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*SHEKHAR SINGH**

Some Aspects of the Ecological Crisis in India

THE effort in this paper is two fold. First, to establish the criticality of the ecological crisis in India, especially in terms of forests and genetic resources, land management, water & air pollution. Secondly, I want to stress the urgency for social scientists, especially political economists, to seriously enter the environmental debate.

As is by now well recognised, forests are essential for the well-being of land and water resources and for climatic regulation. Agricultural activities are critically dependent on the forests which help control, among other things, soil erosion, floods, siltation of reservoirs, desertification and drought. It has been determined that in India the minimum forest cover required is one-third of its land area, with 60% forest cover in hill areas and 20% in the plains. Against this the current forest cover is estimated to be no more than 11%[1]. (See Table 1.)

History has shown that when the forest cover of an area falls below 10%, there is a serious threat of desertification. Many ancient civilisations have paid the price of desertification. "It is no coincidence that many ruins of great temples and palaces are today found amid sandy wastelands....Mount Lebanon is referred to in the Epic of Gilgamesh (before 2000 BC) as a vast green mountain will tall cedars. Felling of the *cedars of Lebanon* had begun as early as 3000 BC, after which they formed the cornerstone of the Phoenicians' international trade".[2] In more recent times Ethiopia provides an example of a country where forest cover has shrunk to well below the critical level.

While understanding the issues relating to forestry in India, three aspects ought to be kept in mind : conservation, afforestation and the distribution of forest resources.

Conservation of forests

The current situation of conservation follows from the fact that forest policy, till very recently, stressed on the productive aspects of forests. Very little, if anything, was done to conserve the forests. Though a system of working plans was introduced which involved the planning of timber extraction in

* Indian Institute of Public Administration, New Delhi.

TABLE 1—STATE-WISE FOREST AREAS BY SATELLITE DATA

(in million hectares)

State/Union Territory	Forest area by Satellite date		Area controlled by forest departments
	1972-75	1980-82	1980
Andhra Pradesh	4.90	4.04	6.41
Assam	2.11	1.98	3.07
Bihar	2.27	2.01	2.92
Gujarat	0.95	0.51	1.95
Haryana	0.08	0.04	0.16
Himachal Pradesh	11.51	0.91	2.21
Jammu & Kashmir	2.23	1.44	22.19
Karnataka	2.95	2.57	3.79
Kerala	0.86	0.74	1.11
Madhya Pradesh	10.86	9.02	15.39
Maharashtra	4.07	3.04	6.41
Manipur	1.51	1.38	1.52
Meghalaya	1.44	1.25	0.86
Nagaland	0.82	0.81	0.29
Orissa	4.84	3.94	6.77
Punjab	0.11	0.05	0.24
Rajasthan	1.13	0.60	3.49
Sikkim	0.18	0.29	0.26
Tamil Nadu	1.67	1.32	2.18
Tripura	0.63	0.51	0.59
Uttar Pradesh	2.59	2.10	5.14
West Bengal	0.83	0.65	1.18
Andaman and Nicobar Islands	0.33	0.64	0.71
Arunachal Pradesh	5.14	5.21	5.15
Dadra and Nagar Haveli	0.02	0.01	0.02
Goa, Daman and Diu	0.12	0.11	1.11
Mizoram	1.39	1.20	0.71

SOURCE: National remote Sensing Agency, as reported in *Business India*, August 12-25, 1985.

accordance with principles of scientific forest management, these were very rarely, if ever strictly followed. Revenue from forests was, as it continues to be today, a significant proportion of the state's revenue (see Table2). This along with the need to clear forest land for agriculture and other uses ensured that not much forests were conserved. The forest contractor has further added to this denudation by extracting even more than what was authorised, and sharing the resultant ill-gotten wealth with many in office. In recent times the institution of forest contractors has been done away with by most of the states, who have replaced these contractors by Forest Development Corporations. Unfortunately, this has not significantly stopped illegal felling in many of the states, for the Forest Corporations have themselves become centres of vested interests and very often work through the same persons who were earlier forest contractors.

