state in the preparation of Panchayat Development Reports. In 2011 technological advances would have made such an exercise much more effective and efficient and parallel Panchayat Development Reports for all the Western Ghats panchayats could have been on board before the end of 2013.

Instead an adversarial environment was created, in part by the suppression and deliberate distortion of the report and in part by the hype around the need for investments and mega projects and accelerated growth. State governments protested that development would be affected, without a careful reading of what the report advocated, what it promoted, and what it sought to protect, as did the MoEF. However, faced with a public outcry, the ministry decided to appoint the High Level Working Group chaired by Dr Kasturirangan, whose mandate it was “to examine the Western Ghats Ecology Expert Panel Report in a holistic and multidisciplinary fashion.”

Kasturi Rangan committee’s functioning and recommendations were seriously flawed. Instead of going into details here, I would like to quote from an open letter that I wrote to Dr Kasturirangan published in the Hindu on May 18, 2013.

Box 3: An open letter to Dr Kasturirangan

Dear Dr. Kasturirangan,

JBS Haldane, the celebrated 19th century scientist and humanist who quit England protesting its imperialistic invasion of Suez to become an Indian citizen has said: Reality is not only stranger than we suppose, but stranger than we CAN suppose! I could never have imagined that you would be party to a report such as that of the High Level Working Group on Western Ghats, but, then, reality is indeed stranger than we can suppose!

In our report to the Ministry of Environment & Forests, based on our extensive discussions and field visits, we had advocated a graded approach with a major role for grass-roots level inputs for safeguarding the ecologically sensitive Western Ghats. You have rejected this framework and in its place, you advocate a partitioning amongst roughly one-third of what you term natural landscapes, to be safeguarded by guns and guards, and two-third of so-called cultural landscapes, to be thrown open to development, such as what has spawned the 35,000 crore rupees illegal mining scam of Goa. This amounts to attempts to maintain oases of diversity in a desert of ecological devastation. Ecology teaches us that such fragmentation would lead, sooner, rather than later, to the desert overwhelming the oases. It is vital to think of maintenance of habitat continuity, and of an ecologically

and socially friendly matrix to ensure long term conservation of biodiversity rich areas, and this is what we had proposed.

Moreover, freshwater biodiversity is far more threatened than forest biodiversity and lies largely in what you term cultural landscapes. Freshwater biodiversity is also vital to livelihoods and nutrition of large sections of our people. That is why we had provided a detailed case study of Lote Chemical Industry complex in Ratnagiri district of Maharashtra, where pollution exceeding all legal limits has devastated fisheries so that 20,000 people have been rendered jobless, while only 11,000 have obtained industrial employment. Yet the Government wants to set up further polluting industries in the same area, and has therefore deliberately suppressed its own Zoning Atlas for Siting of Industries.

Your report shockingly dismisses our constitutionally guaranteed democratic devolution of decision-making powers, remarking that local communities can have no role in economic decisions. Not surprisingly, your report completely glosses over the fact reported by us that while the Government takes absolutely no action against illegal pollution of Lote, it had invoked police powers to suppress perfectly legitimate and peaceful protests against pollution on as many as 180 out of 600 days in 2007-09.

India's cultural landscape harbours many valuable elements of biodiversity. Fully 75% of the population of Lion-tailed Macaque, a monkey species confined to the Western Ghats, thrives in the cultural landscape of tea gardens. I live in the city of Pune and scattered in my locality are a large number of Banyan, Peepal and Gular trees; trees that belong to genus Ficus, celebrated in modern ecology as a keystone resource that sustains a wide variety of other species. Through the night I hear peacocks calling, and when I get up and go to the terrace, I see them dancing. It is our people, rooted in India's strong cultural traditions of respect for nature, who have venerated and protected the sacred groves, the Ficus trees, the monkeys and the peafowl.

Apparently, all this is to be snuffed out. It reminds me of Francis Buchanan, an avowed agent of British imperialism, who wrote in 1801 that India's sacred groves

were merely a contrivance to prevent the East India Company from claiming its rightful property.

