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To,

Shri Ashish Kothari,
Apt.No. 5,
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Dear Sir,

As desired by you we are sending herewith the file on a diskette of the lecture delivered by you on 24th March, 1999 in the Seminar on "Development and the issues of Environment : An interdisciplinary perspective."

We request you to send it back as early as possible with necessary modification if required. We wish to include it in the book which is under consideration.

Thanking you,

Yours faithfully,

L. Murugkar
(Dr. Lata Murugkar)
Director of the Seminar

Kamble
(Arun Kamble)
Principal

*Sent final
article,*

AK / 29/9/99

BACK TO THE ROOTS: SOLUTIONS TO THE ENVIRONMENTAL CRISIS¹

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Every day, newspapers and television remind us of the ecological crisis facing us. Diseases and deaths due to water and air pollution, mass poisoning by toxic chemicals, global warming, floods and droughts caused by deforestation and mismanagement of water systems, erosion of biological diversity as less privileged species get wiped out by human thoughtlessness... one could go on with a list which would add up to the all-too-familiar doomsday scenario.

But that is not the intention of this article. Rather, what I would like to do is to point to the rapidly increasing signs of hope, actions all over the world which are helping us to regain our sense of balance with nature and with each other. And then I would like to point to the critical role of the teacher and the educational system in supporting this move towards a saner future.

Why Are We in the Midst of a Crisis?

But to do that, it is vital to first understand the root causes of the environmental crisis. Why are where we are today? The kind of pat answer often given in our text books, and unfortunately often parroted by some environmentalists, is that this is because of:

- 1) increasing population;
- 2) poor technology, i.e. India is very 'backward';
- 3) ignorance and illiteracy; and
- 4) corruption (today blamed for almost everything!).

I have serious problems with these pat answers because they tend not to get into the fundamental roots of the crisis, which includes things like issues of governance. Who is actually controlling the natural resources, is it a person who is dependent for survival on these resources, or somebody sitting in Delhi or Washington DC? Who is determining that what is to be done with India's forests, what is to be done with local fisheries and what is to be done with the agricultural produce?

The history of the last 100 years is one of increasing alienation of the common person from natural resources, including those of us in cities. When we see garbage on the street we think that the government will take care of it. When villagers see fire breaking out in the forest, they wait for the Forest Department to come and douse it. In many parts of India, villagers who would once think of themselves as part of nature, and the surrounding forests and wildlife as their own heritage, today talk of *sarkari* forests and *sarkari* tigers. This alienation has taken place because the state (starting in colonial times) has taken upon itself the full control of, and the responsibility for, managing natural resources and other aspects of governance. And of course, as we are acutely aware, it simply cannot manage to fulfil this responsibility.

¹ Based upon a lecture delivered at SNIYT College, Mumbai. More detailed discussion on the issues contained here is available from the publications listed at the end of this article. The author can be contacted at: Kalpavriksh, Apt. 1, 5 Shree Datta Krupa, 908 Deccan Gymkhana, Pune 411004

Another root problem is inequity. Inequity between classes, castes, sexes, and generations. This is in both traditional and modern contexts. For instance, traditional inequities between men and women have allowed menfolk, who are more integrated into the market system, to sell off natural resources rather than sustainably use them for local purposes. And since the majority of cooking in Indian households is done by women, the energy policy of India, formulated largely by men, has hardly dealt with fuelwood and fuel stoves. The greatest push has been towards electricity generation, which hardly benefits the millions of 'lower' class households in general and their womenfolk in particular. And so also, forests continue to be attacked for increasingly unsustainable fuelwood extraction. I wonder what India's energy policy and budgets would have looked like if they had been formulated by rural women?

Yet another root problem is our concept of development. We have forgotten the true meaning of this term: 'to uncover', the opposite of 'envelopment', to open up possibilities of growth in all sectors for humans. Today, it only means one thing: increasing material growth and possessions. And with this attitude, our relationship with nature and with each other has changed. We don't look at nature and fellow human beings with respect. We look at them as raw material, labour (the cheaper the better), fodder for the ever-increasing industrial and financial machine that we call development.

