The Dispossessed

Victims of Development in Asia

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ARENA
Press

The Dispossessed:
Victims of Development in Asia

December 1997

Published by: Asian Regional Exchange for New Alternatives (ARENA) Press
Flat B1, 2/f Great George Bldg., 27 Paterson St., Causeway Bay, Hong Kong

Printed by: AlphaGraphics, 1A, G/f Lippo Centre, 89 Queensway, Hong Kong

Layout and Design: Titos Escueta

Cover Artwork: Harry Reyes

Special Book price:

ISBN: 962-7156-12-1

ACKNOWLEDGEMENTS

ARENA wishes to acknowledge the contributions of its network members and associates who have unselfishly lent their valuable time and efforts to see this book project through. Spurred by Vinod Raina and Chantana Banpasirichote, the ARENA Executive Board conducted long discussions on conceptualising and implementing the project. Special thanks are due to Kinhide Mushakoji, Ed Tadem, Urvashi Butalia and Jung Ok Lee for their valuable comments on the first draft of the book.

Sincere thanks to all the writers and researchers who put the country reports together. Their patience in accommodating the many requests for revisions, rewrites, and updating is truly appreciated. Theirs was truly a labour of social commitment.

The Kathmandu writers' workshop where all the country paper contributors came together offered an excellent opportunity for all the writers of the book to strengthen their collective bond as both writer-researchers and advocates who not only documented cases of environmental degradation or industrial malfunctioning in their respective countries, but also were passionately involved in the struggles for cleaner environments and adequate compensation for victims. Many thanks to the generous help from Arjun Kumar Karki and his team from Rural Reconstruction Nepal (RRN) who facilitated the workshop.

The editorial skills of Sumit Chowdhury, Aditi Chowdhury, and Vinod Raina are gratefully acknowledged. An editorial meeting at the ARENA office in Hong Kong provided a rare opportunity to go over the manuscripts carefully and make the necessary changes and tie up loose ends.

ARENA's long-time partners, EZE and ICCO and a one-time grant from Oxfam HK made this book project financially viable. It must however, be emphasized that the views and opinions expressed in this book are not necessarily shared by them. At the ARENA Secretariat, James Joseph Keezhangatte was the Programme Officer who saw through and coordinated the entire project. Credits for the artwork and layout go to Titos Escueta and Harry Reyes, the efficient administrative support of Law Wai King and Kathy Tung considerably eased the project's logistical problems, Jeannie Nacpil-Manipon, Neng Magno and Corie Concordia-Law also extended their much needed support.

This present volume will not be the last effort of ARENA in undertaking its programme on 'victims of development.' Given the enthusiasm displayed by participants and organisers of this book project, we look forward to an even more fruitful and meaningful activityin the future. As with all ARENA endeavours, implicit is the hope that in a small humble way this volume will contribute to the people's struggles for an equitable, pluralistic, and ecologically sustainable society.

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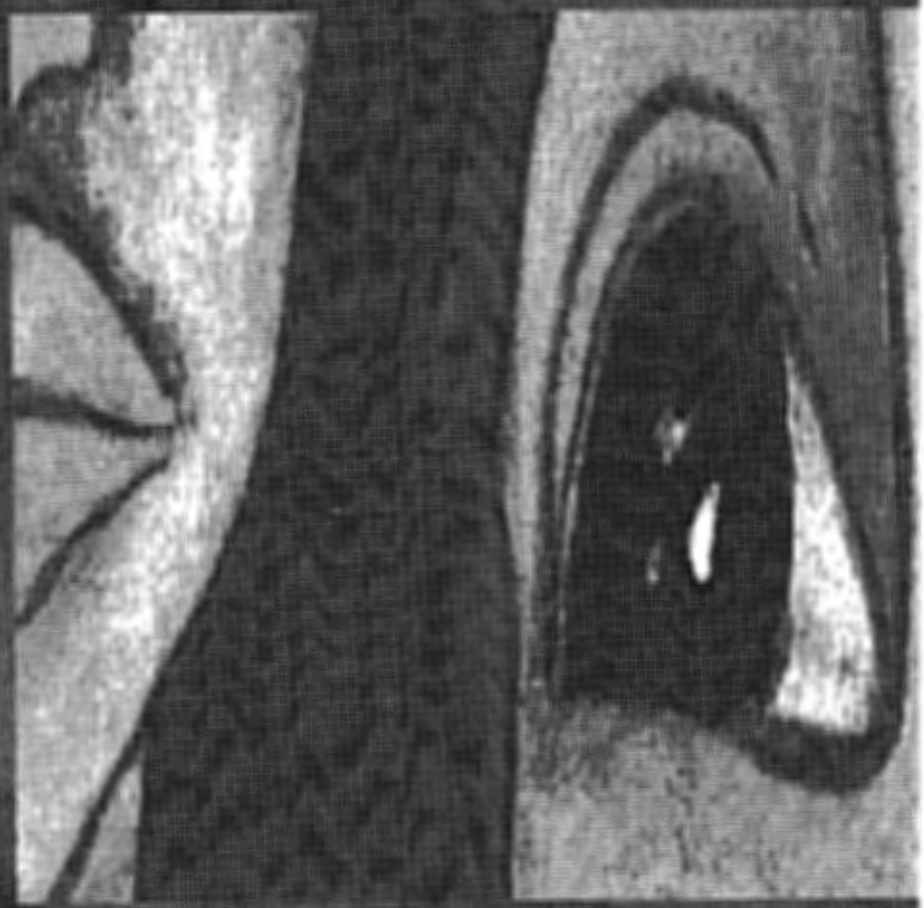
To those whose will to resistance
are formed in everyday struggles
for survival.

preface

"Globalisation through unrestrained trade and investment liberalisation is now the singlemost dominant feature of post-industrial society. With this, the number of 'victims of development' is expected to rise..."



preface

Ed Tadem

The Asian Regional Exchange for New Alternatives (ARENA), a regional network of scholar-activists, progressive academics, and critical writer-researchers has been working on issues of development and underdevelopment since its formation during a regional consultation in 1980. Its primary purpose is to engage in a process of critical rethinking of Asian peoples' problems and issues with particular emphasis on the dialectics of social change. The objective of this exercise is to uncover the essential elements of what could constitute alternative development strategies and paradigms. Utilising an inter-disciplinary and pluralistic approach, the primary media for this endeavour have been research studies, workshop-seminars and conferences, publications, and networking/advocacy activities. In terms of the latter, ARENA reaches out to development oriented non-governmental and popular organisations (NGOs and POs), grassroots and community-based organisations, social movements, and progressive individuals.

ARENA is fully aware that both its vision and objective can only be based on a long-term track that takes into account a broad range of intertwining factors of a historical, political, economic, cultural and social nature. In other words, there are no shortcuts in this search nor is there room for haphazard and less than rigorous conceptual and analytical work. Adding to the complexity of the process are the sometimes widely divergent backgrounds and characteristics of Asian societies and peoples which logically dissuade one from formulating universal solutions.

While the network has remained focused on the above vision, it has not been oblivious to the realities of the harsh and violent impact of past and present mainstream economic development strategies on already disadvantaged peoples and a rapidly deteriorating environment.

The consequences of the above was brought vividly to the attention of a stunned world through the horror of the Bhopal mass poisoning in India in 1984. ARENA was one of the first regional organisations to chronicle and analyse the carnage wreaked by Union Carbide on thousands of innocent families. This single incident outraged even the most jaded persons and galvanised concerted action by peoples' organisations and NGOs throughout the world. ARENA participated actively in the Permanent People's Tribunal (PPT) on industrial disasters in Bangkok and Bhopal, in the formation of the Asian Victims for a Hazard Free Environment (including co-publishing the AVHFE newsletter, Survivors), and co-sponsored events in East and Southeast Asia marking the tenth year of Bhopal.

Even as the thousands of Bhopal victims continue to demand justice, other disasters have occurred - the Kader toy factory fire in Thailand, the Dona Paz sea

tragedy, Marinduque mining spill and the Ozone disco fire in the Philippines, infrastructural and building disasters in Seoul, deadly fires in commercial areas in Hong Kong, the collapse of a residential building in Kuala Lumpur, and the series of chemical industrial explosions in China, to name only the more prominent ones. In addition to these high profile events, one must also add the relentless destruction of forest, land, water and agricultural resources by corporations and multilateral financial institutions and the resulting forced dislocation of thousands, perhaps millions of peasant and tribal families in both lowland and upland areas. Women particularly are victimised many times over - the double burden of housework and salaried work is compounded by the accelerated volume of abuse and trafficking.

One must assert though that these incidents and developments are not merely the results of unmitigated greed or personal failings and thus are not the accidents that they are depicted to be in the media establishment. This has to be emphasised in order to immediately avoid relying on reformist or incremental measures that merely address symptoms and consequently mask the underlying causes.

Recognising the need to situate these tragedies within a broader perspective in order to understand why they take place, ARENA has accorded the issue of 'victims of development' a central place in its research and advocacy activities. Victimisation through development is a function of a whole socio-economic and politico-cultural system that has historically adhered to a flawed model of development and progress. This model measures development in terms of a litany of quantitative indicators that substitutes biased socio-economic data favouring vested state and corporate interests and ignores the people's actual conditions and welfare.

In recent years, the debate over development has moved away from the traditional dichotomy of capitalism vs. socialism as the latter has shown in practice to be just as neglectful of environmental and popular concerns as the former. Once the overwhelmingly preferred alternative of progressive social movements, socialism has by default almost ceased to be the logical replacement for capitalism. Pending a major reconceptualisation of socialist strategies and objectives, this realisation has become more pronounced with the collapse of actually existing socialist regimes and the advent of a borderless global structure.

Globalisation through unrestrained trade and investment liberalisation (laissez faire economics) is now the singlemost dominant feature of post-industrial society. With this, the number of 'victims of development' is expected to rise particularly in economies that have just recently embraced the new dispensation. Eager to catch up as quickly as possible with the developed industrialised world, these economies are attempting to fast-track the development of the productive forces and are falling into the quagmire of the worst features of early industrial capitalism. In the process, the poor, the disadvantaged, and the marginalised are sacrificed in the name of growth. Far from emancipating women in an evocative sense, the new global order may have even precipitated a resurgence of patriarchy.

Indeed if one may describe in a nutshell the impact of globalisation, free market economics, liberalisation, and the accompanying crass commercialisation of virtually every aspect of everyday life, it is that these developments which have spurred economic growth have also succeeded in dehumanising society in a very real and profound sense.

Nevertheless, the issues are sometimes not as clear-cut to the general populace as activists may believe. Societies that have experienced continuous economic growth over a prolonged period have been able to create a sizable middle class, improve essential public services (including health and education), and increase average incomes. These may have occurred however only in selected enclaves and only in urban areas, e.g., the special economic zones in southern China and metropolitan

centres in southeast Asia. In a limited sense, an open economy has also ushered in political reforms in authoritarian regimes thus opening up spaces for people's movements to operate in.

Because of the dilemmas posed by seemingly contradictory outcomes, a debate has arisen among NGOs and POs on whether to totally oppose globalising states as anathema to people's welfare or engage it and utilise the 'benefits' of liberalisation to serve the people's interests. For those who opt for resistance, the search for an alternative paradigm remains the singlemost important agenda of popular movements while other activities are secondary. For the latter however, this search has become an irrelevant exercise and they argue that the finite resources of NGOs and POs are better utilised by either engaging in public policy research and advocacy, mobilising the poor for livelihood projects, joining government agencies, or participating in electoral politics. Burnt out by the stresses of protracted struggle, groups and individuals of the latter type prefer to see immediate results rather than live by the 'chimera' of a future ideal society. To add further to the confusion, there are also groups and individuals who remarkably straddle both camps.

Whether resisting or engaging however, all concerned groups are unanimous on the issue of victimisation through development. And when the present currency crisis in once financially-viable southeast Asian countries is factored in, even supporters of liberalisation are now backtracking and brazenly calling for government intervention.

This current volume of writings is a preliminary attempt at documenting the extent of this process of victimisation which though widely acknowledged and universally abhorred, is still little understood.

introduction

"Many mainstream technocrats and academics, armed with economic statistics of growth rates and per capita incomes may shrug this away as yet another 'emotional' report on the human conditions in the region, falling short of academic 'precision.'"

introduction

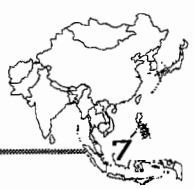
Vinod Raina

Asia is undoubtedly a rapidly developing region in the world. The economies of the continent, particularly in East Asia have witnessed high growth rates in the recent past: in 1994 the total GDP growth rate was 8.2%, compared with the world economic growth rate of 1.1% (ESCAP, 1995a; ADB, 1995a). But that does not imply all-round prosperity, because poverty persists, and in abundance. Estimates indicate that, of the world's 1.2 billion people who live in absolute poverty (with a per capita income of less than $1 a day), more than two thirds reside in this region (ADB, 1994a). More than three billion, or two-thirds of the world's population have incomes that are less than 10% of the per capita income in the United States. A short generation from now, by 2025, their numbers are expected to double, rising to more than 70% of projected world population (WB, 1990). Most of them will be in Asia.

Yet, outside North America and Europe, it is countries of this region, such as Japan, South Korea, Taiwan, Singapore, China, Hong Kong, and to a lesser extent, Malaysia, Thailand and the Philippines, that are being held as models for the poor developing nations, as in South Asia, to follow. Dazzling figures of growth rates, per capita incomes, infrastructural development and the presumed 'well-being' of the people in these industrialised and newly-industrialising countries (NICs) of the region are being touted, by governments and agencies like the IMF and World Bank and their allied intellectuals, as evidence of the correctness of the neo-classical economic paradigm of development. Any, country, the proponents argue, can become an economic tiger, irrespective of its, size, history, culture, political climate and so on, provided it follows the path of globalised, market-driven development, which entails the breakdown of trade barriers to allow free flow of capital and products (not labour), structural adjustments, and a cutback on 'wasteful spending', including that on the social sector (health, education, welfare), and expenditure on such 'unnecessary' measures such as food security, etc.

Arguing that most of these Asian tigers are actually in the midst of economic distress, Walden Bello sums up the flaws of this prescription, pointed out by many others, thus;

In the orthodox view of the economic and development establishment world over, the newly industrialising countries or NICs have developed the formula for economic development in the late twentieth century. The key ingredients of this formula, say the academics, are export-oriented production, cheap labour, an undervalued currency, free markets, and a minimum of state intervention. They may be right on the first three elements of the formula, but they overemphasise the role of the markets and grossly underplay the activist role of the state. This misrepresentation of the NIC experience, however, has not prevented its being transformed into doctrine at the International Monetary Fund (IMF) and the World Bank, whence technocrats sally forth to all points of the third world bearing



the same message: you too can be a Taiwan or Korea, provided you can summon up the political will to make the painful but necessary structural reforms. (*Bello, 1992*)

Of particular significance is the expected role of the state, as a mere facilitator in this process, ensuring proper law and order through an efficient police and security apparatus, and policies that ensure, amongst other things, that natural resources are easily and legally available to private capital. The Regalian Doctrine (the term used in the Philippines paper in this volume), denoting the state's ownership rights over natural resources, extends easily to other countries in the region, which, as the papers in this volume bring out, is perpetuating a process of dispossession with disastrous impacts on the lives of the people.

The visible manifestations of the tiger and NIC economies are glittering and opulent lifestyles, based on, and supportive of, insatiable consumerism. Only a few can indulge in such opulence; the majority are coaxed through media onslaughts to aspire for it, giving rise to a host of personal and social tensions. Amongst all the glitter, and promises of glitter, there is, therefore, an unease; everywhere. Not only amongst dissenting intellectuals, more importantly, amongst ordinary people. And that too amongst people in nations that are no longer advancing, but have arrived — Japan, South Korea, Taiwan and Singapore. Agitations by the labour force and displaced populations, struggles against dams, nuclear power, pollution and for consumer action, movements by women, peasants, slum dwellers and fishfolk, and activities of a variety of other class, gender and environment-based groups and organisations, would suggest that the benefits and consequences of development as seen by governments and their allied agencies are perceived differently by a wide cross-section of people; they feel more victimised than benefited.

Which raises the important question on the use of the term — Victims of Development — as the title of this book. The term, victim, is suggestive of a passive and powerless subject, being led to harm in a docile and non-struggling manner. This would be in contradiction to the vigorously active struggles and movements just outlined. It is important to realise that both these aspects, victimisation and struggle, or distress and defiance, coexist. Struggle is a consequence of a sense of victimisation; therefore, a victim, rather than being docile and powerless, very often is an active opponent of the causes of victimisation. The term, victims of development, therefore, almost always signifies actively struggling people. The victims' will to resistance is formed in everyday struggles for survival — "...a new identity, found in the very acts of collective resistance, is being asserted. To the rich (a few who benefit from development), the poor (the majority who almost always are the victims of development) may be largely invisible. To each other, they are known in the dialogue of daily encounter," (Raina, 1997). The objective of this book is to lend strength to these identities by making them more visible.

The two aspects of victimisation that will particularly be examined pertain to industrial malfunction and environmental degradation.

Industrial Malfunction

Bhopal: The processes of victimisation, however, can be so overpowering at times that for a period of time, even large populations can be rendered completely helpless and powerless, before collective action surfaces. For someone living in Bhopal, the night of December 2, 1984 would, in this context, be unerasable from memory. As evidence of how an active and alive population of about a million could be reduced to a herd of docile lambs being led to slaughter, the Bhopal Gas Disaster is unparalleled. In the very first report on the gas disaster caused by the multinational Union Carbide pesticide plant (Eklavya, 1984), we described that night like this:

They were asleep and unaware of impending death. But death did visit the people of Bhopal that chill winter night of December 2, 1984. A dense mist spread insidiously through the air turning this city of nearly a million inhabitants into the biggest gas chamber this world has ever known...

Innocently asleep, many never awoke, dying in their sleep. Their bodies lay under tattered *razais* (woollen covers) for over a day before being carted away unceremoniously in trucks for mass cremations and burials. Those who awoke gasped in choking fumes of the obnoxious gas which burned their eyes and seared their lungs. They opened their doors only to let in toxic fumes of death. Those living near the factory were used to sudden gusts of foul air blowing from the plant, but never before had they experienced anything like this. Panic gripped them — '*zahreeli gas chooti hai, bhago*' (poisonous gas has escaped, run away). The cry rent the air.

And they fled, noses covered with pieces of cloth, tears streaming from burning eyes. They fled with whatever they could carry. Sometimes with nothing, empty handed, only intent on escaping the acrid fumes. Unmindful of friend or foe, brother or sister, they fled. On bicycles, bullock carts, buses, cars, auto-rickshaws, tempos, trucks, mopeds ... they fled. And the poor fled on foot in a mad rush. No enchanted piper could have conjured such a macabre stampede.

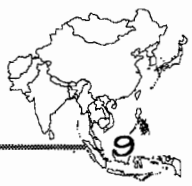
Families were separated. Many fell along the wayside, especially the poor on foot who could not outrun the gas. They fell eyes burning, retching out their insides, unable to breathe, weary, waiting for inevitable death ... The railway station lay in the path of the gas cloud, moving more eerily than anything out of a science fiction film. It left behind death. Passengers in waiting rooms, porters and railway staff who stayed on died. Most others fled. Bodies lay around haphazardly in the chilling finality of death ...

By the time an unmindful sun dawned with pitiless regularity on a beleaguered city, over a thousand lay dead, many on the roads. Over two thousand lay dying in hospitals and homes. In a ghostlike city where most of the people had fled, all around lay corpses of the dead, bellies distended and beginning to rot. The bloated carcasses of animals were carried in truckloads outside the city limits, dumped in collective graves with salt and lime .... The horror and terror soon sank into apathy and numbness as the dead came pouring into the burning ghats (grounds) and cemeteries. They came in truckloads from the hospitals and elsewhere. There were mass cremations. Orange flames leapt into the skies without respite. Crematoriums ran out of firewood and cemeteries had to open old graves to bury the newly dead for want of space ...

There was little dignity left in death. Often nameless, unclaimed, they died unwept, uncared for, merely a statistic for the world looking on aghast at this horrendous nightmare.

This peacetime mass murder of innocents would put Schindler's List and Aushwitz to shame in cold statistics, the number of dead by 1997 is over 10,000 and those injured (permanently perhaps) over 200,000! These deaths and injuries were not caused by war or natural disaster, but by an important industry, symbolising India's development, making profit by chemicalising Indian agriculture. Would it be inappropriate, then, to say that the dead and injured were really the victims of development?

The numbness of the spirit, however, did not last long. In physical pain and misery, the victims organised themselves into many groups which have, in the last thirteen years, fought the might of organised international corporate sector and the Indian state, in homes, streets and courts, with indefatigable tenacity, some of which is described in the India chapter in this volume. The courage and resilience of the women victims of Bhopal, who have been in the forefront, has been an inspiration to many other movements in India, like the anti-Narmada dam movement, with which they have linked up.



Minamata: The 13-year period of Bhopal victims, belonging to a poor country of the region, is, of course, overshadowed by the 40-year suffering of the Minamata people, citizens of a developed and advanced country. The sudden events of a single night of Bhopal contrast sharply with the slow poisoning for years of the Minamata victims, from their single source of protein and sustenance, fish, contaminated with mercury from the Chisso chemical factory. But the behaviour of the corporate sector is sickeningly similar. While people lay dead in hundreds on the morning of December 3, 1984 in Bhopal, a Union Carbide doctor claimed that the escaped gas was merely a throat irritant! As for compensation, the distribution of a paltry and shabbily arrived out-of-court settlement amount, a buyout that absolves the company of any charges for ever, continues to proceed scandalously. Between 1956, when the first signs of Minamata disease appeared, and 1968, the Chisso company used its enormous clout to prevent scientific evidence to link its plant with the disease. When the link became inescapable, the company used various forms of meagre compensation packages as a method to wriggle out of responsibility, including the 'final settlement' package of 1995 to close the chapter forever. The same Chisso factory that provided some wages by hiring the local people also slowly poisoned them to death. The morbid story of Hamamoto Tsuginori (Raina, 1996b; AMPO, 1997) captures it all:

It was on July 20th, 1955, that I realised that I had Minamata Disease. I had experienced numbness before, but on that day I collapsed twice... In September I went to Kumamoto University Hospital. I saw the letter my doctor sent to the university hospital. It said that I might have symptoms of acetylene poisoning. I was admitted to the hospital. At that time, though, nobody knew what Minamata Disease was. After I was released, I decided to give up fishing, because we had to use calcium carbide, and I thought that might be the cause of my problems. I applied for a job at the Chisso (!) Company and started working there. When I went to the physical examination, I stretched my fingers as much as I could so that they wouldn't notice the numbness.

In 1956, many people, sometimes whole families children, fathers, mothers, uncles and aunts were struck by the disease. Not all but many of the fishing families in Tsukiura village fell ill. People said the disease was infectious, and called it 'mad cat dancing disease,' after the behaviour of the cats, which were affected first. The doctors classified it as a mystery disease. My father came down with the disease after I did. He acted just like the crazy cats. He was diagnosed with the *mystery disease* at the Chisso company clinic, and sent to Kumamoto University Hospital. There was an isolation ward there at the time, and they put my father into quarantine. He kicked and struggled like a madman, and sometimes fell off the bed. My mother was also admitted to the same hospital... She saw my father struggling, and said, *allow him to die quickly*, that was how severe his condition was. He died ... the newspapers said he died 50 days after the symptoms appeared, but I think it was only 19 days.

The hospital asked me for permission to do an autopsy. I was opposed to it, because he had been struggling in life and I did not want him to continue to suffer even in death. The hospital, however, asked me to cooperate because they were doing their best to find the real cause of the disease. I agreed, and my father became the second victim to be autopsied. I later heard that his brain had become spongy and full of holes. His symptoms came on suddenly, and the more sudden the symptoms, they told me, the bigger the holes. They said the reason he died was that he ate poisoned fish, and that the poison was brought to his brain through his bloodstream, destroying his central nervous system. That was why he could not speak, see or control his body.

I know about the dangerous working conditions at Chisso, because I worked there until 1969. Only a low fence separated the workers from the dangerous high-pressure gas tanks. Sometimes I felt like opening up one of the valves and setting a match to it. I thought about doing it many times. That was how angry I was, for my family was wiped out by the disease. I cannot accept the fact that the company continues to exist. I used to earn the same amount of money in one

tide (two or three nights) of fishing as I could working a whole month at Chisso. Not only that, but I lost both my father and mother because of the company. My elder sister also got the disease in 1975 and was never able to marry. I had to sell my fishing net and ship for a pittance.

If Hamamoto's heart-rending story seems to be that of an isolated victim and his family, we need to remind ourselves that Tani Yoichi, the tireless supporter of the Minamata victims, reports that the about 200,000 people were consuming the mercury contaminated fish from the Minamata bay for years (AMPO, 1997). We are, therefore, not talking of a few affected persons, but like Bhopal, of a very large population that was gradually poisoned over many years. Apart from death and permanent injury of the victims, what comes out strongly while talking to them (Raina, 1996b), is the sense of loss of dignity and honour due to the disease. Convulsions, deformed limbs, speech impairments all caught by the term 'the slow dance of the cats,' has given such a sense of shame to entire communities that even marriage of a mildly affected person becomes a hindrance. A very large number of affected persons, therefore, have not come forward to claim compensation, including the final settlement. They would rather hide the disease than face social stigma, just as lepers used to and continue to face. Dispossession can, therefore, operate in a variety of ways.

Forms of Dispossession

The proponents of rapid development assert that they are endorsing what is good and beneficial for the majority of a nation, implying thereby that they are the true representatives of the 'national interest.' They concede that sections of populations would be adversely affected in this process, but they expect that the affected would accept such adversities as their sacrifice for the larger good — the national interest. An early United Nations document (Raina, 1997) put it forth like this:

There is a sense in which rapid economic growth is impossible without painful readjustments. Ancient philosophies have to be scrapped; old social institutions have to disintegrate; bonds of caste, creed race have to be burst; and large number of persons who can not keep up with the progress have to have their expectations of a comfortable life frustrated. Very few communities are willing to pay the full price of rapid economic growth.

It is, therefore, intrinsic to rapid economic growth that a large number of people who 'cannot keep up with progress,' must then become sacrificial victims of such progress. And it is expected that they should do so without complaint, since their sacrifice is for the good of the nation. In what forms must they, and are they sacrificing? Loss of life and injury, as the Bhopal and Minamata examples illustrate, are the ultimate form. Loss of land, dwelling places and agricultural practice due to forced displacement is perhaps the most common impact of development. But very little attention is normally paid to the loss of honour and dignity, and the snapping of cultural, ethical and philosophical roots, and all that goes in providing the basis for emotional and spiritual security and well-being of populations. The characterisation of UN experts of the 'large number of persons who can not keep up with the progress,' as suggestive of some inadequacy on their part, is patently false; they are simply excluded in the 'larger interest,' which essentially is the interest of an elite minority. In contrast it is the deprived majority that is made to feel like a discardable minority, as these poignant, despairing but defiant lines (see the Thailand chapter) of a 16-year-old girl, Yaowarak Srikampha, threatened by displacement by a dam, so boldly reveal:

Don't the Minority have a heart?

If danger is approaching your home, what do you do? I don't believe you can stay quiet and do nothing. All the villagers in Sa-iab and I see catastrophe coming to our home. How can we keep silent.

The Kaeng Sua Ten dam project will destroy everything in my hometown, including the forest, the wildlife, valuable herb, rice fields, and our home. Everything will be flooded, and we will have to be moved out. No one can know whether our lives will be better or worse. But at least the dam builders should tell us what will happen to our valuable golden teak forest. Also, what will be life like in a place we have never known before? Who can ensure that the new place will be better than our existing home?

They are forcing us to accept their project by claiming that we should sacrifice for the majority of the people in the country. But don't the minority have a heart? Don't they love their hometown? Don't forget that no one owns the forest. It belongs to everyone in the country. In the name of villagers who lived here for decades, we have the right to protect our land, the last golden teak forest in the country. Nothing can replace the forest. We will not surrender and we will not be made into scapegoats. I only hope that the government will find another way apart from building dams to solve our country's water problem. Don't the minority have a heart? Don't they love their forest?

This is, truly, the voice of all displaced victims, the same as from Narmada dams to — well everywhere. It also suggests that the processes of dispossession and victimisation, therefore, have to be seen beyond physical life and its material basis, to the very notion of well-being. Since rapid development is accompanied by an expanding base of 'manufactured risks,' what Joseph Schumpeter called a 'whirlwind of creative destruction,' the forms of dispossession affect all aspects of our lives, biological, environmental, material, psychological, social and economic. Without meaning to diminish the particular impact on the poor and marginal, in this sense, there is perhaps no one who is not a victim of development, howsoever he or she might be benefiting economically and materially.

Environmental Degradation

All people exist using air, land, water and biomass in some form or the other. Unsustainable use and rapid pollution of these natural resources are the major consequences of development, and as the development becomes rapid, so do the accompanying forms of environmental degradation. The impact of industry on the environment has become increasingly evident, which, in addition to various forms of pollution, has resulted in resource depletion and degradation of natural ecosystems. One of the consequences of liberalisation has been a widespread inflow of polluting industries and hazardous waste from industrial nations, and an outflow of raw materials and resource-intensive industrial products to them. The principal direct environmental impact of manufactured goods and their export is industrial pollution. While almost 75% of total world exports of 'dirty' industries originates from industrial countries, Southeast Asia's share increased from 3.4% in 1965 to 8.4% in 1988, reflecting the region's rapid expansion of manufactured exports. South Asia's share of the world total, based on India, Pakistan and Sri Lanka, rose from 2.1% to 2.8% over the same period (Low and Yeats, 1992). In the later decade up to now, these figures must be much higher since liberalisation has been pursued with vigour only during this period in many countries.

Everyone recognises these problems now, even the proponents of rapid development. But what is generally missed out or hidden is that pollution and environmental degradation do not affect all segments of population in the same way. For the poor, whose subsistence and livelihood is inextricably linked to the traditional free access to natural resources, environmental degradation combined with the Regalian Doctrine act as a powerful combination to further marginalise them. In particular, that it is women who are mainly under stress due to environmental degradation has been consistently ignored. Women are the primary natural resource managers in the developing countries of Asia, yet this important role is often ignored by governments and aid agencies. They do most of the work to reap food and fuel from the environment to sustain their families. When the environment is degraded, it is the women who first feel the crunch.

* * *

The glossary entries and the case studies in this book bring this out most vividly, but are restricted to only ten countries of the region. Here we provide a general overview, drawn, in the absence of alternative sources, from semi-official agencies like the UNEP and ESCAP, of the current state of environment for the entire Asian region, as a backdrop for the particular issues and stories taken up in the subsequent country chapters.

The Asia and Pacific region extends from Mongolia in the north to New Zealand in the south and from Cook Islands in the east to Iran in the west. It embraces the world's largest ocean, the Pacific (165m sq. km), as well as the third largest ocean, the Indian (73m sq. km). It contains three of the largest and most populous countries in the world (China, India and Indonesia), several mountainous and land-locked states, (such as Bhutan and Nepal) and 22 small achipelagic states, territories, and protectorates. With only 23% of the world's total land area, the region is home to about 58% of the world's population (UNEP, 1997; ESCAP 1992; ESCAP, 1995a).

Land: The region is characterised by relative land scarcity and poorer land quality than other regions. In most developing countries of the region, soils suffer from varying degrees of erosion and degradation, mainly due to rapid rates of deforestation, poor irrigation and drainage practices, inadequate soil conservation, steep slopes, and overgrazing. According to the Global Assessment of Human-Induced Soil Degradation, of the world's 1.9bn ha affected by soil degradation, the largest area (850mha) is in Asia and the Pacific, accounting for about 24% of the land in the region. Thirteen per cent of arable land in the region is considered to be severely degraded, 41% moderately degraded, and 46% lightly degraded (WRI/UNEP/UNDP/WB, 1996). Land degradation in the region results from displacement of soil material, mainly through water erosion (61%) and wind erosion (28%), and from biophysical (2%) and chemical (9%) deterioration (UNEP/ISRIC, 1990).

Water erosion is extensive and severe throughout the Himalaya, South Asia, Southeast Asia, and large areas of China. In India alone, 12.62mha out of a total of 32.77mha of agricultural land is affected by strong water erosion, including due to canal irrigation. In Sri Lanka, 845,000ha are affected; and in Iran, 45% of agricultural land is affected by light to moderate water erosion (FAO/UNDP/UNEP, 1994). In Pakistan, soil erosion and salinisation of agricultural land in Punjab due to canal irrigation is extremely severe and forms a case study in this book. More than half of the world's irrigated land affected by waterlogging and salinisation is located in Asia, while some 75mha soil in the region have deteriorated chemically over the past 45 years, resulting in serious questioning of dam-irrigated and chemically intensive agricultural practices of 'green revolution.'

Overall, 86mha land in the arid, semi-arid and dry subhumid zones — 70mha rainfed cropland and 16mha irrigated croplands — have been affected by desertification (ESCAP, 1995a). This implies that altogether 35% of productive land in Asia is now desertified. The region has the largest population in the world affected by the process. The people of the countries suffering most from desertification are China, Afghanistan, Mongolia, Pakistan and India.

The contribution of human activities to land degradation in the region has been estimated as follows: removal of vegetation cover, 37%; overgrazing by livestock, 33%; unsustainable agricultural practices, 25%; and overexploitation through construction of infrastructure, 5% (UNEP/ISRIC, 1990).

Forests: The forest and woodlands in the Asia and Pacific region cover approximately 655mha — some 17% of the world's total. About 33% of this is found in Southeast Asia, and just three countries, Australia, Indonesia and China, account for 52% of forest cover in this region (FAO/RAPA, 1993). Most of the

other countries have at least 20% forest cover, with the least forest cover being found in South Asia. Deforestation in the region increased from 2mha per year in 1976-81 to 3.9mha per year in 1981-90 (FAO, 1993). The countries with fastest deforestation are Bangladesh, Pakistan, the Philippines, and Thailand (FAO, 1993). From 1981-90, it is estimated that, within total forest area, tropical forests decreased by 6.7%. The percentage decrease in the natural tropical forest area was 11.1 (the highest rate observed for this type of forest as compared with other regions).

Due to increasing population, industrialisation, agricultural expansion and forestry product trade, deforestation remains one of the major environmental issues of the region. In the absence of other alternatives, subsistence needs of large populations for fuelwood, roundwood and fodder result in rapid depletion of forests. At the current rate of harvesting, the remaining timber reserves in Asia may not last for more than 40 years.

This 40-year span may become much shorter since, as we go to press, a new form of forest destruction has been unleashed in Indonesia; uncontrolled fires. Conditions of extreme dry weather combined with callous methods of setting up plantations as replacements for forests have combined to create a South East Asian holocaust of unimaginable proportions, as the short write-up in the Malaysia paper reveals.

Water: Though the region is comparatively well endowed with water resources, only a part of the renewable water resources can be extracted and used, owing to high variability of streamflow between low water and flood seasons (ESCAP, 1995a). The total average annual renewable water resource in the region is estimated to be approximately 13,000 cu. km (WRI/UNEP/UNDP, 1994).

Per capita water availability can be as low as 200 cu. m per year in Singapore. Countries such as Afghanistan and Iran suffer from chronic water shortages due to aridity, while parts of China and India experience the same problem primarily due to increasing marginalisation of local communities in water harvesting and management.

The major causes of water pollution are domestic sewage, industrial effluents, and runoff from activities such as agriculture and mining. The severity of pathogenic pollution is high in South Asia, Southeast Asia and China. Pathogens generally come from domestic sewage that is discharged untreated into watercourses. South Asia and China are most severely affected by organic matter pollution, the main source of which is effluent from the pulp, paper and food industries.

Lake eutrophication is a significant but localised concern in a number of countries. A survey by UNEP and the International Lake Environment Committee (ILEC) shows that 54% of the lakes in Southeast Asia suffer from eutrophication problems (UNEP, 1994). This subregion's inland waterbodies are also affected by the presence of pathogenic agents, while many rivers carry enhanced nutrient and pollutant loads resulting from changes in land use, industrialisation and urbanisation. Discharge of mine tailings and development of industrial areas with direct discharge of pollutants into neighbouring river systems has resulted in hot spots of heavy metal pollution throughout the region, evident, for example, from the Philippines chapter in this book.

In many countries, salinisation affects the groundwater resources severely due to the intrusion of seawater. In Thailand, the rapid lowering of the water table due to excessive extraction of groundwater has caused the shallow aquifers in Bangkok to become contaminated with seawater. The over-withdrawal of groundwater reserves has also caused land subsidence in cities such as Bangkok and Jakarta. In Bangkok, for example, land has subsided in some places by 0.5-0.6m over the last 20-25 years, which has aggravated the city's flood problems. (ESCAP, 1995a). In countries like Bangladesh, salinity and sedimentation are occurring largely as a result of upstream water withdrawal.

The freshwater withdrawals in Asia and the Pacific range from 15 to 1400 cu. m per person per year (WRI/UNEP/UNDP, 1994). Agriculture accounts for 60-90% of the annual water withdrawal in most of the countries in the region, with the highest proportion in Afghanistan (99%). The demands for domestic and industrial uses are increasing in the region due to high rates of urbanisation and industrialisation.

Freshwater availability of below 1000 cu. m per capita per year indicates water scarcity. Singapore is already water-scarce, with considerably less than 1000 cu. m per capita of water available per year, while Iran and India are heading in that direction. India is among the countries projected to fall into the water-stress category before 2025. Its situation is well illustrated by the case of Rajasthan, which is home to 8% of India's population but claims only 1% of the country's total water resources. China is expected to only narrowly miss the water-stress benchmark by 2025 (WRI/UNEP/UNDP, 1992).

Atmosphere: One of the major implications of the economic growth in Asia over the last three decades has been the increased demand for energy. The region, excluding Japan, Australia, and New Zealand accounted for 21% of world's primary commercial energy demand in 1992 as compared with 51% for OECD members, and 28% for the rest of the world. The growth in energy demand for the whole region was 3.6% per year between 1990 and 1992, compared with an average 0.1% growth of the whole world (ADB, 1994b). In particular, the region accounted for about 41% of world coal consumption for 1993 (EIA, 1995).

The rapid growth in energy demand and especially the region's reliance on coal translate into a significant increase in air pollutants. Urban air pollution is a serious problem in many major cities of the region. Flyash generated from the mining of coal is also a significant problem in the region, particularly in India, where it is as serious as acid rain is elsewhere. An estimated 35-40mt of flyash are generated by thermal power plants every year, and only 2-3% is being reused (India, 1993).

Transboundary air pollution is a problem that has accompanied economic growth and high energy consumption. Although acidification of the environment has until recently been regarded as a problem only in Europe and North America, it has also started to emerge in parts of Asia. It has been estimated that 38mt of sulphur dioxide were emitted in 22 countries of Asia in 1990, almost 56% more than in North America, and this is expected to be much higher in the coming decades (Shrestha et al., 1996). About 78% of these emissions originated from Northeast Asia (China, South Korea, Japan, Hong Kong, Mongolia and Taiwan).

A WB/ADB sponsored study (Hettelingh et al., 1995) on acid rain and emissions reduction in Asia shows that the areas with critical loads of up to 320 mg per sq. m per year (areas most susceptible to acid deposition) are located in South China, the areas southeast of Thailand, Cambodia, and southern Vietnam. In 1990, the areas with acid rain loading in large excess of critical loads were located in southeast China, northeast India, Bangladesh, Thailand, parts of Indonesia, South Korea, southern Japan, and parts of the Philippines.

Biodiversity: The region includes the world's highest mountain system, the second largest rainforest complex, and more than half of the world's coral reefs. Five of the 12 'mega-diversity' countries identified by McNeeley et al. are in this region (McNeeley et al., 1990). The rainforests of Southeast Asia contain some 10% of the flora of the world. The region as a whole encompasses two thirds of the world's flora. As pointed out earlier, almost all the nations of the region, with the exception of Singapore, depend heavily on direct harvesting from nature.

The flora and fauna of the region are more threatened now than ever before. The drive for increased agricultural production, read 'green revolution,' has resulted

in the loss of genetic diversity. Land under rice cultivation rose between 1960 and 1970 by only 25%, but production rose by 77% due to the replacement of traditional varieties with higher-yielding, semi-dwarf varieties. By 2005, India is expected to produce 75% of its rice from just 10 varieties compared with 30,000 varieties traditionally cultivated. In Indonesia, 1500 varieties of rice disappeared during the period 1975-90 (WRI/UNEP/IUCN, 1992). Terrestrial biodiversity loss in various ecosystems has been identified as a major concern, but losses have still to be quantified. Overall habitat losses have been most acute in the Indian sub-continent, China, Vietnam, and Thailand (ESCAP, 1995b).

The Indo-west Pacific is the centre of shallow-water marine biodiversity. Coastal habitat loss and degradation, combined with increased sediment, nutrient, and pollutant discharge into coastal areas, is a major cause of concern, particularly in the insular countries of the region. Thailand alone lost about 200,000ha mangrove over 1961-93 (Government of Thailand, 1994). Conversion of mangroves to shrimp mariculture and unsustainable fishing practices such as blast fishing is widespread. Due to such practices, it is estimated that the rates of loss of coral reef and mangrove habitats are among the highest in the world.

The underlying causes of biological diversity in the region include globalised trade, particularly in timber, market-oriented agricultural practices including wanton use of agrochemicals, population pressure on 'common resources' which are increasingly shrinking due to state takeover, the introduction of non-native species, leading to disruption of food chains and prey-predator equilibrium, increased trafficking in animals and animal body parts and the construction of largescale dams.

Marine and Coastal Environments: Most people in the region live along the coasts, with one quarter of the world's 75 largest cities being near or on the region's coastlines (ESCAP, 1995a). Most of these large cities and industrial areas are located in highly productive lowlying estuarine areas. The marine resources of the region are economically important to most countries, with 47% of the world fisheries production being found in this region, providing livelihood and food security to a very large poor population.

Coastal and marine pollution in this region is mainly due to direct discharge from rivers, surface runoff and drainage from port areas, domestic and industrial effluents (as in Minamata bay poisoning), and various contaminants from ships. Municipal sewage, industrial effluent, and sediments generally heavily contaminate river waters. Asian rivers account for nearly 50% of the total sediment load (13.5 bn t) transported by the world's rivers each year (UNEP, 1992).

As much as 70% of the waste effluent discharged into the Pacific Ocean has no prior treatment (Fuavo, 1990). More than 40% of marine pollution in the region is derived from land-based activities through riverine discharge, with maritime transport contributing a further 12% (Weber, 1993). The Government of Korea estimates that at least 80% of pollutants in the Yellow and South seas of the Korean Peninsula come from inland activities (domestic and industrial) through the four largest Korean rivers (Government of Korea, 1994).

The major sources of heavy metal contamination (responsible for Minamata disease), are industrial effluent and dumping of lead-based solid waste into the sea. In India, for example, exceptionally high concentrations of lead, cadmium, and mercury have been observed in the Thane creeks on the Mumbai (earlier Bombay) Coast, and sediment along the creeks and offshore stations was reported to contain significant concentrations of lead (India, 1993). In Pakistan, heavy metal contamination has been detected in water and sediment from the coastal area within the mouth of the Indus river (Tariq et al., 1993).There is increasing evidence of these toxic substances getting into the food chain, implying thereby that the Minamata horror, far from being a 'lapse' of the past, is silently reestablishing itself in many parts of the world.