It would appear that we are now more British than the British and are asserting that a nature friendly approach in the cultural landscape is merely a contrivance to prevent the rich and powerful of the country and of the globalized world from taking over all lands and waters to exploit and pollute as they wish while pursuing lawless, jobless economic growth. It is astonishing that your report strongly endorses such an approach. Reality is indeed stranger than we can suppose!

Guardians of nature

As a seasoned bureaucrat once told me, what we need is not more teeth but more honest jaws. So, what is needed is not more laws or more stringent laws, but proper implementation of the many existing, though currently sabotaged, constitutional and legal provisions to protect the environment and engage people in the development processes that are a result of sensitivity to their needs in our well-entrenched democracy. Indeed, the world over environmental protection has always been the result of motivation of people or pressure from them, never has there been such initiatives from the rich and the powerful.

Moving ahead through forest rights

Thus, in India peafowl and nilgai roam over many parts of the country because of people's protection, while the tigers were wiped out right inside Sariska Tiger Reserve under the supposedly firm protection of the Forest Department. While religious beliefs have played a role in protecting species, as in the case of Mahua, sacred to tribal communities of Central India, such species might often have been chosen in the first place because of their economic value or their ecosystem function. Mahua, still preserved in huge numbers, and an important source of sugary flower petals and an oil seed, was decimated when British took over large tracts of earlier community-controlled forests and justified the take-over as safeguarding the forests against destructive practices of shifting cultivation. Tribals then retorted that now the British were clear-felling absolutely all tree growth, including the huge Mahua trees always protected in the course of their shifting cultivation.

Folk conservation practices not only focused on specific species but also entire habitat patches in the form of sacred groves or pools or river stretches. The only remnants of original primeval evergreen forest on Kerala's thickly populated coastal tracts are to be found in Sarpakavus or sacred groves dedicated to serpent worship. A species of flowering plant, entirely new to science, *Kunstleria keralensis* was discovered in one such sacred grove in the Quilon district of Kerala near Kodumon. What is even more remarkable and heartening is that sacred groves of very substantial size are now being newly set up in the Community Forest Rights forests of Eastern Maharashtra.

The Scheduled Tribes and Other Traditional Forest Dwellers (Right over the Forests) Act of 2006 (TFRA) is the result of long struggle to undo the historical injustices to the tribals and other forest dwellers of the country. TFRA, whose implementation was initiated on 1st January 2008, presents a major opportunity and a great challenge, not only for conservation, but also for sustainable use and regeneration of the country's forest, as well as domesticated biodiversity. In its preamble, the Act declares that the recognized rights of the forest dwelling scheduled tribes, and other traditional forest dwellers include the responsibilities and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance, thereby strengthening the conservation regime of the forests while ensuring livelihood and food security of the forest dwelling scheduled tribes, and other traditional forest dwellers. The rights granted under TFRA include secure individual or community tenure, or both, on all forest lands, including reserved forests, protected forests and protected areas such as Sanctuaries and National Parks to which the community had traditional access. The community rights are of two kinds, firstly for community facilities such as hospitals or Anganwadis and secondly and most significantly as Community Forest Resources (CFR) for management of non-timber forest resources. These CFRs are defined as customary common forest land within the traditional or customary boundaries of the village or seasonal use of landscape in case of pastoral communities, including reserved forests, protected forests and protected areas to which the community had traditional access.

On such land, they will enjoy:

Right of ownership, access to collect, use or dispose of minor forest produce which have been traditionally collected within or outside village boundaries; TFRA defines MFPs as all non-timber forest produce of plant origin including bamboo, brushwood, stumps, cane, tussar, cocoons, honey, wax, lac, tendu leaves, medicinal plants and herbs, roots, tubers and the like;

- Other community rights of uses or entitlements such as fish and other products of water bodies, grazing (both settled and trans-humance) and traditional seasonal resource access of nomadic or pastoralist communities
- Right to protect, regenerate or conserve or manage any community resource which they have been traditionally protecting and conserving for sustainable use
- Right of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity
- Any other traditional right customarily enjoyed by the forest dwelling scheduled tribes, and other traditional forest dwellers as the case may be, but excluding the traditional right of hunting or trapping or extracting any part of the body of any species of wild animal.