Finally, there is the thorny issue of consumerism. Even as more than half of humanity struggles to survive, and has problems of under-consumption (of food, shelter materials, clothing, etc.), a minority are consuming most of the earth's resources. This is why saying that population is at the root of the problem is too simplistic... the issue is who consumes how much of what resources, rather than the absolute number of consumers. The United States of America, which many people think is the epitome of development, contains less than 5% of the world's population, but consumes several times that ratio of the world's resources. Back in India, a tiny urban and rural elite does the same. For all those reading this book, as much as for myself, this bitter truth applies: that we consume far too much, and that this causes both environmental problems and social exploitation. As we switch from open consumer items to packaged ones (even water now comes in a polypack!), as we switch from cycling and walking whenever possible to taking a scooter or car even to go to the next block, we step into the zone of wasteful, destructive consumption. And sometimes the hypocrisy is frightening: some wildlife conservationists in Delhi, raving and ranting about how villagers have no respect for nature, do not bat an eyelid in ordering marble flooring and granite slabs... all coming from highly destructive mining in places like Sariska Tiger Reserve!

We are going through a fundamental crisis of ethics, of relations with each other and with other species. The environmental predicament has to be treated as being deeper than just a question of too many people and corruption. Only then will true, long-lasting solutions emerge, and not the flyovers-for-traffic kind of superficial answers, which are akin to taking Crocin for brain cancer.

What are the Solutions?

The real answers to these problems are coming from local communities who have not forgotten their roots, from government officials who go off the beaten track, from NGOs who dare to question the system, from individuals who our society unfortunately still thinks of either crazy or dreamy-eyed romantics.

One mistake we must not make, is to think that there is *a single* answer, a sort of universal blueprint which can be implemented everywhere. This will not work, because we have a diversity of ecological situations, diversity of cultural situations, diversity of governance structures, and so on. Nature has not found one universal solution to the problem of finding food, finding a mate, surviving the elements. So we should also give up such a pursuit.

What kind of solutions are being tried out. what are the elements of hope? I believe there are at least the following five:

1. Resistance
2. Revival
3. Reconstruction
4. Redefinition
5. Reorientation

1. Resistance: People are resisting the imposition of inappropriate developmental models and projects, the exploitation of nature and the disprivileged classes. Such resistance goes back a long way; for instance, environmentalists often cite the example of the Bishnoi community in Rajasthan, members of which died in large numbers 350 years back in an attempt to resist tree-felling by the ruler. They clung to the trees, even while soldiers cut them down mercilessly. In modern times, the Chipko movement sometimes cites this as one of its inspirations.

Resistance to destruction is now widespread in India (and elsewhere in the world). At least a dozen major dams, which would have destroyed forests and villages, have been stalled or stopped by mass movements. Several million small and traditional fisherfolk across India's coastline have protested against destructive trawling and industrial aquaculture, and managed to get policy changes that would severely restrict large-scale commercial fisheries.

Every time such a resistance takes place, it challenges not just a particular project but the entire model of development. For it asks: is development built on the irretrievable destruction of nature, and the suffering of poor people, really sustainable, is it just? And if not, are there alternative ways in which human welfare can be increased, and suffering reduced? This is where other elements of the solution come in.

2. Revival: There is an amazing revival of traditions, or what was good in our society, beginning to take place in many parts of India. I don't mean fraudulent and dangerous revival of the BJP/RSS type I mean revival in terms of those aspects of our Indian traditions, those aspects of community knowledge and practices, which stood people in good stead for centuries, and are still relevant to today's crisis.

In the Garhwal Himalaya there is a group of farmers, called the *Beej Bachao Andolan* (Save the Seeds Movement). The *Beej Bachao Andolan* (BBA) is reviving traditional practices of agriculture like *baranaja*, a multiple cropping system which provided the household with many of the produce it required, while maintaining the fertility of the soil. It may not feed the market, and therefore is less 'lucrative' than, say, switching to soybean (which agricultural departments want farmers here to do). But soybean does not feed the local farmer. He/she gets more money from it, but that money as we know is not necessarily used for nutritional food for the children. BBA is therefore also reviving hundreds of varieties of *rajma* (beans),

rice, wheat, coarse cereals, and other crops, in a bid to bring back a more stable, more nutritious, and more self-sufficient form of agriculture

This is not merely a question of food. Indeed, self-sufficiency in food (even if that means less cash in the hand) is a powerful tool of empowerment. Over the last few decades, the state and the market have taken control over every aspect of a farmer's life, whether it is seeds, water, soil nutrition, credit, purchase, or any other aspect. Switching to seeds and farming practices which could rid farmers of this debilitating dependence on outsiders, is the strongest move towards true freedom.