Increased use of agrochemicals in this region is a major source of marine pollution. Fertiliser consumption rose by 74% in 1982-92, from 33.3mt to 57.8mt (ESCAP, 1995a). Use of pesticides (the Union Carbide plant in Bhopal made just that) in the developing countries is increasing. An estimated 1800 t of pesticides enter the Bay of Bengal annually (Holmgren, 1994), and increased use of pesticides in some areas has resulted in contamination of shell and fin fish.

Loss of coastal habitats includes substantial loss of mangrove forests in Southeast Asia, particularly for the construction of shrimp ponds and for paddy rice cultivation, with negative impacts on fisheries that rely on species using the mangroves as nursery areas. Thailand and the Philippines are clear examples: some 208,218ha and 200,000ha respectively, were cleared between 1961-93 (GESMAP, 1993). Identical problems because of shrimp culture have occurred in Bangladesh, India, and Sri Lanka. One example of this destructive sequence of events is the Chakaria Sundarbans in eastern Bangladesh, which has been almost completely cleared for aquaculture (ESCAP, 1995a).

Occurrences of 'red tides', a special plankton bloom, has been an environmental problem of major concern in the coastal area of the region. In addition to severely depleting oxygen levels, leading to the mass death of aquatic organisms, the red tides also cause a paralytic shellfish poisoning, with serious risks to human health. For example, an outbreak of red tides in the Philippines in 1990 proved costly for the fisheries and shellfish industries (ESCAP, 1995a). The frequency of the appearance of red tides in Tolo Harbour, Hong Kong, ranged from two in 1977 to nine in 1994. China is also experiencing an increasing threat of red tides in its coastal waters; there were a total of 19 incidents of red tide in 1993 (ESCAP, 1995a).

A major cause for concern throughout the region is overfishing and the use of destructive fishing techniques, particularly in the highly diverse coral reef systems. Most stocks throughout the region are currently being fully harvested, while a number are being exploited at unsustainable levels. Increasingly frequent and severe toxic algal blooms and the eutrophication of bays and semi-enclosed water bodies are growing problems throughout the region. Coastal erosion resulting from increased land subsidence from groundwater extraction, sediment starvation as a consequence of inland dam and irrigation barrage construction, and offshore mining of sand are notable problems in some localities. The high volume of maritime traffic and rising numbers of international tourist arrivals pose additional threats to marine and coastal environments.

'Natural' Hazards: Many of the developing countries in this region are situated in the world's hazard belts of floods, droughts, cyclones, earthquakes, windstorms, tidal waves, and landslides. The major natural disasters faced periodically are largely due to climatic and seismic factors. The Asia-Pacific has been one of the worst hit in terms of natural disasters, suffering 50% of the world's major emergencies (ESCAP, 1995a). Since the International Decade for Natural Disaster Reduction began in 1990, the total number of deaths in the region due to these causes has exceeded 200,000, with damage to property over this period at $100 bn (ESCAP, 1995a). Vulnerability has increased due to growing urban populations, environmental degradation, and lack of planning and preparedness. The victims are generally the poor and downtrodden, since they have to sustain themselves close to sites of such disasters, and cannot afford to move away.

Disasters are the result of meteorological phenomena such as typhoons, hurricanes, sheet flooding, and marine and river based floods; of geological processes such as volcanic eruptions, earthquakes, and tsunamis; and of climatic phenomenon such as the El Nino — Southern Oscillation that results in a lower mean level in the east, failure of the monsoon rains in India, and drought in Indonesia. Vulnerability to natural hazards has been increased in many coastal areas due to the loss of habitats such as mangroves and coral reefs that provided natural protection against marine-based flooding.

Tropical cyclones, or typhoons, which are common in Asia and the Pacific, occur most frequently over the northwest Pacific during June and November just east of the Philippines, with an average of 30 typhoons per year (38% of the world's total; ESCAP, 1995a). In the Bay of Bengal, tropical cyclones usually form over the southern end during April-December and then move to the east coast of India and Bangladesh, causing severe flooding and, often, devastating tidal surges. Overall, the Philippines, Bangladesh, and Vietnam appear to suffer most frequently from these large events.

Floods, which are the most common climate-related disasters in the region, include seasonal flooding, flash flooding, urban flooding due to inadequate drainage facilities, floods associated with tidal events induced by typhoons in coastal areas, and so on. In Bangladesh, one of the most flood prone countries in the region, as many as 80 million people are vulnerable to flooding each year (ESCAP, 1995a). Another example is the subcontinent forming India and Pakistan, where nearly 60mha are at risk from flooding each year, and the average annual direct damage has been estimated at $240m, although this can exceed $1.5bn when flooding is severe (ESCAP, 1995a). Flood control has been a major officially claimed reason for building big dams in India, but there is growing evidence that while being ineffective on that count, such dams have done more environmental and social damage than simple floods used to do.

Droughts affect an extremely large population in the region. Most of the estimated 500 million rural poor in this region are subsistence farmers occupying mainly rainfed land (ESCAP, 1995a). The drought prone countries are Afghanistan, Iran, Myanmar, Pakistan, Nepal, India, Sri Lanka, and parts of Bangladesh. In India about 33% of arable land — 14% of the total land area of the country — is considered to be drought-prone, and a further 35% can also be affected when rainfall is exceptionally low for extended periods (ESCAP, 1995a). Nepal has experienced severe droughts in the past; the Philippines and Thailand also have drought-prone areas.

Landslides, which are very common in the hills and mountainous parts of the region, occur frequently in India, China, Nepal, Thailand and the Philippines. In addition to the primary cause — the topography — landslides are aggravated by human activities such as deforestation, cultivation, and construction, which destabilise the already fragile slopes. For instance, as a result of combined actions of natural (mostly heavy rainfall) and human factors, as many as 12,000 landslides occur in Nepal each year (ESCAP, 1995a).

The region has recorded 70% of the world's earthquakes measuring 7 or more on the Richter scale, at an average rate of 15 per year (ESCAP, 1995a). The countries badly affected by earthquakes include Afghanistan, India, Iran, Japan, Nepal, and the Philippines. Many of the countries in the region are located along or adjacent to the Pacific Ocean Seismic Zone and/or the Indian Ocean Seismic Zone. For instance, 50-60% of India is vulnerable to seismic activities of varying intensities (ESCAP, 1995a). These areas are essentially located in the Himalayan region and in the Union Territory of the Andaman and Nicobar Islands. This is a cause for the raging controversy regarding a high dam being built in the Himalayan region at Tehri, because of the possible reservoir-induced seismicity that could spell disaster right up to New Delhi. The September 1993 earthquake in Maharashtra state in western India claimed more than 12,000 lives. It is confirmed now that another disastrous earthquake in this region of India some years back was triggered by the reservoir of the Koyna dam.

Similarly, about 80% of China's territorial area (with 60% of its large cities and 70% of its urban areas with populations over 1 million) is located in seismic zones (ESCAP, 1995a). The most devastating earthquake in the world in recent history, the Tangshan earthquake in China on July 28, 1976, claimed more than 240,000 lives. Japan is located in the Pacific Rim seismic zone. It suffers a massive earthquake (Richter scale 8 or over) on average once every 10 years and a

largescale earthquake (magnitude 7 class) on average once a year. In January 1995, Japan suffered one of the worst earthquakes in recent years at Kobe, which claimed 5000 lives. The Philippines, which lies between two of the world's most active tectonic plates, experiences an average of five earthquakes a day.

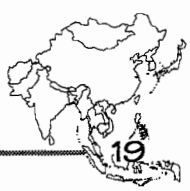
Tsunamis, the tidal waves generated by earthquakes, affect many of the coastal areas of the region, including those of Japan, Indonesia, and the Philippines. For example, the infamous Krakatau volcanic eruption during 1883 in Sunda Straits, Indonesia, generated a 35-metre high tsunami, which claimed 36,000 lives (ESCAP, 1995a). The tsunami of August 17, 1976 in the Moro Gulf area of the Philippines caused some 8000 deaths.

Volcanoes, like earthquakes, are located mainly along the Pacific Rim. Countries of the region at risk from volcanic eruptions include Indonesia, Japan, New Zealand and the Philippines. Those most frequently affected are Indonesia (129 active volcanoes), Japan (77 active volcanoes), and the Philippines (21 active volcanoes) (ESCAP, 1995a; Government of Japan, 1987). Notable examples include the eruptions of Mount Pinatubo in Central Luzon, during the period 12-15 June 1991, which affected about 1-2 million people (Lewinson, 1993), demolished the surrounding forests, caused massive siltation of the rivers and coastal areas, and deposited volcanic ash in surrounding areas and even across continents.

Environmental degradation and disaster are very closely linked in this region. The countries that suffer most from the disasters are the same ones in which environmental degradation is proceeding most rapidly. Similarly, poverty and vulnerability to disasters is closely linked. There are some 3000 deaths per event in low-income countries and about 400 per event in middle and high-income countries (ESCAP, 1992). This reflects the lack of concern in mitigating the impacts of natural disasters — the victims are in both types of countries for whom the state is least bothered. It has been estimated that annual flood losses in some countries are 40 times more today than what they were in the 1950s (ESCAP, 1992), meaning 50 years of modern development has brought in more misery for the people of these countries. According to the Indian Government, one out of every 20 people in the nation is vulnerable to flooding (ESCAP, 1992). Similarly, in China more than 85% of the population is concentrated on alluvial plains or basins along river courses that constitute one third of its total land (ESCAP, 1992).

Seeking Alternatives

Persistent poverty, along with vulnerability due to industrial and environmental hazards seems to be the fate of the majority of people of the region, dazzling growth rates and ascending per capita incomes notwithstanding. Pockets of affluence do exist, but they are overshadowed by worker exploitation, gender inequity, social and political marginalisation of people and contending claims to natural resources amongst a host of other problems. In these circumstances, criticism of the prevailing development concerns is either meant or confused with an anti-development position — a rejection of modernity and a fall back to all that is traditional. That is not the sense being projected here. Debate within such polarised categories is intellectually and for practical purposes of not much purpose. Traditional practices need neither to be completely discarded nor romanticised. Likewise, modernity's promise to find technological solutions to all problems has obviously not come true, nor is likely to. Instead it has created a complex web of fresh problems, some of which are set out in the pages that follow. Positivist positions, particularly of the economic type, are truly repugnant. Science, technology and the rationalist discourse, the shining knights of the 'modern' promise have lost a lot of glitter. That the discipline of economics, to be precise, neo-classical economics, should try to find prestige for itself in intellectual ways that even physics is questioning, is amusing. But the political and social consequences of such intellectually questionable economic thought is anything but amusing, it is very grave.



The need to seek alternative ways of thinking and practice in developmental terms is an immediate intellectual and political challenge of the times, as simply, millions of lives, or life itself, may depend on it. We are now the inhabitants of a runaway world. A great deal of intellectual and political energy is required to right its trajectory lest it runs out of orbit. This book is meant to convey some sense of the degree to which it has become runaway, so that it jolts intellectuals and practitioners both, to prioritise their efforts and energies to tackle such a task. Thousands and thousands of individuals and groups, all over the world and in the Asia region are engaged in practising such alternatives (see for example, Raina 1996a, 1996b; ARENA/RUA/KSSP, 1997). But the efforts need constant renewal, both in theory and practice.

Many mainstream technocrats and academics, armed with economic statistics of growth rates and per capita incomes may shrug this away as yet another 'emotional' report on the human conditions in the region, falling short of academic 'precision.' About 1600 glossary entries and 85 case studies spanning 10 countries, with relevant data, wherever available, provide adequate evidence that industrial and technological malfunction and loss of life supporting ecological systems are not isolated incidents but the flip side of the prevailing developmental coin. Conversely, it needs to be emphasised that the use of GNP, per capita incomes and such 'precise' data is completely wrong as a measure of the living conditions of people. With the noted economist, Amartya Sen, we then ask the question (Sen, 1987), 'why after all, must we reject being vaguely right in favour of being precisely wrong?'

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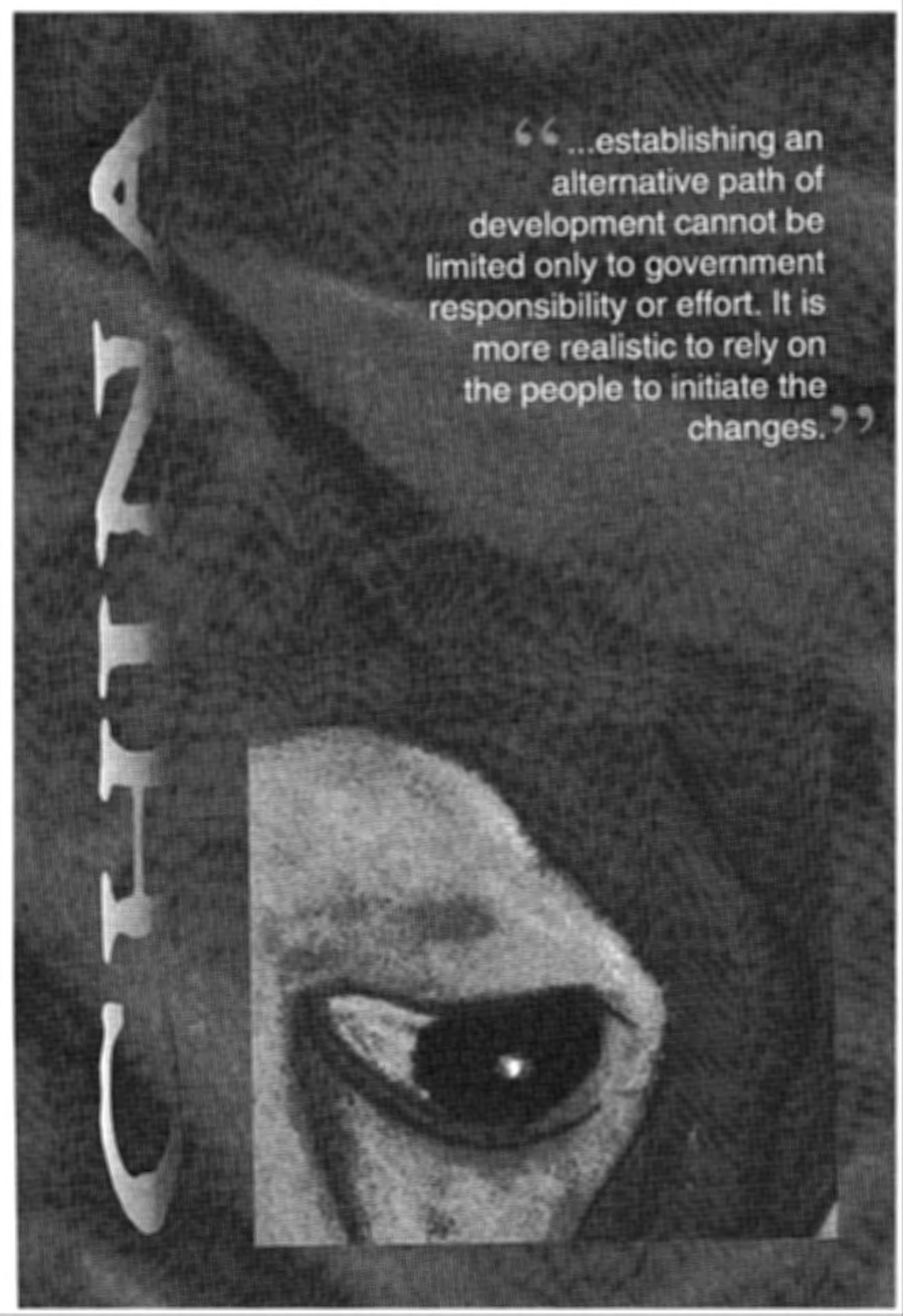

CHINA
"...establishing an alternative path of development cannot be limited only to government responsibility or effort. It is more realistic to rely on the people to initiate the changes."

CHINA

Hui Po Keung, Lau Kin Chi, So Yiu Cheong,
Siu Pui Fei, Siu Yun Yee, Choi Shan Yu,
& Tsang Ka Wai

Post-1949 Development in China: No Social Costs, Revolution or Reform

Economic development processes in post-1949 China can be divided into two periods. In the first, 1950-70, the economy was extensively and intensively controlled by the state with a priority for developing heavy industries. In the second, since the 80s and known as the 'reform period,' the Chinese economy has increasingly been integrated with the world economy and relying on light (rural) industries as the prime motor of economic growth. Yet, in both these periods, Chinese policymakers shared the same 'developmental' philosophy in which social costs, that is the reproduction costs of human labour and nature, are largely ignored. The following is a critical sketch of government policies and their impact on the domestic population in these two periods.

1950-1978: Lacunae in the New Order

The 1949 revolution provided the necessary condition for transformation of the structures of Chinese economy. With considerable destruction of the old and decay in political and economic powers in rural and urban areas through the revolution, the post-49 period witnessed largescale collectivisation in both the agricultural and industrial sectors. In rural areas, Chinese government chose to adopt a 'scissors-prices' system, which compulsorily forced the peasants to sell their products at a low price to government. This helped the industrial sector acquire low-cost raw materials; and wages of urban workers were maintained at a low level by supplying food cheaply to them. Concomitantly, the prices of industrial products were set at a very high rate. In this way, industrial profit accumulated in the hands of the state, enabling it to further fund industrial expansion, especially heavy industries. This was the underlying mechanism of unifying purchases as well as the selling system for agriculture products.

Low agricultural procurement prices, however, ended up inducing peasant unrest in the long run. Consequently, other policies to prevent potential conflicts were introduced. For example, in the domain of production, the state forbade selling and buying of land. It also restricted labour mobility through the adoption of a household-registration system, thus lowering the opportunity costs of land and labour. Similarly, in the domain of distribution, the state procured agricultural products at low prices, but gave the countryside direct investments or

low-priced means of production. It also provided urban citizens with cheaply priced food, housing, utilities, medical care and education to make low wages more acceptable to the worker. There is, thus, little doubt that these strategies sacrificed the rural economy in favour of urban industrialisation. During 1949-78, it is estimated that Chinese peasants had contributed around 800 bn yuan to 'initial capital accumulation' required for industrialisation.[1]

The policies themselves were products of a particular historical context and can be described as the choice of a development strategy giving 'priority to heavy industry.' The argument was that China had very little heavy industry (around 0.1% of the total industrial product value before 1949), but needed to 'catch up' with the emerging 'imperial powers' (USSR and USA) in order to 'modernise,' and also develop as a strong nation-state. However, such policies, being based on highly centralised political control, created many serious problems for the Chinese economy, among them environmental destruction and bureaucratisation of the society.

Although social development indicators of pre-1978 China — including life expectancy, nutrition, education, mortality and health conditions — are relatively respectable when compared with other third world countries such as India, the country's achievements came mainly from the extensive mobilisation of human and natural resources.[2] In fact, China's 'developmentalist' policies had largely ignored social costs in the development process, and consequently, the natural environment of China deteriorated acutely. During 1957-77, 33.3mha arable land disappeared, equivalent to almost 30% of the pre-1957 figure.[3] In 1949-80, China lost no less than 24% of its forest and, by the end of the 70s, out of the 78 monitored rivers, 54 were found to be polluted. As a result of increasing land, water and air pollution and deterioration of the living environment among the Chinese population, pollution-related deaths and diseases began to increase significantly.[4]

The basic mechanism that led to most of these environmental disorders can be attributed to the operation of the 'socialist planning' system. In this system, a significant share of the costs of reproduction of human labour and nature were internalised by deliberately setting low prices for raw materials, utilities and medical care. The state was the sole mediator in this process and no single individual was held accountable for the destruction and reproduction of the environment. To make things worse, environmental costs were not easily visible in the short term. Clearly, the advancements in the social and economic conditions of the Chinese people in this period was largely achieved at the expense of the environment.

However, the unchecked, and increasingly corrupt, state could not facilitate this internalisation process forever, simply because it had itself 'eaten up' a large part of both natural and human resources. Attempts by government to decentralise the economy — so as to be released of the burden of bearing social costs as well as to resolve the problem of bureaucratisation — were made in the late 50s during the period of the Great Leap Forward and again in the mid-60s during the Cultural Revolution but were of little use in successfully eliminating the problems. Indeed, in the absence of a check-and-balance democratic system and a well-organised civil society, these attempts turned out to be disastrous for the Chinese ecology. Unfortunately, 'economic reform' and 'open door' policies which were introduced in the 80s are mere continuation of these early unsuccessful attempts.

1980 Onwards: Beneath the Miracle

China's 'economic reform' and 'open door' policies, which began in the late 70s, attempted to add market mechanisms to a planned economy, along with a gradual decentralisation of economic power from the central government to local administrative units, enterprises and rural households.

From 1978, the Chinese government launched extensive economic reforms in the countryside, establishing the Household Responsibility System (HRS) in which peasant households engaged contracts with the collectives (which were to become local administrative government after 1984). Under this, each peasant family, according to the contract they signed, had to provide a fixed quota of agricultural produce for the collective (or local government) within a certain period. Throughout this period, the household was allowed to control the entire production process, fixed amount of land being supplied by government. They would, however, be punished — frequently through a system of fines — for any failure to fulfil the quota. If there was an abundance, the peasant could sell the surplus directly in the free market or receive bonus from the collective. In this way, the collectives retreated to a minor position in both production and distribution in Chinese agriculture (and this also happened in the urban sector).

It is this HRS which the Chinese government has widely referred to as the driving force of rapid growth in rural China since 1978. Since the mid-80s, the increase in peasant mobility further led to rapid flow of labour from agricultural activities to rural (light) industries. According to official data, the share of labour force in rural industries as part of the total labour force in rural areas, increased from less than one-tenth in 1980 to about one-fourth in 1994; and the share of rural industrial enterprises in total industrial output increased from 10% in 1980 to 42% in 1994.[5] In contrast, the agricultural sector shrank, from accounting for 68% of the rural gross output to 36% in the period 1978-92. Another noteworthy point is that women have been increasingly incorporated into both the agricultural and industrial activities since the 80s.[6]

In the same period, the Chinese economy has also actively sought to integrate itself with the world economy. The 'open door' policies, including promotion of foreign trade through decentralisation of foreign trade administration to local governments and enterprises, and the encouragement of direct and indirect foreign investment inflows, have also had significant impacts on the domestic economy. In fact, as a result of trade promotion policies, China's foreign trade increased significantly since the 70s, especially with the rest of Asia and the USA.[7] In terms of foreign investment and external borrowing, it was only since the early 80s that China began to promote them extensively. According to official data, the total value of direct foreign investment in China increased more than 17-fold from $635.21m to $11,160m in the period 1983-92. The greatest beneficiaries of such 'open doors' have been the southern and eastern coastal areas, particularly the Special Economic Zones (SEZ) to which the central government has granted relatively favourable policies.

The economic changes in China since the 80s have been widely described as a 'miracle.' But most of the claims about the success of the reform are based on monetary measurements (and always in nominal terms), such as GNP growth rates, and ignore the heavy social costs incurred. The 'reform' and 'open door' policies, which are believed to be the engine of the rapid economic growth in the 80s and 90s, are basically a new version of the earlier developmental philosophy, though this time the state abandoned, to a great extent, its role of internalising the social costs of economic growth. Consequently, Chinese households and individuals have had to increasingly take up the social costs of development directly on themselves.

At the same time, the natural environment and the poor have remained the main losers, in a way, perhaps, worse than in the pre-reform era. For instance, after the establishment of the HRS, the quality of environment protection deteriorated so sharply that in 1981, 280,000 people were poisoned and 18,000 died and in 1985, there were 105,000 cases of poisoning with 17,000 deaths. Small industries, especially rural enterprises, have been one of the main producers of poisonous and dangerous substances. According to a survey, 84% of rural enterprises produced some of these harmful substances in the mid-80s.[8]

Rapid development of industries and quick pace of urbanisation have also led to use of a significant amounts of clear water. In late 1993, according to official data, which usually understates the seriousness of the problems, over 82 million people in rural China suffered from a shortage of water, while more than 300 cities had the same problem.[9]

In terms of social stability and security, too, China is seeing deteriorating standards since the launching of economic reforms. Personal and property safety has become vulnerable and criminal activities, especially organised crimes including drug trafficking, prostitution, abduction, weapon trade and kidnapping, have gone up considerably.[10]

The ratio of working hours to leisure, especially that for women, has also seen a rising curve. A survey of 1000 agricultural households in Hebei Province found that in 30% of the cases, the women of the household performed triple duties: they farmed the household's responsibility land, engaged in sideline activities on a commercial basis, and did all the housework. Another survey conducted in 1994 in Zhujiang Delta on migrant workers, of whom 75% were female, also highlighted similar trends: long working hours, poor working and living conditions and poor social welfare, if at all.[11]

The positive images of reforms is further discredited as a large part of the rise in peasant income is found to come from the transformation of previous non-monetary incomes (such as household unpaid production and implicit subsidies from government) to monetary forms alone.[12] The widely-believed merits of the development of rural industries needs also be qualified. The spread of 'urban civilisation' from the rural industrial sector to the agricultural sector is not necessarily good for the latter. In fact, the rural industries boom since the mid-80s has induced heavy costs to the agricultural sector, including rapid elimination of arable land area and massive destruction and pollution of the natural rural environment.[13] In the 80s, due to the development of rural industries and the rapid establishment of peasants' housing — accompanied by the development of small townships — arable land in the country decreased on an average by 7m ha per year. During 1979-89, a total 3.8m ha farmland was lost in China, though not all of it was due to the development of rural industries. More important, occupied farmland can hardly be re-transformed back to agricultural use.[14]

In addition, income inequality has increased as a result of a rapid rise in inter-regional inequality.[15] The gap between the rich and poor has been rising since the mid-80s[16] and the decade witnessed the emergence of an urban underclass — child labourers, street kids, prostitutes and drug users — side by side with the very rich. It is not surprising that those with higher incomes usually have greater opportunities to get richer, while those who have less have less chances. In fact, the 'backward region's backwardness' is also related to its interaction with the 'modern sector.' It must be remembered that the more 'advanced' industrial sector is not isolated from its 'backward' rural counterpart — the peasant economy. Instead, the production and reproduction of the rural industrial sector is heavily depended on the dynamic interaction with the peasant economy, and this interaction is not uncommonly harmful to the latter. The fact is that rural industry not only takes land away from the peasantry, but also forces the rural family to adjust their consumption patterns (personal and productive) to the needs of the market, thus increasing the risk of the peasant by exposing him to its fluctuation.[17]

Through sub-contracting or putting-out systems which externalise costs of production processes (by lowering of wages) and reproduction costs such as social security allowances, the industrial sector benefits from — though at the expense of — the agricultural sector. In the so-called flexible modes of production, which employs piece rate wages encouraging labour to engage in longer working days with greater work intensity, women, who increasingly become the main workforce in the reform periods, have been the main target of exploitation. Moreover, the persistence of peasant forms of production provides seasonal labour force, which acts as a reserve of cheap

labour, for the rural industrial sector. On the other hand, the 'backward' agricultural sector usually gets worse when interacting with the rural industrial sector because rural industries encourage fragmentation of land, unfavourable for the improvement of farming technology, such as the application of machinery.

Rely on People

All these, however, do not imply that China's economic reform has only created negative impacts. In fact, certain groups in certain areas did benefit from the far-reaching shifts in the country's economic and political strategies since 1978. This is only an alternative study to illustrate that beneath the 'miracle' are numerous victims of development who go largely unnoticed. Its aim is to emphasise that an alternative development strategy, friendlier to human and natural ecology, be looked for and implemented in the future.

Though government has tried to establish all kinds of legal framework to reduce environmental destruction, their policies have proved ineffective due to weak enforcement.[18] The main limitation is, in fact, political, that is, the undemocratic nature of the system. Post-reform Chinese state has only facilitated the exploitation of rural entrepreneurs by forcing successful rural business to pay various fees to local government, and also through corruption, stealing, illegal use of collective properties and inefficient management of the economy.[19]

Hence, without transforming the political power structure, it is not possible for government to successfully implement sustainable development policies. Merely producing more laws does not suffice. In fact, of the 12 laws which constituted the functioning of the local People's Congress in China in the mid-80s, only two — regarding hearing of government reports and election of local officials — were adhered to by the authorities. However, since most elections are just formal affairs, the local people's congress' main functions have been reduced to that of hearing government reports.[20]

Although China has a very comprehensive environmental protection law, environment destruction in China is still among the worst in the world. This again illustrates that without a more democratic power structure, the law only represents a kind of 'legal illusion.'[21]

Yet, establishing an alternative path of development cannot be limited only to government responsibility or effort. It is more realistic to rely on the people to initiate the changes. The remaining parts of this report will pick up several cases for in-depth study to see the impact of developmental policies on local population, as well as how people respond to and resist the official policies in their search for alternatives.

GLOSSARY

Energy Consumption

***Coal*:** Coal accounts for over 78% of total energy in China, which is roughly 20% of the world total. Over 8bn tonnes of coal was burned in 1994 alone and China is already the largest producer of coal in the world. If recent growth patterns continue, more than double the amount of coal would be used by AD 2000.[22] Coal burning emits toxic gases such as sulphur dioxide and carbon dioxide, which further leads to other pollution such as global warming and air pollution (see corresponding entries). Due to the technical inefficiency of thermal power stations, it is estimated that China has burned 50t more coal to produce the same amount of energy as in developed countries.[23] Only one-fifth of China's coal is washed and the country is still using an old system which is based on direct burning of coal. More than 60% of coal is still used for industrial, commercial and residential boilers, compared with 8% in the United States.[24]

***Daya Bay nuclear plant*:** The Daya Bay nuclear plant was built in early 1990. The site is only 50km away from Hong Kong and 10km away from major water resources. The project caused many protests, especially in Hong Kong, with one million signatories to a petition to the Chinese government in 1986. Despite geologic reports on the possibility of earthquake, the plant has been operating since 1992.[25] By now, the Daya Bay plant has already experienced more than 200 construction-related deviations and several temporary shutdowns. Despite the ongoing problems of the plant, China is going ahead with another nuclear plant at Lingao. The new plant, only 5km from Daya Bay, would start operating in 2002.[26]

***Fuelwood*:** Millions of tonnes of logs are burned for heating and energy each year. The users are mainly poor people in the mountain areas, lacking both capital and technology. The burning of firewood for domestic and industrial purposes further intensifies the devastating deforestation (see deforestation). Fuelwood is sustainable if time is allowed for natural regeneration or replantation. But this is not the case in China, where the exploitation rate of the reserve is faster than the natural growth rate. Part of the reason lies in the fact that, driven by the strong motivation for profits, illegal cutting has dramatically increased during the Reform era.[27]

***Nuclear energy and nuclear waste*:** Three nuclear reactors have been operating since December 1991. The government is planning to build another nine plants by AD 2000, generating 6m kW. It is estimated that nuclear energy capacity will be more than double by 2003 and China will be among one of the countries to have the greatest growth in nuclear power. There is still no site for storing the high-level waste in China, which is piled around the plant. The waste will remain active for 15,000- 3m years and requires a disposal area several thousand times larger than the size of waste. The disposal area cannot be used until several hundred years and nearby streams, fresh water and forests will be contaminated.[28]

Environmental Law

The Environmental Protection Law was formally promulgated in China in late 1989 after it was introduced on 'trial' basis in 1979. These laws tend to be vague in their definitions and provisions and are often ignored. Penalties stated in the laws are criticised as being too lenient to effectively enforce pollution control.[29] Many low-technology and high-waste-producing factories have moved to China because of its low penalties on environmental pollution.

Industrial Mishaps

***Accidents*:** In 1993 alone, there were 19,798 deaths from industrial accidents in China. In 1994, the total number of industrial accidents was 22,325 and the number of deaths was 20,260, according to the Yearbook of China's Labour Department. According to the *China Youth Post*,' in 1995, there were 6985 industrial accidents in January-May in which 6656 people were killed and 2716 were injured.[30] It must be remembered that such official data usually understate the seriousness of the problem.

***Construction sites*:** The recent economic boom has created great demands for buildings. In 1995, there were 30m construction workers in China who were prone to accidents because of poor management and lack of safety knowledge of unskilled workers. In January-July 1995, there were 24 cases of collapsed buildings, 99 deaths and 24 serious injuries in China. Shanghai was one of the worst-hit cities because there were 50 deaths in 1995.[31] In 1994, the number of collapsed buildings was 18 with 57 deaths and 75 injuries. In 1995 in Deyang city, Sichuan, a building which was being constructed collapsed and 17 people died.[32]

***Factory explosions*:** In 1993, a fireworks factory in Guangdong province exploded, 11 people died, seven were injured. They were all child workers from Hubei province aged between 12-15. In September, 1995, Shunde cigarette lighter factory in Guangdong province exploded in which 22 people died and 60 were injured.[33] In March 1995, a chemical factory in Jiangsu province exploded, killing six people and injuring five.[34] In June 1995, 21 people died in an explosion in Guiyang city in Guizhou province. In January 1996, Guangdong Muming fireworks factory exploded, four people died while 16 were injured.[35] There are no official figures on casualties of factory explosions.

***Factory fires*:** Of all industrial accidents, the second-highest killer is factory fires. In 1994, more than 40,000 fires killed 2600 people. Among the most serious factory fires were the Xinyip fire in 1991 which killed 72 and the Zhili fire in 1993 which killed 87 workers. Both were Hong Kong-owned factories in southern China. One main reason for the heavy casualties in fire is the 'three-in-one' building style (dormitory, workplace and warehouse). Inadequate exits are another reason for heavy fire casualties. Many foreign factories usually only open one exit during working hours. The windows of some factories are barred with iron, such as in the Zhili factory. Workers, therefore, have no way to escape once a fire breaks out.[36]

***Mine accidents*:** Of all industrial accidents, mine accidents is the number one killer in China. Around 10,000 workers die in mine accidents every year.[37] In 1993 nearly 5000 people died in the mining industry.[38] Between January 1 and March 15 in 1995, a total of 15,573 people died in 92 mine accidents.[39] China's mine accidents top the list of mine mishaps in the world. Chinese government officials often blame poor management, lack of safety measures and illegal operations for these accidents. In fact, there are many coal mines which are not legally licensed.[40]

***Old machinery*:** Another cause of industrial accidents, especially in south China, is the use of old machines without safety installation. Many foreign enterprises, as well as local factories, adopt used and outdated machines imported from Hong Kong and elsewhere for production. Most of these machines have no safety protection. As a result, accidents frequently occur during operation. In five villages of the Poon county in Guangdong province in 1988, 1033 out of the total number of hospitalisation (11,679) cases were due to such industrial accidents. In 1993, 29 workers' fingers or arms were mutilated in a metal workshop in Shenzhen.[41]

Land Degradation

***Deforestation*:** The total forest coverage in China was 13-14% in 1994, while the worldwide standard is 20%. China has less than 0.1ha of forest area per capita and 10 cu m of raw wood stock per capita, while the corresponding global figures are 1.01ha and 83 cu m per capita respectively.[42] About a quarter of the forests in China have vanished in the last three decades. The wood used to make paper has increased from 7.4mt to 20mt between 1982-92.[43] With a nationwide growing demand of wood, the forests in China will probably shrink further. In Heilongjiang province, a forest-rich area of China, the forested area is shrinking at 5m cu. m per year. Eight forest bureaus out of 40 already have no forest to administer.[44] It is estimated that by the year 2000, only two or three bureaux will have some forest to administer.[45]

***Daxinganling forest fire*:** The fire broke out in Heilongjiang province in May 1987; at least 3% of its total forest reserves was lost. 1.01m ha land were burnt, in which 700,000ha were forest and 850,000 cu m of timber were destroyed.[46] More than 60,000 people lost their homes and nearly 200 people were killed. At least 325,000 t grain were destroyed. The fire is known as the most devastating one in the history of post-1949 China. The fire is said to be caused by a careless logger but the reasons which made it destructive are mainly man-made: prolonged overlogging, large build-up of forest wastes, ignorance and mismanagement by the authorities and outdated equipment used to fight the fire.[47]

***Desertification*:** Deserts and semi-arid regions cover 1.496m sq. km land, which is nearly one-seventh of total land area in China. The situation continues to worsen and another 158,000 sq. km of uncultivated land is under the threat of desertification. This process has devoured a large part land, especially in the southwestern and northwestern parts of China. Among these are declining farmland, withering grassland, as well as some residential area. It is estimated that up to 160,000 sq. km of China's deserts are caused by overcultivation, overherding, massive burning of land and deforestation. In Gansu province, 20,000 sq. km land has become shifting dunes, the main reasons being over-cultivation and over-exploitation. The most serious type of desertification is that of grassland, accounting for 42% of the total desertified land. Over 50% of the famous grassland in Mongolia has been reduced to deserts.[48]

***Garbage piles*:** According to official statistics, approximately 618mt of waste was produced in 1992. Of this, over 80% was industrial waste; urban waste and agricultural waste accounted for the rest. Only about 2% of the urban waste was treated among the 63mt produced. It is estimated 174mt per year will be produced in the 90s. Ashes, mainly due to coal burning, accounts for the majority of the waste, making it difficult for recycling or reuse, either in farming or for other purposes. Large amounts of untreated garbage and human waste are dumped in the countryside, rivers, farmlands, or just on the side of roads or residential areas. Water pollution, too, is worsening due to the practice of dumping untreated waste into the waters. In Shanghai, the largest dump is located within 200 metre of the Huangpu River, the major water source of the city. In 1991, 5209ha of farmland was covered by industrial solid wastes. The solid waste problem is most serious in highly industrialised provinces such as Guangdong and Liaoning. The problem is also worsening in rapidly developing regions likes Xinjiang and Hainan.[49] In 1995, there were 21 pollution cases damaging more than 220ha farmland in the Pearl river delta Region. In recent years, 13,000ha arable land in Zhujiang has been polluted by industrial waste, causing an annual reduction in grain production of over 5m kg.[50]

***Golf courses*:** Golf tourism has been spreading rapidly in China since 1990. It can be said that golf courses is the fastest land development project in China. Increasing number of golf-courses are found in the southern and eastern parts, where farmland and water are already

insufficient. For instance, in Guangdong province, there were 40 golf courses by the end of 1995.[51] In Suzhou, a city of Jiangsu province, seven golf courses were under construction and two more had been approved by the authorities. Poor farmers are usually forced to sell their fertile farmland to golf businessmen. Construction of a golf course leads to severe environmental destruction. The artificial landscapes of breathtaking views is the result of cutting trees, clearing of vegetation, and the use of large quantities of pesticides, fertilisers and herbicides. Removing the original vegetation leads to soil erosion, whereas the prolonged use of toxic chemicals brings diseases to golfers, workers and nearby residents. Moreover, a standard golf course requires 3000 cu. m water per day, which is equivalent to the daily water consumption of 15,000 people.

