



SOME YEARS AGO, as sidekick to a VIP, I toured the atomic installations at Trombay, outside Bombay. Alert, self-confident technicians in white coats, resembling the “scientists” who “tell us” this or that in old-fashioned advertisements, quoted facts and figures and drew diagrams on blackboards. We stepped carefully round a “swimming-pool” reactor. We peered knowledgeably at girders. Then, each wearing a green plastic lapel badge, we were admitted to a reactor chamber. It meant as little to the layman as everything else—as if we’d entered a huge steel football or balloon. We did our Duke of Edinburgh act, nodding, hands clasped behind us, muttering “I see.” On the way out, our green badges were collected. “What for?” I asked the official. “Oh. Oh, well, you see, Sir, we shall test them now for, er, radioactivity.” “How long does that take?” “No more than a week.” His face fell rather when I said that we were flying back to Europe next morning.

I heard no more about it, so you can switch off the Geiger counter. But that scene—and one other—encapsulated for me the paradox that every traveller notes in India, as elsewhere. The second scene embodied it more sharply. That was the sight, outside the immaculate nuclear buildings, of women in mud-splashed saris carrying bricks on their heads, for the construction of a new wing.

Both scenes stirred in my memory at the time of the Bhopal disaster, heightening the fear that it’s perilous to crash-land high technology on terrain apparently ill-prepared for it. But that, it would seem, is precisely what has been happening more and more, faster and faster, since my emblematic afternoon at Trombay.

An unexpected Christmas gift arrived last year from an Indian friend in New Delhi. Square, flat, and heavy, it looked in its wrappings like a box of exotic sweetmeats. In fact, it was a book published two years earlier, but no less relevant today: a “Citizens’ Report by the Centre for Science and Environment in Delhi”, on *The State of India’s Environment 1982*.¹

Anyone at all involved in “Third World” or environmental issues can expect to become inured to turgid prose. Some reports on these subjects are literary battle-courses—designed, it would seem, to stretch the attention-span, toughen one’s tolerance of poisonous jargon, raise the

boredom threshold to unimagined heights. All over the world there seem to be verbiage factories—and verbiage collectors—never content with one abstraction where seven will do. Needless new coinages, in-group acronyms, bureaucratic euphemisms, pseudo-scientific periphrasis, covert political bias: if all that mush were mealie, nobody need starve. As it is, they asked bread and we gave them UNESCO.

The Indian “Citizens’ Report”, with its brown cover, its two-column format, its black-and-white photographs and boxes and statistical tables, looks at first sight like an addition to the mountain of bumph. In fact, it’s a model of brevity and straight talk. Lively, vivid, sensible, alarming, and argumentative, it even offers some fitful rays of hope.

Compiled in a hurry by a group of impatient experts, and edited by three of them, it often has a homely touch.

“We would have liked to check and cross-check every fact and figure but, given the size of the country, it was not always possible to do so. Errors in reporting, and at times even of understanding, are bound to have crept in. We hope the readers will excuse our lapses but, more importantly, that they will take the trouble to point them out to the editors.”

Announcing editions in Hindi and Malayalam, its authors “see the report beginning to reach far beyond the English medium crowd.”

Members of that crowd—I picture them at the race-course or the tennis-club, where *plus ça change, plus c’est la mamsahib*—will find plenty in the book which is new to them. So will Western readers. For me, the revelations fall into three categories. First, there’s the confirmation of India’s long-term, pre-existing plight. Secondly, there’s a mass of evidence to show that economic development, for all its obvious benefits, has exacted a terrible price, some of it clearly avoidable. Thirdly, there are several signs—of which this report is an instance—that Indians themselves are beginning to resist crash programmes, “great leaps forward”, and other ill-considered forms of grandiose ruthlessness which ruin while they enrich.