Agriculture is not the only field where this kind of revival is taking place. In the same communities that BBA is involved with (Jardhargann, Lasiyal, Nahin-Kala, Jajal, and many other villages in the region), and dozens of other communities across India, people have taken control back over the forest and natural resources which had been taken away either by the state or private corporations. They are saying: these forests are ours because our livelihood is dependent on it; you outsiders will come use it and go away when it is destroyed, but we have to stay here. In many of these cases, earlier traditions of forest/wetland management are being brought back.

However, communities and citizens also innovate, especially when changing conditions require adaptations. This is where element number three comes in.

3. Reconstruction: There is widespread reconstruction of the rural and urban society taking place, which is in a sense revival modified by new adaptations to new problems. One cannot always depend on traditions, because situations have changed, and many traditions themselves are inconsistent with concerns of human rights and ecological sustainability.

Several communities and NGOs and officials are experimenting with a mix of old and new, in areas such as water harvesting, sustainable agriculture, forest regeneration, and fisheries. Through this, areas which had become completely barren and dry, with severe drought situations year after year, have been reclaimed and brought back to life. A wonderful example is the work done in 200 villages of Alwar district, Rajasthan, where villagers aided by the NGO Tarun Bharat Sangh, have built over 3000 small *johads* (checkdams), converting a water-deficient area to a water-surplus one. Simultaneously, catchments which had become completely deforested have been revived, and a couple of villages (Bhaonta-Kolyala) have even declared a public wildlife sanctuary over 1200 hectares! Other examples like Ralegan Siddhi and Sukhomajri are of course well known, and have become a major pilgrimage spot for anyone wanting to work on alternative land and water management. In many parts of India, forest officials, NGOs, or community leaders have also pushed for joint forest management arrangements, through which forest regeneration is done with the incentive of generating revenue or locally needed forest produce.

In most of these examples, local and traditional knowledge (e.g. on water, forests, etc.) was combined with modern techniques and outside expertise. NGOs and officials in such sites have also pushed for greater equality in decision-making (though not always with success or ease), between men and women, amongst various classes and castes, etc.

Box 1: Tribal Self-Rule in Mendha (Lekha) Village

The small village of Mendha (Lekha) in Gadchiroli district of Maharashtra provides a very interesting example of some of the trends towards solving environmental and social problems. Over the last 20 years, this village of about 300 Gond tribals has resisted destruction of its hamon forests by a paper mill, joined a major and successful movement against big dams, protected a 1800 hectare patch of forest around it, and attempted to evolve its own brand of sustainable natural resource use. Most interesting are its institutional structures: a *gram sabha* consisting of all adults of the village, where all decisions get taken; several *abhyas gats* or study circles where village and outside experts discuss matters of mutual interest and conduct research (on forest rights, impact of non-timber forest produce collection, honey collection, etc.); *bachat gats* or savings schemes, and so on. The village has become so empowered that no government official can start any programme there without the *gram sabha*'s permission. Innovative livelihood opportunities are being tried out to tackle problems of employment and earning.

In particular, the *abhyas gat* model is very interesting for teachers and students to look at. It is, in a sense, a reversal of the usual paradigms, in which we urbanites are determining research priorities (even for villagers!), conducting it with our own style and with little involvement of local people, giving little credit to local knowledge even when we use it. Here, villagers start with their own priorities, build up from their existing knowledge base and supplement it with the expertise of outsiders, and try to make the results widely available rather than restricted to a few individuals.

4. Redefinition: A lot of redefining of terms is needed. As mentioned above, the term 'development' itself has got seriously restricted and distorted. It should be redefined, to include a holistic expansion of the options available to people for improving their intellectual, cultural, material, and other well-being. And to include, very importantly, the concept of equity, that is to say, the availability of such options to *all* people, not just to a handful of urban and rural elite. Today, 'development' for some (those of use who enjoy unbridled consumerism) means 'destruction' for many others, including many non-humans.

Another term which needs redefinition is *productivity*. Over the last 30 years, agricultural productivity has meant single-output goals...the more the output of foodgrains, or milk, or wool, the more productive the system. Compare this with the goals of traditional agriculture, which, from the same farm, would try to optimise the output of grains, livestock produce, fodder, supplemental foods, etc. A modern rice field is given high marks if it produces high grain yields; a traditional one would have been considered great if it produced a high mix of grain, fish/crabs/prawns, stalk as fodder, etc. So when the 'dwarf' wheat brought in the so-called Green Revolution in India, it certainly increased grains output, but it also seriously decreased fodder output. Though detailed studies on this are not available, it is more than likely that livestock would then have had to depend much more on fodder from the forest, with over-grazing or over-extraction as one result.