Furthermore, the holders of any forest rights, Gram Sabha and village level institutions in areas where there are holders of any forest right, are empowered to:

- Protect the wildlife, forest and biodiversity;
- Ensure that adjoining catchment areas, water sources and other ecological sensitive areas are adequately protected;
- Ensure that the habitat of forest dwelling scheduled tribes, and other traditional forest dwellers is preserved from any form of destructive practices affecting their cultural and natural heritage;
- Ensure that the decisions taken in the Gram Sabha to regulate access to community forest resources and stop any activity which adversely affects the wild animals, forest and the biodiversity are complied with.

TFRA thus very specifically empowers Gram Sabha and village level institutions, an important step in the direction of direct, participative democracy. It confers on the forest dwellers the responsibilities and authority for sustainable use, conservation of biodiversity and maintenance of ecological balance. WGEEP had urged that the community forest resource provision should be widely implemented throughout the Western Ghats tracks which harbours large populations of tribal and other traditional forest dwellers. However, the vested interests pitted against implementation of community forest resource rights such as mining are very strong and there has been little progress on the Western Ghats. However, there has been better progress in the Eastern Maharashtra districts. Over 1300 CFR lands amounting to over 3 lakh hectares have been granted in Gadchiroli district and the experience has been very positive.

As a notable case, one may mention here the case of Pachgaon from Chandrapur district. Pachgaon now has a Community Forest Resource area of 1000 hectares. The conferment of these rights activated the citizens of Pachgaon who decided to work out a whole series of community level regulations not just in terms of management of Community Forest Resources, but conduct of civil life in their community. The Gramsabha resolved that all must contribute to the formulation of these regulations, and so each household was asked to offer 5 regulations to kick off the process. This generated a list of some 500 potential regulations, naturally with a lot of overlap. So, a committee appointed by the Gramsabha undertook the editorial job and produced a list of about 150 proposals. These were debated over two days of full meeting of Gramsabha, leading to the finalization of a list of 115 regulations that were adopted by consensus. The entire community was thus party to the decisions arrived at and has now taken to their implementation wholeheartedly.

Remarkably enough the regulations include setting apart an area of 34 hectares, amounting to 3.4% of the Community Forest Resource area as a strictly protected nature reserve, or in the idiom appropriate to their culture as a Pen Geda or Sacred Grove. This is an area along the crest-line of the hillock within the Community Forest Resource area, with the best-preserved natural forest, rich in wildlife and the source of their perennial streams. It may be noted that this is close

to the proportion of the total forest area of the country set aside as Wild Life Sanctuaries and National Parks. Other interesting regulations agreed upon include banning smoking as well as consumption of alcoholic drinks in the village. It so happens that tendu is a major produce from their Community Forest Resource area; these leaves are used for bidi-making. The harvest of tendu leaves entails extensive lopping and setting of forest fires. So Pachgaon community has decided to forego this income and let the tendu tree profusely bear the highly nutritious tendu fruit. The villagers are now enjoying eating the abundant fruit after a gap of over 20 years and letting the birds enjoy them too.

In 2015 Pachgaon Gramasabha's bamboo sales fetched it 60 lakh rupees. Out of this, they paid their own citizens wages at rates three times what the contractors paid them, and were left with a net income of 35 lakh rupees after taxes and other incidental expenses. They have carefully deployed these funds towards a series of village and forest development activities that now generate year-long employment within the village itself. Prior to these developments a large fraction of adults used to migrate for 8 months of the year to distant destinations mostly in Gujarat. This out-migration has now stopped and they have much more satisfactory employment in their own village. Since their own Gram Sabha is employing them, the wages are paid promptly. Most importantly, the people have gained greatly in self-respect, a precious acquisition for any human being, and the ownership of Community Forest Resources by Gram Sabhas is conferring such self-respect on these people.