***Reforestation*:** The government claimed that more than 130ha land were reforested since the 50s, but less than 30% has survived. According to official figures, another 5m ha were planted in 1990.[52] However, the rate of deforestation still outweighs the effort at reforestation. In Jilin province, 2m cu. m forest, more than what is grown, is felled every year.[53] While the annual national consumption of wood is 300m cu m, the annual growth of timber is only 230m cu m.[54] The reported violations had increased by 16% in 1993, according to the Ministry of Forestry. With illegal timber sales, it is estimated that another 450,000ha of forest is lost every year.[55]

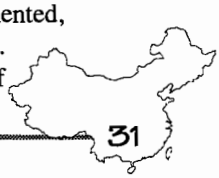
***Soil erosion*:** One-sixth of China's total land area is affected by soil erosion, the most serious cause of land degradation of the country. Three of the six rivers with the highest sediment discharges in the world are in China — the Huang, Liao and Jialing. The annual soil loss amounts to 5000mt, with loss of fertiliser close to the annual fertiliser production in China. The major human causes in the problem are deforestation, cultivation on slopes, overherding and poorly-managed industrial landuse. Soil erosion always takes place near areas with extensive settlements and cultivated fields. The erosion often buries farmland, villages, rivers as well as people. This probably increases the potential of flood and damage to agriculture.[56]

***Tourist spots*:** From the base of Zhuozhou to the Town of Tang Dynasty and further to the Town of the Three Kingdoms, a number of buildings in the ancient style have been constructed for film production and subsequently turned into tourist spots. Most of these ancient-style buildings use up a large area of valuable arable land and then lie idle except at the peak of the tourist season. The towns of Shuihu in Guangxi province and in Wushi City of Jiangsu province, for instance, consumed more than 333,030ha land and 18 pillars of valuable timber. In Dongyang of Zhejiang province, a Guangzhou street in the style of Ming and Qing dynasties was built. In Hebei province, the palace of Efang, a famous palace of the Qin Dynasty, was built on 70,000 sq. m.[57]

***Urbanisation*:** Parallel to the booming of the economy of China is the rapid urbanisation process, which results in shrinking farmland. Hongshan Town, for instance, formerly a production base for vegetables in Fuzhou City, is now filled with new factories, restaurants and hotels with a population of 26,000. This rapid urban expansion has cut the town's arable land from 7200ha in 1978 to about 600ha.[58] In the south of Jiangxi province, one can see almost every town along the railway cleared farmland to put up office blocks, hotels, restaurants and karaoke bars in anticipation of the rush of investors.[59]

Mega-Projects

***Development zones*:** Since 1978 when the 'open door' policies were first implemented, China has set up many development zones with which to lure foreign investors. Guangdong province will have 295 development zones consuming a total of



90,250ha land of which 18,383 ha have been approved, while around 8000ha have already been developed. Sichuan province has 162 development zones using 96313 ha land. The average size of each zone is 592.8 ha. Jiangsu province has 124 development zones occupying 85,522ha. The average size of each zone is more than 666.05ha. In Xiangfan city of Hubei province, there were 174 development zones of which 4196.2ha were especially designated as automobile components development zones.[60] Shanghai's Pudong New Area, a famous development project, requires transforming 522 sq. km area of farmland into the country's biggest development zone in order for the gross domestic product of the Yangtze river basin to rise by 18.2% to 17.3bn yuan ($2bn) in the first half of 1995.[61]

***Three Gorges Dam*:** The Three Gorges Dam on the Yangtze river will be the world's largest dam and the construction has begun since 1994. Some related figures are as follows: project cost: $75bn; construction period: at least 20 years; dam height: 525 feet; displaced population: 1.2m; submerged cultivable land: 30,000ha; other partially or totally submerged area: 13 cities, 140 towns, 342 townships, 1352 villages, and 800 historical sites; affected species: uncountable, many are endangered. The above figures can be used to calculate some 'measurable' loss, while the destructive impact to the entire ecological structure of the area could be far-reaching and incalculable at the moment.[62]

Occupational Hazards

***Chemical poisoning*:** In Shenzhen, the first Special Economic Zone in China, more than 50% of enterprises are classified as dangerous factories in which workers regularly expose themselves to poisonous chemicals or dust. About 10,000 people are found poisoned by chemicals each year. China has ratified the Convention on Use of Chemicals initiated by the ILO but government has not yet translated the Convention into local laws. Moreover, no warning labels on dangerous chemicals are required in China.[63]

***Danger at work*:** According to a Chinese government survey, 82.7% of county and village enterprises studied (most of them joint ventures by local governments and foreign investors) have at least one type of occupational disease present in their workplace. One-third of Chinese workers are working in dangerous conditions full of chemicals, dust, and noise.[64]

***Jinli poisoning*:** Du Runqiong and her eldest son Tang Youhua received death sentences on December 27, 1995 for putting rat poison into fish ponds and agricultural products in Jinli town between May and November 1995, leaving 18 dead and 163 ill.[65] Yet after the execution of mother and son, most villagers in Guyao village of Jinli still believed that the poisoning was from the illegal gold refinery factory which was supported by government officials.[66]

***Pesticide poisoning*:** Farmers in China are increasingly using pesticides in farming. In Anfeng town of Jiangsu province, over 550 people were poisoned by collective spraying of pesticides against grain pests on August 22, 1995. Two villagers died while 350 were hospitalised.[67] On January 19, 1995, almost 200 workers from four enterprises in Shenzhen were taken to hospital after eating vegetables suspected of being contaminated with pesticide. Four people suffered from shock due to serious poisoning, others were in fair condition.[68] In 1993, 39 cases of pesticide poisoning were reported with 100 people sent to hospital. There were 160 victims in 66 cases from January to October in 1994 in Hong Kong. The main cause of these poisoning cases was China-imported vegetables contaminated with pesticides.[69]

***Respiratory diseases*:** Many of China's towns and cities suffer from smog, especially where industry is concentrated. There are at least 30-40 tonnes of suspended particles per cu. km found in the country per month, far exceeding the national standard of 6-8 tonnes per cu.

a growing problem of respiratory-related diseases such as
: mainly to suspended particulates. In 1995, lung diseases
China, especially in industrialised cities like Chongqing,
for 26% of the nation's mortality figures.[70]

Pollution

ve recorded the world's highest readings of sulphur. This
phur coal. China has the highest acid precipitation in the
ollutes 2.7m ha a year. The damage on crops, forests and
. The problem is most serious in southern China, where
, with more than half of the rainfall being acidic. Growing
affect people in China, but also people of its neighbouring

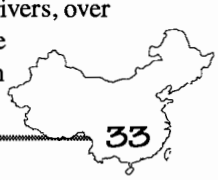
itants such as sulphur dioxide, carbon dioxide and total
ar above the safety standard suggested by WHO. Air
ncreasing numbers of coal-based power stations as well
lustries. They release toxic gases which produce acid
es in China, Beijing and Shenyang, are two of the seven
here is an automobile boom in China, and government
1.3m in 1993 to 3m in AD 2000. While the excessive use
aintenance of trucks and buses have made the emission
ıber of cars will surely exacerbate the devastating air

***[illegible] gases and global warming*:** China was ranked second in carbon dioxide emissions, only behind the US in 1993. It is estimated that China emits 10 metric tonnes of the pollutant annually, and that its total emissions of greenhouse gases represent about 10% of the world's emissions. The burning of coal and forest, untreated sewage disposal and landfill sites, all contribute to the emissions of greenhouse gases such as carbon dioxide and methane. Between 1986-92, China doubled production of chlorofluorcarbon, which is known for its harmful effects on the ozone layer. Ozone readings in Beijing, Guangzhou, and some other cities already exceed the world standard by three times. It is expected China will become the largest emitter by 2010.[74]

Water Resources Contamination

***Drinking water*:** At least 40% potable water in urban areas is polluted. Ammonia and nitrogen are found to be the main pollutants of 80% polluted water in urban areas. Toxic elements such as carcinogens, are in the water supply in many major cities. The water has a foul taste and causes chronic intestinal problems, diarrhoea, and tooth decay. Over 3500t hazardous waste produced each week is dumped along roadsides, in ponds and rivers. The toxic waste dumping has made water unfit for drinking. The lack of sewage and water treatment plants leads to groundwater pollution. In Guangdong province, of 47 major cities, 43 have their underground water polluted. In 1994, a factory in Zhejiang province discharged 30 t chemical liquid into Fu Chun lake, poisoning about 400 villagers nearby.[75]

***Rivers and lakes*:** Over half of China's rivers are polluted. In the seven major rivers, over 80% of water is polluted. In Beijing, over 70% of its rivers and tributaries are polluted. Industrial waste, sewage and used water from irrigation are the main



sources of water pollution in China. The main rivers and their tributaries are estimated to be receiving about 70% of China's wastewater, with 41% received by the Yangtze river alone. An offcial survey in 1990 shows that 65 out of the 94 rivers investigated were polluted to different extent. In 1992, 35,878mt wastewater was poured into China's rivers and lakes. Another estimate is that 45,000mt wastewater is poured into rivers and lakes every year, of which only about 30% is treated. Even so, over 40% of the treatment is below standard.[76]

Rapid industrialisation has led to worsening water pollution. About 70% wastewater is industrial waste. China produces more wastewater per unit of product than other industralised countries. Small and old industries are allowed to operate without proper treatment facilities. For example, over 10mt of coal dust is discharged into rivers annually. Rivers in northern China are found to have higher ratios of industrial effluents than that in the south. The relatively older factories in the north and the northeast may be one explanation. Small lakes near large industrial areas are also particularly polluted. An example is a lake in Hubei province which was found to contain 1670 t wastewater per 100,000 cu. m.[77]

***Seawater*:** The pollution problem is getting more serious along the eastern coast, where the industrialised and populous centres of the country are located. In 1992 alone, 4000mt wastewater were emitted to the sea, with 80% estimated to be from industries. The increasing numbers of harbour ports and offshore petroleum production bases are some of the causes. Coastal waters near major industrialised cities like Dalian and Guangzhou are found seriously polluted with heavy metals and organic chemicals.[78]

Oil concentrations in coastal waters above standards for fisheries have increased, especially in the South China Sea, the East China Sea and the Bohai Bay. Occurrence of red tides has increased too, with 50 times in 1992, compared with only 12 times in 1989. In 1990, an area of 20,000 sq km of red tides was located in the East China Sea.[79]

Wildlife Destruction

***Land wildlife*:** Yunnan province once had the largest reserve of animals in China. Rapid deforestation, overcultivation, overherding as well as illegal poaching have led to the constant shrinking of animal populations, among them pandas and elephants. It is estimated that the number of pandas has halved in the last two decades.

***Marine wildlife*:** Coastal and marine resources have been degraded by over-fishing and pollution from different sources. Recently, exploitation of marine resources has expanded further to the South China sea. According to the World Wide Fund, over 80% coral in Hainan province have already been destroyed by dynamite and cyanide fishing, as well as destructive collection for souvenirs. The Chinese alligator and river dolphin, both rare species, can only be found in the Yangtze river. The number is decreasing at a rapid rate due to excessive clearance of vegetation and pollution of the river. While less than 300 and 500 of them remain respectively, the construction of the Three Gorges Dam will probably lead to their final extinction.[80]

***Wildlife trade*:** Bear gallbladders, tiger bones, shark fins, Saiga Antelope horns, rhino horns, swiftlet nests, elephant ivory are either highly prized for their pharmaceutical values, or as delicacies in Chinese cusine. China is still one of the largest, as both consumer and producer, of the wildlife market. Despite the fact that the country has been a party of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the poaching of protected wildlife is still common in China. Some animal farms, to breed bear, tiger, and other dying out species of wildlife, have

been developed in recent years, but their condition is often terrible. A bear gallbladder farm was found by the WWF to be treating animals very cruelly. The traders put all the bears in cages and extract bile from them until no more can be taken.[81]

Worker Exploitation

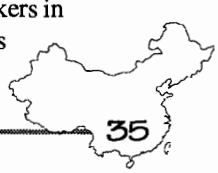
***Child labour*:** According to the Labour Law of China, children under the age of 16 involved in income generating work are classified as child labour which is illegal. However, the problem of child labour in China is not only common but serious. It is estimated that there are about 500,000 child labourers among 8m peasant workers in Guangdong province in 1991.

In Hunan province, nearly 32,900 child workers went South for jobs in 1992.[82] The total number of child labourers all over China may exceed 4m.[83] They usually work in small or medium-sized village, township or private enterprises. Only a small number work in foreign enterprises. Due to their illegal status, they receive low wages, have to work long hours and perform difficult tasks. Their situation is even worse than their adult counterparts. A foreign-funded garment factory in Zhongshan City in Guangdong province employed over 160 child workers. A 14-year-old girl could not bear the hardship of working 18 hours a day and eventually died of overwork.[84]

***Labour union*:** Many enterprises do not allow workers to form or join trade unions. In 1994, less than 30% of solely foreign-funded enterprises were unionised. The number of unionised workers in joint venture companies was even less. Until the end of June 1994, there were only 224 labour unions among 328,000 private enterprises in the whole country.[85] In fact, labour unions in China are basically government controlled and no autonomous union is allowed. Since local governments have increasingly been involved in business, they play the role of the boss and judge at the same time. As a result, the trade union is, in fact, more pro-government rather than pro-labour.[86] In 1994, about 2000 workers in a Hong Kong enterprise in Zhuhai city went on demonstration demanding increased wages and shorter working hours from 12 to eight hours a day. Ironically, the city labour union intervened and told the workers that their demands were unreasonable.

***Low and late payment*:** Hard work and long working hours do not guarantee workers fair reward. Many workers receive less than the minimum wage, RMB250.[87] Another problem that prevails in foreign enterprises in China is late payment. A case was revealed by Shenzhen government in 1993. The management of a factory postponed remuneration for two months. In a survey conducted by the government, salaries of more than RMB300m ($36m) were illegally deducted or unpaided by foreign enterprises in China during the previous six months.[88]

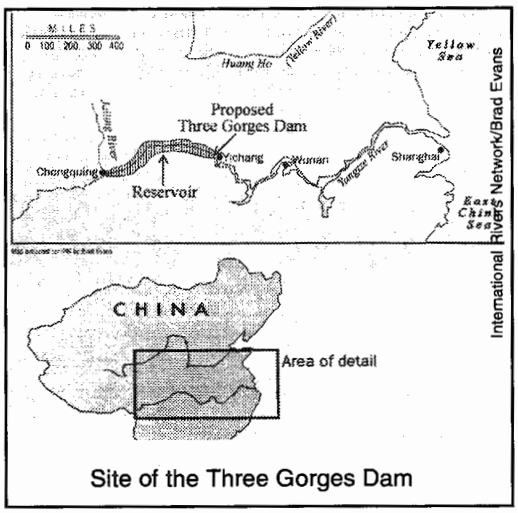
***Migrant workers (peasant workers)*:** In 1988, the total number of the so-called 'blind flow' (mobile population searching for jobs) was 1.088169bn.[89] Due to the rural-urban disparities, many peasant workers flowed to coastal cities, the Pearl river delta and the special economic zones (SEZs) in the south to look for jobs. In 1993, there were altogether 7m migrant workers in the SEZs and 2.8bn in the whole country.[90] These people are often ill-treated, work in poor conditions for long hours and receive low wages. They live in crowded rooms with poor hygiene. Usually they do not have any fringe benefit or medical allowance. Unskilled workers are told to do skilled tasks. As a result, industrial accidents frequently occur, the victims usually receiving only a small amount of money as compensation or even no compensation at all. If they complain or go on strike, they risk being dismissed. In 1993, workers in a toy factory in Zhuhai City went on strike and, eventually, several hundreds were fired.[91]



Overtime: According to Chinese law, normal working hours are eight hours a day. The maximum overtime work was four hours per day and 44 hours per month in 1995. But many factories illegally extend their working hours. A survey conducted by the Chinese Labour Ministry in 1995 on the working condition of workers in foreign light industrial enterprises in Guangdong and Fujian provinces shows that more than 9000 factories violated the law. In many factories, working hours are up to 10-12 hours a day, some even up to 15-16 hours a day. According to another survey conducted by the Guangdong Labour Union, 61% of workers work for more than six days a week, 34.7% said that they were forced to do so and 20.1% did not receive overtime payment.[92]

Prostitution: Since the late 70s, many rural women went to cities looking for jobs. Many of them, accompanying their urban counterparts, eventually enter the sex industry. According to an investigation conducted in 1995 by the Public Security Bureau and the All-China National Women's Federation, nearly 1.6m women were engaged in the sex industry, 77% being under the age of 21.[93]

Unemployment: The problem of unemployment can be divided into two main categories, explicit unemployment and hidden unemployment; the latter is difficult to measure. In terms of explicit unemployment, according to statistics provided by labour department officials, 3.71m people were unemployed in the first half of 1990, not including students, demobilised soldiers and others whose jobs were allocated by the state. By the end of 1990, the total number of unemployed workers increased to 5m. Since then, the official unemployment rate had kept rising. The unemployment in cities and towns was 2.4% in 1992, 3.6% in 1993 and 3% in 1994. By the end of 1994, the total number of unemployment was expected to have risen to more than 11m people and by the end of this century, it is likely to touch 220m.[94]



Site of the Three Gorges Dam

Women workers: Women workers often face age discrimination from the employers. Married women and women above the age of 30 can hardly find jobs. It is not uncommon for women workers to experience sexual harassment. In particular, women workers in foreign enterprises are seriously deprived of their rights. Some foreign enterprises will not employ married women because they do not want to give them maternity leave. In some factories, the working environment is clearly unfriendly to women. For instance, a Korean factory in Shenzhen has only two little washrooms for more than 200 women workers, and they are expected to get permits before being allowed the use them. It is reported that a Hong Kong factory issues only three washroom permits to each production line (around 40-60 workers).[95] A report released in January 1996 in the *Women's Daily* said that more than 70,000 women in Southeast Fujian province worked for more than 10 hours a day in chemically contaminated environment in some Taiwanese and foreign ventures. Their salaries were as low as 300 yuan ($36) a month. In state-owned enterprises, women often do not have the right to enjoy housing benefits even if they have worked as long as male workers in the same factory. A survey conducted by the Shenzhen Women's Federation in 1994 shows that 17.3% of divorced women did not own an apartment.[96]

CASE STUDIES

Three Gorges Dam

The Great Chinese Dream is an Illusion

On April 3, 1992, the controversial Three Gorges Project (TGP) was formally approved by the National People's Congress of the People's Republic of China. While the green light is on for the world's largest hydroelectric dam to go for construction on the world's third longest river, criticism of the mega-project continues.

Here are some facts about the TGP:

Estimated static investment: Y75bn ($9.04bn) (1993 figure)

Estimated dynamic investment: Y600bn ($72.29bn) (1995 figure)

Construction period: 18-20 years

Location: Xiling Gorge (of the Three Gorges) on Yangtze

Dam

Height (crest): 185 m — **Length**: 2,150 m

Reservoir

Length: 600 km — **Total storage capacity**: 39.3bn cu. m

Flood control storage: 22.15bn cu. m — **Normal pool level**: 175m

Flood control level: 145m — **Maximum flood control level**: 181m

Function

Flood control storage:31bn cu. m — **Hydropower generating capacity**: 17,680MW

Unit capacity: 26 units, 680MW/unit — **Annual power generation**: 84,700MW

Impact

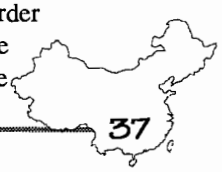
Resettlement: 1.2 million (rural population: 46%)

Inundation: 32,000ha cultivated land; 8753ha agricultural land; 2 counties, 19 cities, 140 towns, 326 townships, 1352+ villages, 800+ historical sites

A Recurring Idea

It is believed that the first person who proposed the building of the Three Gorges dam was Sun Yat-sen. Sun, an idealist, left many unfinished plans which are too ambitious for China to implement even with its current economic and political capacities. The Three Gorges Project is one of them.

Sun died before the KMT defeated the northern warlords in 1927. His successor, Chiang Kai-shek, spent most of his time on wars with the communist party and with Japan. Chiang's regime was also too corrupt to launch any effective reform in China. However, in order to legitimise his status as the successor of Sun, Chiang had started working on some of Sun's plans after 1927. Though most of his policies before 1932 turned out to be



formalistic and with almost no actual impact, things changed thereafter. In hoping to defeat the CCP, the KMT started to cleanse rural areas from communist influence, introduced reform projects and revived the TGP. Government investigated the feasibility of the TGP and an initial design proposal was written in 1944. However, this project was never implemented as a result of the civil war.

In 1954 terrible floods hit the middle and lower reaches of the Yangtze, killing an estimated 30,000 people. This led to a new round of discussions on the TGP and the communist government invited experts from the Soviet Union to provide technical and planning assistance. The Yangtze Valley Planning Office (YVPO), an overall coordinating body for the project, was established in 1956.

However, after Beijing broke with Moscow, Soviet aid to China were terminated. The failure of the Great Leap Forward in the late 50s threw China into its worst famines in history. Then came the Cultural Revolution. In this context, the TGP was naturally suspended.

With the end of the Red Guard Movement of the Cultural Revolution, the mega-project was unfrozen. In 1970, government approved the construction of the Gezhouba dam, located downstream of the Three Gorges dam site on the Yangtze, as a 'pilot project' of the TGP. Then the devastating floods of the Yangtze in 1981 and 1983 resulted in the approval 'in principle' of the construction of the Three Gorges dam by the State Council in 1984. The construction work was scheduled to begin in 1986, the same year that the TGP was incorporated in the Seventh Five Year Economic Plan (1986-90) and experimental resettlement was started. On April 3, 1992, the 'Resolution on the Construction of the Three Gorges Project' was formally approved by the National People's Congress, despite strong opposition. The next year experimental work in the proposed dam areas were said to be completed and construction of the Three Gorges dam was officially implemented since November 1994.

The Pros and Cons

The Three Gorges Project includes the construction of a 185m-high reservoir in Sandouping township, Yichang county, Hubei province with a capacity is 39.3bn cu. m. Along both sides of the 2800m length of the dam are planned 26 hydroelectric generators with a capacity of 680 MW/unit, which will provide 84m MW/hour electricity in areas up to a radius of 1000km. For navigation, twin five-level shiplocks will be built, which can allow 10,000-tonne ships to pass through, all the way to the port city of Chongqing. In addition, through the Danjiangkou waterworks, water will be diverted from the Yangtze to Henan and Shaanxi provinces in the north for irrigation — 'South water diverted to the North' project.

The TGP has faced strong opposition from the beginning, not only from the people but also from some factions in the government. As early as 1957, when discussions on the project were still at a very preliminary stage, voices of opposition had been heard. It was the year in which the 'Hundred Flowers' campaign was launched and people were encouraged to uncover government's mistakes. Many pointed to the Three Gorges Project, but these 'dissidents' were persecuted shortly after the 'anti-rightist campaign' was launched.

In the 80s, when plans for the TGP were once again revived, critics immediately surfaced. In 1986, after the State Council approved the gigantic venture, a 92-year-old member of the Chinese People's Political Consultative Conference (CPPCC), Sun Yueqi, and seven other experts conducted a field trip to the Yangtze river, and submitted a report criticising the 'immature' decision. Sun suggested that the Chinese government should replace the TGP with a smaller scale project.

In 1987, a collection of opposing views on the TGP — *On Macro-Decision Making in the Three Gorges Project* — was published, two sequels following in 1989 and 1992. In February 1989, another book, *Yangtze! Yangtze!*, edited by Dai Qing, was published, sparking heated debates. One month after the publication of this book, 272 deputies to the National People's Congress signed a petition for the postponement of the dam construction to the next century. Such reactions forced the State Council to defer the implementation by five years.

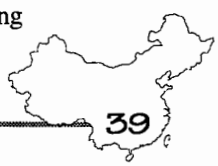
However, things changed significantly after the Tiananmen incident on June 4, 1989, and government suppressed public opposition to the dam project. Under the leadership of Premier Li Peng, the TGP was formally approved in the 1992 NPC, despite an unprecedented level of opposition from the deputies — nearly one-third cast a vote either of abstention or objection. This was unprecedented because the NPC had always been instrumental as a rubber stamp for government policies, and little dissent was the rule.

The reasons for opposing the TGP are diverse — some reject it in principle while some are worried about its hasty implementation. Dai Qing, one of the most famous figures in the opposition camp, saw her book banned after June 4, and she herself was sent to Qingcheng Prison in July 1989 for 10 months. Since her release she continues to be active in the anti-Three Gorges Project campaign. When she was interviewed by the mass media on the eve of being awarded the prestigious Goldman Environmental Award in 1993, she stated that the TGP will:

- impact negatively on the hydrological climate, such as inducing summer droughts and fog;
- cause surface and groundwater pollution by the slowed down water flow after the construction of the reservoir;
- trigger earthquakes leading to possible dam collapse, landslides and soil erosion;
- cause loss of land and soil due to the inundation of arable land, as well as deforestation during resettlement of the one million people;
- turn lakes into swamps and salinise arable land downstream of the Yangtze;
- cause deterioration of the quality of water downstream, as well as intrusion of seawater into the river's estuary and tributaries; and
- on the one hand adversely affect the geological structure downstream, and on the other, increase the risk of flooding areas upstream due to sedimentation in the reservoir area.

Another concern expressed by environmentalists is that the present Yangtze basin water and land management problems are formidable even without the added burden of the Three Gorges. While the river's run-off volume of nearly 1bn cu. m — 38% of China's total — supports about 400 million people and helps produce over 40% of agricultural output on about 25% of the country's cultivated land, its pollutant-flushing capabilities have been decreasing. Tonnes of industrial toxic waste are poured into the river every day and the Gezhouba dam, just 40km downstream from the site of the Three Gorges, is notorious for its pollution. In the Three Gorges dam region there are over 3000 industrial and mining enterprises emitting an annual toxic wastewater volume of 1bn t.

According to the *Environmental Statistical Report of 1988* published by the State Environmental Bureau, the annual wastewater poured into three major areas of Yangtze was 16.6bn t, of which severely poisonous toxins amounted to 8380t, even excluding the toxic waste emitted by rural industries. Construction of the Three Gorges dam and slowing down the flow of water will reduce the flushing functions of the rivers resulting in an increase in water-borne diseases, particularly schistosomiasis and malaria, in the Yangtze basin. Some 16 million people in Hubei and Hunan are affected by the schistosomiasis, which is making a comeback, and the creation of a large body of stagnant water stretching for some 600 km will almost inevitably bring an upsurge in the incidence of the disease.



Besides environmental issues, Dai Qing also challenges other aspects of the TGP:

- **flood control:** The original purpose of the TGP was flood control. However, the construction of the dam will increase the water level upstream, and hence enhance the risk of flooding;

- **sedimentation:** In the past 40 years, a quarter of China's constructed reservoirs has been silted up. The lifespan of the Three Gorges reservoir may only be a few dozen years and sedimentation of the reservoir bed will decrease flood storage capacity, silt trapped behind the dam will obstruct navigation, especially posing risks to the large industrial centre, Chongqing, while the risk of upstream flooding and dam collapse will increase;

- **navigation:** Though the shiplocks will certainly facilitate the passage of ships, the situation may change if sedimentation is taken into account. The construction of a five-level shiplock has no historical precedent, and the technology for such a project in China is not guaranteed. The proposed 18-year period of construction will also seriously disrupt existing navigation;

- **electricity:** The capacity of the Three Gorges hydel generators is 17,680 MW, but only 4990 MW will be assured. During dry seasons, the fluctuating water level requirements for power generation will not assure adequate channel depth for navigation. Southern and central China, already facing power shortage, will have to wait more than a decade for supply from Three Gorges;

- **resettlement:** The construction of the 185m dam will submerge large areas of land, causing the uprooting of more than one million people. This is extremely costly and the livelihood of those relocated is not guaranteed;

- **investment:** The total static investment of the project was estimated at Y36bn ($4.3bn) in 1988; in 1990 it was adjusted to Y57bn ($6.9bn); and the estimate in 1993 was Y75bn ($9bn). In 1995, a year after the formal start of the project, the total dynamic investment was anticipated to reach Y600bn ($72.3bn).

Haunting Tragedies

One fear about the TGP is the risk of dam collapse, the disastrous consequences of which are unthinkable. In August 1975 in China, two big dams — Banqiao and Shimantan — collapsed, killing 85,600 people according to one report, and 230,000 according to another. News of the disaster had been kept from the public for over a decade.

A typhoon brought heavy rains to the Henan province on August 4-8, 1975. In the early morning on August 8, the Banqiao dam collapsed and a giant torrent of 600mcm water gushed out of its reservoir, at the rate of 79,000 cu. m of water per second at one point. The Shimantan dam also collapsed that morning, draining 120mcm of water from its reservoir in 5.5 hours. Similar was the fate of dozens of small and medium dams in the region.

Some 6bn cu. m of water flooded an area of 450,000km^2 in Henan province; 29 counties and townships were inundated, 11 million people were affected, 17m mu (1.1339mha) farmland was flooded of which 11m mu (733,700ha) was devastated, the top soil washed away; 102km of the Beijing-Guangzhou railway line was destroyed, causing suspension of train services for 18 days.

A day-to-day record of the aftermath of the disaster reported that on August 14, 1.773 million people and on August 17, 1.010 million people were still marooned. Here is a report on the scene on August 21:

In the whole region, 370,000 people are still in the water. In Pingyu, 43,000 people from the Hedian People's Commune have been in the water for 12 days. Water level ranges from the lowest at 1 metre to the highest at 2 metre. The old and the young are tied to the trees. For 11 days, they have not had any salt. The Dongwa Production Brigade seized on a drowned donkey and the people scrambled for the meat.

Many people died in the aftermath from illness.

According to the authorities, the heavy rains on August 4-8, 1975, falling on the region of the Banqiao and Shimantan,had not been encountered in 1000 years. Nature was again to blame for all disasters.

The maximum water storage capacity of the Three Gorges reservoir will be 40 times greater than that of the Banqiao and Shimantan reservoirs combined. Should the Three Gorges dam collapse, the scale of catastrophe and fatalities is too terrible to be imagined.

From Three Gates to Three Gorges

Construction of the Three Gates Gorge dam started upstream of the Yellow river in 1957, assisted by Soviet funds and specialists. Intended for flood control in the lower Yellow, this mega-project also boasted of the capacity to generate one-third of the electricity for the whole country. At least 410,000 people were resettled to make way for the project.

As in the case of the Three Gorges, one serious problem for Three Gates was sedimentation. Within just three years of reservoir impoundment in 1960, the river had deposited more than 50mt sediment at its upper end, raising the riverbed by 4.5m and threatening upstream areas — including the ancient capital, Xian — with heavy flooding. When the problem was reported to Mao Zedong, who had earlier approved of the grand project, his comment was, 'If the Three Gates Gorge is no good, blow it up!'

Instead of actually destroying the dam, large restructuring works were conducted during 1965-90, to open up big holes for the water and the silt to pass through, the key objective being protection of Xian from flooding. A commentator wrote in 1985 to sum up the project:

Within five years of its impoundment, the Three Gates Gorge had lost half its storage capacity. The combined benefits once propagandised: electricity generation, irrigation, navigation (in maintaining at least 1 metre of water in the downstream regions), all have fallen out.

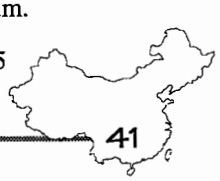
The original design of constructing a 360m-high dam was later readjusted to 315m. By end-78, five generators were in use, with an installed hydro-power generating capacity of a total of 250 MW (the original design was 1160 MW) and the budget had increased ten times than originally planned. As for resettlement, 900,000 people were supposed to have been relocated when the dam was designed at 360m, but when in 1958 the height was readjusted to 335m, 318,900 people had to be relocated. A further 84,900 people were resettled later due to landslides in the dam region. The majority of the 39,900 people moved to remote areas in Ningxi and Gansu provinces, and another 121,100 people to poor mountain areas could not make a living and had returned to their earlier homes.

Misplaced Confidence

The debate on the TGP focuses on two closely related themes: environment and resettlement.

The number of people to be evicted and resettled is estimated at around 1.3 -1.9m. According to Li Boning, the official responsible for the relocation plan of the TGP, there are enough resources and land in the Three Gorges regions to compensate and host the oustees. He is also confident that the quality of life of the people after relocation will improve. Li has adopted the 'kaifaxing method' (development relocation), i.e. local governments will provide financial assistance to speed up local economic development, instead of compensating the affected people with a lumpsum.

According to figures provided by Li, 19 counties/towns with 350,000 mu (23,345



ha) and 70,000 mu (4,669ha) orange orchards will be submerged by the project. The 361 villages, which are proposed to host the oustees, have altogether 3.9m mu (0.260mha) uncultivated land, which is enough for them. He estimates that if each household has one mu (0.0667ha) land for economic crops and another half mu high-yielding paddy field, their basic food consumption will be guaranteed and they may be able to reach the level of middle-income groups or even become rich. Li claims that this relocation plan is not only beneficial to the oustees but also to the local people of the resettlement areas. This is because 30% of the land cultivated by the oustees will be returned to the local inhabitants because the land in the resettlement areas belongs to them.

Critics of the Three Gorges Project feel that Li's policy is not viable. Based on a 1988 survey, they point out that the Three Gorges region has already been 'over-exploited,' and even without the dam, the development of uncultivated land has already reached its limit. After submerging 350,000 mu (23,345ha) rich cultivable land, the oustees will be encouraged to develop uncultivated land, mostly on the uphill slopes. Over-cultivation of this land has been one main cause for the felling of trees and soil erosion, hence the Yangtze floods. Further exploitation of land in the uphill areas will produce nothing but greater environmental destruction.

Li gives an assurance that people adversely influenced by the project will be resettled within the same county where they originally reside, and the quality of their life will be improved. The critics, however, point out that he underestimates the number of people being affected and overestimates the expanse of land that can be developed. Whereas Li's estimate of the oustees is 0.72m, government departments suggest that this figure is likely to range between 1.3m and 1.8m. At the same time, uncultivated land in the reservoir area is only 1.2m mu (0.08mha) — instead of Li's estimate of 3.9m mu (0.26mha) — part of which are on hillslopes at an incline of 25° or more and by law is not allowed for development into cultivable land. If the amount of acquired land to be returned to the local residents is also taken into account, it becomes evident that government will not be able to provide its promised compensation.

Li's opponents also point out that the kaifaxing plan has granted local officials too much power. According to the compensation procedure, most of the money will be first given to local governments to promote economic development in the resettlement region, instead of directly to the oustees. In addition, profits from the anticipated development to be retained by local governments will easily lead to corruption, cheating, and misuse of funds.

A report shows that even before the approval of the TGP, local officials had expressed their general support for the plan. Since 1985, the project had been partially implemented as experiments, and enormous amounts of financial resources from central government had been channelised into the region. Local administrators had expected the project to attract immense investments, especially in the industrial sector, and remove poverty. However, the project's recommendation of resettling the people within the same county, i.e. relocating oustees in uphill areas, simply means that the future economy of the region will still remain mainly agricultural. As a result, local governments are not particularly enthusiastic towards the plan and claim that they have no additional land for resettlement purposes. When most local governments' interests are in economic (or industrial) development, how much of the compensation will actually go to the oustees?

Voice of the Displaced

Although both promoters and opponents of the TGP have utilised the term 'people's interest' to support their arguments, what the oustees think is seldom discussed. Other than a few literary reports on the TGP that have interviewed some peasants concerned, very few feasibility studies have dealt with the views of the oustees themselves.

One exception is a study conducted in 1992 in three villages in the reservoir areas, where all or some of the inhabitants will need to be rehabilitated. In this survey, 40% of respondents thought that the project will have positive impacts on the region. When asked about its negative impacts, nearly 90% cited specific reasons. This shows that they were, indeed, worried about the negative fallout. When asked, 'for the national interest, are you willing to move?,' 30% of the people said no.

The survey revealed that 98% of the villagers believed the project was for electricity generation and development of industries. Worth noting is that the initial objective of the TGP was power generation, but when this was challenged, a new objective was proposed — flood control. However, this did not appeal to the upstream affected people as flooding occurs mainly downstream and so, government went back to its original objective of electricity generation to persuade the local people to accept the project.

The propaganda of 'electricity generation and industrial development' is misleading because most people after relocation will probably stay in the agricultural sector. It is interesting to note that when people were asked whether they expected central government to run into trouble in handling the project, nearly 30% of the respondents said 'no' or 'not clear.' Clearly, expectation of central government's capability, especially in terms of financial compensation and economic development, is rather too optimistic. This may reflect the success of propaganda, but once the people's expectations are belied, there could be serious social and political consequences.

The survey also brought to light another interesting phenomenon — that peasants usually overstate the area of land they currently own in order to seek better terms of compensation and resettlement. According to the survey, there were two reasons for this. First, most of the land to be submerged are level land along the riverside with good soil. After relocation in the uphill areas where the land quality is much worse — it is believed that 3 mu (0.2001 ha) of the uphill land is no better than one mu (0.0667ha) of the level land — the oustees would suffer a loss if they are compensated by the same amount of land they originally had. Second, the actual amount of land owned by peasants in the region is larger than what was registered in the government record. This is because many peasants have cultivated wasteland in addition to their own land which is not recorded and hence not taxed, making the income from the additional land 'invisible'. However, since compensation was based exclusively on the amount of registered land, peasants' income would certainly be seriously affected.

Most respondents realised that whether they agree or not, the government is going to implement the project. Therefore, they focus all their efforts on asking for better compensation. For those who are 'fortunate' enough to be relocated to the non-agricultural sector, there is still no guarantee that their factories will not go bankrupt after a few years. If this happens, who will take the blame?

Officials responsible for the relocation plan are confident, going by the past five years' experimental experiences, of their ability in executing the million-people relocation under the TGP. However, as some observers have pointed out, these experiments covered only a limited number of people and were intensively supported by central government. Hence the result of those experiments was, not surprisingly, 'successful.' Once the project runs into a much larger scale, the oustees will probably not receive similar 'intensive care.' In fact, the experiments have generated high expectations among the oustees and, once they realised that this was merely an illusion, their bitterness would turn against the corruption of the officials. How will government handle this?

Beyond the Rhetoric

The issue of corruption has provoked several demonstrations in China in the 80s. The people adversely affected by largescale hydel projects but badly resettled have continuously been protesting in Beijing. Government response has usually been rhetorical, without much substance. For instance, the reason cited for banning *Yangtze! Yangtze!* was that it 'promotes bourgeois liberalisation,' 'opposes Deng Xiaoping's Four Cardinal Principles,' and 'provides pretexts for riots.'

The propaganda of 'development relocation' is the carrot government utilises to encourage relocation. When people decline to accept it, it does not hesitate to use brute force or resort to legal regulations. Of course, central government is aware that, if handled improperly, the problem of displacement may provoke riots. Hence, in 1993, the State Council promulgated the 'Regulation governing migration under the construction of the Three Gorges Project,' requiring the oustees

> ... to consider the national interest, to obey the arrangement of the state ... Those asked to be relocated according to the migration resettlement plan should not decline or postpone moving. (And) in the processes of resettlement, those who violate the law or regulations and disturb the public order as well as defer production, if not a criminal offence, will be punished by the public security authorities.

It is difficult to tell how effective these ordinances are. All that can be seen from official propaganda are statements such as 'the people are willing to sacrifice for the sake of the construction of the Three Gorges dam' and 'the people greatly appreciate the Party for its development relocation plan.' However, according to Human Rights Watch, Asia Report, evidence shows that incidents of armed resistance have flared up during the relocation processes. Quoting from a confidential police report, it points out that as early as 1992, an organisation called 'Democratic Youth Party' was uncovered and seized by the public security bureau. This organisation had been carrying out 'counter-revolutionary activities' aimed at sabotaging the policy of open economy and reform and at disrupting the smooth progress of the TGP. Altogether 179 members of the organisation were arrested. The police report believes that both in and outside China, there are forces sabotaging China's socialist revolution and social order, and the TGP is one of their main targets.

Perhaps these so-called 'counter-revolutionary' incidents were just reactions from the people who refuse to be relocated. These incidents are not made public for the fear of disturbing the 'happy mood' reflected in the relocation process. As the TGP is identified with 'national interest,' which people can do nothing but follow, it is extremely difficult for them to reveal their real thoughts and wishes. As an observer suggests, under these resettlement ordinances, the people have only responsibilities but no rights.

If open debates are allowed, it is not certain whether or not the people will approve of the Three Gorges dam. Some peasants do hope to improve their economic well-being through the TGP, but dam opponents may not want to hear such voices.

For four decades, development has been suspended pending a decision on the project which has kept the region in poverty as government does not want to invest in an area which is to be submerged. It is time the people had the right to decide for themselves whether and how the region should be 'developed.'

Land Appropriation

Golf has a Bright Future, How About Farmland?

'You can do a lot of business in one round of golf. By the 18th hole, everything is settled,' said Cao Zhi, the legislature's secretary-general. He also emphasised that 'the emerging popularity

of golf among China's elite represents a new stage in China's development.' Said Matthew Ngan, Managing Director of Interform Investment, one of the owners of Golf China, 'This will be an entertainment centre for high-class people. There is no other place like it in China.' Tian Jiyun, deputy head of China's legislature concurred, 'Golf has a bright future in China.'[97]

Withering Farmland

According to environmentalist Lester Brown, 'China would need 490mt grain to feed its growing population by the year 2030, but would only be able to harvest 263mt. That would mean a 216mt shortfall — more than the current 200mt level of total annual global grain exports.'[98] Wan Baorui, Deputy Agriculture Minister of China, disagreed, claiming that 'the grain harvest would reach 500mt by the year 2000 and it would be 750mt by the year 2025.'[99] Brown's view may be too pessimistic, yet Wan's optimistic projection also seems to lack substance.

In the last decade, China has lost up to 2100 sq. km farmland annually and it is predicted that 'land losses would continue with a 2300 sq. km increase — equal to a middle-sized county — every year' in the coming decade.[100] In 1994 alone, the total cultivated land dropped by 714,500ha, 14% up compared to that of 1993.[101] The average cultivated land per capita was only 0.16ha in 1994,[102] less than half of the world's average. Subjected to rapid industrialisation, housing and real estate development, road construction, and other development projects, it is very likely that the trend of losing such enormous amount of arable land will continue. If this is the case, it is hard for the output of grain in China to feed its 1.2 bn people or 22% the world's population. China will, therefore, have to increasingly rely on imported grain, and thus, will be subjected to the fluctuation of international market prices which will put the economy at higher risk and threaten its society's stability.

Although one could argue that it is still possible to increase the output of grain by utilising more fertiliser and pesticide, official statistics showed that the use of chemical fertiliser had already increased by 275% from 8.84mt to 33.179mt between 1978-94.[103] At one level, the effectiveness of these chemicals has been counteracted by soil erosion. For instance, in Heilongjiang Province in the 80s, 'over half of the cultivated land with one-quarter of the cultivated area is so eroded, that over half of the 70-80cm thick black soil layer had been washed away.' According to a 1991 estimate, the annual loss of fertility in the Loess Plateau alone is equal to the total amount of chemical fertiliser used in China per year.[104] At another level, the abuse of these chemicals can cause long-term adverse effects to the human body and to the natural environment.

As the population of China continues to increase, the shrinking of farmland is becoming a more acute problem and if the problem of declining arable land cannot be solved properly and promptly, the future of the people could be cataclysmic. In order to take proper action, it is necessary to find out what causes the problem in the first place.

Although 316,500ha arable land were opened up in 1994,[105] this increase was far less than the loss of the 714,500ha arable land. Yet only 17.3% of the land lost (i.e. 123,400 ha) was due to natural disasters, the remaining 82.7% (i.e. 590,000 ha) was mainly the result of the industrial and commercial development projects in China.

The reduction of farmland is, of course, a long-term process but the speed of converting farmland into other uses has accelerated since the 80s, when the 'open door' and 'reform' policies were implemented. Farming is labour-intensive, with remuneration far lower than that of urban work. Statistics show that the average income per capita of a rural family in 1994 was RMB1223 which was 160% lower than that of an urban family.[106] This is mainly the product of the historical legacy as analysed in our introduction. Recently, farmers have been

further burdened by a series of levies, such as administrative expenses, conference fees, newspapers and magazines fees, etc. imposed by local authorities. Many farmers have only received IOU receipts instead of cash when they sold their products to government. Consequently, it is not surprising to find that farmers are willing to turn their paddy fields into more profitable uses, from grain farming to economic crops or even to non-agricultural projects. In fact, in 1994, more than 50% of the total farmland lost in China were converted to forests, grazing lands and fishponds.[107] It is also reported that 22,600ha of arable land in Guangdong Province had been lying idle for non-agricultural projects since 1991.[108]

However, the farmers' 'willingness' can at best be a secondary cause of the reduction of farmland. Without the government's initiation, it is impossible for the peasants to do the job alone. In fact, as is evident from the following figures, it is the development projects promoted by all levels of the Chinese government that account mostly for the reduction of farmland.

In the Name of Development Zones

China has tried its best to lure in foreign investment by providing special development (industrial and commercial) zones, first in coastal provinces, then throughout the country, particularly since the open-door policy of the late 70s. Shanghai's Pudong New Area is among the most famous development zones that was built through the transformation of 522 sq. km farmland into commercial and industrial uses in order to increase the GDP of the Yangtze River basin by 18.2% to RMB17.3bn in the first half of 1995.[109] In 1994, China lost altogether about 400,000ha arable farmland to industrial development, a 14% jump from the loss suffered in 1993.[110] In 1992, 6667 sq. km arable land was allocated to development zones at the expense of 3mt grain production per year[111]. In Guangdong Province, 295 development zones were built, consuming a total of a little over 7990ha. A further 90250ha will be utilised in the long term and another 18380ha will be developed in the near future. Nearly 70-100% land areas of these development zones were converted from arable land.[112] A report conducted by the China News Service indicated that 'about 60,000ha farmland in Guangxi Province had been converted into industrial development zones in recent years but most of the zones were lying idle due to the shortage of development funds.' Thus, the average of arable land for each resident in Guangxi Province dropped to less than one hectare in 1994 from two hectares in 1954.[113]

In particular, the rapid development of the automobile industry has significantly contributed to the reduction of farmland. The number of cars, vans, trucks and buses sold in 1990 was 1.2m. By the end of the 90s, this number will increase to at least 3m. As Lester Brown argues, 'a fleet of this size will required millions of hectares of land for a network of roads, highways, service station, and parking lots. Again, as with factories, these will have to be built where the people are.' [114] All these statistics indicate that China's industrialisation and commercialisation has come at the expense of scarce, arable farmland.

The Triumph of Tourism

There is no other place like China which has so many golf courses at the expense of precious farmland. In Guangdong Province alone, 40 golf courses had been built by the end of 1995.[115] Seven golf courses were under construction and two more had been approved by the authorities in Suzhou City. Zhang Fengxiang, vice-director of the Suzhou Land Administrative Bureau, claimed that 'all the golf courses were being built by foreigners and the land leased to golf course developers is undeveloped farmland, with an average price of about RMB33 per square foot.'[116] However, this kind of 'high-class' entertainment cannot be sustained if large tracts of food-producing arable land is not removed.

Take, for example, Huatang International Golf Club, which is located 30km east of Beijing in the rural town of Sanhe in Hebei Province. Spread over 100ha on the banks of river Chaobai, the golf greens have an 18-hole championship course, a club house, a hotel, a gymnastic centre, a recreation centre and a shopping complex. Needless to say, the club only welcomes those 'high-class' people who can afford membership fees ranging from RMB10,000 (10-year individual membership) to RMB380,000 (inheritable or transferable membership). This ensures that 'the club's 1300 membership cards can be offered to diplomats, foreign investors and top-ranking Chinese officials by invitation only, following a thorough background check.'[117]

In recent years, besides golf courses, many traditional styled buildings have also been built primarily for film production which are later turned into tourist spots. The most famous of such buildings is in the town of Shuihu in Wushi City of the Jiangsu Province, which required more than 333,300ha of land and 18 pillars made of valuable timber.[118] Most of these ancient-style buildings remain idle except during peak tourist periods.[119]

Land Abuse Must Stop

Although government of China has issued rules to protect farmland, there has been a spate of land-abuse cases throughout the country simply because it is highly profitable to convert farmland into other uses. Though a State Council circular of June 1995 states that 'new golf courses, model antique towns and amusement parks would be strictly banned,'[120] many local governments turn a blind eye to such regulations and continue with luxury development projects without considering the social costs incurred, as tourism can generate a huge income in a short period. The approval of a golf course in the city by the planning and economic departments of Huiyang city government — although the provincial government had rejected the application — is not an isolated case.[121] In fact, more than 400,000 cases of illegal occupations of farmland in China's 30 provinces, municipalities and autonomous regions were reported in 1988.[122] In July 1996, Guangdong's land department disclosed 15 cases of land abuse by other government departments and enterprises. Abusers were found issuing contracts or selling land without the provincial government's approval. In one case, the abuser — the urban development department of Xinhui county government — was fined RMB1.45m ($175,000) for the violation. What happened to the abusers, whether they were allowed to continue their practices after paying the fines, was not made clear.[123] An internal report prepared by the State Land Administration Bureau revealed that 'the Chinese Government is losing 12.5% of its land revenue a year through the unauthorised sale of state land by local officials.'[124]

Apart from government departments and enterprises handling farmland illegally, farmers also sold state-owned farmland. Farmers of Xicheng county in Hainan province, for instance, have sold approximately 2.5ha of farmland at RMB1800 ($220) per sq. m since 1988 without official approval.[125] All these suggest that it is pointless to merely recommend government to create more rules to regulate the use of farmland. The problem is political. Without a democratic mechanism which can effectively prevent the state to abuse its power, no rules or laws that hurt the personal interests of the government officials can be enforced. With opposition voices suppressed, the undemocratic nature of the Chinese political system tends to amplify social problems created by development projects based on development models of rich nations. In order to ease the problem of farmland reduction, these development projects should be slowed down, if not totally abandoned. And to fundamentally change the worsening situation, not only should the developmental philosophy adopted by the Chinese government be given up but the Chinese political system should also be made more democratic.

