

Developing dialogues: environment, people and the State

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The debate on development makes explicit a polarization of views about the issue. In the Indian context this could be traced to the specialized knowledge and the different interests with which the State, the selected experts and the NGOs participate. Rural and indigenous people have not come to the fore of the discussion; as a result, traditional knowledge has been sidelined or remains dormant. Sustainable development that is unrestricted by time requires inputs from modern as well as traditional ways of knowledge. The task before NGOs lies in assessing and facilitating an exchange of these diverse views put forward by the experts, the State and the rural people, and suggesting viable alternatives.

It is our responsibility as scientists, knowing the great progress which comes from a satisfactory philosophy of ignorance, which is the fruit of freedom of thought, to proclaim the value of this freedom, to teach how doubt is not to be feared but welcomed and discussed, and to demand this freedom as our duty to all coming generations.

Richard Feynman

ALTHOUGH environmental problems affect all people, it is only a few who are 'blessed' to concern themselves with them. Some may be aware of what the issues of concern are, though too bound by economic or other pressures to do anything about it. Some may even be able to help us out of the tangles, but they have lost the hope that any good can come of it. And of course, a large number of our race would ask innocently, crisis? What crisis?

Those who are conscious of a crisis and undertake a responsibility to combat it might notice that even among themselves there are several views about it, moulded by their notions of development. Taking a common instance of what is called development, like the large dams on the Narmada, we see how different interests and visions polarize people. The scheme is proposed by the State, funded by a foreign bank, enjoyed by rich farmers and industrialists and suffered by the people displaced from their lands. Everyone who 'benefits' from the dam actively supports it; those who lose directly from it are fewer than those who 'benefit', and many communities have been silenced or marginalized. The common man has been convinced that it is inevitable for some sections of the society to suffer such trials for the progress of the nation. Voices which are heard against such injustice come increasingly from non-Govern-

mental Organizations (NGOs), on behalf of the local people. Where the people affected are illiterate and unstained by urbanism, it is only the NGOs who can express to the State the inconsistencies in the project. The NGOs themselves are guided in their manner of action by their own views about development, which shape the way in which they assess the problem.

The dialogue, if it does reach this commendable stage, about whether such a mega-project should take shape or not, is essentially between the State and the NGO community. We shall assume that the State intends to serve its citizens, at least according to its own notion of development. To strengthen the standpoint of any development project, the State stresses that it is guided by experts who have assessed the initiative they wish to commence; the people who would be displaced (in the case of the Sardar Sarovar Project on the Narmada river, about a million) are identified as 'backward' and so it is believed that they will be better off after the project. The State claims the people as its own, whose needs it fulfils. The NGO communities which represent the local people have also begun to invite expertise to support their own view, and to counter those put forward by the State. Invariably, this sort of a dialogue, conducted on behalf of specific communities and guided by selected experts, polarizes the discussion and the people's opinions remain unheard. The discussion becomes caught up in a forced evaluation, in economic terms, of profit and loss, of forests, mountains, streams and a thousand other things. What is left unquestioned is the very perspective of development, which defies assessment by quantitative yardsticks.

The natural resources of the State can be distinguished from the resources of the tribal people. The latter are primary and secondary products which, if judiciously harvested, are without time constraints. The former (which may be seen also as 'national' resources) are

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short-term harvests, as in the case of mines and oil wells. Taking time as the determining factor, we could use here the terms 'sustainable' and 'non-sustainable' to describe the two kinds of land use. The concept of sustainability that emerges is one that is unrestricted by time.

The practice of sustainable use of an ecosystem needs to keep the equilibrium point of that system in view. Any disturbance (use or misuse) of it that remains within this limiting point does not, in the long run, affect adversely the flexibility of the system as a whole. In these times such conditions exist in few regions of the world, such as the forests of Amazonia inhabited by indigenous people. In most parts of the world the disturbances have gone beyond the critical point, making natural regeneration of the ecosystem impossible. It becomes apparent that it is the scale of disturbance that is important, rather than how it is caused. The methods of land use may be sound, but if the disturbance is on too large a scale (in terms of area of land, number of people, etc.), degradation of the land will follow. Sustainability is therefore constantly guided by scale in its practice.