Water resources

The disasters of 2018 and 2019 have much to do with water, the most vital of resources for all of life. WGEEP had pointed out in 2011 that the current project-oriented, demand-supply based ad-hoc approach to water resource planning and management leaves much to be desired and that the time is ripe for a paradigm shift in the approach to river basin-level management of water resources, with water being considered an integral part of the natural and the human ecosystem. The panel recommended several important measures that should be adopted in this regard. These included:

1. Develop local self- government level decentralized water management plans for the next 20 years; these should incorporate appropriate watershed measures including afforestation, eco-restoration of catchments, rainwater recharging and harvesting, storm water drainage, water auditing, recycling and reuse. These local level water management plans should be integrated into basin level management plans.
2. Reschedule reservoir operations in dammed rivers and regulate flows in rivers to improve downstream flows and also to act as a conflict resolution strategy. These should be implemented with an effective public monitoring system in place.
3. Initiate participatory sand and stone quarry auditing and put strict regulations in place, so as to improve the water retention capacity in the rivers.
4. Initiate environment flow assessments involving social movements for river protection; with research institutions and NGOs working with communities putting in place indicators for environmental flow assessment.

None of these recommendations of the Panel were accepted by the government machinery that does not want to accept any accountability and relinquish its stranglehold on management of the natural resources of the country. Such undemocratic functioning is clearly in violation of our constitution and all its provisions for democratic devolution. Fortunately, this does not go unchallenged in our open society and there are many voluntary efforts on the part of the civil society to exercise their constitutional rights to monitor and engage in the management of natural resources. A shining example of this is the RRC that has been actively monitoring the flows in Chalakudy, one of Kerala's major rivers for the past several years. Chalakudy witnessed unprecedented levels of flooding in August 2018. The RRC group, along with many concerned local citizens, including elected Panchayat representatives were monitoring the Chalakudy flows since the beginning of the monsoon 2018. There were very heavy rains in July and the many reservoirs upstream had been completely filled up. RRC and others had been constantly warning the authorities that this was undesirable, that there should be regulated releases so as to retain some storage space in the reservoirs. The authorities completely ignored these repeated, well informed warnings leading to

overtopping in August of dams like Poringalkuthu. Had the authorities been responsive the maximum flood level in Chalkudy would have been less by at least 2 meters and loss of property could have been reduced substantially.

Citizen Science

In its report, WGEEP had called for participatory monitoring and planning of all natural, along with that of water, resources. This is in conformity with the provisions of our 73rd and 74th Constitutional amendments, as well as the Biological Diversity Act, 2002. Regretfully, these significant measures to engage our citizens in monitoring and managing natural resources find stiff resistance from the bureaucracy and have not been translated on the ground. Kerala's pioneering attempts to move forward in this direction through its experiment of People's Planning Campaign also suffered heavily from non-cooperation of bureaucracy leading to its discontinuation beyond 1996.

But voluntary efforts have persisted, notably by RRC as narrated above, and these have provided very worthwhile understanding of what is going on in the Chalkudy river basin. Typically, the government did not take cognizance of the information RRC were generating and the warnings they had provided. To my mind the lessons are clear. We must cease depending solely on the government to encourage any involvement of the people, though we must continue to pressurize it to move in this direction. However, in the modern era of information communication technology revolution people can organise themselves with little investment apart from their own time in monitoring and assessing different aspects of their own environment, something that is undoubtedly of vital interest to all people. Indeed, this is what is today being called "Citizen Science" and there are several interesting examples available. For instance, in Kerala itself, there has been an inventory of the stone quarries through a voluntary network and a proper georeferenced computerized database has been created. This has resulted in publication of a book, *Murivetta Malayazham: Keralathile Paramadakai Srishtikkunna Samoochika Paristhithika Prashnangal (The Wounded Mountains: Social and Environmental Threats Posed by the Quarries in Kerala)* by CKM Nabeel as well as scientific papers by Dr Sajeev. Another inclusive and participatory effort is the India Biodiversity Portal (IBP) which has accumulated information of great value on a very large number of Indian plant

and animal species, primary through the efforts of amateur nature lovers. IBP is so far restricted to participation by English speaking urban middle classes. However recent development including ready availability of Unicode for all Indian languages has now rendered participation by a much greater mass of Indians more comfortable in their own languages readily possible. It is estimated that 80 crore smartphones are in use in India today, and fully 90% of users are sticking to their own languages, be it Malayalam or Telugu or Hindi. Excellent mobile based Data Collection tools such as Epicollect 5 are also available and again these can be used deploying Indian languages. Hence, a participatory citizen science with a very wide base of Indian people can now be easily visualised. Kerala has so far led the country in taking science to the people through efforts such as those of Kerala Sastra Sahitya Parishad with its involvement in the Silent Valley, Chazhiar river pollution and Vembanad Lake studies, total literacy campaign, Panchayat level resource mapping and People's Planning campaign. It would therefore be fitting if Kerala takes a lead in developing a broad-based citizen science endeavour motivated and driven by people going down to the grass-roots.