Flood Devastation: Three-tenths Natural Calamity, Seven-Tenths Man-Made

Since the mid-80s, disastrous floods in China have caused thousands of deaths; millions of people have become homeless, and millions of hectares of farmland were submerged. At first glance, the causes of these disastrous floods appears to be heavy rainfall in May-July in the Yangtze river valley. However, closer analysis reveals that environmental degradation in the areas concerned are mainly the result of developmentalism and bear the maximum responsibility.

Denuded Land

Due to industrialisation and urbanisation, demand for logs has sharply increased in China since the late 70s. An enterprise on the upper reaches of river Yangtze requires 120,000 cu. m timber per year while the annual growth rate of the county's forests is only 40-50 thousand cu. m.[126] It is not surprising, therefore, to see why deforestation on a devastating scale is taking place in the country.

In Sichuan, one of the worst-hit of all provinces, forest cover fell from 20% in the 50s to 12.5% in the 70s, and now has only 8% cover left.[127] In Yunnan, another flood-hit province, forest cover in Xishuang Banna Autonomous Region declined from 60% in the early 50s to approximately 30% by 1991. In 1985 alone, 2m cu m were burned just for the production of tobacco in Yunnan Province.[128] The forest in Changbai mountain areas in Heilongjiang Province 'has been shrinking at the rate of 5 mcm of wood or 86,450 acres per year. In the Yichun district, annual lumber production has been 5 mcm, but the local residents have been burning as much as 3 mcm per year.'[129] Hainan Province, an important tropical rainforest in China, had a forest cover of 35% in the early 50s, but dropped to 10.5% by 1980 and is only 7% now.[130] In the past three years, Hainan lost 2664ha of forest annually to development zones and the construction of infrastructure. Just three roads from the Qingpilin Protective Areas to the Shimeiwan tourist zone resulted in the loss of more than 13.31ha of trees.[131]

Driven by short term developmental interests, some local governments have illegally transformed forests into development zones. The amount of illegal cutting of trees doubled in 1992 compared with that of 1991, consuming 40m sq. m above the official quota.[132] At least 75,000 cases of forest-looting, involving the destruction of almost 10,000ha of forest were prosecuted in civil courts of China in 1987, but 'less than 10% actually resulted in some kind of indictment, a dismal indication of the level of ignorance regarding forestry.'[133] Due to careless management and insufficient awareness about environmental protection, a destructive fire broke out in Daxing Anlin, the largest forest area in China in May 1987. The fire which burned for 20 days, destroyed 650,000ha of trees or 2% (1.26m sq. m of the 1986 figure) of annual timber production, making more than 50,000 people homeless and resulting in 191 deaths and 221 injured.[134]

According to one environmentalist, one hectare of forest can absorb 70-100 t of water.[135] Since forested areas are capable of absorbing 70-270 mm of rainfall, an 8000ha forest would be able to host about one million cu. m of water.[136] This would certainly greatly reduce the possibility of flooding even in heavy rainfall periods. The sharp decline of forests in China has intensified the rapid changes in weather patterns, which, in turn, has increased the frequency of natural disasters.[137]

Silted Up Rivers

Largescale deforestation had caused widespread soil erosion with 66.65m ha of forests being ruined between 1949-81.[138] Soil erosion of exposed land is 100 times more serious than that of

forest covered areas.[139]

The Loess Plateau region, including all or a part of the seven provinces or autonomous regions along Yellow river, suffers soil erosion up to 90% of its total area (540,000 sq. km).[140] The river discharges as much as 1.6 bn tonnes of silt annually, i.e. 37.7 kg per cu m of water, while discharges from the Nile, the longest river in the world, is only 1 kg per cu m of water.[141] As a result, the riverbed in the lower reaches of the Yellow river is rising at a rate of 5-10 cm per year. In Western Shandong Province, the bed is now generally 4-5 metres (higher than the fields on either side) and in certain places close to 11 metres . Here, the Yellow river is referred to as a 'suspended river.'[142] Should a flood occur, the lives of more than 10m people would be threatened.

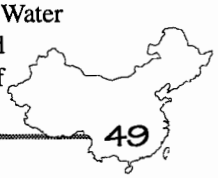
Similarly, the Yangtze, a major flood area, discharges 500 mt of silt annually into the East China Sea, about one-third of the discharge from the Yellow river. Between 1941-76, the amount of silt discharged by the Jinsha river, in the upper reaches of the Yangtze, increased by 0.2 kg per cu. m of water but the figure jumped to 0.4 kg between 1982-85.[143] The 364,000 sq. km of soil lost in the Yangtze river Valley in 1975 soared to 739,000 sq. km in 1986, that is, it doubled within 10 years.[144] It is believed that the Yangtze will become another Yellow river in the near future.

The volume of water held by lakes and reservoirs is also declining due to the deposition of silt discharged by rivers. Poyang lake in Jiangxi Province, the largest fresh-water lake in China, continues to receive 7.15mt of silt per year. Dongting lake, the second largest fresh-water source in central China, receives 136mt of silt per year, resulting in a rise in the level of the lake by one metre.[145] Owing to siltation, 50 mcm of reservoir storage capacity is lost annually in Shanxi. Furthermore, irrigation channels and tributaries are blocked due to soil loss, enhancing the possibility of flooding.[146]

Since the population of China has increased, the demand for more farmland has also grown. As more and more flat land is being taken over for urban uses, steeper slopes are being cultivated, [147] which has led not only to deforestation but also to disastrous landslides. In Guizhou Province, investigations showed that 'farming on slopes of thirty to thirty-five degrees would lead to all the topsoil being washed away within five or six years.'[148] Apart from bringing barren hill slopes for cultivation, reclaiming land from lakes and river mouths is another means of developing cultivated land for increased grain production. However, the price of reclaiming land from lakes and river mouths is very high, as it not only reduces the fishery output, but also weakens the capacity of self-adjustment of water volume by lakes and rivers during flood seasons. In Hubei Province, the total surface area of lakes by the early 90s is only a quarter of that in the early 50s. A total of 8386 sq. km have been made into arable land, resulting in the displacement of 2 bn tonne of water in flood seasons every year. The total surface area of Poyang lake was 5013 sq. km in 1954 but by 1976 had been reduced by 22%. Dongting lake has reclaimed half of its total surface area since 1949.[149]

Neglected Irrigation

As industrial and urban development are given first priority by government policies, nearly all state expenditure is invested in industrial and urban sectors. Consequently, investments in agricultural infrastructure and water management are extremely insufficient. This is another vital cause of floods in the last decade. 'From 1952 to 1979 investment in agricultural construction amounted to 11% of the total national construction investment. Between 1980 and 1985 the proportion dropped to 6%.' The ratio further fell to 3% from 1986 onwards to the early 90s.[150] The lack of investment means that the quality of the irrigation systems, reservoirs and dikes could not have been maintained to the same standards as in the past. In 1991, the Minister of Water Conservancy and Electric Power said that the reduction of the capacity of one-third of the large and medium-sized reservoirs in China are caused by siltation and lack of



proper management.[151] Merely by building more and larger reservoirs does not necessarily solve the problem of flooding; halting deforestation and soil erosion indeed are more effective solutions.

Natural Disasters?

The natural environment and the agriculture sector have been sacrificed as China only pursues industrialisation and urbanisation as its model of development. Due to the aforementioned reasons, devastating floods have occurred every year since the mid-80s. Since most industrial centres are located in lowlying areas, the state is always reluctant to open the gates of dikes near these centres to let flood water flow into the sea. As a result, floods in rural areas intensify. This developmental policy, which tries to protect cities at the expense of rural areas during flood seasons, results in millions of rural flood victims. To these victims, are these 'natural disasters' really natural?

Zhili Factory Fire: Productivity First, Safety Last

According to official reports, more than 20,000 people died in industrial accidents annually in the past few years.[152] While the local government in Shenzhen, the fastest growing special economic zone in Guangdong Province, was jubilant at announcing the 37% economic growth in 1992, it forgot to mention that the number of deaths in industrial accidents in the same year also increased by 73%.[153]

Among the most frequent accidents in the industrial areas of China are factory fires. According to official statistics, during the first 10 months in 1993, there were 28,200 fire incidents in industrial areas with 1480 people dead in the whole of China.[154] Guangdong is the province which has had the highest casualties and economic losses from fires in China over the past five years.[155] During 1992-94, factory fires killed more than 170 people in the Pearl River Delta.[156]

The Accident

On November 19, 1993, a fire broke out at a factory in Shenzhen. After lunch-time (around 1:25pm), in the quiet town of Kuiyong, situated midway between Shenzhen city and Daya Bay, the northeastern corner on the ground floor of Zhili Handicraft Factory suddenly caught fire.

It spread quickly and shot upstairs. When the workers noticed the fire, it had already spread through the first floor. The left stairs were blocked by a brick wall with a gate, so the stairs on the right was the only exit. Dashing through fire and smoke, nearly 200 workers jostled each other towards the staircase, two-foot wide.

The windows were sealed by the factory's authorities with grilles to prevent workers from stealing their products. Only a few of the second- and third-storey windows could be broken by the workers and the firemen, and through these emergency exits, workers recklessly leaped for their lives. As the only exit was too narrow for 200 people to get by, workers had also been trapped in the burning lower floors where three of the four main doors had been locked.

At about 5pm, the fire was put out. At least 81 bodies were cleared up from the doors prised open by the firemen. More than 40 injured people were taken to four hospitals and over 30 workers were still missing days after. Sources said tracking down the missing people was complicated because some workers might have been underaged and obtained a job by using other people's identity cards. In addition, some of the burned bodies were difficult to identify.[157] The blaze was one of China's worst since the drive towards economic reform. (Collated from *SCMP* 20-11-93; *Sing Pao* 21-11-93; *Express Press* 21-11-93)

The Backdrop

The factory complex had been built four years earlier after the factory started manufacturing. Half of the ground floor of the factory was the warehouse storing stuffed toys for export to Italy and Canada and the raw materials for making toys like fibre, foam rubber and woolen cloth, whereas the other half was the workshop for cutting out cloth. (This 2-in-1 design of the factory was against the fire safety law.) The packing department together with the sewing department were on the first floor and on the second floor was the tailoring workshop.

More than 400 people working for Zhili spent most of their days in the three-storey factory, sitting at machines on its first and second floors, sewing stuffed toys for 200-300 yuan a month ($24-36).[158] Before the new manager came, the workers had gone on strike three times for on-time-payment of wages. Most of its employees were women from Sichuan and Hunan provinces, some as young as 16, who slept and ate in an L-shaped hostel building outside the factory.

The Shenzhen *Special Zone Daily* on November 20, 1993 reported that the factory had been warned by the fire department in March that its 13 fire safety measures needed to be improved before the April 9 deadline. However, the factory had only rectified six of them, and that, too, not entirely. It was alleged that for financial reasons Lo, the Hong Kong owner of the factory, had ignored the advice to make improvements but RMB3000 ($360) was paid to bribe the firemen in exchange for a certificate of inspection. Until the fire broke out, nothing else was improved.

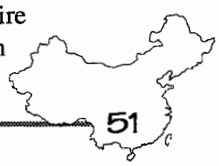
According to residents and workers in the area, the gates to the factory were locked every day, forcing the workforce, mostly female, to remain in the building for their shift and preventing them from escaping. The day the authorities came to check the fire safety measures of the factory, the gates were opened but after they had gone, the gates were locked again. A fireman at the scene after the blaze also admitted, 'the situation of stairs and gates being blocked is very common in China.'

The fire was caused by an electrical fault. A wornout high-voltage wire in the factory had a short circuit and ignited inflammable material in the warehouse inside the workplace. Factory exits were blocked and sealed windows were one of the reasons for high casualties in the Zhili fire. The factory authorities ignored both the industrial and fire safety regulations and had no care for the workers' lives.

In the factory, no water came out from the fire hydrant when someone tried to fight the fire. The municipal government had failed to ensure that the fire-prevention work of the Public Security Bureau was up to standard; water supply facilities were too poor to tackle the blaze; and fire-fighting equipment was inadequate, which hindered the rescue work. Rescue workers could not climb up to reach workers trapped on the upper floors because their ladders were not long enough. Residents in the area said the water ran out and firemen had to wait for more water jets to arrive.

Development had been so rapid in Shenzhen that related safety legislation was lagging far behind. A former mainland judge, Mr Ong Yew-Kim, said the problem of improper execution of law was understandable because China had been developing a proper legal system only for about 15 years. However, it cannot be denied that the improper enforcement of laws had encouraged factory operators to neglect safety problems.[159]

Zhili factory had abided by only six of 13 required regulations, and the cause of the fire was found to be due to the failure to adhere to three of the remaining seven regulations. Zhili could ignore orders to rectify problems not only because of the improper system but also the inadequacy of the supervisory staff. According to The Campaign against Killer Toys[160], the fire safety inspection unit of Shenzhen had only 40 staff members, which was not enough



for inspecting thousands of illegal factories in the area and it was impossible for the authorities to keep checking on each factory every day.

Even if a proper system had been set up, serious corruption could bury it. In 1994, a report revealed that 86 government officials, including more than 30 senior ones, had been punished for corruption or unlawful conduct and 68 party cadres had been ordered to sever their relationship with various companies.[161] Before the accident, the firemen received 3000 yuan ($360) from the factory in exchange for a fire-safety certificate, although they knew of the factory's poor safety standards.[162]

Foreign enterprises, in general, emphasise on making money. As a result, it is not surprising to see that many factories pay no attention to the safety requirements as that would involve extra investment. For instance, if the 2-in-1 construction needed to be separated, it would increase the cost of investment as land has become very expensive in Shenzhen. The differences in law implementation between different localities were also to blame for the often appalling safety conditions in foreign-funded factories in China. There were laws but the degree of law enforcement varied from place to place. Some are more lax than others in order to attract investors as the local governments are afraid of undermining foreigners' confidence in doing business on the mainland. It seemed that investment could supersede all other values. As the Hong Kong Confederation of Trade Unions' letter addressed to the head of China's National People's Congress, Qiao Shi, and handed in to Xinhua (the New China News Agency) on November 21, 1993, said: 'Given the long-standing indifference of foreign funded firms in China towards the safety of their workers, this disaster was inevitable."[163]

Li Zibin, the mayor and the party secretary in Shenzhen, said at least nine times in his report presented in the opening ceremony of the Shenzhen People's Congress 1995 that Shenzhen would strictly follow the directions set by Deng Xiaoping in 1978. And he especially pledged to continue with the market economy policies set by Deng. The province's economy had charged ahead, raising living standards, but as government focused only on economic growth rates, it left little time to worry about workers' safety. 'Put the eyes on MONEY' has been the prevailing slogan following the market economy policies and the enterprises and the merchants have been 'worshipped' as God even by government officials.

In the final analysis, the dangerous 2-in-1 construction design, management methods such as putting extremely low priority on workers' safety, inadequate fire-fighting equipment and poor water supply facilities, and lax local laws to attract investors, were all responsible for this tragedy. Yet fundamentally, these factors can be reduced to the philosophy of developmentalism at the expense of human ecology.

Postscript

More than 50 workers who survived the Zhili Handicrafts Factory's blaze were treated like 'prisoners' at the barely-equipped town cultural centre, most of them sleeping on the floor at night. They were under 24-hour police surveillance. The high security had been ordered by the Shenzhen authorities to avoid possible news leaks that would discredit government and show it up in an unfavourable light. They were not allowed to see their families and friends.[164]

The court pursued the 49-year-old factory owner, Lo, with a civil claim for 8.67m yuan ($1m) to cover damages and compensation . He was finally sentenced to two years imprisonment. Leung, the 40-year-old Hong Kong manager, received a lighter sentence as he had already left the factory when the fire took place. Two firemen were charged with taking bribes from Zhili's mainland manager with Lo's alleged consent and other operators and were sentenced to 17 years and 10 years, and fined a total of 50,000 yuan ($6000). Were all these enough as compensation to the

victims of the fire? And more importantly, without changing the mentality of developmentalism, will the general situation of the workers be improved after this tragedy?

Chemical Poisoning in 'Shoe City:' Poisoned for Daily Bread

In the mid-80s, Taiwan and Korea were the world's largest shoe exporters. However, due to the increase in production costs in their own countries, many of the investors moved their factories to mailand China. In 1993, China exported 1.76bn pairs of shoes, while the number of famous brand name shoes exported was around 70-80 million pairs, or one-third of the world's total branded shoes exported![165]

In Guangdong, there are around 3000-4000 shoe enterprises (mostly situated in Zhujiang delta) employing 200,000 workers. Many others came up in Fujian Province, Wanzhou city, Chendou city, Chongqing city, Shenyang city and Qingdou city in the mid-80s.[166] In these factories, the problems which workers are facing are not just long working hours, low wages, exploitation but also life-threatening poisoning.

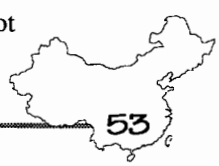
In the mid-80s, many Taiwan investors went to Fujian province and opened shoe factories. There were nearly 74 of them, mostly situated in Putian industrial district, the so-called 'Shoe City.' The shoe industry has become the main industry in that area which provides new job opportunities for women in nearby villages. There were also some workers from Sichuan or Jiangxi provinces which together form a workforce of 230,000 workers.[167]

When the economy of Fujian was booming, three invisible life-threatening toxins — benzene, xylem, toluene — were already affecting the health of the workers. However, people were not aware of it until some of the victims died of benzol poisoning.

The Death of Zheng Qin-li

Zheng Qin-li, one of the shoe workers in Putian, died of leukemia at the age of 21. What made the matter worse was that she had been married for no more than a year and expecting her first baby. Zheng lived in a poor village, around 100km from the city of Putian and being the eldest in her family, had to quit her studies to go out to work at the age of 17. She followed her fellow villagers to work in a shoe factory in the city, hoping to earn RMB1000-2000 a year to support her family.

At first she got a post in the needlework department and everything went well. The nightmare began three-and-a-half years later when she took up the glueing work in another factory in order to earn a little bit more. In the 1995 Chinese New year, she went home with her newly-married husband. By that time she had been doing the glueing work for six months. Her mother was surprised to see her face as pale as white paper. The colour of the skin of her foot and hands was yellow. Her body was weak and she even could not walk steadily. On the third day of the New Year, Zheng suddenly began vomiting blood and it could not be controlled. Her family sent her to a town hospital, about 50km away and she stayed there for a few days. As her condition turned worse, she was transferred to Xien-yuo district hospital. The blood test showed that her haemoglobin count was only 30g/l, one-fourth that of a normal person. Her red blood cell capacity was even worse, 800,000/milliliter, more than four times less than the normal rate of 4.5m/ml. The doctors believed that Zheng suffered from aplastic anaemia caused by chronic benzol poisoning and her bone marrow was seriously destroyed. After four days in coma, she died. Her case was not unique; it was just the tip of the iceberg.



No Escape From Toxins

Every year during the Chinese New Year holiday, many shoe factory female workers seek help from different hospitals in Putian district. Most of them may only feel nauseous, but the worst-affected die in the hospitals. At least two women have had miscarriages and a lot of them have to spend their savings before they get well.[168] Since 1993, more than 10 female workers had been diagnosed to be suffering from blood cancer, while 20 or more had serious aplastic anaemia[169].

The glue which is used to stick the sole to the shoe contains the toxic chemicals benzene, toluene and xylene. These toxic chemicals are highly volatile organic solvents, suspected to be the cause of nausea, miscarriages and leukemia among female workers. According to the Environment Department of China, the safety level of the benzene, toluene and xylene in the air is 100mg/m^2. But almost all the 74 shoes factories in Putian exceed this level, with some even going 10 times as high to 1000mg/ m^2. Statistics show that 3000t of glue consisting benzene are used while about 2400t of benzene toxin are produced every year in Putian.[170] The probability of finding these toxins in the city's air is more than 60%, [171] but since the toxin level is much lower in the city than the level found at the factories, the Environment Department cannot measure the exact amount. So it does not know whether the toxins in the air away from the factories will affect the citizens' health or not.

Early in 1987, Putian government had told Taiwanese merchants to set up the anti-pollution system when building their factories. In 1993, the merchants were once again urged to install air purification systems to deal with the gaseous waste. According to the schedule, the Environmental Department hoped to motivate the 20 biggest shoe factories to install the air-pollution system before 1994. But by 1995, only two factories had installed the anti-air-pollution system, and so the ED extended the deadline to the end of 1996.[172] The cost of installing ventilation systems would have only added an extra 0.4 cents to the production of each pair of shoes. However, the unscrupulous Taiwan investors ignored this safety device by taking advantage of the lax enforcement of the law.[173] As a result, the toxins are trapped inside the unventilated working space. Some of the factories do not even have air extractors.[174] Since windows are open during summer, the situation is not so dangerous, but in winter, when the windows are shut, it is devastating for the workers who toil 12-13 hours under toxic fumes.

The lives of 230,000 female workers are still at stake.

Toxic Waste Trade

Not In My Backyard

While the UN Basel Convention, an agreement to ban all exports of hazardous waste, is being discussed and debated vigorously, some participating countries seize the last chance to dump their waste in others' backyards.

Despite the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Disposal being enacted in 1989, trade in toxic waste continues unhindered. Hazardous wastes can be exported if they are destined for 'recycling' purposes; and hence toxic wastes such as plastic, radioactive wastes, disposable syringes, discarded pill bottles, used surgical gloves, are being dumped by industrialised nations on developing countries, particularly in China. In 1993 alone, more than 90% of waste exported worldwide under the pretext of recycling, were found to be contaminated. The waste which cannot be recycled ends up in landfill sites where mountains of waste are built up for people to pick up the 'valuable' garbage.

In May, 1996, 640t of harmful US medical waste was found in the rural district of Beijing. The waste was imported under the guise of recyclable waste paper to a Chinese papermill. One of the biggest importers of foreign garbage in Nanchang city has two dump sites, covering a total area of 19.6 ha. Workers sort the waste by hand, without wearing any protective clothing, masks or gloves. Every 50kg of sorted waste can be exchanged for about $2. Despite the awful working conditions and low pay, people are continuously attracted by the job. But waste-pickers do not realise they have exposed themselves to serious health risks.

Toxic gases such as methane and carbon dioxide are emitted from garbage piles. As the pickers do not have any protective equipment, they put their lives to even greater risk. Not only are the workers endangered, the health of residents living in the neighbourhood of landfills is also at risk. At one site in Guangzhou, a courtyard served as a sorting area for waste as well as a residential and playing area for children. Landfills also create environmental problems such as air and odour pollution. These landfill sites are degraded beyong regeneration. If the toxic waste is incinerated, an even more devastating pollution will be the outcome.

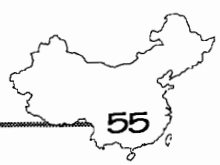
China has developed a prosperous recycling industry in the last decade. Thousands of million tonnes of waste are shipped to the country under the label 'recyclable.' While the industry has brought considerable income and job oppotunities, environmental and health problems have also grown alarmingly. According to reports in the *China Environmental News*, workers in the plastic recycling factories are at severe health risk. In a small township of Zhejiang Province alone, there are 333 plastics recycling workshops. Over 50,000 tonnes of untreated polluted waste are burnt every day in these units, but the workers, mostly children and women, have no knowledge about the health risks they are subjected to. So they breathe in the burning plastic fumes and stir the toxic chemicals in open vats unprotected.

A Long, Hard Battle Ahead

According to the 1990 statistics of the United Nations Environmental Programme (UNEP), at least 300-400t hazardous waste were generated around the world, 98% of which came from the members of OECD. It works out much cheaper and less harmful for the people in these rich countries to export their garbage elsewhere where the environmental and safety standards are totally different. The toxic traders from the first world take advantage of such difference, bypassing the relatively tougher local restrictions and dumping the toxic waste on third world countries. Since the 80s, Asia has become the most favourite and easy dumping site for hazardous waste, the far-reaching consequence of which is the reduced incentive of polluting industries to look for cleaner ways of production.

A new law, which bans hazardous waste from being transported into or through China, was introduced on April 1, 1996. Anyone who dumps, stores, or disposes imported solid waste without approval from Environmental Protection Authorities (EPA) is liable to be fined. Export of hazardous waste to China now require written consent from the foreign government. Hence, deliberately hiding trash in legal shipments will be deemed as commercial fraud.

However, it is unclear how stringent the authorities will be in enforcing the law. The unscrupulous garbage dealers used to clear their way through many Chinese ports with bribes, a common phenomenon in mainland China. While recycling is a growing business associated with considerable financial gains — and China currently is aiming for economic development whatever be the sacrifice — the battle against toxic trade will surely be a hard one for the Chinese people.



STATISTICS

Economy

	1978	1980	1985	1990	1993	1994
Year-end population (bn)	9.6259	9.8705	10.5851	11.4333	11.8517	11.9850
Gross domestic product (GDP) (bn yuan)	362.4	451.8	896.4	1853.1	3451.5	4500.6
Residents cost of living index (preceding year = 100)	na	na	109.3	103.1	114.7	124.1
Per capita net income of rural areas (yuan)	133.6	na	na	686.3	921.6	1223.2
Per capita net income of urban areas (yuan)	316.0	na	na	1387.0	2337.0	3179.0
Per capita annual consumption of agricultural population (yuan)	138	178	347	571	855	1087
Per capita annual consumption of non-agricultural population (yuan)	405	496	802	1686	3027	3956
Gross output value of agricultural production (bn yuan)	139.7	192.3	361.9	766.2	1099.6	1575.0
Gross output value of industry (bn yuan)	423.7	515.4	971.6	239.24	526.92	769.09
Output of grains (mt)	304.77	320.56	379.11	446.24	456.49	445.10
Consumption of chemical fertiliser (10000t)	884.0	1269.4	1775.8	2590.3	3150.1	3317.9

Source: China Statistical Yearbook 1995, *p20-21 * Including farming, forestry, animal husbandry and fishery*

Industry
(%age of GDP)

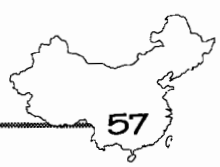
	1978	1980	1985	1990	1992	1993	1994
Primary Industry	28.1	30.1	28.4	27.1	21.8	19.9	21.0
Secondary Industry	48.2	48.5	43.1	41.6	43.9	47.6	47.3
Industry	44.3	44.2	38.5	37.0	38.6	41.0	40.8
Construction	3.8	4.3	4.7	4.6	5.3	6.6	6.4
Tertiary Industry	23.7	21.4	28.5	31.3	34.3	32.5	31.8
Transportation	4.8	4.5	4.5	6.2	6.3	6.2	6.0
Commerce	7.3	4.7	9.8	7.6	10.3	9.0	9.0

Source: China Statistical Yearbook 1995, *p26*

Area Under Cultivation
('000 ha)

Year	Cultivated Areas	Increase in Cultivated Area		Decrease in Cultivated Area				Cultivated Land per capita (hectare)
		Total	New Cultivated Land	Total	Capital Construct.	Village Collective Construct.	Peasant Construct	
1978	99389.5			800.9	144.5			0.19
1980	99305.2			940.8	97.7			0.19
1984	97853.7			1582.9	99.6	153.7		0.19
1985	96846.3	588.7	218.5	1597.9	134.3	92.3	97.0	0.18
1986	96229.9			1108.3	109.6	58.5	84.5	0.18
1987	95888.7			817.5	104.6	52.0	57.5	0.17
1988	95721.8			644.7	87.8	37.4	37.6	0.17
1989	95656.0	445.5	253.5	517.5	70.1	34.6	27.4	0.17
1990	95672.9	484.3	289.7	467.4	66.3	30.3	36.7	0.17
1991	95653.6	468.7	276.7	488.0	71.9	33.4	20.5	0.16
1992	95425.8	510.7	243.0	738.7	131.7	64.1	23.9	0.16
1993	95101.4	408.0	172.2	732.4	161.0	86.0	24.1	0.16
1994	94906.7	514.0	196.1	708.7	132.6	80.2	33.0	0.16

Source: Rural Statistical Yearbook of China *1992, p.219 & 1995, p.70*



Land Erosion

Category	Area (sq. km)	Percentage
All China 1993 (*China Daily*)	3670000	38.2
All China 1991 (official estimate)	1623000	16.9
All China 1985 (official estimate)	1292000	13.5
All China (mid-80s estimate)	1603150	16.7
Minor erosion	803970	8.4
Largely caused by soil movement	259680	2.7
Light erosion	689150	7.2
Moderate erosion	318750	3.3
Moderately heavy erosion	187770	2.0
Heavy erosion	75950	0.8
Extremely heavy erosion	61690	0.6
Excessively heavy erosion	10460	0.1
All China in 1950	1160000	12.1
Area controlled by conservation 1955-91	558000	5.8
Area controlled on Loess Plateau 1955-85	75000	0.8
Area expected to be controlled by AD 2000	660000	6.9

Source: *Edmonds, Richard Louis, 1994,* Patterns of China's Lost Harmony, *Routledge, New York, p63*

Soil Erosion in Yangtze River Valley

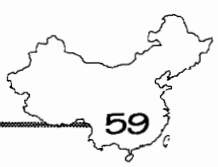
Category	1975		1986	
	Sq. km	% of area	Sq. km	% of area
Yangtze River Valley	363790	20.2	739376	41.0
Portion in:				
Sichuan	93380	16.1	382000	67.3
Guizhou	12816	11.3	35300	31.2
Anhui	13686	21.3	19263	30.0
Hunan	55880	27.6	56640	27.9
Jiangxi	11000	6.1	38360	23.0
Jiangsu	1850	3.8	6100	12.3

Source: *Edmonds, Richard Louis, 1994,* Patterns of China's Lost Harmony, *Routledge, New York, p67*

Natural Disasters (1991)

Natural disaster	Major occurrence	Secondary occurrence
Drought	North China Plain Dongbei (Northeast) Plain Sichuan Basin	Mongolian plateau Loess Plateau Yangtze River Valley South Guangxi West Hainan
Flooding	Yangtze River Valley North China Plain	Dongbei Plain Pearl (Zhu) River Valley Southeast coast
Earthquakes	Taiwan Beijing-Tianjin area South Ningxia West Sichuan South Tianshan range, Xinjiang	Shandong-Anhui Taihang Mountains Lanzhou-Tianshui area Hexi Gorridor of Gansu South Tarim Basin Himalayan Mountains
Flash rains	Southeast coast Taiwan Hainan West Sichuan	Yangtze River Valley Sichuan Basin Southeast hilly uplands East central coast
Strong winds	Xinjiang Inner Mongolian Plateau Southeast coast Taiwan and Hainan	Qaidam Basin of Qinghai Ordos Plateau Qinghai-Tibetan Plateau
Excessive cold temperatures	Sanjiang Plain of Heilongjiang Dongbei Plain Qinghai-Tibetan Plateau	Yellow River Valley

Source: *Edmonds, Richard Louis, 1994,* Patterns of China's Lost Harmony, *Routledge, New York, p15*



Droughts and Their Effects

Year	Affected region	Effects
1995	Provinces like Hunan, Shaanxi, Gansu, Qinghai, Ningxia, Shanxi, Henan, Shandong, Hebei, the Inner Mongolia Autonomous Region	• Affected 18,960 ha farmland in most areas in Hunan Province • In Xian, provincial capital of Shaanxi Province, almost all the 6.4 million residents were short of drinking water and most of 1.13mha farmland were not irrigated properly for four months
1994		• Affected 2.2mha farmland • Water shortage for 17.6 million people and 27.8m livestock
1993	Six of China's grain-producing provinces in northeast	• Water shortage for more than 6 million farm animals • In May and June, 36.15 million people were affected while 6.24 million people and 5.13m livestock lacked water supplies • Between July and August, an economic loss of 4000m yuan in Yunnan Province
1992	Provinces along the Yellow, Huai and Hai rivers, particularly in the provinces of Shandong, Henan, Hebei, Shaanxi and the Inner Mongolia Autonomous Region	• Affected some 18mha farmland • A total of 3.74 million people and 1.026m animals were facing water shortages • In Henan Province, 5.1mha farmland were affected and another 155,000 ha have not been planted with autumn crops
1991	Provinces like Henan, Shaanxi, Shanxi and Jiangxi	• Caused 2.1mha farmland without any production. More than 10 million people and near 20m livestock were short of water • In Henan Province, 4.73mha farmland were affected; 4.27 million people and 1.18m livestock faced the shortage of water
1990	The South and the West of China particularly provinces of Sichuan, Guangxi, Hunan, Guizhou, Hunbei, Jiangxi and Anhui	• Affected 18mha farmland • In Sichuan Province, 13 million people and 14m livestock were facing shortage of water. 40 people died of epidemic diseases such as pneumonia, diarrhoea.
1989	The North	• Affected a total area of 10mha including Beijing. Liaoning, Jilin, Heilongjiang, Tianjin and Shandong between March and April • A total area of 2.73mha was affected in Heilongjiang Province in June
1988	Provinces like Hubei, Anhui, Jiangsu, Shandong, Guangxi and Sichuan	• 10mha and 0.2 million people faced water shortage • Between June and September, Guizhou Province decreased 2bn kg of grain production
1987	Provinces like Hubei, Gansu, Shaanxi, Shanxi, Sichuan, Guizhou and Guangxi	• 20 million people and 9m livestock suffered from water shortage • The total grain production reduced by 1.8bn kg
1986	The middle of Yellow River Valley and Yangtze River Valley	• Affected 20.67mha farmland •20 million of people faced water shortage •During the mid-September and early October, Guangdong Province suffered from drought affecting 800,000ha farmland.

Sources:

1995: Full alert over flood and drought" in South China Morning Post, *General News, June 30 1995, p10*

1994-3: Report of the Damage Caused by Disaster in China, *edited by the State Statistics Bureau and the Ministry of Civil Affairs, State Statistical Publishing House, 1995, p407 & p405*

1992: "Floods Hit South, Droughts Bake North" in Beijing Review July 27 — August 2 1992 p5

1981-86: Report of the Damage Caused by Disaster in China, *edited by the State Statistics Bureau and the Ministry of Civil Affairs, State Statistical Publishing House, 1995, p403-4 & p397-8*

Floods

Year	Affected region	Deaths	Effects
1996	Jiangxi, Hunan, Guizhou, Hubei, Anhui, Sichuan, Zhejiang, Fujian, Guangdong & Guangxi	1400	• 800,000 people affected by the floods in Liuzhou • More than 9.3m people affected in Hunan province, where road & rail lines are cut & reservoirs & dams seriously damaged
1995	Southern China		• Affected 34 million people; damaged 1.46mha farmland • Overwhelmed 200,000 houses; economic losses of 4bn yuan
	Jiangxi province	194	• 100,000ha farmland flooded; several thousand houses damaged
1994	Guangdong, Guangxi, Hunan & Fujian province	258	• Affected 30.54 million people; destroyed 500,000 houses • 7665 people injured • A direct economic loss of 15.7bn yuan
	Northeast China	128	• 12.72 million people affected • Direct economic loss was 8.1bn yuan
	Fujian province	86	• 44,300 people were besieged
1993	Southern China	463	• Affected 3.71mha; besieged 1.57m people; 340,000 houses destroyed
1992	Areas in Fujian, Zhejiang, Jiangxi, Hunan, Guangxi & Sichuan		• Losses of over 15bn yuan (US$ 2.7 bn)
	Fujian province	148	• 34,000 people stranded by floods
1991	18 provinces, municipalities & autonomous regions; Anhui, Jiangsu, Hubei, Henan, Zhejiang & Hunan	5113	• 4.98 million houses ruined • More than 10 million people homeless • 60.72 acre farmland affected • A total direct economic loss of near 80bn yuan
1990	Hunan province	363	• Affected 1.33mha farmland; direct economic loss of 2.82bn yuan
	Shandong province	60	• 1.67mha farmland submerged; 1200 villages besieged • 16m people affected; a total direct economic loss of 2.5bn yuan
1989	Sichuan, Hubei, Henan, Jilin, Shaanxi, Shandong	827	• Caused decrease of 1.25 bn kg in grain production • Affected 17.91 million people
1988	Hunan, Jiangsu, Fujian & Guangdong		• Affected 9.3 million people in May
	Jiangxi, Hunan & Sichuan		• Affected 6.9 million people in June
	Zhejiang & Heilongjiang		• In July, 950,000 people in were affected
	Lower Yangtze Valley		• In August, 17m people suffered from heavy rainfall & then floods
1987	Guangdong province	114	• 1.43 million people affected & 114 people died • 70 million kg of grain were destroyed
	Shaanxi province	140	• 900,000 people were homeless
	Anhui & Jiangsu province	107	• 107 people died & 306 bridges were collapsed
	Shandong province	50	• 300,000 people were besieged

Sources:

1996: Sing Dao Daily, July 27 1995

"Another 466 deaths in Hubei and Guangxi as meteorological services predict more rain" in South China Morning Post, *General News, July 26 1996, p11*

"Millions battle to shore up mighty Yangtze River as flooding crisis worsens" in South China Morning Post, *General News, July 21 1996, p6*

1995: "Full alert over flood and drought" in South China Morning Post, *General News, June 30 1995, p10*

"Red Cross Short of cash as floods kill hundreds" in South China Morning Post, *General News, July 1 1995, p9*

1994-3: Report of the Damage Caused by Disaster in China, *edited by the State Statistics Bureau and the Ministry of Civil Affairs, State Statistical Publishing House, 1995, p405-6*

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Industrial Accidents

Factories & Mines

	1993	1994	1995
Total no. of casualties (deaths)	19798[1]	20260[2]	6656 during January and May[3]
Construction sites		57 dead & 75 injured[4]	99 deaths & 24 injured during January and July[5]
Explosion (mines)	5000 deaths	over 1000 deaths[7]	
Fire		2600 dead & 4000 injured[8]	261 deaths during January and June[9]

Sources:

1 Economy and Labour *Volume 3, May 1994, p.10*
2 Oriental Daily, *10 May 1995*
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4 Hong Kong Union Post, *14 December 1995*
5 South China Economic News, *5 August 1995*
6 Sing Dao Daily, *15 March 1995*
7 Oriental Daily, *22 February 1995*
8 Hua Qiao Daily, *4 January 1995*
9 Ming Pao, *11 August 1995*

Fire Accidents in Guangdong Province

Date	Places	No. of causalities	
		Deaths	Injuries
5-8-1993	A warehouse in Qingshui River in Shengzhen	15	873
19-11-1993	Zhili Toy Factory in Quiyong in Shengzhen	84*	40
11-6-1994	Zhengzhao Shoe Factory in Guangdong	17	27
16-6-1994	Qinshan Garment Factory in Zhuhai	70	110
20-3-1995	Huaqiao Building in Zhongshan in Guangdong	12	5
12-4-1995	Shengguang Garment Factory in Guangzhou	6	3
6-6-1995	A factory in Zhuhai	2	40
2-9-1995	Shunde Cigarette Lighter Factory in Guangdong Province	22	60
1-1-1996	Dormitory of Longhua Town Jewellery Factory in Shengzhen	19	37

Source:

Sing Dao Daily, *2 January 1996*

**According to 'The Workers' Right Report on Hong Kong Funded Toy Factories in Mainland China' in September 1995, the number is 87*

ENDNOTES

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[11] *Ho 1995; 385-6; Lu 1996: 53.*

[12] *Lu and Dai 1987: 69-70.*

[13] *Ueta 1989: 111-112.*

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[15] *Ho 1995: 372.*

[16] *Lu 1996: 37-8.*

[17] *Chevalier 1983: 171.*

[18] *Ho 1995: 376-7.*

[19] *DRICRD 1988a: 97-98.*

[20] *DRICRD 1988a: p.228.*

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[25] *ERL, p226.*

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[28] *http://abtenna.nl/~wise/index.html www.uic.com.an/index.htm.*

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[34] Ming Pao, *6 July, 1995.*

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[37] *CIC, p3.*

[38] Sing Tao Daily, *30 Oct. 1995.*

[39] Ming Pao, *31 March 1995.*

[40] Apple Daily, *7 Oct. 1995.*

[41] *CIC p4.*

[42] *HBC, p29*

[43] *BL, p121*

[44] *HBC, p25*

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[49] *ERL, pp150-156.*

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[51] SCMP, *8 Feb. 1995.*

[52] *BL, p121.*

[53] *ERL, p45.*

[54] *HBC, p29.*

[55] *BL, p122.*

[56] *ERL, pp61-70.*

[57] Ming Pao, *18 June 1996.*

[58] SCMP, *5 Oct. 1994.*

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[69] SCMP, *24 Oct. 1994.*

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[72] *ERL, pp160-170.*

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ABBREVIATIONS

AMRC: *Asia Monitor Resource Centre:* The Situation of Workers' Rights in Pearl River Delta, *1995*

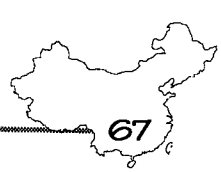
BL: *Brown, Lester (1995):* State of The World 1995, *New York & London: WW Norton & Company*

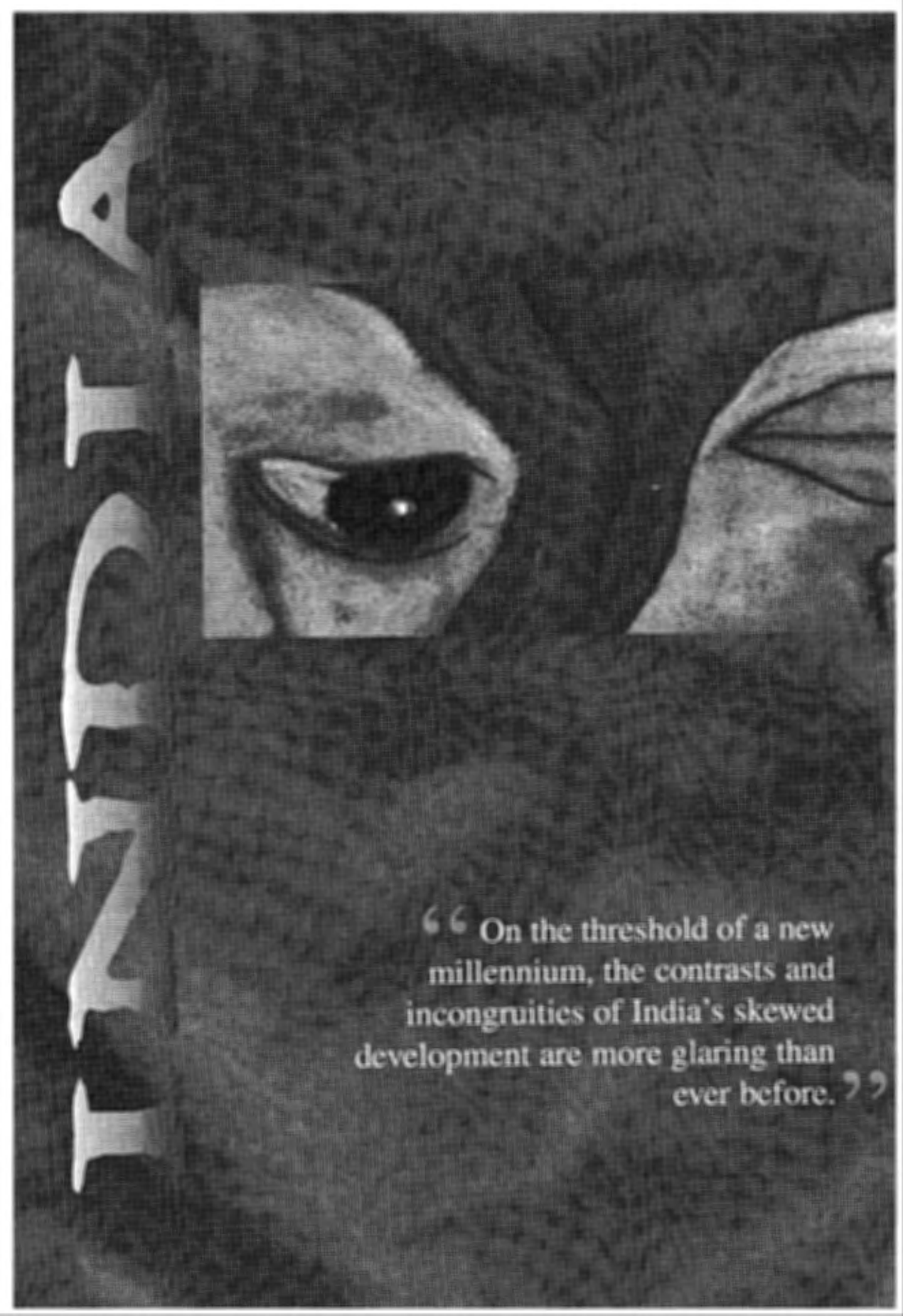
CIC: *Christian Industrial Committee,* Violation of Workers' Rights in Foreign Enterprises in China, *May 1995*

ERL: *Edmonds, Richard Louis (1994):* Patterns of China's Lost Harmony, *Routledge, New York*

HBC: *He Bochuan (1990):* China on The Edge, *China Books & Periodicals, Inc.*

Note: *The exchange rate in Jan 1997 is $1 = RMB8.3 yuan. The conversion is rounded off.*




INDIA
“On the threshold of a new millennium, the contrasts and incongruities of India’s skewed development are more glaring than ever before.”