Only few areas in the tropics have remained undisturbed by human action. Where tribal communities live in the forest, patches of forest are cleared periodically for a crop and after harvest(s) the forest is allowed to swallow the field and make it healthy. This period of soil and vegetative regeneration is known as fallow; forest communities have specific terms to describe the stages within it. The reasons for shifting from one cultivation plot to another are (a) to escape established pests in the area and (b) to leave a depleted soil for a fresh one. The act of shifting cultivation plots may be seen as being analogous to the modern use of pesticides and fertilizers, with which farmers protect and feed their crop. A patch of forest between two fields could be seen as being analogous to the chemicals that have now taken its place.

However, when this balance of use and fallow periods does not follow the established pattern, the forest retreats. Demographic, economic and political pressures in the regions surrounding forest communities have forced many of them to succumb to the sedentary nature of modern agriculture. In tropical agriculture, which has to contend with both poor soils and a variety of pests, this goes hand-in-hand with the use of chemicals. Such conditions, once created, are not reversible. The move from a subsistence form of farming to a high-yielding sedentary kind entails not only an ecological transformation but also a cultural one. People who are trapped in such deteriorating ecological habitats need to adapt culturally as well; in the Indian context, many tribes have become indistinguishable from other Hindu peasants within a few generations.

Once we can discern which of these various stages of transformation a culture is in with regard to land use, it

is possible to avoid generalizations about them. The status of 'indigenous' people can be understood with respect to their relationship to their land; we have to ask ourselves whether the status may be retained if this bond is broken or weak, as in areas where forests are being depleted. Also, it is then possible to ask whether such a bond between people and land can be created anew if the ecological conditions make it conducive. The various perceptions of development are strongly bound by the ecological conditions people live in.

Although the State and the NGOs have begun to quote scientists to support their views, they are rarely aware of the ecological consequences. But scientists, who should be guiding the policy makers, are occupied with specialization in their fields. For example, taxonomy (classification) continues to occupy most botanists and their individual researches are usually restricted to a few families of the plant world. Although a certain degree of specialization is necessary, it has isolated the researchers in various areas of botany. Further, taxonomists spend most of their time classifying dried specimens, with busy stints in the 'field', where they collect plants for herbariums. These periodic visits are all that connects them to the 'living' aspects of botany; their work in their institutions is with dead specimens.

The formal study of ethnobotany is about a century old; the practice is ancient. Yet, most botanists continue to regard it with little seriousness, and few anthropologists venture into botany. *The Wealth of India* is an account in several volumes of the raw materials of the country, of which the flora comprises a major part. Details of plants used commercially, including their chemical composition, methods of extraction, their large-scale uses, etc., are given extensively, in contrast to plants and uses that are important locally. Many species of plants that are used commercially as well as locally are described only in their economic context; their local use is only mentioned briefly, without describing the context. When the value of a habitat is computed in economic terms, it ignores these unquantifiable factors, which are in fact *the* material wealth of the people.

Scientific research could emphasize how large numbers of uncultivated plants are collected and used by tribal people. Forests that are at present valued only for their commercial potential or for their National Park status would then be viewed as the home of a people who live and die within its domain. Such inhabitants, who have observed the vagaries of climate, vegetation and soil of a region over many generations, have much to offer the scientists. As Goethe said, observations in Nature lead us to form rules and, just when we think we have all the rules, Nature turns around and makes an exception. It is precisely such a flexibility that science can gain from the experience of tribal peoples.