[Australian Waterwatch](#)

Australia's Waterwatch program is an excellent model of Citizen Science. Waterwatch program is an environmental education and awareness program that aims to encourage and support the community to take responsibility for improving the quality of water in the catchment. It is managed by Environment Department with funding from the Commonwealth. Monitoring water quality provides a picture of catchment health and can assist with the maintenance and rehabilitation of the waterways and catchments. Most projects focus on a particular area of a waterway that members are interested in or which is easily accessible. This ensures that local people can easily identify problems and implement solutions. Waterwatch groups conduct biological and habitat assessments plus physical and chemical water tests to build up a picture of the health of their waterways and catchments. At the request of the citizens the Department of Environment arranges two-day training sessions in which they are properly trained in the necessary Data Collection tools and methodology. Over time, Waterwatch groups can determine if the health of their waterway and catchment are improving, declining or being maintained.

Waterwatch groups collect data using nationally adopted protocols for nine parameters: water insects, dissolved oxygen, temperature, pH, conductivity, turbidity, reactive phosphorus, nitrogen, riparian habitat assessment. The data is recorded using nationally agreed units and national site code systems and then entered into a standard national Waterwatch database. The data can then be pooled, analysed and interpreted for specific catchments or larger regions. This system enables reports to be produced for water management authorities to assist in natural resource management. Kerala can go further and develop a broader participatory Environment Watch.

Digging the earth cooperatively

India's economic growth involves both a healthy component of efficiently managed enterprises without excessively negative impacts on the environment and social fabric, as well as enterprises that yield very high level of profits, while employing low levels of technological inputs and relying heavily on corruption and coercion, such as mineral and sand mining and quarrying. While India must continue to develop modern technology-based industries and services, it is clear that these cannot generate employment on the massive scale required . It is therefore imperative that this modern sector must minimize its adverse impacts on the labour-intensive, natural resource-based occupations and livelihoods and nurture a symbiotic relationship with this largely unorganized sector. This would be best accomplished through organizing the unorganized in cooperative enterprises accountable to their communities. Extraction of widespread, readily available resources like sand and stone could be an excellent basis for such cooperative enterprises. This offers a great opportunity for India to replace its criminalized economic enterprises by enterprises that will nurture nation's human resources and to move away from a violence-torn society towards a cooperative commonwealth.

Doubts may be expressed as to whether community-based organizations are capable of handling such a responsibility. However, Shri D N Bhargava, one of the country's most respected mining engineers and former Director-General of the Indian Bureau of Mines assures us that there need be no such misgivings. In a letter written to Mining Engineers' Journal on April 19, 2016 he opines: "It is unfortunate that the Adivasis have experienced environmental degradation due to

mining, particularly the decrease in availability of water. Naturally therefore they have stood up against mining. This should not however cause any concern as the mineral resource would remain in the ground for mining in future as and when the local community finds in it the potential of transforming their quality of life. In my opinion, this could be possible if concerned authorities consider a people-centric approach, give up the idea of granting mining rights for major mining projects and instead promote the idea of granting mining rights to the local community. The Government as a facilitator may provide them expert technical and managerial support and enable the community to get engaged in labour-intensive mining. Such a project would not require much capital investment. There is no need for investing on drilling and blasting; it could be out-sourced to contractors. Also, transport could be arranged on contract by owner-driven trucks. The community will only spend on the purchase of crow-bars, pick-axes, hammers and tagaries. Marketing would also not be any problem as demand for iron-ore will only grow further. I consider that it is much easier to control environmental degradation in case of labour-intensive small-scale mining.” Shri Bhargava, who now stays in Mangaluru in coastal Karnataka has kindly indicated his willingness to help build technical capacity of organizations that will come forward to take up the challenge of organizing mining and quarrying as community-based cooperative enterprises.