INDIA

Aditi Chowdhury
& Sumit Chowdhury

Independent India's Dependent Progress: Development or Destruction

Fifty years ago when India began its 'tryst with destiny,' the question was whether the country would follow the Gandhian path towards a decentralised and sustainable village-based social system or launch into a grand march on the high road of growth-oriented development. The Father of the Nation had cautioned that it would be catastrophic if India blindly pursued the western model of economic advancement but the post-colonial political leadership paid little heed to his warning, opting, instead, for growth and industrialisation as their route to progress. They surmised it was the only way the newly-independent nation could overcome its backwardness and myriad problems to lay the foundation of a modern, scientifically-tempered nation, at par with the industrially-advanced west.

The consequence of treading this charted course for half-a-century has not been very encouraging. Progress has been tardy while problems have multiplied and become more complex. Instead of getting even with the developed world, India has more and more come to depend on global economic powers, sinking the country deeper into the muddy waters of underdevelopment. The worst sufferers have been India's poor and toiling millions whose lives and livelihood are constantly under threat.

Concentration of Power

India's journey on the road of development began around the time of independence in 1947. The British had left the country a shambles through their exploitative colonial policy pursued over two centuries. Their sustained plunder of India's natural and agricultural resources, destruction of indigenous trade, commerce and household industry and tacit strengthening of the feudal structures had reduced the country to a land of famine and pestilence. Hunger and poverty besieged the masses, illiteracy and joblessness were rampant and capital was scarce for an industrial upsurge. At the dawn of independence, the country was hopelessly divided along communal and ethnic lines.

To meet the challenges facing the newborn nation, India adopted the policy of accelerated economic growth through what was termed a 'mixed economy' — a curious blend of capitalist policies and socialist principles. Though centralised planning was the foundation of this development strategy, a blend of command and free-market enterprises constituted the launching pad for the economic takeoff. The state was the harbinger of welfare, providing speedy succour to the people but it had to work hand-in-hand with private capital to catalyse growth.

In effect, this model of development had the economy besieged with contradictory pulls. The lofty goals of egalitarianism, social justice, self-reliance and so on were certainly appropriate for a newborn nation trying to stand on its own feet, but the diluted vision inherent in the paradigm, aided by half-hearted practice, provided limited scope to improve people's lives. There was no provision for structural changes in the social order, such as land reforms, and it was believed that an industrial renaissance would be a shortcut to economic paradise, automatically taking care of hunger and poverty, inequality and unemployment.

The 50s, thus, witnessed a frenzy of activity, sweeping the country off its feet with a flood of mega-projects. Roads and bridges, railways and ports, big dams and irrigation projects, coal and ironore mines, steel and power plants, cement, chemicals and heavy industries sprung up across the length and breadth of the country, under the aegis of both the public and the private sectors. Jawaharlal Nehru, the first prime minister of the nation, anointed them 'temples of modern India.'

Short of capital and expertise, the country, however, was not in a position to provide the financial or technological resources required for the mammoth projects. There was no option but turn to overseas collaborators, who readily came forward with funds as well as technological knowhow and managerial support. At the very start of its onward journey, India's indigenous capital became yoked to global vested interests.

And yet, with huge investments going into infrastructure and key endeavours, the country registered a steady growth and made impressive strides in the first decades after independence. During 1951-66, per capita income registered a growth of 62.1% or at the rate of 3.3% per annum, nearly 10 times the average in the 50 years before independence. Industry, emerging with a newness and diversity, was the driving force of this growth, its share in GNP going up from 12.1% to 15.5%. No wonder, from a primarily agricultural economy with plantations and agro-industrial units, cotton and textile mills, small-scale engineering ventures and a few medium-sized enterprises strewn across the vast land, India, by the end of this period, emerged as a major industrial power in the developing world.

But such achievements failed to bring about a transformation in people's lives in any major way. While industrial capital grew by leaps and bounds, the inflow of resources into highly concentrated areas left little for the masses. Poverty continued to be the dominant reality, joblessness persisted and, with increased income disparities, the gulf between rich and poor, village and city, grew wider. Big business, with capital accumulating in a few hands, took a strong hold over the economy.

The benefits of the mega-projects were rarely allowed to percolate. On the contrary, they heaped a great deal of misery on large sections of the populace. To make way for the giant industrial and infrastructure ventures, vast tracts of the natural resource base of the people were forcibly taken over and millions lost their homes and livelihood. Farmers were moved from their land, fisherfolk from their waters and indigenous peoples from their forests. The process of marginalisation of the vulnerable sections was well on the way.

The rabid exploitation of nature led to denudation of hills and vale, disappearance of forests and commons and silting up of rivers and wetlands. Drought and flood became annual events,

water, soil and air were polluted beyond recovery, and the land was being gradually stripped of its rich biodiversity.

With rapid erosion of nature and nature-centric ways of life, traditional community systems began to disintegrate and the centuries-old sustainable and forest-dependent lifestyles started disappearing forever. Women had to bear the major share of the unbearable strain imposed on the social system and the environment. Those displaced from their land and forests — with no or poor rehabilitation — merely swelled the ranks of the growing army of unemployed in the cities.

The race towards an industrial society had already confined economic activity to urban clusters. Cities grew in both population and size to unmanageable proportions, land and housing were in short supply and civic systems yielded under strain. With mounting joblessness, social tensions became increasingly manifest.

The policy-framers were so obsessed with chasing the mirage of mega projects that they failed to see the village as the bedrock on which the Indian economy could be built. In trying to force a rapid pace of industrialisation, the Nehruvian era overlooked the fact that 70% of the population eked out their existence from agriculture, contributing 51.2% to the GNP at the time of independence. Consequently, the most important sector of the economy drew only negligible fiscal backing, which, in the absence of significant innovations in farming methods, brought down agricultural productivity.

Over two-thirds of the population, therefore, had very few means of improving their purchasing ability. As supply outstripped demand, the market was steadily squeezed and, by the mid-60s, the country was in the throes of an economic crisis. Convergence of economic activity in chosen pockets and spheres, together with the consolidation of the gains in select hands, had already led to an unprecedented accumulation of political power. The state by now became all-pervasive and, in order to deal with the rising tide of people's protest, began to wield its coercive arm.

The Omnipotent State

The crisis in the 60s did not the alter the strategy of unbridled capitalist development but reinforced it in newer forms. The emphasis on industrialisation had resulted in the neglect of agriculture, causing a massive shortage of food. As the spectre of famine loomed large, the country went out with begging bowls, importing foodgrain as aid, mainly from the US under the infamous PL-480, on unfavourable and unfair terms.

The ever-rising imports widened the existing deficit in India's balance of payments. As a result, not only did the country lose whatever comparative advantages it had in trade but, under pressure from the aid-giving countries, was compelled to substantially devalue its currency, thereby creating further hikes in the import bill and sinking the country into an abyss of debt.

As a counter-measure, India took up a programme of import-substitution by boosting agricultural production through cash-cropping, increased mechanisation and widespread and intensive use of chemical fertilisers and pesticides. This marked the beginning of the 'green revolution' in the late 60s that swept the states of Punjab, Haryana and western Uttar Pradesh.

With no complementary agrarian reforms, the agricultural revolution further consolidated land in the hands of the rural barons. While the landowners turned into rich kulaks and their cultivable land became valued as capital, the marginal peasants and landless evolved into an army of lowly-paid rural wage labourers. Though agricultural yield reflected an upward swing, the increase in returns was not as

sharp as was expected. In fact, during 1968-82, rate of increase in income from agriculture was a mere 2.2%, as against 2.4% during 1951-65. Moreover, cash-cropping, intensive cultivation of hybrid, high-yield varieties and use of eco-degrading technology began to gradually drain the soil of its self-rejuvenating capacity.

While the agricultural revolution failed to stage an economic turn-around, the situation turned worse with market stagnation in the early 70s that slowed down the industrial juggernaut. There was no way to stem the rot, and bail out private monopoly capital, except through a combination of populist rhetoric and greater state intervention. *Garibi hatao* (remove poverty) became the rallying cry of the times and significant sectors of the economy – coal, iron and natural gas as well as financial institutions such as banking and insurance – were nationalised and brought under direct state control. It was the only way to mobilise adequate capital, obtain infrastructure facilities and keep down risks. A form of state capitalism, aiding and abetting oligopolistic practices, was spreading its tentacles over the crisis-ridden Indian economy.

To divert attention from the troubled homefront, the bogey of external threat was raised and the country got embroiled in a war with its neighbour. Government used the opportunity to utilise a large chunk of its annual budgets for unproductive and unaccounted-for defence spending while countrymen were told to tighten their belts and subsist on patriotism. In due course, the fiscal system was caught in an internal debt trap, leading to a cut-down on financial allocations for poverty alleviation and social welfare programmes.

Meanwhile, disenchantment with the system was spreading as fast as joblessness. With growing industrial sickness, labour unrest simmered across the land, taking a violent turn in the railway strike of 1974. By the mid-70s, a mass upsurge in Bihar threatened to snowball into a countrywide upheaval. The immense concentration of power in the hands of the state made it possible to put down the revolts with an iron fist. The imposition of Emergency in 1975 was a logical culmination of the Bonapartist turn the Indian state had taken.

The turbulent period that followed was marked by uncertainty and lack of direction in economic policies. Though political equations in the country were undergoing rapid transformation, economic programmes remained more or less unchanged. Successive governments were clueless on how to steer the country out of trouble, and took recourse to ad hoc measures.

The growth rate till now had not shown any marked change, veering around 2.8-3.5%. However, continuous technological innovations and diversification ensured that industry marched on unhindered. Since independence, the volume of industry had grown 15-20 times, notwithstanding the stagnation of the 70s.

The benefits of this growth neither filtered down vertically to reach the middle and lower strata, nor did they spread horizontally across the country. Three decades of skewed development had led to an uneven concentration of capital: while more and more people had to make do without a square meal a day or a livelihood, a small minority grew rich overnight via the black market and through restrictive trade practices, setting up, with a little help from the state, a parallel economy.

At the same time, some areas rapidly flourished with new-found wealth that industrialisation and the commercialisation of agriculture spawned; others, mainly the east and the northeast, remained mired in medieval backwardness. The deepening economic disparity inevitably gave birth to political and ethnic divides, threatening to tear apart the federal polity and secular fabric of the nation. Punjab, the hub of the green revolution, was in flames, as were Assam and other states of the northeast, the most neglected region in the country. All this was the natural outcome of two generations of inequitable, unilateral economic development.

Retreat of the State

Global capital was meanwhile charting a path of aggressive laissez faire that saw a convergence of its interests with that of Indian private industry and its managerial appendage. With hopes of greater buoyancy in the market, there now began a clamour for withdrawal of the 'license-permit raj' which was felt to be preventing the blossoming of private entrepreneurship and choking the free passage of industrial growth. Government, in a great hurry to catch up with the latest global trends and take the country to the 21st century, was only too willing to fall in line, and soon enough, by the mid-80s, an era of open economy, liberalisation, delicensing and decontrol was foisted on the Indian people.

It was hoped that the new order would see a free play of market forces and greater competition among Indian enterprises, irrespective of their corporate or government identity. In reality, the state went into a shell, while Indian industrialists, their super-executives wielding enormous clout with the political leadership, extracted massive concessions for themselves and their global allies.

As state control over the economy loosened, welfare planning came under the axe. Subsidies for the rural poor were now considered a burden on the exchequer and poverty alleviation programmes began to be gradually phased out. As the focus shifted to capital-intensive technology and export-oriented growth, employment generation and import-substitution fell by the wayside.

The vast and growing middle class — around 100 million — was now fed with the vision of a brave new world that was on the way. It was a ploy to fuel aspirations towards a culture of consumerism that was engulfing urban India. Seeking to exploit the apparently bottomless market potential of the burgeoning middle class, it soon fostered and developed a homogenised urban supermarket through aggressive brand marketing of a new, westernised lifestyle. At the same time, the feeling of alienation that the adoption of such an addictive way of life engendered was sought to be compensated with aggressive, and often violent, communal, casteist or ethnic assertions.

Consumerisation of urban society inevitably led to corruption becoming endemic and receiving unwritten social sanction. With the urban elite clamouring for more, illegal means became legal and bribes or kickbacks a commonplace event. Every layer of high society — businessmen, the bureaucracy, politicians and even those at the helm of the world's largest democracy — got involved in one murky game or the other, their appetite for corrupt deals whetted by the smooth entry of ruthless international operators into the arena. The grand design to take India to the coming millennium, thus, ended in one of the biggest scandals to have rocked the independent nation in its short history.

No Holds Barred Economy

The 90s ushered in a period of political instability as casteist violence showed its ugly face while communal fervour reached a frenzied pitch leading to widespread riots. But there was no going back on the policy of economic liberalisation set in motion in the earlier decade. In fact, it now acquired an even stronger dimension with the introduction of the New Economic Policy (NEP) in 1991.

This latest arrangement was seen as the only answer to the crumbling foreign exchange edifice that India found itself landed with in the wake of liberalisation. The crux of this solution was 'structural adjustment' as peddled by the messiahs of the World Bank-IMF. Its merits were not lost on the country's policymakers who adopted it with a will. The idea was to remove the few existing hurdles in providing the private sector free run of the economy and welcoming international investors.

In the name of globalisation, import restrictions were eased and trade protection to Indian interests was withdrawn. Foreign capital and multinationals were offered every kind of incentive to use India's raw materials and cheap labour and sell their finished products in the ever-growing middle-class market, in true neocolonial style.

The introduction of a market-friendly economy set the country on the fast track of industrialisation and development. A growth rate of about 6-8% — way behind that of market-socialist China but deemed unattainable in India — was achieved soon after but its benefits were reaped only by monopoly houses and multinationals. In real terms, it further accentuated the misery of the people because of rising costs of living and higher unemployment.

The newly-set up ventures also tolled the deathknell of the country's environment. Vast stretches of India's coastal areas have come under siege while the bio-rich tropical forests and wetlands across the country are on the verge of decimation. Needless to say, neither have the views of local inhabitants been sought, nor are they compensated for the destruction of their habitats and livelihood.

The ruin of agriculture was assured when India gave its assent to the GATT treaty in 1995. The agreement compels Indian farmers to surrender patent rights over seed, plant and agro-chemical varieties. The country's agro-diversity was threatened, and with the influx of multinational agro-hardware and agro-chemicals, the destruction of cultivable land became irreversible.

Moreover, the country had to pay very heavily for the swift switch to consumerist lifestyles and the false sense of well-being associated with it. A wave of new-found resentfulness pervaded the self-seeking cosmopolitan psyche, abetting the rise of fundamentalist stridency that reached its highest pitch in the shameful demolition of a historic shrine and bloody riots in several urban clusters. The magnitude of violence and bestiality unleashed showed that the desensitised urban society could go to any length to achieve their targets.

That a culture of vultures pervaded the nation became even more evident when a series of corruption scandals implicating political leaders of almost all parties as well as some top corporate houses and financial institutions, rocked the country in the mid-90s. The influx of multinationals, rising power of black money and absence of public accountability had paved the way for an alarming loss of values. It was the inevitable consequence of the reckless course of development followed over half a century, and now reinforced by economic reforms.

People's Resistance

India's development paradigm, modelled as it was on post-colonial ambitions, have found unstinted support from the country's industry and urban elite. To the vast majority of the people, however, such unplanned and unilateral development has spelt only ruin and disaster. As a result, development projects have often met with stiff resistance from the affected population.

The most well-known, at home and abroad, of these people's movements has been the valiant struggle of the inhabitants of the Narmada river valley spearheaded by the Narmada Bachao Andolan (Save Narmada Movement). The sustained opposition against insurmountable odds by forest-dwelling indigenous peoples and farmers to the construction of a life-destroying mega-dam project has brought into sharp focus the nonviability and inherent injustice of India's development strategy.

Agitation against unsustainable development projects have flared up from time to time even before Narmada fired the imagination of the environmental movement in India. In fact, a countrywide public furore in the early 70s against potential destruction of an ecosystem forced government to abandon a hydel project in the pristine bioreserve of Silent Valley in Kerala. The incident clearly

demonstrated that the people were not willing to accept environmental destruction in the name of development.

The seed of India's green movement, that was sown deep down south, sprouted again far north some years later, in the hills of Tehri-Garhwal. The Chipko (hug-a-tree) movement to save the Himalayan slopes from mindless lumbering and quarrying snowballed into a genuine people's struggle against the relentless assault of development on life-sustaining natural wealth. The movement was unique in two ways: in the form it took by drawing inspiration from ages-old tradition of respect for nature and its bounty, and in the wholehearted participation and leadership of women and children.

In fact, involvement of entire families, communities or villages in agitation against development projects have marked the growing peoples' struggles throughout the country in the last two decades. Cutting across all social barriers, people have united to fight against the all-pervasive marginalisation such projects are inflicting on them. The determination and grit of thousands of indigenous peoples, forest-dwellers, farmers, village artisans and fisherfolk in Bastar, Baliapal, the Subarnarekha valley, Chilika, Tehri, Gopalpur, Dakshin Kannada, Ratnagiri and many other areas in the face of severe state repression proves beyond doubt that the present path of development is anti-people and imposed from above for the benefit of a chosen few.

That there could have been another route to development — constructive not destructive, for the people and with their active participation — has been effectively demonstrated by the workers and adivasis in the iron ore mines of Dalli-Rajhara in the Chattisgarh region of Madhya Pradesh. Based on the philosophy of *sangharsh aur nirman* (struggle and creation) propounded by its assassinated leader, Shankar Guha Niyogi, the Chattisgarh Mukti Morcha (Chattisgarh Liberation Front) had successfully integrated militant labour movement with constructive work and social reform activities. The innovative strategy was aimed at presenting the microcosm of a future and kindling dreams of a just and egalitarian society where people's power was supreme.

The Chattisgarh experiment has given an indication of how different India's half-a-century of development experience would have been with people's participation and empowerment at the grassroots. An effort was made in that direction by the Left Front government, when it came to power in West Bengal in 1977, through land reforms and institutionalisation of the panchayat system (local self-government). The moves did, indeed, bring about far-reaching changes in the rural landscape but were not designed to halt or alter the ruthless and inhuman course of development. Panchayats, though playing a commendable role in the devolution of power, were elected bodies, neither owning nor having any control over the use or dispensation of natural and other resources. Real empowerment of the people, therefore, remained a distant dream. The Left Front government in Kerala has moved a step closer with its blueprint for 'local area planning' in which people themselves work out the strategy and programme of village development.

Over the years, people's movements have grown to encompass almost every sphere of life. Propagation of people's science in Kerala and elsewhere, anti-*arrack* (alcohol) agitation in Andhra Pradesh, alternative education experiments in Madhya Pradesh, platform for self-employment of poor women in Gujarat, campaigns for literacy in several states, fight for the right to information in Rajasthan, battle against the coal mafia in Bihar, struggle towards a people's culture in Andhra Pradesh and human rights movements all over the country are challenging, in their own way, the accepted path of development. Side by side have blossomed hundreds of people's own initiatives in creating viable, cost-effective and sustainable alternative models of development. The small victories wrested by these only serve to underline the enormity and complexity of charting a course of development for the people, of the people and by the people.

The Current Scenario

Since the 1996 elections, a coalition has assumed power at the Centre for the first time since independence. But despite the professed left-liberal ideology and a somewhat pro-people common minimum programme, the coalition has not shown any inclination of going slow on economic reforms. In fact, it is trying to outstrip the NEP architects in opening up the economy and laying out the red carpet to foreign capital.

Travelling on the fast track of development and reforms is forcing India to rely more heavily on global funds, the consequence of which has been calamitous for the country. Mired in continuously spiralling debt, it can do little but allow the international financial institutions and lending agencies to call the shots. Aided by their dictated policies, foreign capital and multinationals are now on a recolonisation trail.

In the five years since the launch of NEP, foreign direct investments have gone up from $150m to over $2.5bn. Key areas of the economy such as power, steel, petrochemicals, electronics, irrigation, aquaculture and infrastructure development have been opened up to foreign investors and their domestic partners. Now plans are afoot to hand over the financial sector.

Paradoxically, the high expectations that presaged the launch of economic reforms five years ago have turned out to be mere hype. The expected rush of foreign capital, direct or indirect, have not really come through and multinational consumer durables have not been able to swamp the Indian market. In this period, India has received only about one-thirtieth of what has gone to China in the way of foreign investments. Political instability, the stranglehold of red tape and the lack of adequate infrastructure are perhaps some of the reasons why global investors are fighting shy; the other reason is that the Indian middle-class is not as lucrative a proposition as it had been made out to be, because of its limited purchasing power. Indian industry, too, is holding its own and has even put a few brakes to the unhindered entry of multinationals, despite its known penchant for overseas allies. It appears that the main strategy of global capital is to strangle India with unrepayable debt through loans from its financial institutions.

The situation today is very complex, true to the contradictions inherent in the vastness and diversity that is India. On the one hand, doors are being opened wider for the inflow of global capital while, on the other, the economy is showing a great deal of resilience to keep it out. For their part, international investors find India an unattractive business prospect in many ways, and yet they are more than eager to set foot in the country. In this tug-of-war, the middle class is being pulled asunder, a small section of it accumulating riches beyond its wildest dreams, the rest gradually getting impoverished. For the toiling masses, all these have made no difference; in fact, little has made any difference for them in 50 years.

The Balance Sheet

On the threshold of a new millennium, the contrasts and incongruities of India's skewed development are more glaring than ever before. In this long period, the country has made some progress in certain areas, sometimes with tentative steps, often with determination. Largescale famine, typical of the colonial period, is now a distant nightmare, though there are still a few remote pockets that perennially report starvation deaths; rise in productivity has transformed agriculture, making India fully self-reliant in foodgrain. At the same time, the country's industry has gained some amount of prestige in the world: its products may not always stand the test of quality, but many of its consumer items have found a niche in international markets while its engineering expertise and construction services are welcomed in West Asia and east Europe. India may rightly be castigated for an abysmal lack of elementary schools, but the country can justifiably

boast of some excellent institutes of higher learning; its rich talent pool of scientists and professionals can hold their own against the very best in the world.

The people and political setup, too, have shown tremendous willpower in restricting the tendency towards authoritarianism. The country's parliamentary system, despite pitfalls, is stronger and more effective than the autocratic regimes in many countries of the third world. In spite of its commercial orientation, the country's media remains relatively free and vibrant, while its judiciary is still unshackled and a section of it actively stands for environmental conservation, social justice and human rights.

Yet, the number of people below the poverty line — 328 million — equals the total population at the dawn of independence; millions have no access to drinking water or to cooking fuel; more than half the country's people still remain illiterate — in some states, the levels of illiteracy are lower than that of sub-Saharan Africa — and there has been little concerted effort to eradicate this shame or provide compulsory education for all; infant mortality rates, though significantly reduced, are still among the highest in the world with two million children dying every year from undernutrition and preventable diseases; and primary healthcare, almost nonexistent in rural India, is beyond the reach of the poor and much of the middle class in urban centres. The neglect of the social sector is absolutely inexcusable when one considers the huge amounts that go into the defence budget every year or the boom in luxury hotel construction in the metropolises.

The development process may have lent a certain dynamism to India's economy, but it has not been able to make much of a dent in its rigid and stratified social structure. Women have remained no better than chattel in thousands of households, even where indigenous satellites beam images from every corner of the earth and beyond, while the caste system still continues to equate humans with beasts of burden. It is this failure of enlightenment that has today led the country to the most crucial crisis of all — the loss of idealism that was the driving force of the struggle for independence. The fate of independent India's dependent growth could not have been otherwise. Mahatma Gandhi's warning has, indeed, come true, in more senses than perhaps even he envisioned.

In the 50 years of India's tryst with destiny, development and underdevelopment have gone side by side, one reinforcing the other. Their combined history is a saga of impoverishment, ruin and destruction. The study of independent India's development must be seen in the light of that yet untold history.

GLOSSARY

Basic Amenities Deficiency

Even 50 years after independence, over half of India's population survives at below-subsistence levels. Millions of villagers and the poor in city slums still do not have access to shelter, safe drinking water, cooking fuel or proper sanitation facilities. The contrast of their way of life with that of the urban elite is only too glaring. Absence of the bare necessities is the hallmark of rural India's proverbial poverty and highlights the fundamental inequality between rich and poor in urban areas.

***Cooking fuel*:** For millions of India's village households, firewood and cowdung are the only means of lighting their hearth. With forests gradually receding, firewood is becoming scarce, and in many areas, women have to walk over 10km to get their cooking fuel. The rich and the middle class in the cities use LPG, a subsidised commodity. For the poor slum-dwellers the cooking fuel bill is constantly rising with increasing prices of kerosene and smoke-emanating coal.

***Drinking water*:** Potable water is a rare commodity for India's rural masses. In 113,000 villages, sources of pure drinking water are, on the average, 1.6km away. Nearly 163m children in the country do not have access to safe drinking water and are prone to water-borne infections. Women are the worst sufferers of such degrading scarcity. In urban areas, too, the shortage is endemic in the slums and tenement houses, though the rich, blissfully unaware of the reality, indulge in colossal waste of water. Policy-planners have paid scant attention to the issue till now.

***Sanitation*:** It is very rare to find a village or a slum in India with proper sanitation facilities. Though there have been stray attempts to develop and supply low-cost and hygienic latrines, government's rural development programmes have more or less ignored this essential requirement of the poor millions. Outbreak of diseases, sometimes in epidemic form, has been the expected fallout.

Child Exploitation

Fifty years of unbalanced and inequitable development has had the most adverse impact on India's 350 million children. Today, in spite of a National Plan of Action for Children based on the UN Convention on the Rights of the Child, thousands of children are denied their fundamental rights to life and survival, protection and development. Over the past half-a-century, life expectancy at birth has doubled and infant mortality declined to half; yet 2m infants die every year and 63% of under-five children remain undernourished. Even education is a luxury for countless children mired in domestic drudgery or toiling to help families stay alive. With no one to stand up for them, the uncared-for future generation is an easy target for the worst kind of discrimination and exploitation.

***Bonded children*:** The plight of 12-year-old Amjad, 'saved' in early 1996 by an NGO worker from the clutches of Munna Khan, a bangle factory owner in Ferozabad, Uttar Pradesh, is the plight of thousands of children in bondage. Amjad's father had borrowed Rs3000 ($85.7) from Khan to treat his ailing child and pledged the boy's labour in exchange. At the time of his rescue, Amjad had been toiling from eight in the morning till past midnight in the factory and slogging on weekends at Khan's house cleaning toilets, scrubbing floors, carting bucket-loads of water for 18 months to repay the loan. Brutal beatings were his only wages, and the

loan was nowhere near repayment. In the absence of clearly-defined laws and proper rehabilitation, the boy would have to go back to his vicious master or else his brother would have to take his place. The situation is fairly common among the rural poor who are forced to borrow to tide over lean months and often pay dearly with the future and even lives of their children. The Bandhua Mukti Andolan (Free Bonded Labour Agitation) has been at the forefront of the campaign against child slavery for several years, but it is cold comfort for the hapless in bondage.

Child labour: When, in 1995, 14-year-old Jafar Imam of Delhi was burnt to death by his employer for refusing to work 12 hours a day for Rs350 (around $10) a month, it evoked little reaction, clearly revealing the prevailing attitude towards working children. Though child labour is banned by law, there are an estimated 55m children in the country who are made to work long hours for far lower wages than adults. Even 7-10 year-olds, especially girls, work 10-12 hours as domestic help, in teastalls or hawking on busy thoroughfares to supplement the family income or, often, as the sole breadwinner. Worse is the plight of children employed in industries using hazardous chemicals such as firecracker and match-making units, carpet or glass industries, smelting factories and in the ragpicking trade. The only time the government takes notice is when it faces a foreign boycott of goods made by child labour.

Child marriage: Though marriage under 18 years is prohibited by law, child marriages continue to take place in India, specially among the economically-backward and caste-ridden societies in Bihar, Rajasthan, Madhya Pradesh and Uttar Pradesh. The practice is a reflection of deeply ingrained gender bias of traditional Indian cultures and has a negative impact on economic development. The little wife is not just robbed of her girlhood, but early marriage also spells the end of her education as well as premature assumption of domestic and child-rearing responsibilities. Further, it enlarges her fertility span, resulting in pregnancy complications and delivery of underweight babies. Census figures reveal that nearly 55% of marriages in India involve girls in the age group of 14-19 years.

Children in prostitution: The arrest and trial of Freddie Peat, a 71-year-old emigrant, for running orphanages in Goa that abused children and sent them abroad under the guise of adoption, has opened a Pandora's box regarding the extent of children in prostitution in India. Official estimates put their numbers at 400,000, the highest in the world, but the actual figures are still higher. In addition, over 25,000 young girls cross the borders from Nepal and Bangladesh every year to join the brothels in Mumbai, Calcutta and other fast-growing metropolises. Needless to say, government turns a blind eye to such trafficking. Poverty, income disparity as well as growth of consumerism and commercial tourism are compelling more and more guardians or parents in India to push their children into selling their bodies in the urban supermarket. Incidence of STD and HIV have increased manifold among the children forced into flesh trade.

Street children: The condition of millions of children born and bred in the streets of Indian cities is as dehumanising as those in the other urban landscapes of the underdeveloped world. To the uncaring populace, they are pavement-dwelling urchins and ragpickers responsible for the petty thefts in the neighbourhood. But behind the face of each street child lies a story of deprivation, depravity and a constant struggle to stay alive. A study of Calcutta's street children shows 5-year-olds addicted to chewing *khaini* (tobacco), smoking *bidi*s and *ganja* (cannabis) and adolescents hooked to brown sugar and cocaine. While girls on the streets are always in danger of rape, little boys run the risk of being sodomised or beaten up by older boys, gigolos, shopkeepers, pedestrians and the police. Threat of oral cancer, respiratory infection, STD and AIDS loom large over their marginalised lives.

Corruption

Unplanned and lopsided growth, integration with global capitalism, rising international debt, unabated flow of foreign capital, influx of multinationals, intensified consumer culture, mercenary trends in business, politician-bureaucrat-industrialist nexus, criminalisation of the polity along with a total degeneration of moral values have resulted in an unprecedented rise in corruption in Indian public life. The pivotal role in the Indian economy of black money through tax evasion was an established fact. But since the opening up of the economy in the past decade, bribery, kickback, payoff, defalcation have become the order of the day in Mahatma's own land. The absence of a credible public accountability system has only aggravated the situation. Corruption has become endemic in every strata of society and is fast gaining social acceptance.

Black money: Accumulation and circulation of unaccounted or black money has reached such enormous volumes in India that it is said to be running a 'parallel economy.' According to a National Institute of Public Finance and Policy estimate, evasion of corporate and individual taxes generate unaccounted money worth a colossal Rs 1000bn ($28.57bn) every year, although the country's direct tax rates are one of the lowest in the world. There has been little or no effort by the authorities either to unearth this vast amount or enforce punitive measures for non-compliance of taxes. On the contrary, since liberalisation, steps have been taken time and again to provide amnesty to tax evaders. Now there is a move to lure hoarders of black money towards 'productive investments' by selling bonds with institutional guarantee for reasonable rates of return. Not only are tax criminals being allowed to go scot free but they are also being provided with a grand opportunity to transform their black money into white.

Non-accountability: Funds for planned development and public welfare projects in India have fallen easy prey to misappropriation, swindling, bribery, fraud and nepotism because facts, figures or any kind of information are difficult to come by. The culture of secrecy pervading every level of bureaucracy makes mockery of the people's right to know and monitor the progress of government work. Bills and muster rolls are never put at the disposal of the public, and millions of rupees go into the pockets of the politician-bureaucrat-promoter-contractor lobby. For mega projects, this woeful lack of transparency leaves the would-be displaced pitiably ignorant of their fate, as has been the case for the Sardar Sarovar oustees, and dam after dam. Rajasthan government recently was cornered to concede the people's demand on access to information by allowing inspection of documents but did not permit copying them. Official secrecy has become a good cover for non-accountability.

Scams: After the Bofors gun kickbacks in the late-80s and the stock market securities scam ushering in the era of liberalisation, disclosures regarding bribes paid by a non-resident Indian to grab a business order, forgery of documents to discredit a political opponent and payoff to a political group to win parliamentary support, all involving India's former prime minister rocked the country in 1996. More corruption cases implicating him and his government include hawala payoffs from an industrialist to his partymen and others in the opposition, kickbacks in a urea deal received by his son, charges against his ministerial colleagues in awarding a telecom contract to a multinational and preferential allotment of petrol pump dealerships and housing, and violation of foreign exchange regulation by his trusted godman-cum-friend of a notorious international arms dealer. High on the never-ending list are defalcation of animal husbandry funds involving the chief minister of Bihar, and amassing of unaccounted wealth by a former chief minister of Tamil Nadu and her colleagues. Revelation of massive, unaccounted foreign exchange earnings by Indian directors of ITC, the country's top corporate house and enforcement raids on other leading business establishments have shown that corporate managers and industrialists do not lag behind

politicians and bureaucrats in feathering their nests. All these transactions add up to around Rs150bn ($4.29bn), and this is only the tip of the iceberg.

Debt and Deficit

The shift in the 80s to a liberalised and open economy was prompted by capital scarcity, mounting fiscal debt and foreign exchange crunch. In the 90s, the problems, instead of being solved, intensified and government, under pressure from the World Bank-IMF, announced the New Economic Policy of structural adjustment through privatisation, subsidy compression and greater inflow of foreign capital. The intended solution merely heightened the problems. Debts, both external and internal, have mounted to unrepayable heights, the gap in the balance of trade has become wider, and rising prices have made life miserable for the common man.

***Debt trap*:** India is the world's third-largest debtor with an external debt of $100bn. In end-96, the country's debt payment liabilities were $20bn — $14bn in debt servicing and $6bn in trade deficit — and it was well heading for a debt trap. Reckless borrowing from international lending agencies and ever-rising import bill were the primary reasons for this situation. India's share in world trade has slumped from 10% at the beginning of this century to 0.65% at present.

***Fiscal deficit*:** Year after year of deficit financing, primarily due to high defence spending and maintenance of an inefficient but huge administration, has been gradually pushing India to a serious debt trap in the domestic sphere. Despite instructions by international lending agencies to reduce the fiscal gap, the situation remains unchanged even after the ushering in of the new economic era. The combined fiscal deficit of the Centre, states and the public enterprises today stands at a staggering 10% of the GDP, resulting in hyperinflation and either stoppage or delays in implementation of development and welfare projects. The IMF has taken strong exception to India's high domestic borrowings, threatening cancellation of pledged loans if the situation is not reversed. The axe has already fallen on the meagre social security, subsidies and poverty alleviation programmes.

***Inflation*:** Since the introduction of the liberalisation of the economy in the mid-80s, prices of essential commodities has been continuously on the ascent, touching unprecedented heights soon after the introduction of NEP. Paradoxically, the sharp rise in price index in the past few years is accompanied by a decline in the rate of growth of public expenditure. The situation created by external debt, trade deficit, investment spree, monopolistic practices, wage differentials, high procurement rates, consumer culture, so on, have been further embellished by black marketing, scams and capital market aberrations, bringing about the acceleration in upward price movements. The rate of inflation, specially in primary articles and agricultural products, is veering around 6-8%, even reaching 12% in certain periods. The stagflation has put an unbearable burden on the common man, already hit by unemployment, retrenchment and industrial recession.

***Trade imbalance*:** Since independence, India has uniformly registered deficits in its international trade, the gap being markedly high in the late 60s and mid-80s. Heavy imports without much substitution, high import-content of exports, protectionism by developed nations and borrowings from international lending agencies are the main causes behind the continuing trade imbalance.Thrust on export-oriented industry and frequent devaluation of the Rupee since liberalisation have not been able to offset the trade gap. In 1995-96, the overall deficit was $1.209bn with net current account inflow falling short by $1.2bn of its estimated amount. In this period, the foreign exchange reserve, too, went down by $2.919m. In the first quarter of

the 1997 fiscal year, exports dipped by 1% while imports went up by 4.22%, pushing the trade deficit up to $1.43bn.

Dumping

As environment laws get more stringent and waste disposal becomes prohibitive in the developed world, India and other underdeveloped countries are fast turning into their dumping grounds. Multinationals and governments of the advanced countries are exporting their junk with impunity and making profits in the bargain. It is a clear case of the rich nations solving their pollution problems by passing on their wastes to the countries of the third world, in gross violation of the 1985 Basel Convention.

***Envirodung*:** The Netherlands, bogged down by excess manure, proposes to dump part of it on India. The Envirodung project will see 7-10mt pig and chicken droppings shipped every year to Gujarat, where it will be sun-dried at an estimated investment of $150m by the state. The fresh, wet dung with its harmful chemicals, will attract pests and breed alien bacteria, virus and micro-organisms for which there may not be a local antidote. India produces 575mt dung annually of which 70-80mt is burnt for fuel. With a good green cover and community-managed village economy, the country can easily increase its dung production to 1000-1500mt a year within 5-10 years.

***Toxic waste*:** India is fast turning into the world's biggest dump of toxic waste. With active connivance within the country, some of the most powerful multinational corporations and governments, including that of the United States, Britain, Germany and Australia, have chosen to cold-bloodedly poison India's coastal waters, lakes, rivers, aquifers, soils and people. During 1990-93, ships from these countries carried 911t lead waste, 500,000kg lead acid batteries and 19m kg plastic scrap as imports to India.

Foreign Capital-MNC Inflow

The red carpet has been laid out for the entry of global capital and MNCs into the Indian market. Enticed by the availability of cheap labour, withdrawal of equity regulations, preferential treatment and malleable environment and labour laws, transnational companies are heading for India with new ventures. In 1991, when economic reforms were first announced by government, it targeted $1bn foreign investments in five years. The new coalition in Delhi, despite the avowed opposition of many of its constituents to unlimited inflow of foreign capital, has declared that it will bring in $10bn in foreign direct investments in one year! To that end, it has liberalised the economy further, introduced greater 'transparency' and, in two months since coming to power, cleared 350 pending projects worth $4bn. It has already lifted some of the restrictions for foreign institutional investments in unlisted companies and shown its willingness to permit 100% foreign shares in Indian subsidiaries.

***Bailadila*:** Miners and local people are resisting the imminent transfer of 11B unit of Bailadila iron mine in Madhya Pradesh to multinational Nippon Denro Ispat Limited by circumventing laws banning such privatisation. Government of India has cleared the proposal in principle even though Nippon Denro has not responded to basic conditions laid down for the transfer. Apart from ignoring the various profit and ore-sharing conditions, the company has not agreed to local area development that includes construction of a hospital, rehabilitation of indigenous peoples and retrenched workers, and the setting up of a steel plant.

***Cargill*:** The US company Cargill, the first multinational to enter India's agricultural sector following the launch of NEP, invited the wrath of seed-farmers no sooner than it started

operations in Karnataka and Gujarat. The company, aided by government's new seed policy introduced in 1988 in favour of high-yield inputs for monocropping, was posing a serious threat to millions of seed cultivators who had been feeding the domestic market with a host of productive varieties suitable for Indian soil conditions. The sustained agitation of the farmers often climaxed into violent outbursts and eventually, the company's outlet in Bangalore were burnt down. Cargill has been forced to make a graceful exit from India.

***Cogentrix*:** The US multinational Cogentrix Energy Incorporated is all set to play the power game in India. The company is putting up a 1000MW thermal power station at Udipi in Karnataka's Dakshin Kannada district. The site, habitat of some of the most endangered flora and fauna typical to Indian rain forests, is noted for its pristine natural wealth and biodiversity. Forest dwellers, supported by environmental activists, are apprehensive that a large polluting power plant may cause irretrievable damage to the ecosystem and pave the way for an industrial influx, as investment plans up to Rs248bn ($7.09bn) are on the anvil by the turn of the century. *(See case study)*

***Core sector*:** Though foreign participation in core sector public undertakings in India is limited to 49%, recent moves by government allows for much larger foreign equity shares in infrastructure, telecom, power and other vital areas. In the name of floating a 'holding company,' an investor can now start a service company along with an investing company, both with 51:49 Indian:foreign investment, the service company investment being treated entirely as domestic investment. This will inevitably result in controlling stakes being in the hands of the foreign investment promoter and easier penetration by foreign capital in strategic areas of the Indian economy.

***Disinvestment*:** In keeping with the liberalisation-privatisation-globalisation spree, successive governments in recent times have gone overboard in withdrawing equity shares in what were once public sector undertakings. A government announcement in September 1996 allows disinvestment in the non-core public sector undertakings up to 74%, though it retains the limit of 49% in the core sector. Most of these withdrawals are expected to be replaced by direct foreign investments, particularly in infrastructure and export-earning industries. Massive reduction in workforce, siphoning of profits out of the country and weakening of indigenous and state ventures are to be the fallout.