In 1980, the Government of India passed the Forest Conservation Act

TABLE 2—STATE-WISE CONTRIBUTION OF FOREST REVENUE IN 1980-81

State	Revenue (million Rs.)		Percentage contribution of forests
	All sources	Forests	
Andhra Pradesh	109.288	2.609	2.38
Assam	30.373	1.325	3.70
Bihar	87.465	1.471	1.68
Gujarat	94.750	1.128	1.19
Haryana	43.832	0.159	0.36
Himachal Pradesh	19.288	1.616	8.37
Jammu & Kashmir	22.573	1.878	8.31
Karnataka	91.244	4.600	5.04
Kerala	59.129	3.178	5.37
Madhya Pradesh	111.488	13.944	12.50
Maharashtra	192.197	5.220	2.71
Manipur	8.456	0.024	0.28
Meghalaya	6.636	0.088	1.32
Nagaland	9.543	0.050	0.52
Orissa	53.690	2.521	4.69
Punjab	54.472	0.404	0.74
Rajasthan	71.659	0.651	0.90
Sikkim	3.501	0.302	0.91
Tamil Nadu	98.266	1.125	1.14
Tripura	8.555	1.125	13.15
Uttar Pradesh	162.234	2.030	1.25
West Bengal	112.373	1.423	1.26
Total :	1,450.518	46.401	3.19

SOURCE : *Development of Forests & Forest Resources*, 1982, Ministry of Agriculture, Government of India.

which specified that no forest area can be converted to any non-forest use without the approval of the Central Government. Though a bold Act, it only marginally, if at all, curbed deforestation. To begin with, this Act only prohibits the conversion of forest land to other uses. It does not in any way prevent the felling of trees in the existing forest. We therefore have a situation where though forest land is stated to be 24% of the land area, in reality the forest cover is only 11%. Although this act is a central one, the implementation of it is in the hands of the state government, in many cases violate it with impunity. As a result, the total remaining forests in India are now around 35 million ha (hectares) out of a total land area of 328 million hectares. According to satellite data, we are losing a net amount of about 1.5 million ha per year. If this is not stopped, in twenty five years time we will have no forests left.

Afforestation

Afforestation was primarily the task of the forest department. Whereas it is estimated that since Independence we have lost about 45 million ha of

TABLE 3— AREA OF ESTABLISHED PLANTATIONS 1951-80

Type	Area (in thousand ha.)	Percentage of total
Industrial	2197	69%
Fuelwood	386	12%
Environmental	599	19%
Total :	3182	100%

Estimated average survival rate

Industrial ——————— 70%
Fuelwood ——————— 60%
Environmental ——— 50%

SOURCE: *Forest Resources of Tropical Asia,* FAO, 1981.

forests and are presently losing them at the rate of 1.5 million ha per year, the total area brought under forests between 1951-80 is a mere 3.182 million ha. Since 1980, it is estimated that another 3 million ha has been brought under plantation.

The current response of the government to the task of afforestation is the setting up of the Wasteland Development Board with the target of planting 5 million ha of wasteland (or wasted land) with trees *every year*. So far, there has been no detailed statement put forward by the government on how this target is to be achieved.

One line of thinking that the government is speculating with, or so one is given to understand, is to allow private industry to set up plantations in so-called wasteland to meet their raw-material requirements. This would, among other things, involve the amendment of the rural land ceiling act, besides having various other disastrous consequences. Primarily the apprehension is that this would lead to a large-scale conversion of good agricultural land into eucalyptus or other such mono-culture plantations for use by industry, thus seriously affecting our foodgrain production. Preliminary data from Gujarat, a state already afflicted by 'farm forestry', seems to bear this out. Data regarding the type of land used for forestry in Gujarat is given in Table 4.

TABLE 4 LAND USED FOR TREE FARMS IN GUJARAT

Earlier land-use	Proportion of farms
Fallow land	27%
Land earlier under cash crops	57%
Land earlier under food crops	27%
Land earlier under mixed crops	9%

SOURCE: Gujarat forest Department, as reported in the CSE Citizen's Report, 1984-85, p. 54. New Delhi.