In fact, as early 1990’s, people of Mendha (Lekha) in Gadchiroli district of Maharashtra, the first village in India to be granted Community Forest Resource rights in 2009, had initiated management of the stone quarry in their community or nistar land in a cooperative fashion by the Women’s self-help group. The manual operation of this quarry with stone mettle as the end-product had generated substantial economic returns and employment till the quarry was closed a few years ago as the stone resource was nearing exhaustion. There has, however, been an interesting spin-off. Since the transport by hired tractors ate substantially into the profits, the self-help group purchased a tractor ten years ago with a bank loan, fully clearing the loan five years ago. Today hiring out this tractor is generating significant income for the self-help group.

Kudumbashree

In the state of Kerala, the responsibility of running stone quarries could be handled very competently by the Kudumbashree programme that is accountable to the community instead of a cooperative society that is apt to be captured by a small coterie of politicians. The Kudumbashree experiment, initiated in 2004, has successfully organized cooperative farming over 1 lakh acres of what used to be fallow lands. It has not only enhanced earnings by these poor women, but also contributed to the food security of their families. From an environmental perspective it has had the very positive impact of substantially reducing the use of chemical fertilizers. Above all it has bestowed on these women, what Dr B R Ambedkar considers as a human beings' most precious asset, a sense of dignity and self-respect.

Western Ghats Ecology Authority

Many divergent views were put forth on the constitution and functioning of the authority during the deliberations of WGEEP and no very clear consensus emerged. However, there was unanimity that the authority should not be authoritative but be open, transparent and participative, and accountable to people. It should, for instance, immediately upload all its proceedings on a website in English as well as the various state languages in properly searchable form and not wait for RTI enquiries to share any information. In its functioning it should follow a Greenhouse rather than a Blueprint approach, providing broad guidelines and creating a supportive environment of a greenhouse for grassroots creativity to flourish instead of rigidly specifying through a blueprint of what should or should not be done across the entire Western Ghats region with its tremendous diversity of ecological, social, economic and political settings.

Towards direct democracy

In the section on Guardians of Nature above we had noted several Indian experiences of how people rather than those in power have promoted prudent use and conservation of natural resources and biodiversity. Indeed, world over the experience has been that it is people's pressure that has resulted in protection of environment, often overcoming resistance by the state aligned to the interests of the rich and powerful. Naturally, the environment has been protected best in

countries where people's voice is heard, where democracy is strong and decision-making powers have been devolved to lower levels of government and as in the case of Switzerland all the way to the people. As a corollary, environment had suffered greater degradation under erstwhile communist regimes of Eastern Europe, primarily because those at the grass-roots who smarted under environmental degradation had little opportunity to make their voices heard. I narrate below some of these international experiences.

Japan

In Japan, people's protests against their sufferings from the Minamata disease was a major factor in democratizing the country in the post-World War II period and in the consequent enactment and enforcement of more strict pollution control legislation. This disease was first discovered in [Minamata](#) city in [Kumamoto prefecture, Japan](#), in 1956. It was caused by the release of [methylmercury](#) in the industrial [wastewater](#) from the [Chisso Corporation](#)'s chemical factory, which continued from 1932 to 1968. This highly [toxic](#) chemical [bioaccumulated](#) and [biomagnified](#) in shellfish and fish in [Minamata Bay](#) and the [Shiranui Sea](#), which, when eaten by the local population, resulted in mercury poisoning. While cat, dog, pig, and human deaths continued for 36 years, the government and company did little to prevent the pollution. However, the pollution control legislation that this resistance prompted in 1960's had a very interesting fallout. This legislation meant that the automobile industry too had to ensure that automobile exhausts were cleaned up. In 1970's the petroleum prices suddenly went up resulting in a rise in global demand for fuel efficient cars. It turned out that it was the Japanese cars that had become the most fuel efficient on the world market because of the pressure to control automobile exhaust pollution. In consequence, the Japanese automobile companies captured a large share of the global market. Thus, in the long run, the Japanese economy too benefited from people's pressure for a clean environment.