***Enron*:** The 2015MW Dhabol power plant on the Konkan coast in Maharashtra being set up by US multinational giant Enron, is a classic case of political and economic opportunism paving the way for entry of foreign investment in the core sector. Given clearance by one government, the deal was scrapped by the subsequent government which came to power in Maharashtra. Enron's persistence paid off and the new government renewed the deal. The company will ship its own raw material, liquefied petroleum gas, and offer employment to a mere 300 locals in running the plant. Hundreds will be displaced from their homeland and forced to migrate to urban slums, air and water pollution will reduce production of fruit and fish that forms the backbone of the Konkan economy, marine life will be affected and the fragile ecosystem will constantly be under threat as other industries cite Enron precedence to set up units on this yet unspoilt land. The Indian consumer will have to pay steeper tariff for Enron power while the company extracts hefty royalties in dollars. The short-lived government, which came to power at the Centre in May 1996, ratified the deal before bowing out. The new government followed suit. *(See case study)*

***Insurance*:** A policy of undeclared and gradual privatisation is being implemented in the Indian insurance sector. There has been no parliamentary or public debate on the move, even as a huge chunk of the Rs800bn ($22.86bn)-generating investible funds are handed over through the back

door to private funds with dubious bona fides. Foreign financial companies, deemed delinquent in their own countries are also allowed to operate within the sector although Indian insurance companies have been doing fairly well. Flight of financial capital from the country and havoc with the social security system are predicted.

***Sterlite*:** Defiant in the face of sustained opposition, the Sterlite group of companies is determined to enter the copper smelting field and end the monopoly of the public sector Hindustan Copper Limited. In 1994 public protests against possible environmental fallout forced the group to abandon its Rs9bn ($0.25bn) plant at Ratnagiri town on the Konkan coast in Maharashtra after 80% of the construction work was over. The company decided to relocate the plant in Tamil Nadu's Tuticorin district where work was progressing on a war footing to make operational another Rs13bn ($0.37bn) copper smelting and lube oil refinery plant. This plant, too, is being set up ignoring local protests.

***Thapar-DuPont*:** US multinational DuPont is bent upon setting up its Rs6bn ($0.17bn) nylon 6,6 collaborative venture to produce 18,500t nylon cord a year, though it was driven out of Goa following sustained and violent protests. Thapar-DuPont Limited signed an MoU with the Tamil Nadu government to relocate the plant at Gummidipoondi where it has already acquired land and plans to occupy large tracts of common pastures. The company insists that nylon 6,6 comes under 'humanmade fibres' though the plant uses adipic acid and other chemicals. Environmental activists are disputing the company's claim that there will be no effluent discharge and are against the transportation of dangerous chemicals through thickly-populated areas. They also believe that the plant's excessive water requirements will further tax the already overburdened dry region.

Forest Depletion

Forests in India are on the verge of being wiped out. Development interventions — industrialisation, mining, lumbering — and human encroachments have already taken a heavy toll on the country's forest cover which has shrunk from 22% at the time of independence to less than 11% today. Largescale destruction of forests did begin with their forced takeover by the British, but the country has lost more forest cover in the last 50 years than it did in the previous 100 years of colonial rule. Thousands of rare species of flora and fauna have disappeared forever in the decimation, leaving millions of indigenous peoples homeless and without livelihood, their very existence under threat. Women have been the worst sufferers, deprived of easy access to fuel, fodder and food. Creation of national parks, reserve forests and sanctuaries or enactment of legislation in conserving forests have not been of any use to counter the mining, timber and smuggling mafia. More important, protected areas or laws do not acknowledge the traditional rights of the forest-dwelling communities, the guardians of forests, treating them instead as trespassers.

***Balpakram*:** Nearly half of Balpakram National Park in the Garo hills in the northeast has been found to be 'missing.' Records show that Meghalaya government purchased a total of 376km^2 of the forest in two phases in 1986 and 1993 but, according to a recent survey, the sanctuary falls short by 142km^2 worth Rs31.2m ($0.89m). It is believed that the land acquired for the sanctuary was either never bought or later sold. No action has been taken as yet despite repeated appeals and petitions to government.

***Bamboo*:** Bamboo, the poor people's timber, is becoming a dear commodity in India. Over-exploitation by voracious market forces, opening up of precious bamboo forests at abysmally low rates to paper mills, and inefficient utilisation have rung the death knell for the country's vast bamboo reserves. The Indian paper industry, comprising 325 mills with a total installed

capacity of 3.3mt, meets around 60% of its pulp requirements from bamboo, turning the once-abundant, inexhaustible 'grass of plenty' into a scarce item. India is home to 130 species of bamboo which have found almost every sustainable use in the indigenous peoples' lives across the country.

***Barak valley*:** Pillage of commercial wood by timber smugglers and continued encroachments by infiltrators from across the international border has taken a severe toll on the reserved forests of Barak valley in the northeast. An estimated Rs60m ($1.71m) worth of wood is plundered every year by timber sharks and 150km^2 forest land have been gobbled up by encroachers in recent times. The 2350km^2 forest amid the river plains and undulating hills of Cachar, Karimganj and Hailakandi districts of Assam has already shrunk to 1500km^2.

***Chipko*:** The precursor to the anti-Tehri dam agitation in the Garhwal Himalayas was Chipko (hug-a-tree). This unique, nonviolent movement against tree-felling by forest contractors was launched in the early 70s by people living in the Alaknanda catchment area and spread like wildfire in the entire region. The destruction of the mid-Himalayan ecology had started in the colonial period but reached dangerous proportions in independent India, specially in the 60s. Construction of roads, limestone quarrying and forest-auctioning reduced the forest cover by 16,000ha in the period 1960-69, causing soil erosion, landslips and flashfloods, and endangering the life and livelihood of the hill-dwellers. Chipko's success in preventing forest authorities from felling trees caught the popular imagination and environment movements adopted it as a form of protest all over India and in other countries.

***Dainadubi*:** The prized 19ha reserve forest at Dainadubi in the Garo hills of Meghalaya in the northeast is facing extinction due to largescale illegal lumbering by sawmill owners. The smuggled timber is estimated to be worth Rs20m ($0.57m) per annum and lumbering is believed to be carried out with active collaboration of forest officials, politicians and gun-wielding separatists of Assam.

***Delhi ridge*:** Rapid development of Delhi has encouraged landsharks to claw into its lungs — the 7770ha ridge forest, the last outcrop of the Aravalli hills that runs through the city. The tropical thorn forest, nurtured by the Mughals and the British, has been indiscriminately cleared to make way for entertainment parks and hectic construction activity. The protective greenery has itself fallen victim to air and sound pollution and population pressures, dragging the city towards death. Revival appears remote though concerned citizens have launched a movement to save the ridge.

***Forest Act*:** Government of India's plan to amend the Indian Forest Act of 1927 has become the focus of a major controversy over the right to use forest resources. The hastily-drafted bill, Conservation of Forests and Natural Ecosystems Act, promises to weed out colonial vestiges of forest management, still deeply entrenched in the rules of governance, but has nothing in it to encourage grassroots participation. Instead, it aims to extend Government of India's and the forest bureaucracy's jurisdiction over forest land and its use, denying traditional rights of indigenous communities. If implemented, the bill will make community institutions subservient to the forest department, circumcise the lives of people subsisting on forests, discriminate against shifting cultivators and nomadic pastoralists, and even undermine the country's federal structure by taking away forest administration from the states.

***Gir*:** An ecodevelopment project in the Gir National Park in Gujarat, the only home of the Asiatic lion in India, has heaped untold misery on the life of the Maldharis, the tribe inhabiting the thorn forests. The project, promoted jointly by the World Bank and Union Ministry of Environment has issued eviction notices to the tribals, ostensibly to implement the Wildlife Protection Act

which stipulates no human habitation in national parks. The Maldharis live in clusters of settlements of just four to five households and earn their livelihood by rearing cattle and selling milk products. The project covers 54 such clusters and proposes to relocate 2500 Maldharis along with their 10,000-strong livestock, ignoring both the role of the indigenous peoples in the conservation of the ecosystem and the traditional rights of the forest dwellers.

***Jeerakappara*:** Reckless logging and encroachments by timber merchants sparked people's resistance in the Jeerakappara forest in Kerala. Encroachers, who were allowed to run riot in connivance with forest officials, had wrought havoc to the area's forest cover which has shrunk from 40% in 1947 to 8% at present. The agrarian economy of the region depends on the forest.

***Kaziranga*:** Misappropriation of protection funds coupled with widespread poaching have all but finished the famous Kaziranga sanctuary, biggest habitat of the one-horned rhino in the world. Wildlife organisations worldwide are making fervent pleas to preserve the pristine grassland forests, but their appeals have so far made little impact. Lack of political will and apathy continue to plague the management of the national park.

***Leasing*:** Government of India's proposal to hand over the rights of degraded wasteland to industry for aforestation raises doubts about its real intention to provide the country with a green cover. The proposal, giving industry rights to a fixed percentage of forest produce, will adversely affect farmers by taking away their market. Leasing wastelands would, therefore, create surplus labour for farming families and may lead to social tensions. Industry in India requires barely 2mha degraded land to meet its requirement of pulpwood and other forest-produced raw materials while there are 35mha farmer-owned uncultivable degraded wasteland in the country.

***Nagarhole*:** The ashes have since settled in the Nagarhole and Bandipur National Parks in Andhra Pradesh. A huge fire in mid-March 1992 laid bare 3000ha — 28% of Nagarhole, and 53,700ha — 61% of Bandipur. The forests were torched by the marginalised forest dwellers in vendetta against the park officials who had imposed a mindless ban on their entry into the reserved areas. Inhabitants in the neighbourhood of these parks have for generations had a symbiotic relationship with the forests. They have nurtured the woods, replenishing them by planting trees and benefited from their bounty in the form of small timber, fuelwood and pasture. Similar alienation of forest people have been reported from other national parks and sanctuaries.

***Narayan Sarovar*:** The move to denotify and set up quarrying units and cement industries in a wildlife sanctuary in Gujarat's Kutch area has shocked conservationists and nature-lovers. The move threatens the natural habitat of the Chinkara gazelle and also the rich storehouse of flora and fauna of this semi-arid thorn forest.

***Rajaji*:** A serious social and environmental conflict is simmering in the Rajaji National Park sanctuary in the Shivalik hills in Pauri Garhwal district of Uttar Pradesh. The conflict was sparked by a ban imposed on the Gujjar, a nomadic forest-dwelling community, against using the sanctuary's resources. The Gujjars, who had traditional rights on the region, rely on the forest for grazing and collection of fodder, grass and timber.

***Sariska*:** The mining mafia, in connivance with a section of the bureaucracy, continues to plunder the Sariska reserve forest, in defiance of Supreme Court. Opencast mining of marble since the late 80s has played havoc with the ecosystem of this dense tiger territory, turning it into a near-wasteland. Grazing pastures have succumbed to the continual blasting and wells have run dry. Cracks have appeared on the historic Mangalsur dam built a hundred years

ago, raising fears of an imminent dam burst. The villagers of Sariska are fighting a do-or-die battle to stop a denotification move and save their lands and forests from the mining lobby.

***Silent Valley*:** An unknown forest plateau in the Palghat district of Kerala was the provocation for the fiercest ecological controversy in India in the 70s. A deep gorge within the 8950ha forest, called the Silent Valley due to the absence of cicadas, was targeted by the state electricity board for building a reservoir to generate hydel power. Ecologists feared the construction would kill the last vestige of natural climax vegetation in the country, and called for the preservation of the pristine valley as a biosphere reserve. Faced with a worldwide hue and cry, petitions from across the land, and protest initiatives by concerned citizens and nature lovers, the project was finally abandoned in 1983 in what may be termed the first victory for India's green movement.

***World Bank aid*:** West Bengal government's recent acceptance of $34m from the World Bank and its capitulation to the Bank's demand for restructuring forest administration towards improved and integrated forest management exposes the way international funding agencies are calling the shots in the country's forestry projects. The World Bank funded forestry projects worth $350m in the country during 1975-90 and has finalised $682m forest-related ventures since then. The Bank's catchwords in India are 'people's participation,' 'community management' and 'social forestry'; but in actual practice, it calls for more forest land be made available to industry for plantations, removal of restrictions on clear felling of natural vegetation in degraded forest land, introduction of exotic species, improvement of plant stocks-nursery and relaxation of transit rules for timber.

Gender Bias

The contradictions inherent in Indian society is sharply reflected in its discriminatory attitude towards women which, through the ages, has been the biggest barrier in the full blossoming of half the population. The overwhelmingly patriarchal society, cutting across social and economic divides, seeks to obliterate the very identity of woman, whose fulfilment is expected to lie solely in going through life enacting the roles of daughter, wife and mother. Her interests and desires, her very sexuality, is stifled by what society expects of her; she is worshipped by the patriarchy as the mother goddess but is tabooed from participation in crucial religious and social rituals; she is wooed for her ability to bear male offspring but has little say in his upbringing; as the generally neglected girl child, she is sent to school or taught a skill merely to enhance her price in the marriage market. The high achievements of a small section of Indian women, extracted through fierce struggle, only serve to highlight the plight of the majority of their compatriots in bondage.

***Depo Provera*:** In its zeal to push down the birth rate, Government of India has allowed the invasion of alien contraceptives with dubious track records. Depo Provera, applicable only for mentally retarded sex maniacs and illegal immigrants but otherwise banned in the US and most European countries for its serious side-effects, is now freely available in the Indian market. The dangerous contraceptive is said to cause breast nodules and cancer, heavy uterine haemorrhage, abnormal weight gain besides serious psychological and foetal disorders, including permanent sterility. In spite of strict FDA guidelines on dispensation only under medical supervision, the drug is sold over the counter and has recently been introduced by the public sector Tea Board among labourers in the tea estates of West Bengal.
The user is usually at the mercy of the drug over 2-5 years, which can affect the unborn child.

***Domestic labour*:** The onerous job of running a household and bearing and rearing children, neither considered productive nor valued as economic

activity, is the sole responsibility of women in India's patriarchal society. Rising long before the sun, millions of women in the rural areas walk miles to gather fuelwood and water, clean utensils, scrub floors, do the household washing, cook and feed husbands, children and other members of the extended family, survive on leftovers and go to bed hours after the rest of the household is asleep — with no wage for their truly productive labour. The situation is equally grim in urban and suburban centres where women from low-income families work as domestics for wages often less than a dollar and with no unions to stand up for their rights against unjust treatment. The perpetuation of the system is ensured by daughters being trained to lend a helping hand from infancy. The drudgery leaves little time for creative or intellectual pursuits, leaving unrealised the potential of around half the country's citizens.

***Dowry deaths*:** The furore over the death from burns of 19-year-old Nahid Naushad on September 4, 1996, once again brought to the fore the evil practice of dowry in Indian society. The teenager was said to have been regularly tortured in the five months she was married and finally set ablaze by her in-laws. The psychological and physical torture of women in their marital homes for not bringing in enough dowry is commonplace; what is also becoming commonplace is killing for dowry, a fact which has led to some states passing legislation making post-mortem examination mandatory for women dying in 'unnatural' circumstances within seven years of marriage. Yet for every dowry death that is identified, hundreds go undetected. Protests by women's organisations, human rights groups and the public have forced administrations to take action in a few cases but convictions awarded have neither matched the heinousness of the crime or acted as a deterrent. Rising aspirations of a dehumanised, desensitised middle class for a consumerist lifestyle is the primary cause of increasing dowry deaths.

***Fertility rate*:** Repeated pregnancy is the biggest bane of Indian womanhood. With the total fertility rate (TFR) estimated at 3.8 children per woman, the country is well above the population replacement level of 2. Too many births close spaced or at too young or too old an age have resulted in illness, disability, poor nutrition and premature death among both women and children. The abnormally high fertility rate has not only taken a heavy toll on the population's health but has also been a stumbling block to the country's economic and development programmes.

***Foeticide*:** The advent of prenatal sex determination technology has brought elimination of female foetus within the reach of 'son-crazy' parents. Sex preselection through amniocentesis initially gained ground in urban Maharashtra where foeticide had to be banned except on medical grounds after more than 90% aborted foetuses were found to be female. The practice has now spread even to the villages of Haryana and Uttar Pradesh. There are reports of doctors with mobile ultrasonic units scouting around for pregnant women to offer sex determination at their doorstep. An investigation has estimated that nearly 25,000 female foetuses are aborted every year.

***Infanticide*:** Though banned since 1870, female infanticide has been reported to be widespread in some villages of Tamil Nadu, Rajasthan and other Indian states. A study conducted in North Arcot district in 1992 revealed that infanticide constituted 72% female unnatural deaths in the area. The villages were remote, almost inaccessible and extremely poor and the common methods used for killing were poisoning, asphyxiation and hypothermia. Female infanticide has had a negative impact on the country's demographic balance.

***Maternal mortality*:** Systematic data is not available but it is estimated that close to 125,000 women in India die each year during pregnancy or at childbirth. The main causes of such high maternal mortality are anaemia, lack of nutritional diet and ante- natal care, pregnancy

complications and, most important, absence of timely, effective and affordable obstetric care. Mothers and children of low-income groups are the common victims.

***Norplant*:** Despite worldwide protests in the 80s against Norplant, a hormonal contraceptive aggressively hardsold by the US Population Council, India conducted clinical trials on hundreds of women in total violation of human rights and medical ethics, leaving them traumatised. Unlike most other contraceptives, Norplant is long-acting — 3-5 years — and has to be implanted and removed surgically, its invasiveness leaving no room for the recipient's wishes or desires. Besides its legion contraindications listed by WHO require thorough medical examination before implant and an effective monitoring network thereafter. Most of the women selected for the trials were poor and illiterate whose fitness was not examined or consent sought; nor were they told they were being used as guinea pigs or about the serious side-effects. The absence of a monitoring network reduced the trials to a farce as the dropout rate was conservatively estimated at 40%. Apart from excessive bleeding and other menstrual problems, Norplant is known to trigger severe physiological and psychosomatic disorders. Many of the recipients who had to work for a living were unable to carry on because of extreme weakness. Alienated from their families, they are bearing emotional and physical scars for life.

***Sati*:** Sati, burning of a newly-widowed woman on her husband's funeral pyre, was a practice prevalent in Hindu society and banned in 1870. A century later, the medieval custom made headlines when 18-year-old Roop Kanwar was sacrificed in 1987 at Deorala village in Rajasthan's Shikara district. The sati cult is popular in the region and hundreds of Sati temples dot its arid landscape. The furious fervour it raises in the popular imagination is indicative of the kind of patriarchal oppression widows have to go through. Sati is an easy way to acquire a widow's property and make a killing by turning a sati site into a pilgrimage. Roop Kanwar was forcibly sacrificed by her in-laws, but the court was compelled to acquit the 39 accused of the crime for want of evidence.

***Sex ratio*:** India is among the few countries where women are outnumbered by men. The country has only 96 women for every 100 men, leaving some 40-50m females 'missing' from the population. Such strong gender-bias of the demographic structure results from female infanticide and foeticide, higher mortality rate among girl infants and greater malnutrition among girl children. Discrimination against women is clearly the hallmark of Indian society and its developmental ethos.

***Shah Bano*:** In 1986, prime minister Rajiv Gandhi, in a bid to ingratiate himself with Muslim fundamentalists, took one of the most retrogressive steps in independent India's parliamentary history by overturning a Supreme Court judgment that granted the right to maintenance to divorced Muslim women. The apex court was ruling on an appeal by Shah Bano, who was seeking alimony from her husband who had divorced her, leaving her destitute. The shameful reversal of the decision was a betrayal of the most oppressed section of a marginalised minority and a blow to its aspirations for social and economic uplift. While the Constitution of India accords reasonable equality to all its citizens, communities are guided by their personal laws, generally inimical to women, and their patriarchy which has scant regard for statutory provisions. The Shah Bano case was a clear indication that the political system is guided by chauvinistic values and its claims to gender-sensitivity is a sham.

***Widowhood*:** Being widowed is among the worst fates that can befall the majority of Hindu women in India, for whom, in any case, deprivation is a way of life. Widows, perceived as being ill-omened, live with their families on sufferance, often treated no better than domestics, and are barred from participating in ceremonies and rituals. The few who have the temerity to remarry are even

today looked down upon, though a social movement culminated in the passage of the Widow Remarriage Act, 1856. Ironically, the Act has been used to perpetrate greater injustice in states such as Haryana where widows are forced to remarry their husbands' siblings, even minors, to retain property in the family. Hundreds of widows thrown out by their kin or who cannot bear the ill-treatment meted out to them, settle in the temple town of Varanasi and other holy cities to spend their remaining days in prayer. But many find little peace for they have no protection from the thriving flesh trade in these places.

***Working women*:** Indian law allows both men and women equal pay for equal work. In reality, women are paid less, especially as unskilled labour in agriculture and the construction industry which are the biggest employers of women from the low-income groups. Such discrimination is not overt in the professions and the services sectors which are drawing more and more women from the middle and upper classes, though men do get preference at the workplace. Working women, who carry the added burden of running households and rearing children, are defenceless against the denial of their lawful right to maternity leave and other benefits. In addition, the stigma attached to earning a living is difficult to overcome, even where women are the sole bread-earners of families.

General Agreement on Tariff & Trade

In December 1993, India signed the international treaty accepting the Dunkel draft on the General Agreement on Trade and Tariff (GATT). The draft, mooted in the Uruguay round of GATT in 1988 by Arthur Dunkel, then chairman of the organisation, and concluded in 1991, proposed to include within the purview of GATT such items as market access, agriculture, textiles, trade-related investment measures (TRIMS), trade-related intellectual property rights (TRIPS), trade in services and institutional matters. The treaty incapacitates India's patent laws passed in 1970 by bringing under its purview those items banned from patenting. It means imposition of global patenting on, and the end of protection for, almost every indigenous innovation and product development, including biological processes and knowledge systems. The disastrous impact on Indian agriculture, pharmaceuticals, textiles, trade-related investments and trade services are already being felt. The signing of the GATT treaty has put in jeopardy the sovereignty of the nation. Yet, Indian chambers of commerce went out of their way to welcome it, revealing their shameless lack of pride and confidence in themselves.

***Bio-piracy*:** TRIPS has already become a useful instrument for US companies and research organisations to acquire patent rights of commonly-used Indian agrochemicals. For instance, the international patent for use of *haldi* (turmeric) as an antiseptic has gone to the University of Mississippi Medical Centre soon after the GATT treaty was signed. Patent claims have also been filed in US courts regarding royalties and marketing rights over *neem* as a bio-pesticide and several other indigenous agro-products as bio-medicines. Such appropriation of indigenous plant varieties and knowledge systems is tantamount to piracy of India's immense biodiversity. The US has not ratified the Biodiversity Convention resolution but initiated proceedings in the WTO to punish India for not amending its patent laws in accordance with TRIPS.

***Pharmaceuticals*:** The unfair patent regulations under the GATT agreement has put the Indian pharmaceutical industry in a tight spot. Faced with a ban on manufacture of drugs and medicines which had been originally formulated in the countries of the west, hundreds of pharmaceutical units will be forced to close shop or drastically reduce their operations, thereby considerably decreasing their labour-absorption potential. The prices of several essential and life-saving drugs will also go up 10-15 times, putting unbearable strain on the

common people already hard-hit by appalling health facilities. The US threatened to slap a 43% punitive duty on the Indian export of Ibuprofen, an anti-inflammatory analgesic.

***Textiles*:** The GATT agreement provides for the phasing out of the multi-fibre arrangement (MFA) in textiles over a 10-year period. The process is not adequately front-loaded and it is feared that India's integration with the global market will begin effectively in the seventh year, which will be too late. In fact, the delayed phasing-out will give the US powers to fix a quota over its textile imports from India. While the interests of the US textile industry will be protected, Indian export prospects will face a downward slide.

***TRIMS & TRIPS*:** The trade-related investment measures (TRIMS) and trade-related intellectual properties (TRIPS) of the 9th GATT, 1992, have already begun jeopardising the bio-resource base of India's agriculture. TRIMS allows, among other things, penetration of agriculture by MNCs, whose profit-oriented operations, in contrast to the sustainable practices of local farmers, are leading to loss of biodiversity and eco-balance. TRIPS, for the first time, makes it mandatory to allow patenting of gene derivatives by contracting parties. Loss of access by indigenous peoples to seed varieties and traditional plant uses for medicines and pesticides is an immediate fallout. The impetus to genetic engineering is likely to cause increased natural disorders such as pestilence and crop failures.

Globalisation

Like most underdeveloped countries, India is in the grip of a one-way and unequal globalisation. This process of integration with world economy and culture is just a ruse for global capital to make an entry into the unprotected market in the country by staging a calculated infiltration into the mindset of the people, especially the youth. A new lifestyle dictated by consumerist aspirations, one-track information dissemination technology, media control through satellite, so on, are the means of such cultural invasion. A whole new generation is being brought up in an atmosphere which leaves them decultured, desensitised and groping for an identity.

***Information superhighway*:** Though advances in communications technology through such innovations as the network holds promise for democratising society, their approach to information and the manner of their imposition on a poor, underdeveloped country like India is fraught with inherent dangers. The information superhighway is virtually under the control of corporations with global reach and is used as a vehicle of dissemination of a cultural ethos in favour of economic liberalisation and commercial (multinational) freedom rather than an independent mindset. Global information packages are finding a growing market in the country, signalling higher profits and better brainwashing of the Indian intelligentsia.

***Lifestyle*:** The rich glide past in chauffeur-driven Mercedes E220, sporting Cartier watches and Mont Blanc pens; Hinglish-speaking elite drive Cielos, converse on Ericcson mobiles, and drink Oaken Glow 'bottled-in-India' scotch; corporate executives take delight in Ricardo briefs, like the feel of Van Hausen fabric and prefer to dine at Pizza Hut; urban youth sport Rayban sunglasses, adore La Coste T-shirts and have a great affinity for Reebok nylon joggers; and everyone of them drink CocaCola, always (or Pepsi, Aha!). India's burgeoning middle class, 150m at the latest count, has never had it so good. With over 700,000 households bringing home Rs1m ($28,570) annually — three-fourth of them earning more than Rs5m ($142,857) a year — consumerist aspirations are soaring and huge sections of the urban population are being carried away in the compulsive tide. Media is bombarded with advertisements to the point of irritability, non-durables are flooding every nook and cranny of urban sprawls, and

multinationals, eyeing the larger-than-Europe market slice, are eagerly moving in to peddle their designer lifestyles. A monoculture, thriving on self-aggrandisement and alien to tradition, has engulfed the entire urban mindset. Who cares if 85% of the population do not have water to drink or fuelwood for their hearth!

Media: *Baywatch* is probably watched by more television viewers in urban India than in the country of its origin. More and more yuppie teenagers are aping the pyrotechniques of MTV and setting new standards for music and dance. The advent and proliferation of satellite cable channels — owned, controlled and programmed by Star and other global networks — are reaching ever-newer heights in swaying urban Indian audiences and influencing their cultural preference.Their control over the skies now appears to be complete with the proposed introduction of DTH facilities in satellite transmission. The print media, too, is being eyed by western media barons while Hollywood continues to fill the domestic market with its B-grade, soft-porn packages. The ethos of a homogenised global culture, decadent and desensitising, is truly taking root in India.

Green Revolution

The Green Revolution of the 60s — marked by tractor-ploughing, introduction of high-yield varieties and widespread use of fertilisers and pesticides in Punjab, Haryana and west Uttar Pradesh — helped India overcome its perennial food shortage. From being eternally threatened by the spectre of famine, the country attained self-sufficiency in food production and could even boast of buffer stocks to tide over bad years. The revolution soon spread to other areas but the dangerous fallout of the miracle was evident even before the charm of bumper harvests had worn off. Rapid soil degradation led to ever-increasing use of water, fertilisers and pesticides as well as greater mechanisation. Multinationals, selling agricultural chemicals and implements, filled their coffers while groundwater depleted, old pests made way for newer, more resilient species and intensive cultivation of hybrids destroyed crop diversity. With heightened commercialisation, land became capital and peasants turned wage labour, lowly-paid, marginalised and impoverished. Of the 329mha land available for agriculture today, 160mha is degraded; 30% of the rural population is landless while 2% own all the irrigated land.

American bollworm: The American bollworm, a tiny, green caterpillar, has proved to be the scourge of the 90s for Haryana, Punjab and Rajasthan, the three states producing 50% of India's 10m bales of cotton. In just two years, the innocuous-looking pest has wormed its way into ripening cotton balls, destroying half the crop.

American fly: Agricultural scientists have virtually given up the fight against an American fly that sneaked into this country in the early 90s, possibly on smuggled chrysanthemums. The larvae of the serpentine leafminer feed voraciously on healthy leaves till a plant dies. Attacking about 250 varieties of plants, it has caused extensive damage to tomato, cotton and sunflower crops in Andhra Pradesh, Delhi, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu and Uttar Pradesh. The leafminer that quickly develops immunity to pesticides, multiplies at a prolific rate in tropical climates, especially in the absence of its natural enemies.

Gas pits: The Green Revolution is beginning to show its cancerous face in the fertile fields of Haryana. Since 1987, hundreds of farm workers have been killed by carbon dioxide gas trapped in pits to house tubewell motors. The mishaps have occurred mainly in Ambala, Karnal, Kurukshetra, Panipat and Sonepat, the hub of the revolution. The killer gas is formed because of the drop in the water table due to excessive use of groundwater for irrigation and heavy use of fertilisers and pesticides. Safety measures are conspicuous by their absence and little medical aid is available to the victims.

***Soybean*:** As a consequence of the export-oriented model of agricultural development, traditional crops are being replaced more and more by cash crops such as soybean in Madhya Pradesh. The oilseed, peddled to farmers as protein-rich, is actually grown as fodder for import to the west. Its extensive cultivation has had an adverse impact on *kharif* foodgrain like cereals, pulses and paddy and is threatening the rice bowls of Bastar and Chattisgarh. Its monocropping has also disturbed the traditional crop rotation system, hampering soil replenishment. The only beneficiaries are the landowners who have overnight become cash-rich, and the mushrooming industries selling herbicides, pesticides and agricultural chemicals.

Health Hazards

Public health facilities in the country have failed to keep pace either with population growth or the need of the times. There are simply not enough government hospitals and health centres to cater to the increasing population requiring medical help. Most function inefficiently, especially in the rural areas where often they are run-down — without beds, medicines, doctors and nurses — even as state-of-the-art health clinics are mushrooming largely with multinational collaboration, their prohibitive charges keeping them out of reach of over 85% of the population. Doctors nurse their lucrative private practice more than the millions in need of their curative skills who perforce have to turn to quacks or just die without treatment. Lax drug regulation has made it easy for multinational pharmaceuticals to dump banned and untested formulations in the Indian market at high costs, and life-saving drugs come at a premium, if available. While the health sector has been near-crippled with the steady withdrawal of subsidies, increasing pollution, environmental degradation, unsafe industrial practices and an unrestrained lifestyle spawned by consumerism has led to a rapid increase in the population requiring medical attention. Though exact figures are not available, paediatricians estimate that respiratory diseases and gastroenteric infections have registered a fivefold increase among infants over the past two decades. The direct impact of environmental maldevelopment is the resurgence of viral diseases in more virulent forms. State apathy in providing research funds has compounded the problem of disease management.

***AIDS*:** AIDS has reached crisis proportions in India. While it is estimated that there will be 50m HIV carriers by AD 2000, AIDS management shows little signs of rationality or efficacy. Even today, doctors refuse to carry out AIDS tests for fear of infection, victims are dying without treatment and diagnosis, there is no concerted move towards AIDS education and WHO funds pouring in are being misappropriated by vested interests. The majority of the sufferers, belonging to the most vulnerable sections of society, are indirect victims of a growing drug smuggling trade across the borders and a moribund consumer culture pervading the urban centres. India's AIDS profile is a classic example of the poor paying for the richman's folly.

***Cancer*:** About 6m men, women and children in India are struck by cancer every year. Though tobacco chewing and smoking have been found to be the singlemost reason for the high incidence of this deadly disease, environmental pollution, unsafe conditions at workplace and virus infection are also responsible. Cancer diagnostics, therapy, treatment and care are beyond the means of poor and ordinary people who form the bulk of the victims.

***Cholera*:** The 'eighth cholera pandemic,' which hit Chennai in 1992 and quickly spread to other cities, reinforces the adverse effects of random economic development on people's health. The cholera bacteria spreads mainly through water sources contaminated by the excreta of disease-carrying people. Urban slums breed the disease especially during the monsoons when rains wash down excreta into the groundwater and the shallow handpumps or tubewells pump up the

contaminated water. Introduction of toxic wastes and fertiliser residue also helps spread the disease. Existing vaccines are ineffective against the new strain.

Dengue: The annual scourge of the deadly dengue received media limelight when more than 300 people died in the capital from the viral fever in the festive months of September-October 1996. Over 6000 people, many of them from the elite localities, had to be hospitalised as the epidemic spread to neighbouring Uttar Pradesh and Punjab, adding to the death toll. Absence of efficient civic management leading to uncleared garbage and stagnant waterbodies have been responsible for the unchecked breeding of dengue's carrier, the *aedes* mosquito. Dengue has been making severe onslaughts in several parts of India for the past few years.

Diarrhoea: Diarrhoeal diseases continue to be the main killer of children in India. An estimated 8.7% deaths within the first year, 19.5% among 1-4 years and 25.2% in the remaining period of childhood are caused by diarrhoea. Children in the rural areas do not have access to safe drinking water and are, thereby vulnerable to fatal infection. Use of ORT is as low as 19% in Haryana and 21% in Gujarat. In West Bengal, where cholera used to be a scourge, ORT use is as high as 75% and death from diarrhoea has become rare.

Hepatitis: Viral hepatitis has become a common scourge of the people living in congested urban areas. Spread through contaminated food, water and infected faeces, the disease has affected millions and there have been 50 major outbreaks of Hepatitis E in 1983-95.

Infertility: High pollution levels, unhygienic work conditions, mental stress, rise in atmospheric temperature, consumption of alcohol and ignorance about sex are creating a rising curve of infertility among married couples in India. According to a 1995 survey, the male-female infertility ratio is 40:60 and the average national infertility about 10%, Bihar registering the highest among the states at 12%. The main reasons for male infertility are defective spermatogenesis, ductal blockage, ejaculatory failure and gradual decrease in sperm count while those for female infertility are blocked fallopian tubes, uterine and cervical disorders. Social taboo, gender discrimination, absence of counselling and inaccessibility to modern reproductive technology because of high costs contribute to the growing infertility.

Iodine deficiency: Lack of iodine in the diet causes goitre, mental retardation and congenital neurological disorders among some 250m people in India and accounts for an estimated 90,000 stillbirths and neonatal deaths every year. Despite the easy availability of iodised salt, nearly 2.2m of the country's children are victims of cretinism, while 6.6m have been afflicted without showing definite, visible symptoms. Every hour 10 children are born who will not attain optimum physical and mental potential due to iodine deficiency.

Kala-azar: Kala-azar, a debilitating and often fatal disease caused by a protozoan parasite carried by the female sandfly, had disappeared from India in the 50s. Today, it has made a comeback, affecting nearly 250,000 with a mortality rate of 5-10%. Drastic environmental changes are responsible for the resurgence of the disease, the ideal breeding ground for the vector being the stagnant pools created by dams and embankments built for flood control. The sandfly has developed resistance to pesticides, leading to patients being administered stronger drugs with serious side-effects.

Leprosy: In India more than 500,000 people are afflicted by leprosy, the highest incidence of the disease globally. The curable disease, which has been almost eradicated from most of the world, lives on among the poor in India. Treated as social outcasts, the victims survive on occasional charity with no hope of rehabilitation. Government of India's anti-leprosy campaign has brought little succour to the diseased, and few are interested in doing anything as it is the poor man's affliction.

***Malaria*:** Malaria, once the scourge of the tropics, is back in a deadlier form. In 1994, 2,000 Rajasthan villagers died of cerebral malaria even while they were rejoicing over a good harvest following the heaviest rainfall in two decades. The epidemic was caused by waterlogging of the Indira Gandhi Canal, which created ideal conditions for breeding mosquitoes. The resurgence of the disease in malignant form has affected almost every state in India and accounts for 71% of malarial fatalities in southeast Asia. Environmental disturbances, particularly denudation of forest cover and water stagnation created by mega-dam projects, urban construction, poor healthcare and unchecked migration, coupled with the malarial parasite developing immunity, are the prime causes for the rampant spread of the killer disease in its more virulent form.

***Mother's milk*:** More than half the 25m children born each year in India do not get the security of mother's milk during the crucial months of infancy, according to UNICEF. Maternal mortality and drying up of lactation from lack of nourishment, anaemia and other debilitating diseases and breast cancer of the mother are the main reasons for babies being denied this key to protection, health and nutrition. Surveys have revealed a dangerously high content of toxic chemicals in lactating mothers exposed to environmental pollution and in areas where use of pesticides and fertilisers is intensive.

***Narmada virus*:** At least 25 children died and over 150 others were critically afflicted by a mysterious viral disease that struck several tribal villages in the hill forests of the Narmada river basin in September-October 1996. The deaths have been attributed to abysmally filthy health and living conditions in the resettlement camps for the Bargi dam oustees. Virologists, hamstrung for research funds, fear the emergence of lethal, unknown viruses. Hundreds of fatalities are reported periodically from mystery diseases against which the country is defenceless. In 1995, when over 250 children died of suspected encephalitis in Bihar, the National Institute of Virology ruled out the vector-borne disease but the virus remained unidentified as experts had to abandon further research due to a resource crunch.

***Occupational disease*:** Due to unsafe and unhealthy working conditions in Indian industry, exposure to occupational hazards are at a frightening level. From the data on death and injury reported under the factories act, the mines act and so on, it is estimated that of every 100,000 workers, as many as 7000 are injured round the year and 75 die. Of the total workforce of 200m, it means about 150,000 recorded deaths per annum. These figures, however, reveal very little about the magnitude of occupational diseases in the country. A menace in almost all types of industrial activity, occupational health hazards are particularly rampant and severe in granite and marble quarrying, coal, iron ore, copper, zinc and mercury mining, cement, asbestos, aluminium, chemicals, carpet, textiles, jute, paper, rubber, leather, spray and paints, electroplating, galvanising, battery, matches and fireworks, pharmaceuticals, and viscous rayon industries as well as in road building and construction, foundries, forging units, printing press, petrol pumps, and automobile repair shops. Invariably, the hazards stem mainly from the cost-cutting nature of the technology used, and the overtly inhuman production structure which puts profits before workers' health.

***Plague*:** In Aug.-Sept. 1994, an outbreak of pneumonic plague gripped the city of Surat in Gujarat, sparking nationwide panic. The disease, which killed over 1400 people within two days, affected thousands and led to an exodus of 500,000, is believed to have been caused by the dislocation of rodent habitats in a major earthquake in Latur in Maharashtra earlier in the year. The killer disease found its striking ground in Surat, mainly because of the appalling civic and public health facilities in the city. Surat had become a boom town as a centre of diamond cutting, textile and other industries where realtors-smugglers have a field day. Unrestricted construction

activities had put tremendous pressure on Surat's economic and civic infrastructure that not only led to the epidemic but also prevented effective action to curb its spread. Leaving untouched the middle and upper classes, the plague virus preyed on the city's 40,000 migrant labour population, who were further victimised by displacement as all industrial units downed shutters to reduce wage bills.

***Polio*:** Some 200,000 infants in India enter the ranks of the crippled every year, paralysed by polio. Special campaigns in recent years for immunisation against the life-long disease have substantially reduced the threat of disability among children but it is estimated that polio will not be completely eradicated from the country before the turn of the century.

***Sickle cell anaemia*:** A genetically transmitted disease that has no cure has struck an estimated 500,000 people across 10 states in India. Known as sickle-cell anaemia (SCA), the killer disease may turn out to be more devastating than AIDS and have a catastrophic impact on the country's demography. The medical fraternity is to yet wake up to its reality and the government is, at best, apathetic. If unchecked, the sickle cell toll may go up to 30m by 2032.

***Tetanus*:** Tetanus, easily controlled through immunisation, kills nearly 125,000 children in India, according to UNICEF. Unhygienic conditions during delivery, neonatal life in polluted environs and irregular administration of tetanus vaccine during pregnancy sow the seeds of death in the very first moments of life. The least privileged, the most undernourished and those least served by health services are invariably the worst affected.

***Tuberculosis*:** Development of drug resistance in microbes, rapid environmental changes, declining human immunity and a human-made scarcity of curative drugs have been responsible for tuberculosis thriving in India. The disease, endemic among poor, undernourished slumdwellers, afflicts 1.5% of the population. More than 1000 people die every day while under-5 infants account for half the total deaths from the disease that infects 1m every year. TB registers higher incidence in the urban areas due to pollution. AIDS has caused a spurt in the disease because of vulnerability to secondary infections. Import of wonder drugs that led to the near-eradication of the disease in developed nations, have stopped as pharmaceutical multinationals do not find much business in it for those afflicted have little or no money.

***Yellow fever*:** With dengue reaching epidemic proportions in some parts of India in the autumn of 1996, WHO has warned of a possible outbreak of yellow fever in the country. India has no previous history of the dreaded disease but the vector carrying the fever is the same as that of dengue. It is feared that the yellow fever virus may travel from the east coast of Africa where it has struck with great gusto. India is ill-prepared to combat the menace.

Human Development Disorders

With a population of over 900m, the second highest in the world after China, India's human resource potential is almost limitless. Yet, the country's performance in nurturing such human capital in the 50 years since independence has been both dismal and pathetic. The rates of infant and maternal mortalities, though declining, are still among the highest in the world, almost half the country's population remain illiterate even at the end of the twentieth century and the number of people below the poverty line today equals the country's population at the time of independence. Policy planners and economists, swayed by the rhetoric of development, have not only been neglecting the tremendous promise of India's huge, and yet untapped, human wealth but instead spare no effort to put the blame squarely on the country's population for the all the ills of the economy.

***Hunger*:** *Bhukho soso mari gala* (he died of starvation) has become the echoing cry of the tribals in the inaccessible hills and forests of Kalahandi in Orissa. Since the 80s, severe drought has been causing famine in the area, leading to mass deaths from starvation. The acute water shortage is believed to be the consequence of dam construction on river Indravati. The black memory of the holocaust continues to haunt the people of this wildly beautiful land as hunger deaths stalk the area with unfailing regularity. Grinding poverty, nonexistent health service and government apathy only add to the tragedy. Perpetuation of hunger in isolated pockets is independent India's legacy from its colonial past.

***Infant mortality*:** As many as 93 out of every 1000 children born in India do not survive to see their first birthday. Malnutrition, along with water-borne and infectious diseases such as dysentery, diarrhoea, measles, pneumonia, malaria, encephalitis account for this high rate of infant mortality. Poor diet, lack of sanitation, inaccessibility to potable water, overcrowded dwellings, ignorance of basic healthcare and discrimination against the girl child are the reasons why more than 2m children, majority of them girls, die every year in the country. Early marriages, repeated pregnancies as well as absence of natal care in villages and urban slums aggravate the risks of child death.

***Literacy*:** The overall disregard for human development have contributed greatly to the dismal level of literacy in India. It is a shame that even 50 years after independence, almost half the country's population or nearly 400m people cannot read or write. While Kerala and some districts of West Bengal have registered praiseworthy achievements in literacy in the last few years, Uttar Pradesh, Madhya Pradesh and Rajasthan continue to lag way behind, in some areas the levels being lower than sub-Saharan Africa. Almost 60% women are illiterate and in some rural areas the figures are as high as 85-100%.

***Malnutrition*:** India has the dubious distinction of having the largest number of undernourished children in the world. UNICEF estimates reveal that nearly 75m of the country's children below the age of five years do not get the minimum nutrition and care required for survival and healthy development. Poverty, ignorance and neglect are the reasons why India's rate of malnutrition is as high as 63%, just a shade lower than Bangladesh and Nepal but more than double the average for sub-Saharan Africa. More than 100,000 children die every year from malnutrition, the majority being girls.