POVERTY, “BACKWARDNESS”, “under-development”, dirt, disease, and squalor—these, in India, come as no surprise. What may surprise a foreign reader are some of the statistics. Take water: 70% of it is polluted, and water-related diseases are thought to account for the loss of 73 million work-days a year. “Along every kilometre of the Ganga in Uttar Pradesh, Bihar, and West Bengal, people and factories are pouring their garbage, excreta and muck into what is gradually turning from river to drain.” A third of the urban population—more than 50 million people—has no access to latrines of any kind. “Urban India is a collection of stink chambers.” About one-and-a-half million children die of diarrhoea every year—roughly, three a minute.

No one, surely, looking at these figures and the miserable reality they quantify, could begrudge India a Herculean effort to improve the lot of her people. Specifically, this must mean

¹ *The State of India’s Environment 1982: A Citizens’ Report*. Edited by ANIL AGARWAL, RAVI CHOPRA, and KALPANA SHARMA. Centre for Science and Environment, New Delhi, Rs 125.

“modernisation” and economic growth. But, by a cruel irony, some of the labours of Hercules have involved the sorcerer’s apprentice.

We’re all familiar with the “Dust Bowl.” India is fast acquiring a mud bowl. This is partly due to deforestation. Cooking, the report points out, absorbs half of India’s total energy consumption; and 90% of cooking uses firewood, cow dung, and crop wastes. This impoverishes the soil, already being depleted to make bricks. And every six months, more topsoil is washed away than has been used to build all India’s brick houses. In the last ten years, the area prone to flooding has doubled: in the Bay of Bengal, silt has produced a new island, Purbhasa, eleven kilometres long. Irrigation projects, with large-scale dams, have in some cases increased the land’s salt content; artificial fertilisers have boosted crop yields, but at the expense of existing micronutrients.

Water pollution, likewise, has increased with industrialisation and the expansion of towns. Before the Yamuna river enters Delhi, 100 millilitres of its water contain about 7,500 coliform organisms. By the time Delhi has added its waste products, the coliform count is 24 million. In the small Kalu river, more than 150 factories now discharge their effluent: mercury, in particular, enters the food chain and poisons not only fish and riverside cattle, but also those humans who live on them.

Air pollution is still more obvious. 60% of the inhabitants of Calcutta, it’s claimed, suffer as a result from respiratory diseases. Thanks to a 440-megawatt thermal power plant, Bhatinda in the Punjab “lies under a permanent blanket of smoke.” Fly ash—about a kilogram per inhabitant—coats every surface, including nearby crops. Even the Taj Mahal is thought to be under threat from an oil refinery 40 kilometres away. In the village of Nalavagulu in Karnataka, the soot and other by-products of a giant polyfibre factory are so powerful that a brass pitcher presented two years earlier to the local school actually crumbled when someone tried to lift it.

Some sorcerer’s-apprentice effects are more subtle. In Andhra Pradesh, villagers living near the Nagarjunasagar Dam have begun to suffer from the deformity known as *genu valgum* or acute knock-knees. Scientists from the National Institute of Nutrition in Hyderabad believe that this is indirectly due to seepage, which has raised the level of sub-soil water and increased the soil’s alkaline content. The result has been to change the balance of fluoride, calcium, and trace metals, and to encourage the absorption of molybdenum by sorghum plants—the staple diet of those too poor to afford rice. More molybdenum in the diet has meant a greater excretion of copper, and hence copper deficiency. Together with a very high fluoride intake, this is believed to explain the rapid growth of deformity.

A further health hazard is smoking. After the United States and China, India is the world’s third biggest producer of tobacco. This is a source of tax and export revenue: but Indians themselves consume three-quarters of what they grow. In the 1950s, annual cigarette consumption per adult was around 100. By the 1960s, this had doubled. Today, 90 billion cigarettes are sold every year—plus about 100 million *bidis*, small and very pungent cheroots. By the year 2000, some experts fear, India’s 900 million people may suffer the

same rates of cancer, heart disease, and other smoking-linked illness as those in the “developed” countries—but without the medical resources to cope.

So the ills of “civilisation” creep steadily forward. Every year, a million hectares of forest are cut down. 10% of India’s flora faces extinction. Elephants, once found throughout the country, have disappeared from Maharashtra, Madhya Pradesh, and Andhra Pradesh. Delhi, whose number of motor vehicles more than doubled from 1971 to 1978, now has the highest accident rate in the world.