Germany

Today, the pro-environment green party is an important political player in Germany. It gained people's support through its agitation against radioactive pollution from nuclear power production, and its influence has led to the Germans being very

active in the deployment of solar and wind energy and cutting down on their greenhouse gas emissions in order to check global warming. But going beyond that it has ensured that Germany has and the German industry obeys strict pollution control laws. This has had many salutary effects such as the cleaning up of the once highly polluted Rhine river.

One of my good friends is the journalist Rainer Hoerig who lived for several years in Pune and had a great deal of interest in the environmental issues relating to Western Ghats. He is a supporter of the green party and narrated to me the story of debates within Germany as to why the German industry practices strict pollution control in Germany but happily invests in highly polluting industries in India. Reportedly the German industry responded that in Germany they are obliged to spend on strict pollution control measures and do accept the consequent moderation of profits. However, in India there is absolutely no pressure to implement anti-pollution measures and as a result the profits are much greater. They retort that after all the industry is in the business of making money and if India is willing to pollute its land, water and soils, the Germans are certainly not going to take a moral stand and unnecessarily reduce their profit margins!

Switzerland

Switzerland is a hilly country like the Western Ghats region and is admired today for its extensive green cover. But its forest cover had been reduced to a mere 4% by 1850. As on the Western Ghats today, this triggered a series of devastating landslides, leading to a public awakening, a turn-around from the then prevailing pattern of exploitative development and a restoration of the tree cover. Notably, this forest regeneration has all been managed by local communities - not by any Government department. It is Swiss cantons, equivalent to our Panchayats or Nagarpalikas, that own and meticulously maintain their forest wealth. Notably, today Switzerland comes closest to fully operationalizing direct democracy. All the major decisions at their Canton level are made not by elected representatives, but through a vote of all adult members of the Canton every few months.

Positive incentives

Costa Rica

In countries like India where the rule of law is weak and corruption rampant, negative regulations are often perverted into opportunities for corrupt gains, we need to shift to positive incentives. In fact, WGEEP report had mentioned several such schemes that would provide positive incentives and had called for their implementation. One possible system of positive incentives is Payments for Environmental Services (PES). These link those who value a given service with those who can provide it. The best-known example comes from the Central American country of Costa Rica. In this system, landowners receive direct payments for the ecological services which their lands produce when they adopt land uses and forest management techniques that do not have negative impacts on the environment and which maintain people's life quality.

Costa Rica's Forest Law recognizes four environmental services provided by forest ecosystems: (i) mitigation of Green House Gas emissions; (ii) hydrological services, including provision of water for human consumption, irrigation, and energy production; (iii) biodiversity conservation; and (iv) provision of scenic beauty for recreation and ecotourism. Since 1997, nearly one million hectares of forest in Costa Rica have been part of these 'payments for ecosystem services' (PES) schemes at one time or another. Meanwhile, forest cover has returned to over 50 per cent of the country's land area, from a low of just over 20 per cent in the 1980s.

Australia carbon sequestration

Australia recognizes that managed agricultural soils can sequester large volumes of atmospheric carbon dioxide, significantly improving soil water-holding capacity, nutrient status and agricultural productivity. Under the Australian Soil Carbon Accreditation Scheme (ASCAS), carbon sequestration is measured within Defined Sequestration Areas (DSAs) located on regeneratively managed cropping and grazing lands. Soil Carbon Incentive Payments (SCIPs) are paid annually and retrospectively for validated soil carbon increases above initial baseline levels determined within each DSA. Receipt of Soil Carbon Incentive Payments is similar to being paid 'on delivery' for livestock or grain, with the bonus being that

sequestered carbon remains in the soil, conferring production and Natural Resource Management benefits.

Way ahead

The catastrophes that Kerala, God's own country, has faced in two successive years pose before us serious challenges. One can only hope that these challenges are turned into opportunities to make shift on a permanent basis in the current paradigm of imposing both development and conservation from above and translate on ground what our democratic constitution demands:

- Conservation and development should go hand in hand
- Benefits of development should percolate to all segments of society
- Local communities should guide the course of development
- Conservation must not imply excluding people

This requires that both the state and the people must now adopt new ways of functioning.