***Population*:** With a crude birth rate of 30 and a death rate of 10 per 1000 and only 45% of eligible couples practising family planning, India's population may overtake that of China by the turn of the century. Lack of demographic planning, overemphasis on sterilisation, gender discrimination in family welfare measures, illiteracy and absence of effective communication packages are some of the reasons why the country is about to become the world's most populous country. The impact of this explosion has been devastating for the country's economy and development programmes and has been a major threat to political stability. Since demographic patterns show distinct imbalances, specially in rural-urban natural increase, the country, it is feared, is heading towards more social unrest and violence. It is a favourite practice among policymakers to flog population as the biggest cause of poverty in India, but it could be the other way around.

***Poverty line*:** The total number of people living below the poverty line in India today exceeds the country's population at the dawn of independence 50 years ago. The National Sample Survey shows that 355m people, or over 45% of the country's total population, live under grinding poverty in both urban and rural areas. Absence of true land reforms, economic growth at the expense of social justice, growing inequalities in the distribution of income and resources, concentration of

wealth in a few hands along with increasing marginalisation of vulnerable sections of society are the main causes for the poverty spiral.

***School dropouts*:** More than a third of India's children do not reach class V in school and the proportion of girl children enrolling and completing primary education remains lower than boys. There is an acute dearth of primary schools, and schools without buildings, blackboards, books and teachers are the rule rather than the exception. Demand for labour in the field during the harvest season and the discriminatory social attitude towards education of girls add to the number of school dropouts. Absence of cheap, locally available teaching aids, irrelevant and unimaginative syllabus and pedagogic teaching process take the joy out of learning and compound the problem. Though free and compulsory education is a constitutional obligation, little has been done till now to fulfil the pledge.

***Unemployment*:** Exact figures for unemployment in India is difficult to obtain since it takes varied forms. There are millions of registered unemployed in the cities whose number is swelling every day; then, there are those who are seasonally unemployed depending on the nature of their occupation and the fluctuations in the job market; finally, there is the phenomenon of 'disguised' unemployment or under-employment which cannot be quantified but affect a huge section of the agricultural labour force. Absence of true land reforms, capital-intensive industrialisation, lack of development in the services sector, largescale displacement and a steady growth of population have all combined to contribute to the alarming unemployment situation in the country. The economic reforms is aggravating the problem, creating conditions ripe for social tension.

Industrial Disasters

Industrial mishaps and mine accidents have been fairly frequent in India since the 50s but it was the 1984 gas leak in Bhopal which brought to light the immense propensity of Indian industries to bring on disasters of the worst kind. Use of dangerous raw materials, defective plant designs, sub-standard technology, faulty production processes, aided by poor maintenance and violation of safety regulations have, in most cases, been responsible for serious accidents with a heavy toll. In many instances, managements have been found to have resorted to cost-cutting devices to extract more profits at the expense of workers' safety. Compensations offered to the victims' families have generally been inadequate while there has been only occasional convictions for negligence. With more and more hazardous industrial units with unsafe work conditions coming up across the length and breadth of the country as part of the NEP-induced industrialisation spree, several Bhopals may be lurking around the corner.

***Asansol*:** The painful death of 55 miners from carbon monoxide poisoning on January 25, 1994, at one of the public sector Coal India's mines in Asansol in West Bengal exposes the abysmal safety standards at mines in the country. Officials admitted that the mine's tunnel was made wider than stipulated to increase production, methane levels were not checked, and the victims had neither respirators nor underground telephones. Rapidly increasing demand for coal is responsible for intensive excavation in the underground mines with little regard for safety measures. Direct mine fatalities average 150 annually, apart from deaths due to respiratory complications and occupational diseases.

***Bhopal*:** December 2-3, 1984, witnessed the worst industrial disaster in world history. Deadly methyl isocyanate (MIC) gas leaked from a storage tank in Union Carbide's pesticide plant and hung over the city of Bhopal, capital of Madhya Pradesh, killing over 6000 people and maiming 200,000. Government of India filed a case on behalf of the victims against the multinational giant claiming damages worth $3bn, but settled for $470m out-of-court in lieu

of withdrawal of all pending cases in India and abroad. Even this grossly inadequate compensation is yet to reach the affected. Twelve years after the tragedy, over 100,000 people, including children born immediately after the gas leak, continue to suffer and die from critical physiological and psychosomatic disorders. Union Carbide was let off scot-free and has even sold its Bhopal assets. (*See case study*)

***Chasnala*:** The 1977 disaster at Chasnala mine, near the Bokaro Steel Plant in Bihar's coalbelt will forever remain a symbol of the death-defying odds faced by mine-workers to satisfy India's energy needs. Over 450 people drowned when the waters of a nearby lake overflowed to flood a mine shaft. There were no survivors in the worst-ever mine tragedy in the country. Investigations revealed that the accident could have been averted if the authorities had taken heed of the danger signals in time. No punitive action was taken against any of the erring officials. Chasnala brought to light the primitive and extremely unsafe conditions under which miners have to toil in the country.

***Colliery fire and subsidence*:** Pitfires are raging all over Jharia, Dhanbad and Ranigunge, the heart of India's coal country on the West Bengal-Bihar border. Indiscriminate mining for 120 years, aggravated by the process of covering pits with flyash, has been the main reason for this colossal waste of a precious source of energy. Till now 3.5mt coal in Jharia has gone up in smoke and 4.5mt high-quality reserves cannot be mined due to the fires. Added to this is the problem of subsidence due to lime and granite quarrying, blasting of hills for coal and other minerals, scarcity of opencast mines and lack of ecology control measures. Kulti, Kajoria, Ranigunge and other coal towns are subsiding rapidly and may collapse any day.

***Gaslitland*:** Trapped underground, 64 miners drowned in the gushing waters of river Katri following a disastrous leakage in the Gaslitland mine near the coal town of Dhanbad in September 1995. The death toll would have been much higher but for the exemplary sacrifice and courage shown by a couple of miners in rescuing 112 of their fellowmen from the adjacent pits. No action has yet been taken though the government promised to set up a court of enquiry and submit a report within three months. Lack of safety for the miners and apathy of officials are responsible for frequent mine disasters in the Dhanbad-Jharia area.

***Kardampuri*:** Residents of Kardampuri colony in east Delhi were rudely awakened to a noxious nightmare in the early hours of November 13, 1994. Toxic fumes from a heap set ablaze by a local junk dealer shrouded the narrow bylanes of the neighbourhood and sent people scurrying from bed gasping for breath. The emission in a congested locality and the sloppy manner in which relief was provided revealed a total lack of official control over the mushrooming hazardous industries in residential areas and the pitiable state of disaster management in metropolitan cities, even a decade after Bhopal. Two infants and an adult died in the incident and 70 people were hospitalised in critical condition.

***Oilrig fire*:** On January 8, 1995, an orange flame leapt up into the sky with a deafening noise at the Oil and Natural Gas Commission's (ONGC) rig at Kakinada in East Godavari district of Andhra Pradesh. The source of the conflagration was an unfinished well dug down to 2777m from which gas and mud spewed out at ferocious velocity. The flame, towering 200m above the drill platform, lit up an area of 2km-radius and completely swallowed the Rs91.2m ($2.61m) rig. More than 1500 people from seven villages and the ONGC staff had to be evacuated immediately while about 20ha valuable coconut palm and paddy fields were charred. The rig had no firefighting equipment.

Industrial Pollution

The industrialisation spree has brought with it unprecedented pollution, the culprits being chemical and petrochemical complexes, oilrigs, cement and paint factories and power plants. While oilspill, toxic dumping and effluent discharge are transforming oceans, rivers and aquifers into poisonous waterscapes, flyash dispersal and smoke emissions are filling agricultural land and settlements with dangerous pollutants. The mushrooming of foundries, small engineering setups, waste recycle units, distilleries and dyeing and pigment plants in congested localities have become health hazards and are a constant threat to the safety of the residents. The green bench of Supreme Court has warned of severe punishment for flouting environmental norms but in the absence clear guidelines and direction from, and forceful implementation by, pollution control authorities, industries continue to ignore the law.

***Assam oil*:** ONGC is responsible for irreparable environmental damage in Sibsagar district of Assam through its exploration and production activities. Radiation from gas-flaring besides unscientific drilling, storage and waste disposal have turned fertile paddy fields into alkaline wastelands, clear pools with teeming fish into muck and slime, and affected silkworm rearing. Drinking water sources have also been contaminated, playing havoc with livestock and people's health.

***Delhi*:** Burgeoning industries in residential and commercial areas has turned the capital city into a gas chamber. Delhi today houses 93,000 factories of which only 10,000 have been cleared by the pollution control board and 31,000 are licensed. Many of these lucrative units use high-pollution substances such as rubber and poor quality hydrocarbons for their furnace to cut costs. There are smelting units deriving lead and copper from used batteries and wires as well as units melting plastic for reuse. All these emit huge quantities of SPM into the air. Court directive for their closure is hardly a solution since the livelihood of thousands of workers are at stake.

***Foundries*:** Some 174 foundries in Calcutta's twin city of Howrah have been told by Supreme Court to pull down their shutters for violating air pollution norms. The small-scale units are engaged in casting, rolling and forging for decades and were never aware of the poison they were spewing into Howrah's air. The foundry-owners have neither the capital nor do they know what need be done to satisfy the pollution control authorities. Meanwhile, lives and livelihood of thousands of foundry workers are hanging by a thread. Hundreds of foundries in the industrial areas of Delhi and west Uttar Pradesh have also been to told to close shop but no pollution control guidelines have been issued. The working conditions in most foundries are inhuman and there is no concern for the safety of the workers.

Siraspur: Villagers of Siraspur near the Delhi border heaved a sigh of relief as the last of the 23 clandestine lead smelting units finally downed shutters on May 17, 1994, following sustained protests. The units, recycling imported used car batteries, played havoc with the health of the people in the neighbourhood. Soil tests showed a lead concentration of 80µg/kg, some 50m from the illegal units, against the permissible limit of 8µg /kg. Villagers developed serious cardio-bronchial trouble, many complaining of nagging dizziness and nausea. Children fell prey to diarrhoea and wheezing while about 100 heads of cattle died from contaminated fodder. The batteries bore foreign brand names, whose import is banned under the hazardous waste management rules. Around 346,000kg lead battery waste was brought in from Australia alone during Jan.-Sept. 1993.

***Stone crushers*:** The villagers of Pali at Faridabad, 30km from Delhi, resisted a move in end-1992 to relocate 300 stone-crushing units on their 2025ha panchayat land. The relocation order on all stone-crushing units on the Delhi-Faridabad border was issued by Supreme

Court, apparently to prevent pollution of Delhi's air. Pali is situated downwind of the relocation site and the villagers feared dust would blow into their homes. The poor villagers would die of tuberculosis because Delhi needs gravel for its construction boom and yet aspired to keep the SPM level in its air below the danger mark.

***Taj trapezium*:** The Taj Mahal, one of the seven wonders of the world, is fighting a battle to preserve its pristine magnificence. The 17th century memorial has developed yellow spots on its translucent white marble surface caused by alarming emissions of sulphur dioxide from the nearby Mathura refinery. The refinery exudes 24,000kg of the damaging substance every day and some 500 new industrial units, without any pollution control devices, have come up in the past two decades within the Taj trapezium, the protected area earmarked around the monument. At least 212 such units have been asked to close down and Supreme Court has now ordered the setting up of a green belt around India's most famous architecture.

***Toxic corridor*:** Unchecked emission of toxic substances from hundreds of chemical units are turning vast tracts of Gujarat's Golden Corridor into a wasteland. The corridor runs along the Gulf of Khambhat from the southern tip of the state to 450km up north where rapid industrial development has become the top money-spinner. Paints, fertilisers, dyes, pulp and paper, pharmaceuticals and pesticides units are making a beeline with hazardous technology and without any care for adequate safety measures. The industrial waste and byproducts dumped by these units are affecting cattle and causing serious health problems for the people living in the region.

Industrial Sickness

A large chunk of Indian industry, aided by colonial heritage, mismanagement, faulty planning, erroneous technology, obsolescence, shrinking demand, market recession and government apathy, is downing shutters. According to a Reserve Bank of India estimate, there are about 270,730 sick industrial units, the highest number in West Bengal and Maharashtra. With almost all public sector units showing heavy losses and those in the sunset sector such as jute, textile and small engineering dying a slow death, millions of workers across the country are faced with chronic joblessness. Their distress has been aggravated by illegal lockouts, frequent retrenchments, non-payment of wages and appropriation by owners of employees' provident fund, gratuity, dearness allowance and other dues. While funds provided for rejuvenation have been siphoned off in most cases, hundreds of starving workers are driven to suicide or other desperate acts.

***Jute*:** The transfer of power in 1947 was accompanied by the transfer of ownership of many industries in India, the most prominent being jute. Today, most jute mills, majority of which are in West Bengal, are owned by fly-by-night agents and brokers who have reduced the once-flourishing business to shambles. Of the 60 jute mills in the state, 14 have remained permanently closed and the rest are perpetually on the brink. The owners, who also control jute cultivation and influence prices of raw jute, have neither made any move to modernise and increase productivity nor have they seriously attempted to expand the market for jute products, despite the rising demand for the eco-friendly fibre in the international market. Almost all the jute mills have denied the workers basic minimum wages and other compulsory benefits, and siphoned off the funds provided by financial organisations for their rejuvenation. Thousands of workers are jobless for years, their families are starving and many, unable to face the bleak future, have committed suicide. In 1993, workers of Kanoria jute mill in West Bengal took over their factory and became the symbol of labour struggle in sick industries in the region.

***Small enterprises*:** The small sector in India is very big, if not for anything but in sheer numbers. Though overshadowed by medium and giant conglomerates in terms of overall volume of investment and output, it can certainly be impressive when it comes to the potential for employment generation and share in exports. The ability to adopt flexible technology to meet the specific requirements of customers, propensity to work in clusters with interrelated processes, and capacity to feed the big counterpart with intermediary products and services could have made the innumerable small profit-centres together a dynamic engine of growth. Yet, thousands of small enterprises across the land are closing shop or languishing due to lack of institutional or budgetary support. Government has always been enamoured of the big sector, and its policies — licensing, taxation, incentives, so on — are highly discriminatory towards the smallscale. Now, the liberalisation process has pushed the small sector's back to the wall.

***Strike & lockout*:** At least 176,000 mandays were lost on account of more than 700 factory lockouts in 1992, nearly half of which took place in West Bengal, the state having the largest number of sick industrial units in the country. Apart from industrial sickness, raw material shortage and industrial disputes have brought about this high rate of factory closures. The number of strikes and total mandays lost due to labour trouble are much less than that from lockouts, belying the management propaganda that militant labour movement is the major cause of industrial stagnation.

Industrialisation Spree

The advent of a market-friendly economy has brought about a spurt in industrial activity. Investors, foreign and domestic, are increasingly employing their capital in diverse endeavours — from steel, aluminium, petrochemical coal and iron ore mining to electronics, food-processing, and infrastructure development. Deregulation of industrial licensing has created a climate of easy capital-inflow, and states are vying with each other in offering incentives and providing infrastructural support to attract potential investment. While such frenzied pace of industrialisation is changing the face of several strategic areas, other regions are being left far behind, increasing regional disparities. Moreover, the stress on capital-intensive technology is not allowing the rush of investments to make a positive dent in the ever-growing labour market. On the other hand, it has spelt imminent doom for the ecology of these areas, threatening to wipe out the life-supporting resource base of the people living there. Agitations are simmering in almost all the areas where largescale investments are flowing in.

***Gopalpur*:** An estimated 30,000 residents of 25 villages are facing forcible eviction from their land because of the Rs20bn ($571m), 10mt shore-based integrated steel plant being set up by the Tata Iron & Steel Company at Gopalpur, a popular sea resort on the Orissa coast. The would-be oustees earn a substantial living from the cultivation of *kewra* plants, a major ingredient of perfumery, fetching Rs6bn ($171m) annually in foreign exchange and the compensation packages offered to them are grossly inadequate to offset the loss of livelihood and way of life. Suggestions to move the plant to less inhabited and less environment-degrading sites have been rejected by the Tatas, and state government, eager to project its developmental endeavours, has handed over more than 27km^2 land to the corporate giant. A reign of terror, including illegal arrests, harassment of villagers and brutal police action, has been let loose in the area to acquire the land but the determined villagers, women and children in the forefront, are putting up a strong resistance to defend their rights.

***Konkan*:** The setting-up of the Rs248bn ($7.09bn), 100MW Cogentrix power plant in Karnataka's Dakshin Kannada district has brought in its wake a veritable boom in industrial investment in the Konkan region on the west coast. The first to come up is the Rs20.9bn

($0.60bn) Mangalore refineries and petrochemicals producing 3000t petro-products per annum, and this is being followed by over Rs148bn ($4.23bn) investments in steel production, iron and ferro-metal manufacture, coal and ironore processing and other industrial projects. As many as 17 large, 560 medium and 17,000 small industries will come up by the turn of the century, and they will be aided by a brash new Mangalore port, the Konkan railway, a network of highways and an international airport — all of which are in the pipeline. The rush of investments is unlikely to generate substantial employment opportunity but has already spelt doom for Mangalore and its surrounding areas. Land prices have shot up, air and water pollution have reached unmanageable proportions and an explosion of traffic is poised to choke the highways. The fragile and biodiverse Konkan ecology, too, is under grave threat of disintegration. Thousands of farmers and fisherfolk are resisting the onslaught on their life-sustaining land and waters.

***West Bengal*:** The new industrial policy of West Bengal aims to overcome its decades-old industrial stagnation by utilising the process of delicensing to attract domestic and foreign investments. Some 1239 proposals with a total investment of Rs107.12bn ($3.06bn) have already reached the state and more are on their way. West Bengal, on top of the industrial map of India at the time of independence, had slumped to number 13, but in the last couple of years it has drawn more foreign investment than any other state in India, except Karnataka. Its industrial growth rate has reached an all-time high of 11%. However, the thrust on capital-intensive industrialisation — centred mainly on the Rs45bn ($1.29bn) joint sector endeavour, Haldia Petrochemicals — has nothing to offer the state's huge army of unemployed or over 1m workers in 57,000 sick or closed units. As investments flow into computer software, food processing, designer goods, tourism, infrastructure and so on, traditional industries such as jute, tea, tannery and small-scale engineering continue to languish.

Infrastructure Development

The opening up of the Indian economy has also opened up new possibilities for the country's infrastructure sector. As MNCs arrive in greater numbers and domestic industry finds the going smoother than ever before, there is a strong cry for improving investment climate through development of infrastructure. Large amounts of public funds are going into building roads, highways, bridges, railways, airports and so on. While it signals boomtime for construction business, the environmental costs are poised to shoot up at a rapid pace. The burgeoning infrastructure will only perpetuate the structure of profit-making.

***East Coast road*:** The Rs750m ($21.43m) ADB-aided 737km Chennai-Kanyakumari East Coast Road project in Tamil Nadu is at the crossroads. Over 10,000 fullgrown tamarind, neem and banyan trees have been felled, myriad shrubs uprooted and residents displaced of numerous villages along the route to make way for the 160km Chennai-Cuddalore section of the project. More than 1600 houses and 400 public buildings alongside the road will be flooded during the monsoons. In parts the road is expected to hug the coast, running less than 500m from the shoreline in violation of coastal zone regulations, threatening beaches and marine life.

***Konkan railways*:** Environmentalists are campaigning for the realignment of a section of the 760km Konkan railway track along the coastline of Goa. The track, which cuts through the lush green mangroves, salt marshes, paddy fields and coconut groves in the region between Zuari and Mandovi, the two main rivers flowing into the Arabian sea, are likely to devastate the coastline's fragile ecology through changes in tidal circulation and stagnation of water, leading to largescale destruction of verdant estuarine land and aquatic life. The threat of waterborne

epidemics, even Japanese encephalitis, is very real. The experience of the decade-old West Coast highway running along the same route has aggravated the fear.

Mumbai airport: A grandiose plan to build a new international 'hub airport' for Mumbai, 8km from the Gateway of India, and an underwater trans-harbour link across the Arabian Sea has sparked a storm of protest in Maharashtra. The Rs45bn ($1.29bn) project spread over 4553ha prime verdant land will take away the homes and livelihood of nearly 40,000 farmers and fishermen in Rewas, Alibag and Mandwa on the Raigad coast, and also demolish the exclusive beach shacks of the city's socialites and business tycoons.

Marine Destruction

A multitude of profitable projects are in the pipeline for the coastal and marine sectors, especially since ocean and brackish water resources with their vast business potential are considered under-exploited. Large corporations, mostly multinationals, are looking for big money from the expansion of aquaculture, marine fishery, shore-based industry and beach tourism. As a result, India's 7500km coastline and nearly 70,000km^2 estuaries and backwaters as well several island clusters are being subjected to severe strain through land conversion, clear felling, siltation, water channel diversion and pollution from domestic sewage and industrial waste. Marine fish stock is dwindling at a never-before pace even as the loss of deltaic flora and fauna is irreversibly harming coastal ecosystems. India's more than 10m fishermen and fish farmers are the main victims of this great rush for aqua-gold. In December 1996, Supreme Court ordered closure of all aqua-farms but it is too late to undo the colossal damage.

Chilika: Orissa government's decision to lease 500ha of Chilika, Asia's largest brackish water lake on the Bay of Bengal coast, for commercial shrimp farming to a corporate giant raised a storm of controversy in the late 80s and early 90s. It was feared that the export-oriented prawn cultivation project would change tidal currents, tamper with aquatic life, alter the movement of fish, devastate coastal ecology, drive out migratory birds and marginalise thousands of fishermen. It would also submerge 14,140ha agricultural land as intensive aquaculture needed construction of storage reservoirs. The project involves building a 13km-long embankment which is likely to trigger floods and waterlogging. The use of high-protein feed for breeding will also pollute the lake. Once deep enough to harbour deepsea liners, the shrinking of the Chilika lake has already begun with the formation of sand ridges on its seaface. *(See case study)*

Coral reefs: The once-healthy Blair Reef off Port Blair is dead. In just 25 years, many such reefs around the Andaman and Nicobar Islands in the Bay of Bengal and Lakshadweep, Kavaratti and Minicoy Islands in the Arabian Sea have perished or are dying, leaving the islands unprotected against tidal waves and erosion. The coral ecosystem, essential to marine life, is being systematically destroyed by dumping of sawdust into the sea by giant sawmills, flowing of industrial effluents, discharge of hot water by power plants, oil pollution from ships and shore pipelines, use of coral in road-laying, construction and artefacts, dredging of navigation channels and promotion of the islands as tourists' paradise. Industrial effluents nourish the coral-devouring starfish, whose population is increasing at an alarming rate. If this trend is not reversed, the islands may disappear under the sea.

Fishing jetty: The decision to set up a commercial fishing jetty at the Bhitarkanika wildlife sanctuary on the Orissa coast has exposed state government's indifference towards ecological conservation. The jetty will set off extensive fishing activity and movement of trawlers in the area which will harm the mangrove forests and destroy the world's largest nesting ground of the Olive Ridley turtle. Construction of the jetty goes on despite protests and in violation of the Wildlife Protection Act.

***Trawling*:** Fisherfolk along India's 7000km coastline have raised their voice against poaching on their preserve by 'Indian-owned foreign trawlers.' Over-exploitation of prawn, oysters and mackerel for export is rapidly depleting marine reserves, average size of both fish and catch is steadily declining, big business is taking over coastal land cheaply and often converting agricultural land into fish farms, increasing soil salinity and degrading the coastline. While all this is leading to increasing marginalisation of 2m fisherfolk and indirectly affecting a population of 20m, without official regulation the regenerative capacity inherent in traditional fishing methods is being adversely affected. Sustained agitation forced the government to accept the six-month deadline ending mid-1996 set by the Murari committee to cancel licenses of foreign and joint-venture trawlers. However, as no action was taken, fisherfolk resorted to harbour blockades across the country.

Militarisation

Unlike Bangladesh, Myanmar and Pakistan, there is little likelihood of a military takeover in India, considering the country's vastness, cultural plurality, religious heterogeneity, multiplicity of languages and the relatively higher degree of democratic awareness of the people. Yet, due to perennial tension among the south Asian nations, nationalist stridency and the ever-increasing involvement of the army in quelling insurgency, terrorism and communal violence, conditions are becoming favourable for greater militarisation of Indian polity. Massive budgets are being allocated for defence purposes, without serious questioning or accountability and at the expense of welfare efforts, while huge military projects are displacing millions and destroying precious ecosystems in many parts of the country. There seems to be an 'enforced consensus' on the army's continued presence in Kashmir, Punjab and the states of the northeast where it has been inflicting inhuman brutality on innocent population.

***Baliapal*:** Setting up a missile range sparked a people's movement in the mid-80s in Baliapal, a prosperous cluster of villages on the Bay of Bengal in Orissa. The range was being set up on 102km^2 of fertile agricultural land, laying waste 10320ha and ousting 80,800 villagers in 54 blocks. The displaced were asked to shift to places 30km from their cultivable plots and offered only monetary compensation. The unwilling villagers, thriving on the cultivation of rice, betel leaves, fruits and cashew, refused to give up their land and traditional occupations for a destructive venture. In the face of their do-or-die agitation, the project has been kept on hold, but the government has been making every effort to come back through the backdoor. In 1994 the missile *Agni* was launched from nearby Chandipur. (*See case study*)

***Defence budget*:** Since independence, Government of India's annual budget has been allotting a big chunk of its expenditure on defence. Increased hostility in south Asia and rise of terrorism have been fuelling nationalist jingoism, ensuring continuation of undue favours to the defence sector. The taxpayer's money goes into maintaining a huge and idle armed force, stockpiling, manufacture and buying of arms and ammunition, intelligence, espionage and military research and training. With no public accountability, corruption has become endemic and, with no war, the army is being increasingly called upon to stifle popular unrest or secessionist movements. A country with gnawing poverty, India can ill-afford to spare its resources for defence purposes.

***Internal strife*:** India has not fought a war since 1971 but its 1.5m-strong armed force is one of the busiest peacetime armies fighting its own people in internal wars. Several areas in the country have been declared 'disturbed' and more than one-third of the army is deployed in Jammu & Kashmir and the northeast to combat separatist insurgency. Socio-economic reasons have, thus, been pushed into the background and political solutions have become contingent

upon military success against the insurgents. So great is the state's reliance on its coercive arm that nearly 18% of the budget is allocated every year for the military and the paramilitary, at the expense of social welfare. Moreover, successive governments have promulgated and taken recourse to undemocratic legal provisions such as the Preventive Detection Act 1950, Defence of India Rules 1962, Maintenance of Internal Security Act (MISA) 1971, National Security Act (NSA) 1980, and Terrorist and Disruptive Activities Act (TADA) 1985. The outcome has been perpetration of brutal atrocities on innocent people, largescale civilian casualties and total destruction of democratic institutions. Fundamentalists are taking full advantage of the situation by whipping up communal and jingoistic frenzy while public opinion is being moulded to translate 'national interest' as being synonymous with building war machinery and infringement of people's rights.

***Netarhat*:** Acquisition of 188km^2 land by the army to set up a firing range at Netarhat in the Gumla-Palamau forest has drawn militant protests from the Oraon, Birhor and Asur tribes of the Chhotanagpur plateau in Bihar. The move will displace 100,000 inhabitants of 245 villages and periodically uproot 150,000 during actual test firing. Parts of the affected *sal* forests fall under protected tiger territory and the test range can cause enormous harm to its exotic flora and fauna.

Mining & Quarrying

Mining and quarrying began in India at the turn of this century under British patronage. They picked up momentum a couple of decades later when energy-intensive industries made their mark on the country and the railway network was expanded. Hills were blasted, forests cleared and vegetation trampled upon in the search for limestone, coal, ironore, aluminium, copper, mercury, bauxite and zinc. The rampage gathered even greater pace after independence with the setting-up of steel and power plants and other heavy industries. Till the early-70s, coal and ironore mines were in the hands of absentee racketeers who made enormous profits from the country's mineral wealth while the ordinary miner was made to toil on pitiably low wages in risky and unhealthy conditions. The coal mafia took advantage of the miners' vulnerability to consolidate a reign of terror and extortion in Jharia-Dhanbad, which has continued long after the mines were nationalised in 1972. With privatisation-industrialisation now in full swing, the mines are being handed back to private lobbies on lease and virgin territories taken over for prospecting. Heaps of open cast slurry, raging fire, periodic subsidence, clouds of dust and unbearable noise mark the appearance of most of the mine towns in the country.

***Bhutan dolomite*:** Blasting for dolomite in the hills of Bhutan, without environmental safeguards, is triggering landslides in the Darjeeling area and flash floods in north Bengal. Every monsoon for the past few years, the Buxa tiger reserve in Jalpaiguri district is inundated, causing extensive damage to forests and destroying habitations, crops and livestock. West Bengal government has asked the Centre to take up the issue with Bhutan.

***Madayipara*:** The Kerala State Mineral Development Corporation (KSMDC) has decided to begin a Rs90m ($2.58m) mining project on the 365ha laterite plateau at Madayipara in north Kannur district. The 30m-high hillock had been prospected with the assistance of the European Community and is estimated to contain deposits of 5.5mt lignite and 29mt china clay, which is expected to last over 20years. The Madayaipara table is surrounded by rivers and the backwaters of the Arabian sea and is, thus, the lifeline of the villages around it. Local inhabitants feel that the depression of its elevation through mining will cut off their groundwater replenishment and enable saline seawater to filter in. The unique biodiversity of the region, including 12 species of migratory birds, will also be endangered, as also its

temples, churches and the ruins of a 17th century Jewish settlement. The people of Madayipara are resisting the life-destroying project.

***Meghalaya coal*:** The spurt in industrialisation that sent coal prices skyrocketing has led to intensive mining of the mineral in the northeastern state of Meghalaya, causing wholesale degradation of its air, soil and water. Coal extraction shot up from a mere 39,000t in 1970 to 1.7mt in 1989. Since the coal seams lie close to the ground, extraction is cost-effective and highly lucrative, needing neither sophisticated equipment nor trained personnel. But the unscientific method of pitsoil dumping, with the fertile topsoil buried under gravel and toxic layers, is contaminating water sources and agricultural land. The problem is compounded by coal land being owned by private landholders who are not accountable for environmental degradation.

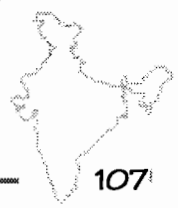
***Rawghat*:** The leasing of 750ha virgin forest at Rawghat in Madhya Pradesh to Steel Authority of India Limited (SAIL) for iron ore mining has rung the death knell for 150 rare species of trees, including precious varieties of sal and teak. The project, meant for supplying raw materials to the ore-strapped Bhillai Steel Plant 160km away, has been cleared by the Union ministry of environment and forests, prompting private firms to demand handing over of more tracts of the biodiversity-rich area for mining. Madhya Pradesh government is opposed to the lease.

***Sandstone*:** Unbridled urbanisation across the country has led to a growing demand for Jodhpur sandstone, valued aesthetically and for its durability. This has triggered indiscriminate sandstone mining around Jodhpur in Rajasthan, causing extensive damage to the city's catchment areas, increasing air and sound pollution, loss of vegetation in the mining belt and an alarming rise in the incidence of lung disorders. A very high percentage of sandstone workers are found to be suffering from silicosis and silico-tuberculosis that is also affecting the general population, especially in the slums.

***Sukhinda*:** An undeclared corporate war, with the connivance of politicians of different hues, is going on over control of the 1261ha chromite-rich areas at Sukhinda in Orissa. The lease for chrome ore mining in the region, held by the Tata Iron & Steel Co. (TISCO), ended on June 3, 1993. When the time came for its renewal, the Mittal group, which had earlier set eyes on Bailadila iron ore mine, along with the Jindals started pulling strings. They demanded that TISCO be divested of two-thirds of its lease and they be accommodated. Allegations and counter-allegations were made regarding payment of bribes to influential ministers and politicians and the record of the contending parties in conforming to statutory regulations. But the question of the efficacy of private leasing is yet to be raised, as also the environmental costs of such reckless exploitation of nature's bounty.

Perennial Calamities

Bounded by the highest mountain range in the world and tropical seas, and sitting on an active continental plate, India is particularly vulnerable to climatic fluctuation and tectonic movement. People on the Bay of Bengal coast, mainly in Andhra Pradesh and Orissa, live with the fear of devastating cyclones that have been taking an immense toll on life and crop year after year; those inhabiting the geologically-volatile Himalayan slopes in the north and northeast are in constant danger of avalanches, landslides, flashfloods and violent earthquakes; and millions in the vast Ganga-Brahmaputra plains have to cope with the perennial problems of extensive floods and river erosion, even as the Thar desert in the west moves eastward to encroach on the mainland. Largescale deforestation, construction of mega-dams, poor river planning, destruction of coastal ecology have magnified



the extent of disasters and intensified their destructive potential. There are only stop-gap measures, which are always inadequate, in the event of a calamity, and little in the way of either long-term solutions or a disaster-management policy. Inevitably, the poor are the worst victims of natural catastrophes.

***Cyclone*:** On November 6, 1996, a ferocious cyclonic storm pounded the East and West Godavari districts of Andhra Pradesh, killing over 4000, rendering some 100,000 homeless and destroying standing crops, livestock and public property worth Rs35bn ($1bn). Hurricane winds, moving in from the Bay of Bengal at 120kmph, uprooted rail and road bridges, power transmission towers and communication links, while 2m-high tidal waves inundated several islands and townships, turning the entire coastal belt into a vast sheet of water. Andhra is particularly prone to devastating cyclones and in the last two decades at least a dozen major cyclones have struck the area, each time killing thousands and causing extensive damage to property. The seafront of Orissa and Tamil Nadu and the Sundarbans delta in West Bengal also have to bear the brunt of severe cyclonic onslaughts from the rough seas of the Bay. Storm warning signals in the country remain antiquated and despite the recurrent cyclone, there is little in the way of disaster management. The victims are usually poor fisherfolk who are helpless in the face of government apathy. Global warming is believed to be the reason for the increasing incidence of cyclones on the east coast.

***Desertification*:** In India the purely meteorological phenomenon of dry spell has been converted into a permanent and pervasive process of desertification in areas around hot tropical arid land. The trend is not restricted to the fringes of Thar desert but is also penetrating into the vast hinterland between the Ganga and the Indus river basins as well as across the central Deccan plateau. Development activity, risky agricultural practices, groundwater mining have only added to population and livestock pressures in ruining the biological productivity of land and making it vulnerable to drought and desertification. Waterlogging, salinity and industrial effluents have hastened the process. Nearly 33% of west Rajasthan has been turned into an arid landscape and more are being gobbled up by the expanding sand dunes of Thar.

***Floods*:** In India the twin calamities of flood and drought, both natural and man-made, have been laying waste vast stretches of fertile land, turning free-flowing rivers into swamps, bringing misery to millions of people, killing livestock, and draining dry the exchequer year after year with unfailing regularity. Since the 50s, when construction of largescale dams and embankments was initiated, the severity and extent of floods have risen sharply. The most flood-affected country after Bangladesh, India accounted for 20% of the global flood fatalities from the 60s to the 80s. Over half a million people died in floods during 1953-87, averaging 1500 deaths annually. In the 50s, annual flood damages were estimated at Rs600m ($17.14m) a year affecting 6.4mha land; in the 80s, the corresponding figures were Rs230.7bn ($6.6bn) and 9mha. Average flood-affected population per year increased from about 16m in the 50s to 43m in the 70s and 53m in the 80s, a growth faster than India's population increase. Floods and droughts are considered endemic and government endeavour in flood management and relief is mired in apathy and complacency.

***Greenhouse gas*:** An ADB study observes that though India does not contribute much to global greenhouse gas emission, its geographical location renders it particularly vulnerable to global warming. The study warns that climatic changes from increased temperatures and concentration of carbon dioxide may disturb crop yields in the country, particularly wheat production in the Green Revolution belt. Coastal ecology and infrastructure, too, may fall apart due to rise in sealevel and blockade of freshwater supplies.

***Landslide*:** Being the youngest mountain range in the world, the Himalaya is made up of brittle glacial rock and loose soil. Its slopes, therefore, easily give way whenever the hills are

lashed with heavy snow and rain. Avalanche and landslides bringing down hundreds of tonnes of moraine and boulders — blocking roads and cutting off supplies, choking streams and rivers and inducing flashfloods — strike the middle and lower reaches of the mountains off and on. Their frequency and intensity have gone up with increasing deforestation, quarrying and dam construction. The poor and simple hill-dwellers have to bear the major burden of such 'human-made' natural disasters.

***Latur*:** As mega-projects continue to interfere with geology, earthquakes have increased in frequency and more areas are turning quake-prone. Relief and rehabilitation in the aftermath of a quake are usually dictated by political expediency and the contractor lobby. The scheme to rebuild houses for the victims of the earthquake that devastated Latur in the Marathwada region of Maharashtra in 1993 has turned out to be a farce. The state government's white paper on rehabilitation emphasised the restoration of property with active involvement of the local people and in line with their functional needs. But in actual practice, rows of one- and two-bedroomed tin structures have replaced the time-tested stone masonry of this scorching, rain-starved region. The houses offer little privacy and the inhabitants cannot dry grain on the slanted roofs. The homesteads are far from their agricultural holdings and water is scarce. The rehabilitation scheme, fetching $300m from the World Bank, is insensitive to social and family traditions, further alienating the quakehit. The fear of the houses crumbling in another quake is very real.

***River erosion*:** Almost all major rivers in India are constantly changing course because of interference with their natural flow, triggering floods, submerging vast tracts, destroying crops and livestock and leaving millions homeless. Devastating erosion of the riverbanks of the Ganga and Padma for more than a decade has washed away hundreds of villages in Murshidabad and Malda in West Bengal. Erosion-induced floods during the 1996 monsoons inundated nearly 225km^2 land, 4500ha of it fertile, and rendered homeless over 75,000 people. The phenomenon has been attributed to the faulty design of the Farakka barrage that came up in 1975. Unless remedial measures are taken immediately, north Bengal will be geographically separated from the rest of the state and have serious repercussions on Indo-Bangladeshi relations.

***Sea level*:** A scientific study reveals that assuming the worst scenario of a 1m rise in the sea level due to greenhouse effect, an estimated 5700km^2 of India's coastal areas could be submerged by AD 2100. The value of this land, calculated at current prices, is a staggering Rs 1527.40bn ($43.64bn), or nearly 35% of the country's GNP. The greatest loss of land would be in Goa, followed by West Bengal and Gujarat, and unique ecosystems such as the mangroves in the Sundarbans or the wetlands of Chilika could just be wiped out. The areas susceptible to submergence are home to nearly 7.1m people.

***Soil erosion*:** Every year India loses 5300mt topsoil (16t/ha), and along with it 6-9mt plant nutrients, from water and wind erosion. An entirely human-made disaster, it costs the country an annual loss of 30-50mt precious crops. Intensive landuse, faulty farming methods, overgrazing along with deforestation and road construction in the Himalayan hills have devastated huge areas in the form of gullying, landslips and flashfloods. Consequently, several parts of the Shivalik foothills now resemble the Grand Canyon. Downstream in Punjab and in the vast Ganga-Yamuna plains, the river basins as well as the multipurpose storage reservoirs are silted up, at an annual rate of 3-4%. Increased human interference and development activities are also causing sheet erosion of laterite soil in Uttar Pradesh, Madhya Pradesh, Bihar, Rajasthan and Gujarat, turning vast stretches into spectacular ravines. The desert, too, is continuing its wind-driven advance over Rajasthan, Gujarat, Punjab, Haryana and Delhi as the fragile dryland

ecosystem in the Thar region loses productivity and renewal capacity from excessive farming. Peninsular India is not lagging behind as lush green tropical forests in the Western Ghats and Malabar are being cleared for coffee and tea plantations as well as for building industry, hydro-electric projects, townships, roads and bridges.

Sundarbans: Years of neglect and lack of proper planning are causing fast erosion of the century-old embankments in the Sundarbans, the world's largest deltaic mangrove forests. The villagers living in 54 islands in the forest's upper reaches suffer year after year as rivers breach the mud embankments, damaging crops and destroying huts. These embankments protect the islands which lie below the high tide level of the region's innumerable rivers and creeks. The population of the Sundarbans is about 3m.

Uttarkashi: *'Mrityu ne to charon or se gher rakha hain hame. Hum kahan bhaage* (It is a virtual death trap for us. Where do we go)?,' was how a Garhwal villager described the massive tremor that rocked Uttarkashi and the surrounding Himalayan hills on October 20, 1991. The 6.6-Richter quake, which left behind a trail of death and destruction, was a highly localised burst of energy, indicating the potential of geological instability of the region. The quake was likely to have been prompted by three days of torrential rain and the accompanying landslides and flashfloods in several areas. The morning after the quake, the river Bhagirathi had run dry because one of its tributaries was blocked by a rockslide, but timely natural clearance averted a major catastrophe. Deforestation, hydel power projects and terrace agriculture have considerably increased vulnerability of the fragile Himalayan geology.

Power Plants

As the industrial juggernaut rolls and urban space spreads out in rapid strides, the demand for power reaches feverish pitch. More and more thermal power generation plants are, therefore, coming up all over the country to fill up the supply-gap. Displacement and widespread atmospheric pollution are the inevitable fallout. People are forced to shift from their villages as prime agricultural land is being arbitrarily acquired for construction even as slag and flyash continue to destroy vegetation and flora, solid waste chokes rivers and streams, and poisonous gases fill the air. A good many of the plants use outdated technology or are dependent on the vagaries of monsoon, and at least half of them operate below capacity, compounding the problem of shortage. The pressure on India's reserve of 200bn tonne of coal — 70% of its annual production and the whole of lignite go into power generation — is paid by the hapless consumer through high electricity tariff. Plans are afoot to hand over the power sector to private entrepreneurs and withdraw public sector participation in favour of foreign investors.

Budge Budge: A debate was going on over the setting up of Calcutta Electric Supply Corporation's 500MW thermal power generation unit at Budge Budge near Calcutta. The project appropriated 129.5ha prime agricultural land that offered employment to more than 20,000 people annually. It also took away the livelihood of 2500 labourers working in seven brick kilns, destroyed nearly 600 houses and shops, felled 500,000 coconut, palm and betelnut trees and wound up schools, libraries, health centres. Some 1500 farming families had to bear the brunt of all this.

Kaiga: The proposed atomic power station at Kaiga in the Western Ghats at the Karnataka-Goa border exposes the callousness with which nuclear power plants are being set up in India. The project, envisaged to produce 235MW from each of its two units, will lay bare vast stretches of deciduous forests and endanger the country's largest naval port, Karnataka's most extensive biosphere region as well as seven dams and reservoirs. Kaiga lies in a rain-prone area hazardous for nuclear technology and 25% of the power to be generated will go waste as there is no demand for electricity within 200km.

***Kolaghat*:** Kolaghat, the pride of West Bengal, has become the source of misery for people living in its shadow. The decade-old 210MW x 6 power station has been winning the 'Best performing Indian power plant' award for the past few years and is chiefly responsible for turning the power-starved state into a power-surplus one. But the daily emission of 4000t flyash, with traces of alumina, poisonous heavy metals and carcinogenic elements, have increased the incidence of cardiac, respiratory and other diseases among the people in its vicinity. With ash ponds usurping tracts of agricultural fields within a 20km radius, land prices have shot up while wind-driven ash deposits are ruining the betelnut crop that sustains the farming families.