Distributive aspect of forest resources

The most unfortunate aspect of forest management in India is the way in which the poor are deprived of the forest produce while it is freely supplied to industries and for elite urban consumption. A study of the British forest policy for India shows how, progressively, control of the forests was taken over by the Government and the rights of the people curbed. Even after Independence the same policy was followed. Even where rights on forest-produce exist on paper, very rarely are they honoured in practice.

Large forest areas are clear-felled without any consideration for those living in and around them. Not only is their source of firewood and other forest products like bamboo and leaves destroyed, very often denying them a means of livelihood, but their water-points dry up and their agricultural lands become fallow. Many examples of such rampant deforestation exist, especially around various paper mills. A good case study has been presented by the Shahdol Group in their report *Planning the Environment*. Here, they record how the Orient Paper Mills at Amlai, Shahdol District, Madhya Pradesh, not only destroyed all the forests in the surrounding areas but is now procuring its wood requirements from Himachal Pradesh. It is also well-documented that the prices these industries pay for the forest produce is a fraction of what has to be paid by poor artisans and villagers. For example, while bamboo was being sold for Rs. 15/- per tonne to paper mills in Karnataka, village artisans and other sections of the rural poor could only purchase it at over Rs. 1000/- per tonne.

The Social Forestry Programme is another example of the power of the industrial capitalist. Though the purpose of the programme was to raise plantations which could provide fuel and fodder to the poor villagers, this hardly happened anywhere in the country. Partly by the choice of species, and partly using other devices, most of this production was diverted to industrial and commercial use. The substantial involvement of foreign funding agencies in this effort make the real objectives of this programme even more suspect.

As of today, no comprehensive and substantial policy exists to ensure that the benefits of the forest are equitably distributed. In fact, the forest act proposed some years earlier, and mercifully dropped at least temporarily, envisaged very harsh penalties to be imposed on tribals and other forest dwellers who encroached into the forests. Though at least three committees have presented their reports to the government on this aspect, the political will to do something decisive seems to be lacking.

Degradation of land and water resources

Of the 328 million ha land area about 143 million ha are cultivated lands. Of these, it is calculated, that nearly 100-million ha are degraded. In fact, of the total land area over 50%, that is a total of 175 million hectares was declared degraded in 1980 by the Ministry of Agriculture, Government of India. The break-up of this in terms of types of degradation are :

	million ha	%
Serious water & wind erosion	150	85.7
Waterlogging	6	3.4
Saline soils	4.5	2.6
Other culturable wasteland fit for reclamation	6.6	3.8
Diara Land	2.4	1.4
Alakline Soils	2.5	1.4
Shifting cultivation	3.0	
1.7		
Total degraded land	175.0	100.0

The major causes of this degradation are deforestation, poorly managed surface irrgation and skewed land holding pattern which results in a lot of the land being over-cultivated without giving it a chance of replenishing itself. The acute shortage of cooking fuel in the rural areas has also diverted from the soil traditional sources of nutrients like agricultural wastes and cow-dung. The recent policy of the government to set up paper mills using agricultural wastes has further aggravated this problem.

Despite the fact that agriculture is still the main basis of the Indian economy, and that a progressively degraded land resource can only lead to disaster, no significant policy measure has emerged from the government. Mammoth irrigation schemes are still being implemented, without any workable method of preventing seepage and the resultant water-logging and salinity. There is no energy policy for a majority of the country, as the policy does not cover the vast majority of the rural population. Land reforms is not even seriously talked about, and no significant effort is being made to reverse this process of degradation.

Water & Air Pollution

Water pollution is by far the most destructive form of pollution in the country today. There are mainly three sources of water pollution—industrial, agricultural and municipal. Though in bulk-terms the majority of pollutants in our waterways are municipal, the industrial and agricultural pollutants are far more toxic and deadly. According to the National Environmental Engineering Research Institution, Nagpur, 70% of all the available water in India is polluted. Out of India's 3119 towns and cities only 8 have full sewage and sewage treatment plants and 209 have partial treatment plants. It is estimated that 73 million work-days are lost annually due to water-related diseases (CSE Report, 1982, p.17). Apart from these, the chemical pollutants from industry and the pesticides used in agriculture get assimilated into vegetable and animal tissue and can sometimes affect people many years after ingestation.