State action

As Justice A K Jayashankaran Nambiar has so eloquently pleaded, the state must now begin to keep public trust. To demonstrate this, it should take the following steps:

- Immediately act to revive the spirit of the days of people's planning campaign of 1996 and pass on to all the Western Ghats region Panchayats, Nagar Palikas and Mahanagarपालikas KSSP's Malayalam translation of the WGEEP report, request them to study it, examine the recommendations therein, and then proceed to prepare their own local body development reports embodying what they want on the lines of Panchayat Development Reports of 1996.
- It must empower local bodies, i.e. Gram, Taluk and Zilla Panchayats and Nagarपालikas and Mahanagarपालikas to take decisions on environmental as well as development issues affecting their own people in their own specific localities. A good way to begin would be to ensure that the President of India signs the "Plachimada Coca Cola Victims Relief and Compensation

Claims Special Tribunal Bill 2011” and the people of Plachimada receive due compensation. The government must assure the people of Kerala that it will abide by the Kerala High Court verdict that people at the grassroots level do have the authority to decide on the course of development in their own locality

- Strictly enforce environmental laws such as Air and Water Acts to control pollution.
- Facilitate, not suppress freedom of expression and assembly of people drawing attention to issues of environmental degradation.
- Put in place Biodiversity Management Committees (BMC) in all local bodies, fully empowered under the Biological Diversity Act, 2002, to document status of local ecosystems and biodiversity resources, regulate use of local biodiversity resources, and to charge Collection Fees. Additionally, they should receive grants as conservation service charges for continued protection of biodiversity resources, for instance in the form of sacred groves.
- Initiate registration of crop cultivars as called for by Protection of Plant Varieties and Farmers’ Rights Act, 2001, and give grants to Panchayats to build capacity for in situ conservation of crop genetic resources.
- Promote switchover to organic agriculture through payment of grants as conservation service charges for enhancing organic content of soils on the model of the Australian scheme.
- Implement fully the Forest Rights Act.
- Carry out a radical reform of Environmental Clearance process through [a] assigning preparation of Environmental Impact Analysis (EIA) statements to a neutral competent body that does not depend on payment by project proponents, [b] making mandatory involvement of local BMCs in the process of EIA preparation, [c] making mandatory taking on board all information submitted and suggestions made during Public Hearings, [d] making mandatory periodic environmental clearance requirement, preferably every five years, [e] making mandatory involvement of BMCs in the process of

monitoring of implementation of conditions laid down while granting Environmental Clearances, [f] making mandatory preparation of regional Cumulative Environmental Impact Analyses

- Enhance the scope of Regional Development Plans to include key environmental concerns and make mandatory involvement of BMCs.
- Promote full access to all pertinent information, for instance, through freely making available the currently suppressed Zonal Atlas for Siting of Industries (ZASI).
- Take action on organizing an Indian Biodiversity Information System (IBIS) in line with the proposals before the National Biodiversity Authority since 2004.
- Organize a public transparent, participatory database on Indian environment by drawing on student Environmental Education projects as recommended by Curriculum Framework Review, 2005 of the National Council for Educational Research and Training, on People's Biodiversity Registers that BMCs are mandated to maintain, and on Environmental Status Reports that Ward sabhas should prepare in accordance with provisions of 73rd and 74th Constitutional Amendments.

Citizen initiatives

We must and should hope and pressurise the state to keep public trust and act the way it ought to. However, it would be unwise to let it rest there. Democracy is not merely voting once in five years; it is the active involvement of us citizens in governing the country at all levels, most importantly in our gramsabhas and wardsabhas. We must insist that the Kerala High Court ruling that Local Bodies have the authority to decide on the course of development in their own localities should be made genuinely operational and should empower all the Panchayats and Nagarpalikas throughout the country. We must ourselves organize an Environment Watch and develop an open, participatory database on the lines sketched above. We must take full advantage of powers and responsibilities conferred on citizens under provisions such as 73rd and 74th amendments to the constitution and the Biological Diversity Act 2002. We should assert that

conservation prescriptions should not be merely regulatory, but include positive incentives as conservation service charges. We must hand over essential but environmentally damaging economic activities like quarries to agencies like Kudumbasree groups accountable to local communities. We, the sovereign people, are real rulers of India and must engage ourselves more actively in the governance of the country and lead it on to a path of people-friendly and nature-friendly development.