To find an answer to deteriorating conditions in the tropics, it will be necessary to combine scientific with

traditional knowledge. To illustrate with an example: A patch of forest cleared for cultivation will regain its original cover if (a) there are forests surrounding the patch, which function as a natural seed bank and (b) those agents that disperse the seeds are still available. If these two conditions are fulfilled, regeneration may occur naturally, without human help. Experts identify two types of plant species, known as K-strategic and R-strategic, while dealing with the issue of reforestation. The latter are aggressive colonizers of newly formed habitats, like abandoned fields. Such plants are usually lianas and small shrubs, with numerous small seeds that are wind-dispersed, and are characterized by high birth rates. K-strategic 'implies selection for low birth rates and high survival rates among the offspring, and prolonged development'. These usually have big seeds and are represented by trees and large shrubs, among whom very little pollination is specialized. These species indicate a later stage of succession, as a 'response to stable environmental resources'.

As long as forests are used keeping in mind the above conditions, R-strategic plants first occupy the disturbed area, which will later be taken over by K-strategic plants. Although the character of the 'original' and the regenerated forests are different, we may consider this as a stable equilibrium. However, disturbed areas in the tropics are so large that even if natural seed banks exist around them, the inner zones receive few seeds. Wind may help with the seeds of many R-strategic species, but the large seeds of K-strategic species (such as mango and avocado) are dispersed by mammals and some birds that have also been wiped out. It is hence up to the tail-less mammal (man) to fill this gap to the best of its knowledge. For a regeneration of tropical forests that is distinct from stands of commercial plantations, it is necessary to consult the indigenous people of the region.

As mentioned before, the question is not one of ecology alone. It is also one of constant cultural adaptation, that keeps pace with the ecological changes. Neither of these is static, and they are intricately and inextricably linked. Animals and plants in nature have specific adaptations to their environment, in relation to which they evolve. The hummingbird's beak, the duck's feet or the cheetah's speed, are qualities that ensure their survival. Yet, these specialized tools can also trap species in their respective environments. But the evolution of human culture has not been so uniform, as it has evolved beyond instinct and natural selection; from the tribal societies that retreated to the hills or deeper into the last forests to the super-urban societies which contemplate the polar ice-caps or the moon with profane practicality, our race shows a remarkable diversity of type. This diversity is not only in the variety of physical characteristics that we display as a species but also in tradition and values. The cultural niches

between these extremes add to the complexity of whatever standpoint(s) we consider the present crisis from.

Developmental strategies assume a unidirectional transformation of the environment – from forest to field to urban ecology – accompanying which we see a simultaneous cultural transition. It is implicit that some form of urbanism is the goal of such a process, to which 'backward' and rural areas must give way. But is real development a prerogative of rural and backward places only? Should not human culture have the option of evolving in directions other than the urban one? Many sections of our urban population opt for a return to more natural habitats, not for a holiday but to live in and off them sustainably.

With the available modern and traditional knowledge it is possible to recreate forests, with different character traits than the 'original', though still with a stable condition. If the State ensures that potentially recoverable areas are not disturbed, large sections of the degraded environment in the tropics, which at present support only low shrubs and grasses, could be transformed into forests. Further, many economically valuable plants can be prudently harvested to maintain a sustainable trade.

There are obvious linguistic, ethnic, religious, economic and other barriers that distinguish people. But our 'environmental' barriers are subtle in how they influence and divide us. Even though urban cultures appear to be free of the direct influence of the environment, they are strongly polarized in their opinions, due to their specialized knowledge and interests. This is the case with many experts and officials of the state, who fail to see the inter-connectedness of all the cogs of the evolutionary wheel. The idea of Time that Darwin had in his theory of evolution was one that astronomers and archaeologists are used to dealing with; politics and economics have to be confronted with this long-term notion of Time.

As the NGOs' position lies outside the structures of both governments and academics, it frees them from certain accepted models of development. Yet, as networkers, their task is to assess the different views put forward by modern and traditional systems of knowledge, and propose sustainable alternatives that are relevant in today's context. NGOs have to understand several viewpoints and be at home in many fields if they are to hold meaningful dialogues with concerned individuals and groups. In this time of environmental destruction scientists should take a pause from their specialized fields of research and spare a moment to integrate the isolated bits of classified knowledge into their own subject. As Janzen (London, 1975) points out, what we need now to solve our problems is not a new set of ingredients but new recipes for the already existing ingredients.