'Productivity' from an agricultural system should mean the total quantity and quality of biomass and other output from the system, perhaps also as a ratio of what inputs have gone in. Seen in this sense, a lot of traditional agriculture (though by no means all of it) was far more productive than a lot of modern farming. A modern wheat or rice field, for instance, has much less fodder, and almost no other food or nutritional value (all the other life is killed off by

pesticides and fertilisers). The farmer who gets more money with such farming is certainly richer, but this does not necessarily translate into better nutritional inputs for him/her and family, in fact this may decline because of the loss of supplemental foods that were earlier freely available. If further impacts such as the loss of forests due to over-grazing by cattle or over-lapping for fuel by people who no longer get these needs from the fields, is added, the personal and social costs are indeed high.

5. Reorientation: Finally, one needs a major reorientation of the mind itself...changes in attitude, in ethics, in the way we look at nature and each other, the way we view labour vis-à-vis intellectual work, etc. Why should we fall prey to a system in which intellectuals are considered to be 'higher' status than those who are labouring outside on the street? Why should we believe that eating wheat has a higher status than eating *jowar* or *bajra*? Why should a forest-dweller, wearing less clothes because he/she does not need to wear more, eating wild foods, and educated in his/her own way, be less 'civilised' than us urbanites? And why should consuming more and more be considered a path of progress, individual and societal?

These attitudinal changes are very difficult, but this is where education and all of us as academicians or students or researchers or activists come in. Our current educational system has to change very radically. Pradeep Prabhu of Kashtakari Sanghatana, who along with his colleagues has done excellent work on reviving the rights of tribals living in the Daharu region of Maharashtra, was recently complaining that the success they have had over the last 20 years in reviving tribal pride in their own culture and practices, is being undermined within the last 3-4 years due to influences from the mass media and formal education. Both these systems teach the tribals that their own values and lifestyles are 'primitive', outdated, unfashionable, even uncivilised. They must fully cover themselves, if possible with a three-piece suit. They must learn English, or at least Marathi, and discard their own tribal languages. They must entertain themselves with TV and video games, rather than with adventures in the forest and playing in the dust. They must think of other species, and even women, as inferior beings. They must become Hinduised, celebrate mainstream festivals, pray to mainstream gods.

This is really the biggest long-term challenge we have: how to reorient the mind to be much more in tune with nature, and with each other. In this too, there are interesting initiatives taking place. At Biligiri Hills in Karnataka (also home to a wildlife sanctuary), NGOs working with the Soliga tribe have introduced a system of education which encourages their own customary methods of teaching and learning, while also bringing in the more modern formal system. It would be interesting to see how successful they have been in such an integrative approach.

Also increasing, amongst sectors of society which were mutually hostile till now, is an understanding of each others' points of view. Forest officers have become more sensitive to local community needs and rights, local people are more aware of the constraints within which forest staff work. Even the attitude of politicians is changing; in Orissa there is a politician who has been fighting, at risk to his own life, to stop trawlers from destroying the coast.

Decentralising Governance

Perhaps the greatest change is the increasing acceptance of the need to decentralise the system of decision-making. In 1993, the government brought in a potentially revolutionary

amendment to the constitution, which gave village *panchayats* and *gram sabhas* much more power to conduct their own affairs. Even more radical is the subsequent extension of this amendment to scheduled (predominantly tribal) areas (spread over 6-7 states), e.g. in the provision that all non-timber forest produce in these areas would now be owned by the tribals.

Of course, this is not to say that simply handing over governance to local communities will be a panacea for all our ills. In fact, in some areas it may worsen the situation, especially where local *panchayats* are ridden with caste/class inequities, where some powerful local people hand in glove with commercial traders may well sell off the forests. A delicate balance of rights and responsibilities is difficult to achieve. But the hundreds of places where this has indeed been achieved, by villagers, NGOs, government officials, urban citizens, are pointers to the fact that it is possible.

The Role of the Academic

The above discussion leads to many areas of enquiry for the researcher and the academic. How do local bodies manage their resources, what historical changes have taken place in this? What are the precise roots of a problem in a specific area, and how do more general (national/international) factors effect this problem? How does our own consumerism affect the environment, and communities far away from us? How are the above trends towards solutions being manifested in each area, what are the dynamics by which individuals and groups work out these solutions? What are the biological, social, cultural, economic, political, spiritual, and other aspects of participatory resource management?