FORTUNATELY, INDIANS THEMSELVES are beginning to react against mindless “modernisation.” The best-known private effort is probably the *Chipko Andolan*—the “Movement to Hug Trees.” This began one morning in March 1973 in the remote hill town of Gopeshwar, where an Allahabad sports goods factory planned to cut down ten ash-trees. To prevent them, the villagers hugged the trees. Baulked there, the contractor tried another village 80 kilometres away. But the Gopeshwar villagers marched on the new site, beating drums and singing songs and gathering supporters on the way. Since then, the movement has developed into a “green” campaign, often involving women, and partly inspired by Gandhian principles.

Similar action groups have emerged in the cities. In Delhi, a students’ organisation has campaigned against tree felling

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along the boulevards; in Calcutta and elsewhere, there are private efforts to improve slum housing; in Bombay, several voluntary organisations are trying to combat pollution.

Here and there, too, individuals have made disproportionate impact. A young woman architect from Chandigarh, Madhu Sarin, was inspired to design a new wood-burning stove when she saw a housewife in Nada village choking on the smoke from her traditional *chulha*—whose energy efficiency was only 5-10%. The new *Nada chulha*, with a damper and a chimney, is nearly twice as efficient, and could eventually almost halve the consumption of firewood. Likewise, an anonymous scientist more than a decade ago produced a simple technique for treating diarrhoea: replacing body fluids by a pinch of salt, a scoop of sugar, and a glassful of water several times a day. Again, a soil scientist in the Shivalik hills is credited with having saved a village whose over-grazed hillside was crumbling, by building three small reservoirs and replanting the hillside with trees, shrubs, and grass to be cut, not grazed.

But without Government action, all these projects would be merely drops in the ocean. India's Draft Sixth Plan admitted with startling honesty:

"The forests under management have . . . been treated from the very narrow viewpoint of production of commercial timber and pulpwood so that they have been rapidly converted to stands of teak, pine or eucalyptus with no thought given for even the maintenance of species producing valuable minor forest produce such as oilseeds.

Our wildlife conservation efforts have so far been primarily directed to the maintenance of areas with one or more spectacular animals such as the tiger or the rhino. This has led to a total neglect of many other ecosystems which lack such spectacular animals but are rich in floristic reserves.

So far attempts at environmental improvement in human settlements have come in a disjointed and piecemeal fashion with attention focussed on one particular function or the other (transportation, water supply, power generation, etc.) rather than treating settlements and their activities as a dynamic and organic whole."

For the five years 1980-85, only 400 million rupees went on official environmental programmes; and although India now has an impressive array of laws against pollution and depredation, such tragedies as that at Bhopal show how much still needs to be done. Rapacious developers, careless foremen, overworked or inefficient bureaucrats—the villains of the piece are no doubt many; but the underlying problem is one of priorities.

The authors of the "Citizens' Report" are in no doubt about what they believe is needed. "An environmentally enlightened development process", they conclude, "necessarily demands a new culture." This will be:

- "egalitarian, with reduced disparities between rich and poor and power equally shared by men and women;
- resource-sharing;
- participatory;
- frugal, when compared to the current consumption patterns of the rich;
- humble, with a respect for the multiplicity of the world's cultures and lifestyles; and
- it will aim at greater self-reliance at all levels of society."

You may not agree with all those items. But many of them, it seems to me, apply with equal force to Europe and America. We too would do well to ponder Mahatma Gandhi's dictum: "There is enough in the world for everyone's need but not enough for everyone's greed."

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Houyhnhnm Visits Utah

He has seen the strip shows, the hoofy women
in their neon stables. There's one for every other man
in all the one-horse, coastal towns.

Now he's moving east, into the ex-badlands,
among Utah red rock, Utah red sand,
and of course, dead grass.

In the evenings he eats the skies
(which are also very red) and sits under a saddle blanket,
chattering with cold women.

He takes mornings between his teeth. The flat earth,
(which is as flat as table, floor and bed)
crumbles, friable as beautified flesh.

Jonathan Wonham