The government's response to this problem was the passing of the Water (prevention and Control of Pollution) Act of 1974. It was envisaged, under this Act, to set up a Central Board for the prevention and control of water pollution, and similar boards in each state. The task of this board would be to

monitor water pollution and to take steps to prevent and control it. All industries already existing at the time of enactment were required to seek consent of the Board within *three months* of the setting up of the Board.

Air pollution, though not as much of a menace as water pollution, is still a big problem primarily in the urban areas. The air-pollution levels of certain selected cities in 1979 is given in Table 5.

TABLE 5

	Suspended Particulate matter (micrograms/cu.metre)	Sulphur Dioxide (mg/cum)
Ahmedabad	243	71
Calcutta	578	85
Delhi	481	39
Maximum levels permissible	150	60

In actuality, the situation in specific areas of each city is much worse. For example, in some of Delhi's industrial areas the level of suspended particulate matter reaches over 900 mgm in the winter months.

The government's response to this has been the enactment of the Air (Prevention and Control of Pollution) Act 1981 which is also to be administered by the earlier mentioned central and state boards. Despite the 'water act' being in force for 11 years and the 'air act' for 4 years, less than 50% of the large and medium industries have, till today, installed pollution control devices (as per the Department of Environment Annual Report, 1984-85). This, despite the fact that the law requires them to do this within *three months* of the setting up of the Boards. In many cases where devices have been fitted, they are not used and are only serve a decorative function pass the cursory inspections in practice.

Lack of focussed debate on environmental issues

It is unfortunate that even today issues relating to the natural environment are not usually considered important enough to form a central part of the debates on political economy. Whenever the debate has started, it has usually been seen as a debate of "Development" *versus* "Environment", as if economic and development issues are so to speak on one side and environmental issues in opposition to it.

It seems quite clear to me that the legitimate environmental debate does not lie in contradiction with issues of economic development, but rather ought to be seen as an integral part of the questions of development. In other words, when one talks of economic development *vs* environment one is really talking of short-term (often short-sighted) economic interests *vs* long term economic interest *except that* in India today the situation has become so critical, especially as regards forests and land, that there is now no essential difference between short-term and long-term interests; there exists no

long-term for us, unless something is immediately done.

The pitch has also been queered by various 'environmental movements' in the past that have had essentially an anti-technology or anti-industry bias. Many such movements and interests have, in the past, given the environmental debate and environmental activism a bad name.

Concluding remarks

It seems quite obvious that the large-scale destruction of forests is a result of the uncontrolled exploitation by forest-based industry, on the one hand, and the desperation of the poor rural folk who have no alternative but to rob their own forests to destruction. Obviously this situation has been supported by rampant profiteering among capitalists, traders and contractors, corruption and complicity among the politicians and the administrators and a general inability of the system to help the poor villager earn his living in a more sustainable manner.

Further, short-term politics in a system of parliamentary democracy, where elected governments often feel impelled to demonstrate tangible gains within a five year period, effectively exclude a consideration of the environment—which is essentially a matter of long-term perspectives.

Nationalisation of forest-based industry seems to be the only possible step available. Following such nationalisation, a realistic evaluation can be made of the pricing of various forest-based products, and the quantum they have to be produced in. This would remove much of the force behind the mass destruction of forests. In order to make afforestation a possibility, wastelands must be identified and then given to landless labourers who can be helped to plant trees and maintain them.

It is urgently required to take at least some of the most degraded land out of cultivation and help it to recover its health. This can only be done if some preliminary land-reforms is done so that people who are displaced can find other land to cultivate. The government should immediately identify the worst affected areas and take up the work of land-relocation there on a war-footing.

The 'water' and 'air' acts should be amended to give *locus standi* to individuals and groups of individuals so that action can be taken against polluting industries. Violation of the law should also involve severe criminal liability.

1. As quoted to the Parliamentary Committee for Forests and Environment. Based on satellite imagery.

2. Alan Grainge, *Desertification.* An Earthscan Paper Back, International Institute for Environment & Development, 1982, p. 37-38.