If we want to influence these trends, learn from them, and spread their lessons widely, we must get into these lines of enquiry. We must help in documenting the processes and methods by which people arrive at solutions, as such documentation is seriously lacking in India. And when it is called for, we must not hesitate to jump into an activist role, to support people's struggles for survival and livelihoods, to lend a voice to those humans and non-human species that are disprivileged and getting further marginalised as ecological destruction increases.

SOME FURTHER READING

(Note: this is a selective list, not a comprehensive one. It also does not include material in the vernacular, of which there is a considerable amount)

General Environment/ Environment and Development

Agarwal, A. and Narain, S. 1982, 1984-85, and 1999. *The State of India's Environment: Citizen's Report I, II, and V*. Centre for Science and Environment, New Delhi.

Gadgil, M. and Guha, R. 1992. *This Fissured Land: An Ecological History of India*. Oxford University Press, New Delhi.

Gadgil, M. and Guha, R. 1995. *Ecology and Equity: The Use and Abuse of Nature in Contemporary India*. Pergamon India, New Delhi.

Hindu Group of Publications. *Hindu Survey of Environment*. Published annually since 1991.

Indian Journal of Public Administration. Vol. XXXIX No. 3, July-Sept. 1993. Special Issue on Sustainable Development, Indian Institute of Public Administration, New Delhi.

Shiva, V. 1991. *Ecology and the Politics of Survival*. United Nations University and Sage Publications, New Delhi.

Singh, Satyajit. 1997. *Taming the Waters: The Political Economy of Large Dams in India*. Oxford University Press, Delhi.

Agriculture

Alvares et al. 1996. *Organic Farming Sourcebook*. The Other India Bookstore, Mapusa, Goa.

Shiva, V. 1991. *The Violence of the Green Revolution*. Third World Network, Penang.

Pillai, G. M. In press. (Book on sustainable agriculture), Maharashtra Council of Agricultural Education and Research.

Forests/Wildlife/Biodiversity

Forest Survey of Environment. *State of India's Forests*, (bi-annual assessments, latest one in 1998), FSI, Dehra Dun.

Israel, S. and Sinclair, T. (eds). 1993. *Indian Wildlife*. Insight Guides, APA Publications, Hong Kong.

Kothari, A., Singh, N., and Sun, S. (eds). 1996. *People and Protected Areas: Towards Participatory Conservation in India*. Sage Publications, New Delhi.

Kothari, A. 1997. *Understanding Biodiversity: Life, Equity, and Sustainability*. Orient Longman Tracts for the Times II, New Delhi.

Manfredi, Paola. (ed.). 1997. *In Danger: Habitats, Species and People*. Rambhambhar Foundation, New Delhi.

Poffenberger, M. and McGean, R. 1996. *Village Voices, Forest Choices*. Oxford University Press, New Delhi.

Community Based Natural Resource Management

Agarwal, A. and Narain, S. 1989. *Towards Green Villages*. Centre for Science and Environment, New Delhi.

Kothari, A., Pathak, N., Anuradha, R.V., and Tanuja, B. (eds). 1998. *Communities and Conservation: Natural Resource Management in South and Central Asia*. UNESCO and Sage Publications, New Delhi.

Kothari, A., Pathak, N., and Vania, F. 1999. *Conservation by People: Community Wildlife Management in South Asia*. Kalpavriksh, Delhi, and International Institute of Environment and Development, London. (Also available separately, a series of case studies in India, Nepal, Pakistan, Sri Lanka)

Pangare, G. and V. 1997. *From Poverty to Plenty: The Story of Ralegan Siddhi*. INTACH, New Delhi.

(Several other case studies have been published by Tata Energy Research Institute, INTACH, Kalpavriksh, Development Alternatives, and other groups).

Environment Traditions

Banwari, 1997. *Pancavati: Indian Approach to Environment*. Shri Vinayaka Publications, New Delhi.

Centre for Science and Environment. 1997. *Dying Wisdom: India's Traditional Water Harvesting Systems*. New Delhi.

Pereira, W. 1993. *Tending the Earth*. Farthore Books, Bombay.

PPST. *Proceedings of the First and Second Congresses on Traditional Sciences and Technologies*. People's Patriotic Science and Technology, Madras.

International Issues

Agarwal, A. and Narain, S. 1992. *Towards a Green World*. Centre for Science and Environment, New Delhi.

Agenda 21. United Nations Conference on Environment and Development, I.N.E.P. Nairobi.

World Commission on Sustainable Development. *Our Common Future*. Oxford University Press, Oxford.

World Resources Institute. *World Resources*. Series of annual reports since late 1980s.

Worldwatch Institute. *The State of the World*. Series of annual reports since 1980s.