***Narora*:** Series of evictions, technical malfunctions and a devastating fire have engulfed India's first indigenous nuclear power plant at Narora in a number of controversies. The plant, on the banks of river Ganga in Uttar Pradesh amid a thickly-populated region, started generation in 1989 and, with snags showing up soon after, was shut down. Operation restarted in mid-1990 with only one functioning unit but matters came to a head on March 31, 1993 when a massive fire burnt down the turbine unit. The plant, it was discovered, had no fire safety devices. Its construction was ensured by the eviction of 27 villages and the locality is highly prone to earthquakes.

Radiation Hazards

In India, radiation hazards are on the rise as the high costs and low returns of thermal or hydel power are prompting government and investors alike to opt more and more for nuclear sources. So much so, that, disregarding the accident at Kaiga and the leakage at Tarapur power plants set up in the 60s, the Ninth Plan outlines a grand scheme to install 20,000MW of nuclear power generating capacity by AD 2000. What is disconcerting is that such plans are being accepted and applauded despite periodic revelations about the lack of safety, inappropriate design, faulty construction and poor upkeep of almost all the existing nuclear power stations in the country. Even cost overruns due to consistent delays are being ignored and all questions regarding the disposal of nuclear waste swept under the carpet. Meanwhile, the employees as well as the people living in the vicinity of nuclear power plants are suffering from serious ailments and are constantly under the threat of impending catastrophes.

***Kakrapar*:** A massive explosion during construction causing Rs100m ($2.86m) damage has put the nuclear power station at Kakrapar in Gujarat in a spot. The station, being set up in the earthquake-prone bank of the river Tapti, is meant to generate 235MW with high pressure heavywater technology. Till 1989-90, Rs6.67bn ($190m) has been spent on the construction though the sanctioned amount was Rs3.83bn ($109.4m). A plutonium refining plant is also coming up here.

***Kalapakkam*:** An explosion rocked the atomic power station at Kalapakkam in Tamil Nadu soon after it began operation in 1984 and the plant had to be closed down. Since then the unit has become practically non-functional, generating only about 500kW from time to time as against the projected capacity of 500MW.

***Korangunam*:** The proposed project for nuclear power generation at Korangunam in Kerala has been facing stiff opposition from the very beginning on both economic and environmental grounds. When the plant's reactors come up in 1998-99, a large number of people living in the state's Kanyakumari region will be exposed to serious radiation hazards.

***Nagarjunasagar*:** More than 40,000 people living around the reservoirs of river Krishna in Andhra Pradesh are getting restive due to the Nagarjunasagar

atomic power station. In case of an accident, people residing within a range of 16-40km will have to be evacuated within hours. But the project is equipped to handle the evacuation of only those living within 3km, that too in 12 hours.

***Rawatabad*:** Radiation took its toll at Rawatabad in 1981 when 2000 workers of the Rajasthan Atomic Power Station were affected. The mishap led to the closure of this station in 1985 though Rs1.95bn ($55.71m) had already been spent on the project and 80% of the work still pending.

***Tarapur*:** Asia's first atomic power station at Tarapur in Maharashtra is high on the list of the world's hazardous nuclear units. The plant was set up by the Americans following an agreement stipulating that it use American uranium forever, though the mineral is abundant in India. The 400MW capacity plant produced barely 190MW during the few months it was under operation. Though the plant has since shut down, radiation from its reactors has affected those living within 40-50km of the power station. If Tarapur was running at full steam, it would have generated 130kg radiating substances, 12 times the strength of the atom bomb dropped on Hiroshima.

River Valley Projects

Dams, constructed for flood prevention, irrigation and hydel power, are by far the largest, most visible source of forced evictions and environmental destruction in India. In the half-century since independence, tens of thousands of medium and small irrigation projects have been executed and 1600 major dams built over the vast network of rivers and waterways crisscrossing the country. Consequently, an estimated 20m people have been uprooted and uncountable hectares of fertile land and forests lost through clearing, waterlogging, salination and resettlement. In many cases, among those displaced were indigenous communities whose lives and livelihoods are intrinsically dependent on the ecosystem they inhabit. According to official estimates, while indigenous peoples make up 7.5% of the Indian population, over 40% of people displaced by dams till 1990 were from tribal communities and their proportion is steadily increasing.

***Bargi*:** The Rs15.6bn ($4.46bn) Bargi project, one of the five big dams being constructed on Narmada's tributaries, was completed in 1986. When construction began in 1971, it was claimed that the dam would irrigate an area of 440,000ha in Jabalpur, Satna and Rewa districts of Madhya Pradesh but now its irrigation potential is only 199,000ha while the canal, which was to irrigate 245,000ha, is far from being complete. Even after two and a half decades, government has not been able to draw up a list of people displaced by the dam. Nearly 100,000 tribals from 162 villages lost their sustainable way of life as swirling backwaters of the dam submerged their natural habitats. With the promises of the fruits of development eluding them altogether, the oustees have been fighting a protracted battle for rehabilitation.

***Bhakra-Nangal*:** The 225.5m-high Bhakra and the 28.96m-high Nangal dams on the river Satadru in Punjab were one the first mega-dams to have come up in India. Built in the 1950s, the two dams together were to irrigate 1.46mha land through a 4800km network canal in almost the entire state and generate 600,000kW electricity. Today, three decades after its construction, the twin dams have become a liability, mired as they are in controversy over sharing of their waters between states and on account of the high degree of waterlogging and salinity they have caused.

***Bhopalpatnam-Inchampalli*:** The proposed Rs700m ($20m) Bhopalpatnam-Inchampalli hydel project on Indravati and Godavari rivers in Bastar and Gadchiroli districts of Madhya Pradesh and Maharashtra respectively threatens 45,000 tribals with cultural extinction. The

region forms part of the traditional homeland of the Gond, among the most ancient indigenous peoples of India. They will lose 140,000ha land while the proposed irrigation potential of the dams is 121,000ha. Psychological rehabilitation of the displaced tribals is impossible as their social, cultural and religious life is totally integrated with the life of the forest they will lose.

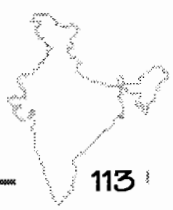
***Bisalpur*:** Protests have been organised against the inadequacy of rehabilitation measures for the Bisalpur drinking water-cum-irrigation project in Rajasthan's Tonk district. The dam, expected to irrigate 49,900ha in Tonk, Ajmer and Sawai Madhopur districts and supply drinking water to the thirsty towns of Ajmer, Jaipur, Beawar and Nasirabad, will submerge 21,836ha land. Though 25% of its Rs3.28bn ($93.7m) outlay is earmarked for rehabilitation, the affected villagers are unhappy about the many loopholes in the resettlement and compensation schemes.

***Dambur*:** Dambur hydel power project in Tripura is a classic case of paying a very high price for meagre benefits. The project, set up on the river Gumti, has a capacity of just 10MW but required 23,500ha for building reservoirs and is submerging 50km^2 prime cultivable land and forests. Nearly 50,000 indigenous peoples have already been uprooted with little or no compensation. The endangered wildlife in Tripura's forests, specially elephants, have begun to move to Chittagong Hill Tracts in Bangladesh while rare species of fauna have gone under water.

***Damodar Valley*:** Taming of river Damodar, the 'sorrow of Bengal,' was one of the mega-projects initiated soon after independence which were eulogised as 'temples of modern India.' The endeavour, modelled on the Tennessee Valley project and comprising a network of dams and barrages for flood control and power generation, was implemented with total disregard for the ageold methods of conserving water for irrigation practised by local communities. Consequently, the dams failed to stop floods in the lower regions while water for irrigation became scarce in the upper reaches. Unprecedented siltation destroyed the river's navigation potential and dug the grave of Calcutta port. During construction, thousands in the upper Damodar region were evacuated without compensation and large tracts of forest land were submerged.

***Hirakud*:** The 5km-long Hirakud dam on the river Mahanadi in Orissa was conceived as the longest dam in the world with a life expectancy of more than a century. It comprises a vast canal network of 3373.83km and two hydel plants with a total capacity of 270MW. Completed in 1956, the expected irrigation potential of the Hirakud project was 323760ha; 30 years later, only 155367ha had been brought under irrigation, siltation had rendered useless one-third of the dam, power generation was restricted to 120MW or just 44.4% installed capacity and, instead of flood control, in 1980 rainwater had to be released to save the dam which caused the 'highest-ever floods' affecting over 1m people, with the loss of uncountable lives and cattle. The Hirakud reservoir submerged an estimated 123,000ha good agricultural land, some 500 villages and displaced a mainly indigenous population of 100-160 thousand. The oustees were rehabilitated on inhospitable lands or given compensation that was grossly discriminatory and inadequate.

***Indira Gandhi canal*:** The dream of transforming the desolate landscape of Thar desert in western Rajasthan into a verdant expanse has turned out to be a nightmare. The Indira Gandhi canal, the world's longest, reached the tail end of its 649km run in 1987 after a 35-year-long engineering feat. Today indiscriminate use of the canal's waters for irrigation has turned vast stretches of Ganganagar and Bikaner districts into waterlogged, saline wastelands, besides being vulnerable to annual floods over the past few years. Equally tragic is the silent threat to



the 300 species of endemic desert birds, including the great Indian bustard, and a healthy population of gazelles and reptiles. At stake also is the legendary grasslands providing fodder and sustenance to the nomadic Bishnoi tribes for centuries. Some 130,000 people have settled along the desert lifeline who have no experience of traditional lifestyles and their lust for instant riches is destroying the delicate harmony prevalent in the arid land. The canal has widened the chasm between the small pockets of agricultural affluence and the backward areas.

***Indira Sagar*:** The proposed Indira Sagar dam across river Narmada in Madhya Pradesh is apprehended to be an unmitigated disaster. The project, expected to generate 280MW power for the benefit of giant industry, will displace 0.17m people of 250 villages and submerge 43,000ha rich forests and 45,000ha agricultural land. The dam, located in a geologically unstable region, may cause earthquakes through reservoir-induced seismicity. About 40% of the land to be irrigated is likely to get waterlogged while 50% is shallow soilbed unfit for irrigation.

***Koel-Karo*:** The proposed dams on the rivers Koel and Karo and hydel power stations in Ranchi and Singhbhum generated a lot of heat in the 80s. The project was expected to produce more power than all of Bihar's power plants. But when complete, it would have submerged 20235ha prime cultivable land and 112 villages, displacing an estimated 50,000 people. The would-be oustees demanded land-for-land but, instead of complying, Bihar government sanctioned large tracts for the construction work to start, even sending the police to seize the farmers' land. Supreme Court intervened and ordered all work to stop, reprimanding the state government for not coming out with a realistic rehabilitation scheme. A Rs1.3bn ($37.1m) plan was drawn up to rehabilitate 5000 people, just one-tenth of the total number of victims. The impasse continues.

***Manas*:** Government of India is determined to dam river Manas which cascades down the Bhutan Himalayas to flow through the Assam plains. The construction of the dam and its canal network in a geologically unstable environment, will destroy forever the Manas reserve, a World Heritage Site and unique ecosystem that is home to 19 endangered animal species and a magnificent variety of rare fauna.

***Nagarjunasagar*:** More than 100 archaeological sites, some dating back to the early stone age, were excavated and meticulously reconstructed at Nagarjunakonda in Andhra Pradesh to make way for the Nagarjunasagar reservoir. Not a fraction of this care was reflected in the rehabilitation of those displaced by the dam across the river Krishna. Though the state government claimed 1500 families would be displaced, in reality 5098 families or 28,000 people, mainly indigenous, were ousted. Majority of the oustees were resettled not in the official centres but in hamlets 10-15km away that had few of the promised amenities. Many had to abandon their new homes in search of work as there were no available means of livelihood.

***Polavaram*:** Koya, the indigenous people living on the banks of river Godavari and its tributaries in Andhra Pradesh, Orissa and Madhya Pradesh, are protesting against a 'secret' plan to dam the river that threatens an entire culture with disintegration. The project, awaiting Government of India clearance, is based on false information about the devastation to be caused. The authorities claim that land to be submerged is wasteland though it is rich farmland, and 250 settlements in three states would be affected while the actual number is 465. The claims of project benefits has also been shifting, from providing irrigation in well-irrigated lands to power generation. The 200,000 people — 125,000 belonging to the Koya tribe — to

be displaced have not been officially informed about the project nor have rehabilitation plans been made known.

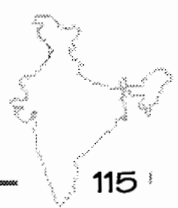
***Pong*:** Displacement of 150,000 residents from 94 villages marked the construction of Pong dam across the river Beas at the foothills of the Shivalik range in Himachal Pradesh. When completed in 1974, dam waters were released without adequate warning, resulting in heavy losses to the oustees and several deaths. Till 1989, more than half the oustees had still to be rehabilitated and there was no comprehensive map of the rehabilitation sites. The dam was not benefiting the host state but neighbouring Punjab, Haryana and Rajasthan. Himachal Pradesh washed its hands off the oustees, leaving them to Rajasthan for resettlement in the command area. Rajasthan was not keen and the simple mountain folk were left to the mercies of hoodlums and killer gangs around the inhospitable sites.

***Pooyamkutty*:** Economic and environmental factors have turned the proposed hydel project on river Pooyamkutty in Idukki district of Kerala into a hotspot. The project envisages construction of a series of dams for generating 950MW power at a cost of Rs6bn ($171.4 m) by 1983 estimates. When implemented the dams will destroy 3000ha forest land which will affect the supply of 23,500t reed required for bamboo mat and basket weaving as well as the newsprint industry. More than 1000 tribals living in the forest areas will be evicted without resettlement.

***Rajghat*:** Construction on the 11.2km-long Rajghat dam across the river Betwa began in 1979, three years before the final appraisal report was released. The dam, to benefit Madhya Pradesh and Uttar Pradesh, will flood 22,400ha land, submerge 75 villages and render homeless 19,000 people. The resettlement plan had not been drawn up six years after construction began. The submergence area has 1m trees, is rich in archaeological monuments and rare species of flora and fauna.

***Sankosh*:** Environmentalists have taken strong exception to the Indo-Bhutanese agreement on the power and irrigation project on river Sankosh, known as Wangchu in Bhutan. The 200km-long canal between Sankosh and the river Teesta in north Bengal, as envisaged in the deal, will ruin 342.53ha prime agricultural land and 150.11ha non-agricultural land, including 936.8ha of priceless tea gardens in the Himalayan foothills, taking away the livelihood of thousands of farmers and forest-dwellers in the region. Wildlife experts are of the opinion that the venture will have an adverse impact on the ecology of Buxa Tiger Reserve and may even disrupt the elephant corridor in Gorumara National Park and Jaldapara Sanctuary, forcing them to stray from their routes to human settlements. Although dams and power stations will come up in Bhutan, the 200m-wide canal will run through the core areas of these forests in Indian territory.

***Sardar Sarovar*:** If any mega-project in India is the focus of national and international debate on development paradigms, it is the Sardar Sarovar multipurpose dam being constructed on river Narmada between the Satpura and Vindhya ranges at the Madhya Pradesh-Gujarat-Maharashtra border. As part of an integrated river valley project comprising 30 big, 135 medium, 3000 small dams and an extensive canal network, Sardar Sarovar is envisaged to irrigate 1.8mha land in Gujarat and 75,000ha in Rajasthan, generate 1400MW power and provide water to 8000 villages and 131 municipalities and industrial towns. When complete, the reservoir will submerge over 40,000ha forests and an equal amount of prime agricultural and non-agricultural land each, displace 350,000 indigenous peoples in the submergence and non-submergence areas and endanger the lives and livelihood of some 1.2m forest-dwellers, farmers and fishermen. The dam, it is claimed, will carry water to the drought-prone areas of Kutch, Saurashtra and north Gujarat, but in reality will bring only seasonal waters to a tiny



fragment of the entire region. The cropping pattern in the command area will change to commercial cultivation and the main beneficiaries of the project will be Asia's sugar barons, as well as seeds, fertilisers, pesticides and agricultural implements multinationals. Though mooted in the 50s, the dam's construction began only in 1984 with World Bank aid. The affected population, under the aegis of the Save Narmada Movement, launched a do-or-die battle, forcing the Bank to review the project's environmental impact and withdraw on grounds of unfeasibility. The Gujarat government continued construction taking the height of the dam to 81m and submerging populated villages in its vicinity. The states concerned which were involved in a bitter wrangle throughout have now reached an understanding on the dam height but resumption of construction awaits the verdict of Supreme Court. *(See case study)*

***Srisailam*:** The Srisailam multipurpose project was expected to cost Rs384.7m ($10.99m) but time and cost overruns have now raised this figure to Rs4.2bn ($120m). About 100 villages and 432,725.5ha land were submerged in 1981 by the reservoir of the dam across river Krishna in Andhra Pradesh, ousting 100,000 people. Most of the displaced villagers in this agriculturally prosperous area lived in stone houses, owned livestock and had secure employment. Compensation was grossly undervalued, they were forcibly dragged out of their homes and their livestock let loose as village after village was razed under Operation Demolition. Resettlement sites lacked basic amenities, even housing.

***Subarnarekha*:** Since inception, stiff resistance by local people has marked the World Bank-aided multipurpose project on the river Subarnarekha in Bihar's Singhbhum region. Sanctioned in 1982 and comprising two main dams, two barrages, three reservoirs and a network of seven canals for flood prevention and provision of water for irrigation, drinking and industrial use, the project will use up 35,0672.5ha land belonging to the Ho tribe and wash away 272 villages, displacing over 90,000 people. The Subarnarekha project is not suitable for Singhbhum's topography and may interfere with the natural flow of the river system. The would-be oustees have been fighting a prolonged battle for survival in the face of inhuman police repression, forcing government to put the project on hold after 60% work was complete.

***Tapaimukh*:** The fate of the proposed Rs2.9bn ($82.8m) 162.80m-high Tapaimukh dam project in the Barak Valley at the trijunction of Assam, Manipur and Mizoram, has become uncertain due to fears of extensive inundation and largescale displacement. The project was reportedly taken up without any geological survey though it is said to be sited just 50m from a major fault in the trans-Asiatic seismic belt running through the area. Even as concerned groups jointly try to build up a strong movement, eviction notices have been served on the Hmar and Zeliagong tribals living on the lands to be submerged. The dam, to be located 500m downstream from the confluence of rivers Barak and Tuvai, is expected to produce 150MW hydel power but will oust 1310 families of 31 villages from their land, submerge 12,286ha forest and 2703ha cultivable land, endangering the thinning forests and rare orchids found in the region.

***Tawa*:** Save the Soil Campaign, a farmers' movement in Madhya Pradesh, has forced the government to admit that the Rs3bn ($85.7m) Tawa irrigation project had actually led to a fall in agricultural production. The project, located in the fertile Narmada basin in Hoshangabad district, was approved as a Rs139.5m ($3.99m) project in 1956 with an irrigation potential of 246,867ha. Since completion in the late 70s, the project was irrigating a mere 26,131.5ha with lowered yield per hectare, and caused waterlogging of fertile lands. The protesters have helped farmers reclaim some of their damaged lands through tree plantation.

***Tehri*:** The insensitivity and shortsight of India's planners is most evident in the case of the 260.5m-high Tehri dam being built to tame the Bhagirathi in the Garhwal Himalayas of Uttar Pradesh. Construction of the dam — whose estimated cost has escalated from Rs2bn

($57.1m) in 1969 to Rs60bn ($1.71bn) in 1974 —began in 1988 with Soviet support that ceased after the break-up of the USSR. It is located in a seismic belt and the quake of 1991 in Uttarkashi, which left a trail of death and destruction, has confirmed apprehensions that the dam will trigger devastating tremors in the hills. More than 100,000 people will be displaced by the reservoir that is expected to submerge 27,000ha of the most fertile land in the mountainous region. The 1000-year-old town of Tehri is under threat of getting washed away forever, and the plan to shift the town to a higher slope means the daunting task of rehabilitating 20,000 families and residents of another 60 villages. In case of a major earthquake, the holy towns of Rishikesh, Deoprayag and Hardwar will be wiped out while towns such as Meerut and Bulandshahr in the plains inundated within hours. When conceived, the multipurpose dam was expected to generate 3500MW power, provide water to Delhi and its surrounding industrial towns and irrigate 270,339.6ha; but now the target has already come down to 2400MW electricity and 109,269ha for irrigation. The dam's lifespan, too, has decreased from 100 years to 40 years, because of the unscientific method of mudfill. Garhwal villagers have been conducting a peaceful movement for the past decade. The Tehri dam has stirred a nationwide debate on the validity of big river valley projects. *(See case study)*

***Thoubal*:** Large tracts of cultivable land have been submerged and more than 1750 people in five villages evacuated by the Thoubal river development project in Manipur. Under this project, a dam, a barrage and two canals are coming up on the river Imphal to irrigate 17,500ha land and generate 7.5MW hydel power. Sanctioned by the Planning Commission in 1980 at an estimated cost of Rs1.4bn ($40m), the Thoubal project has no provisions for rehabilitation of the displaced population.

***Ukai*:** At least 170 villages with a population of 52,000 were submerged by the Vallabh Sagar reservoir created by the Ukai dam across river Tapti in Gujarat. Completed in 1972, the dam's irrigation potential of 386,000ha remains grossly underutilised as the region is rain-rich and had adequate surface water sources for irrigation. The affluent peasants living in the command area, became richer from the rapid development of water-intensive high-return cash crops, but those living upstream in drier land became poorer as no benefits of irrigation or power reached them. For the displaced, the story was one of increasing marginalisation and impoverishment.

Social Maladies

The roots of a majority of India's current social diseases may be found in the charted path of economic development which imposes an alien culture on a traditional way of life. Whether it is the rising incidence of alcoholism among the urban youth or the rapid spread of fundamentalist psyche in cosmopolitan areas, social aberrations are a direct fallout of consumerist lifestyles, breakneck pace of life, loss of values and identity crisis brought about by the steamrollers of development.

***Addiction*:** Drug addiction and trafficking have reached menacing proportions in Indian metropolises. Mumbai has become the epicentre of the 'golden triangle' that forms the international drug smuggling route through Iran, Afghanistan and Pakistan and acts as the main distribution centre for the domestic market. Nearly 35,000ha in Madhya Pradesh, Uttar Pradesh and Rajasthan are under poppy cultivation and cocaine, brown sugar and pain-killers are easily available in towns and cities. Opium, converted to heroin and morphine, fetches around 25 times its Indian value in the international market, making illegal production and export highly profitable ventures. Over 15m people, cutting across social strata, are poised

to turn addicts by AD 2000 and there is an alarming rise in needle-usage among the youth. Social and psychological maladjustment, breakdown of the family system, peer pressure, unemployment and environmental factors are responsible for the malaise. There is very little social awareness about the ill-effects of drugs while treatment and rehabilitation of the addicts are hard to come by.

***Alcoholism*:** It is difficult to estimate the incidence of alcoholism in Gandhi's own land but there is little doubt that today the curse of liquor addiction afflicts every layer of Indian society, both urban and rural. In metropolitan cities and industrial townships, drinking is a pastime and an avenue for socialising for the noveau riche and the upwardly mobile, a way of escape for the frustrated youth unable to bear the stigma of unemployment, and a compulsive habit for large sections of the working class, instilled and encouraged by their own employers. In the villages, specially in tribal areas, alcohol addiction has considerably increased with loss of traditional values, rising joblessness and the easy availability of cheap and country liquor in almost all localities. News of death and debilitation from consumption of hooch (home-brewed), varnish and spirit pour in every day from all over the country. The phenomenon had gone so far that militant movements against consumption of alcohol had to be launched in several regions. The successful anti-alcohol movement led by the ironore miners in the Chattisgarh region in Madhya Pradesh in the mid-80s and the anti-arrack agitation in Andhra Pradesh in the early-90s are manifestations of people's resistance to this social scourge. Women, who are the worst victims of alcoholism, are spearheading these campaigns.

***Casteism*:** The caste system — based on the *Varnashram* code conceived by Manu, the ancient Hindu sage — was introduced in India in the Vedic period. For centuries, it remained the basis of social division of labour but was rarely linked to birth and allowed for interflow within its not-so-strictly defined peripheries. The system became rigid and oppressive whenever Brahmanical Hindu revivalism made its mark in India's history, as in the post-Buddhist era beginning in the 2nd century AD and after the decline of the *Bhakti* (devotional love) movement in the 17th century. The British colonial administration actively promoted the exploitative traits of the caste system and independent India found its roots quite firmly entrenched in the vast expanse of its villages. Today, it is the strongest pillar of feudal exploitation in the backward villages of the mainland as well as in many areas of peninsular India. The minority *Brahman-Kshatriya-Bania* upper castes, have strong interest in keeping the system alive, for it allots not just economic powers to them — as in a 'class' framework — but also social and cultural superiority over *Sudras* and the other backward underprivileged. It was this socially-privileged group that violently opposed in 1990 the implementation of the Mandal Commission recommendations providing reservations in government jobs for the backward castes. The Constitution — whose chief architect, B R Ambedkar, was a *dalit* (literally, the oppressed, belonging to the untouchable community) — provides for certain political and cultural rights to India's vast millions of the deprived castes but little has so far been done for their uplift and a majority of the country's rural population continues to be crushed under the weight of upper-caste dominance. Murder, arson, rape and other forms of medieval atrocities are continuously perpetrated on hapless *Harijans* (literally, children of God, a term coined by Gandhi to describe the untouchable castes specialising in conservancy work) and the tag of a backward caste is still a stigma in Indian society.

***Communalism*:** As Indian society gropes for a modern identity, a feeling of aggressive divisiveness is insidiously creeping into the urban mindset. Centred around the false notion of undifferentiated oneness of a particular religious, caste or ethnic collectivity and the perceived enmity with its 'other', This new (un)consciousness has become the breeding ground of hatred and organised group violence, paving the way for a society with fascist-

fundamentalist mores and manners. The phenomenon has been showing its ugliest face in Mumbai, the commercial capital and the most cosmopolitan of the Indian cities, indicating that communalism is, perhaps, a disease of a brash new society unable to cope with the steady breakdown of the old communitarian ways.

***Prostitution*:** The oldest profession had religious sanction in ancient India and prostitutes, mainly temple dancers, were known as *Devdasis* (God's maids). Modern-day prostitution, an urban phenomenon which grew under colonial patriarchy and typically in the war years, do not have such social respectability. And yet, the trade continues to flourish as hundreds of helpless women, unable to cope with humiliating poverty, join the profession in search of a livelihood and a huge number is smuggled in from Nepal and Bangladesh. What awaits them is a ghettoised existence, controlled by a ruthless pimp-police-client nexus, and a life of hard work, low income and dangerous diseases. The degradation gets even more acute in the absence of access to healthcare or trade union rights. Their ostracisation is so complete that even liberal conscience is silent about their plight. Consequently, it is difficult to estimate the number of sex-workers in a redlight area and how many of them have contracted STD or would test HIV-positive. The apathy only reflects the perverted psyche of the civil society and makes mockery of the false morality prevalent today in the land of Kamasutra and Khajuraho.

***Refugees*:** An estimated 580,000 crossed the border from what was then East Pakistan, now Bangladesh, at the time of partition in 1947 and the problems thrown up by this great influx is still far from being solved. In the case of 470,000 refugees from West Pakistan who settled in Punjab and Delhi, Government of India spent Rs4.56bn ($130.29m) in 12-13 years — Rs1.91bn ($54.57m) as compensation — settling the problem conclusively. But demands for sanction of a meagre Rs1.5bn ($42.85m) in 1973 and Rs7.5bn ($214.28m) in 1981 towards a one-time settlement of the refugee problem in West Bengal were never conceded, provision being made for only Rs850m ($24.28m). Meanwhile, a whole new generation has grown up as second-class citizens with no legal right over the land their parents had settled on. The number of displaced people from East Pakistan swelled to 11.2m at the time of the Indo-Pakistani war in 1971. The continuous flow of refugees — Chakmas from Bangladesh, Tamils from Sri Lanka and peoples of Myanmar and Bhutan — have compounded the problem.

Tourism

Compared with the more developed countries in Asia, the tourism industry in India has shown a rather tardy growth in the last 50 years, despite its immense potential. The thrust has mainly been on five-star facilities catering to the needs of foreign visitors instead of low-cost arrangements for the millions of eager domestic travellers. Cost of environmental damages have, thus, been far more than the returns and the negative impact on social mores is, perhaps, greater than what is perceived.

***Goa*:** Unbridled tourism has spelt disaster for the coastal ecology of Goa. A paradise for tourists, both Indian and foreign, Goa's economy thrives on hotels and resorts that are mushrooming all along its 105km beach front. The protective sand dunes have given way and groundwater is in short supply as five-star hotels sprout every 3km, even within the coastal regulation zone. Tourism may have boosted the travel trade and lined the pockets of hoteliers; but the Goans are increasingly being denied their common property resources, and their ageold occupations such as toddy tapping and fishing are virtually on the brink.

***Hill resorts*:** Shimla, Darjeeling, Mussoorie, Ooty, Mount Abu and so on were carved out of the mountains by the British to serve as their administrative-cum-recreational centres. When the *Gora Sahibs* (white masters) left, these hill stations became the destination of the rich pleasure-seeker and the middle-class traveller. As these conventional tourist towns have consequently turned dirty and crowded, newer pastures are being sought by the travel trade in the Himalaya and the Nilgiris to develop them as luxury hill-resorts. While the cash-rich clientele is being lured by the attractive packages of the commercial tour operators, the adverse fallout on the mountain ecology is seen as nobody's business.

***Panchmarhi*:** The advent of commercial tourism along with irregular quarrying and mining are posing a grave threat to the subtropical wet hill forests around Panchmarhi in the Satpura range in Madhya Pradesh. Home to leopards, bison and a host of wildlife and some of the rarest species of plants, the idyllic hill station is fast succumbing to pressures of reckless township development and rising number of settlers.

***Puri*:** Union Environment Ministry's rejection of the Rs9bn ($257.14m) Puri-Konark Beach Resort project has merely slowed down the eventual obliteration of Puri beach in Orissa. The new project envisages the construction of a multiple hotel complex on 890ha of the Bangur reserve sanctuary along the coast. The golden sands of the magnificent beach is, in any case, tarnished with the tidal wash of a polluted sea and tourist debris. It is difficult to take a stroll because of the sheer mass of holiday-makers, cigarette and cold drinks kiosks, and hawkers peddling everything from peanuts to shellware. The air is thick with smoke from fast-food stalls and diesel-run giantwheels, even as hotels and tourist lodges every few metres rival each other in being closest to the water, in complete disregard of coastal zone regulations. Hundreds of beaches such as Digha, Gopalpur, Waltair, Marina, Kovalam, Alibag, Juhu, Daman and Diu are all in the same boat.

***Rudravanom*:** The idea of setting up a pilgrim shelter at the famous Sabarimala forest shrine in Kerala has triggered a heated debate in a state where forest cover has virtually become extinct. The Rudravanom camping complex will make use of 100ha tropical evergreen forests in the Periyar Tiger Reserve in the Western Ghats. The mad rush of pilgrims to the hilltop temple pollutes the forest and its streams and rivers with human and non-biodegradable solid waste. Construction of highrises to accommodate 5000 pilgrims, shopping complex, parking area, police station, telephone exchange, power station and information centre will not only destroy virgin forest land and endanger wildlife but also destabilise soil systems and groundwater flow patterns, leading to possible landslips.

***Sex tourism*:** The idyllic beaches of Goa on the west coast of India are poised to overshadow those of Pattaya in Thailand as a centre for commercial sex tourism. A recent study reveals that cheap packaged tours, mushrooming of all-night bars, discos, casinos and alarming rise in beach prostitution are fast turning the former Portuguese colony into a sought-after destination for 'macho lads' and paedophiles. The majority of the victims of these sex rackets are under the age of 18 and come from other states such as Karnataka, Maharashtra and Andhra Pradesh.

Urbanisation

'The urban ecosystem is in a crisis which will increase in geometric progression as urbanisation accelerates and the availability of financial resources for urban development declines,' wrote bureaucrat-turned-environmentalist M N Buch in his study on planning for Indian cities. Even a cursory look at the condition of Indian metropolises and cities will reinforce this observation. In 1951, the country's urban population was around 62m distributed over 3030 settlements. The 1991

Census puts it at 270m, an increase of over 400% in four decades. Today urban areas account for nearly 30% of the total population and at least a dozen cities have a population of more than 1m each. As urban centres expand rapidly, the misery of the common city-dweller is multiplying and environment degradation setting in at an unstoppable pace. Housing, transportation and water supply are fast becoming luxuries even as air and noise pollution, waste accumulation and sewage disposal are turning into insurmountable problems. With visible income disparities, acute unemployment and the frantic search for urban land, the Indian city is becoming a den of crime, violence and communal bloodletting.

***Air pollution*:** If plant life is any indicator of environmental health, then Calcutta is inexorably moving towards death. Factory smoke, dust and exhaust fumes have killed more than 30,000 trees in the metropolis over the past decade. No one has cared to find out the effect of this atmospheric pollution, SPM levels touching 3000μg /m^3 in certain areas, on the inhabitants of the 'City of Joy.' Incidence of respiratory diseases, asthma and kidney failure is increasing exponentially, the worst sufferers being children and the aged. The state of all other metropolises and urban centres is no better. In fact, New Delhi and Mumbai are constantly vying with Calcutta to attain the enviable position of being the highest atmospheric polluter in the world.

***Bombay riots*:** Riot after riot has broken out in India since independence but none represents so well the despicable role of urban land sharks in instigating communal or ethnic violence as the Bombay (now called Mumbai) riots of 1992-93. Demolition of Babri Masjid at Ayodhya sparked a trail of bloodshed across the subcontinent and Bombay blazed like never before. Dharavi, Asia's largest slum in almost the heart of the urban sprawl, turned into a playground of criminal gangs let loose by the city's land mafia on helpless residents. Hundreds of terrorised families were forced to flee their huts and tenements as fascist goons staged the dance of death in the slum's narrow and winding lanes. Real estate was out to gobble prime land at any cost.

***Ghettoisation*:** Ever-increasing migration, rising unemployment and low income levels coupled with concentration of industries and poor environment management have reduced vast areas of Indian cities into slums. On an average, nearly 35-50% of a city's population live in poor, substandard settlements, tenements, huts, pavements, beside railway tracks, under bridges and flyovers or wherever space is available. Steeped in squalor and devoid of water supply, sewage, drainage or waste disposal, the slums are a hotbed of prostitution, bootlegging, drug-running and other crime. With booming land prices, realtors have set their eyes on slum land and it is believed that they are behind the fires that keep destroying Delhi's slums from time to time. Dharavi in Mumbai, the largest slum in the world, was the scene of largescale violence during the Bombay riots in 1992-93, believed to be engineered by property dealers.

***Hawker eviction*:** Operation Sunshine, West Bengal government's forcible eviction of hawkers from Calcutta's pavements in the winter of 1996-97 without resettlement, has darkened the lives of over 40,000 families, mainly from the low-income groups living in the margins. The action — fleets of payloaders, escorted by armed police, razing hundreds of shacks and semi-permanent structures across the city in the dead of night, often without any warning — was reminiscent of Sanjay Gandhi's bulldozers at Turkman gate in the days of Emergency. The move came in the wake of government's sudden determination to beautify the city to attract foreign investments which has become the backbone of its new industrial policy. It is only a ruse to promote supermarkets and departmental stores and will be a boon to realtors while pushing thousands to a degrading life of unemployment and starvation.

***Heritage destruction*:** Clamour for space due to population pressure, increase in motorised transport, changing lifestyles and apathy towards cultural heritage is creating growing conflicts between traditional environments and modern aspirations in Indian cities. A large number of archaeological and historically valuable architectural landmarks have already fallen prey to the bulldozer to make way for commercial complexes in cities such as Calcutta, New Delhi, Hyderabad, Lucknow, Ahmedabad, Chennai and Mumbai. Even residential townships with open spaces and streets for pedestrians are fast turning into overcrowded business centres with no effort to conserve their historical and cultural ethos.

***Homeless*:** An estimated 30,000 families or 150,000 people live on the pavements of Mumbai, India's commercial capital. About 80% of households in the city or approximately 8m people occupy less than 100 sq. ft in slums, chawls and dilapidated or ageing structures, the remaining 20% living in single-bedroomed apartments that barely meet their minimum needs. The housing sector attracts about Rs24bn ($0.69bn) a year, a sizeable chunk of which goes into the construction of highrise and luxurious apartments in posh localities. The deficit in houses contribute to the galloping real estate prices forcing even the salaried class to move into slums or chawls. Their misery is further compounded by periodic evictions and relocation in areas without civic amenities. The situation is similar in all other metropolises and cities. At the turn of the century, India will be short of 41m houses.

***House collapse*:** Urbanisation spree has led to a clamour for space in the Indian cities, and with it, a boom in the real estate business. A breed of housing promoters and estate developers have arrived on the scene who are corrupt and ruthless to the bone. With their eyes on every bit of open space or green, the fly-by-night operators thrive on the citizen's desire to own apartments. Duping customers of their money, construction on illegal or disputed plots, faulty design, safety rule violation, encroachment on public space and use of substandard material are rampant in the multi-storied and housing complex construction business. In Calcutta and Mumbai, newly-built houses periodically collapse, killing and injuring the occupants, while in Delhi, fires in office highrises and market complexes are not rare incidents. The promoters, in most cases, have gone scotfree.

***Noise pollution*:** Indian cities are among the noisiest in the world. The average ambient noise levels in Calcutta, Delhi and Mumbai veer around 80-100 decibel, almost double the tolerance limit of 45-55. Habitual honking, blaring microphones, factory hooters, machinery, generators, railways, aircraft, television, radio and fireworks make for a cacophony of sounds in urban habitats, be it in residential, commercial or industrial areas. Noise pollution causes not only hearing impairment but also fatigue, hypertension, ulcers and psychological disorders.

***Rickshaw ban*:** With periodic proclamations by West Bengal government to ban man-pulled rickshaws and handcarts from Calcutta's roads, over 100,000 dwellers of of the city, mostly migrants from adjoining states, are constantly under the threat of losing their livelihood. Rickshaws, inseparable from the City of Joy's physical reality and cultural ethos, ensures safe journey for children and the aged and is the only mode of conveyance in areas not served by public transport, especially during monsoon when the streets are waterlogged. It is now being made the scapegoat for the traffic snarls that plague Calcutta's narrow, choked roads and state government, instead of curbing the ever-increasing pressure of automobiles, is aiming its guns on the hapless rickshaw-puller to banish him from the city, with no alternative plan for his rehabilitation.

***Surat riots*:** An orgy of bestial violence was inflicted on Muslims and Oriya migrant labourers in the diamond cutting neighbourhood of Verachaha in Surat city soon after the demolition of Babri Masjid on December 6, 1992. The nexus of diamond merchants, smugglers, realtors and politicians was evident in the brutal attack on poor people who belong to minority

communities and live a ghettoised existence. Surat is the boom town which attracts all types of mercenary businessmen and wheeler dealers.

***Tramcars*:** Even as Government of India is planning to introduce eco-friendly tramcars in 22 cities, city-planners in Calcutta are frequently threatening to phase out its over 100-year-old public transport system that has stood the test of urban chaos. West Bengal government's decision to this effect in the summer of 1996 is surprising especially since it came just after the World Bank largesse for renovating the tramways system. The funds did not go into repairing and relaying of tram tracks and overhead electric lines or in acquiring more cars but a sizable chunk of it went into developing the considerable real estate that the Calcutta Tramways Company owns. Trams are economical to run besides being absolutely pollution-free. Thousands of Calcuttans use the streetcar and the biggest sufferers, if it is phased out, will be schoolchildren and the aged.

***Water supply*:** Water supply in Indian cities has reached crisis proportions. Though 70% of the urban population is said to be covered by municipal water distribution systems, acute shortage has caused water riots in many cities. An iniquitous network — supplying disproportionate water to richer areas while starving the poor — together with bad planning, obsolescence, inadequate resources for modernisation and extension as well as failure to protect sources from industrial contamination have led to the scarcity. Delhi sponges off water from neighbouring states and its pampered elite drowns itself in giant bathtubs for free. The capital's lawns gleam and limousines sparkle with the highest per capita water consumption in the country, while the poor die of thirst. The water supply to the five-star hotels alone is enough to meet the entire daily needs of the city's 1.3m dwellers of slums, a hotbed for water-borne diseases. Water-selling is a lucrative business, and with increasing installations of private water supply networks, lifeline has been cut off from the poor.

Water Pollution

Extensive pollution of water sources through unchecked discharge of industrial effluents and domestic waste into rivers and lakes is fast turning the once water-rich country water-starved. Industries, large and small, line the banks of major rivers and dumping their waste into the water is the cheapest and easiest way of disposal. In the absence of an effective monitoring network, there is no way to ensure that the industries set up effluent treatment plants and the toxic content in the waste is destroying fish and water plants, leaving the waters unfit for any use. Ganga, India's holiest river that once provided succour to millions, is among the most polluted rivers in the world and a project has now been taken up to clean the river. Mired in bureaucratic inefficiency and up against industries unwilling to share the burden, the Rs 10bn ($285.71m) Ganga Action Plan has been unable to rejuvenate even the shortest stretch of the river. With no alternative, people are forced to use the polluted waters for irrigation and their daily needs, even though it poisons soil, causes a wide range of ailments affecting livestock and humans alike, and is a prime source for spreading disease.

***Arsenic*:** Thousands are painfully moving towards death and millions are facing the danger of arsenic poisoning in several districts of West Bengal. The poison is carried by drinking water from deep tubewells, contaminated by the erosion of subterranean rocks. Indiscriminate and unchecked use of groundwater through tubewells has been going on since the early 60s and is encouraged even now. An estimated 34,000 people are suffering from cancerous lung and liver disorders, skin rashes, respiratory problems and heart ailments in Calcutta alone. Not a single arsenic-free aquifer was located in Malda district. The extent of arsenic poisoning is so large that it is likely to soon become one of the world's gravest disasters.

***Betwa*:** Dumping of toxic effluents and burnt residuals by distilleries and chemical industries along with indiscriminate use of fertilisers and pesticides have turned river Betwa in Madhya Pradesh, the lifeline of the historic cities of Vidisha and Raisen, into a death stream. During the monsoon in 1996, nearly half a tonne of fish and hundreds of cattle perished in the stretch between the two cities and the river's water became unfit for drinking. The Betwa is the only source of potable water for over 200,000 people and their plight remained unheeded. The affected women staged a demonstration within the Madhya Pradesh assembly in August 1996.

***Ganga*:** Discharge of industrial effluents, toxic tannery waste and hot water from power plants into the Ganga and its tributaries has polluted India's most venerated river almost beyond redemption. Being the lifeline for more than half India's population living north of the Vindhyas, the Ganga Action Plan was initiated with great fanfare in the mid-80s to clean up the river system. However, Rs3.5bn ($0.1bn) was washed away in the first phase of the project. Most of the high-investment waste treatment systems in this phase had either not been constructed or not commissioned when phase II was to be launched. Supreme Court issued a directive to halt disbursement of Rs4.2bn ($0.12bn) earmarked for phase II. The plan itself is highly unrealistic without a holistic perspective. Funds for the Ganga Action Plan and similar projects will continue to be washed away if environmental concerns are not integrated into planning for the mushrooming urban and industrial centres that are placing an unbearable burden on the once-clean rivers.

***Hossainsagar*:** Unchecked discharge of industrial and domestic waste has turned Hossainsagar in the heart of Andhra Pradesh's twin cities of Hyderabad-Sikandrabad into a killer lake. The 560ha aquifer was once the cities' source of drinking water; today chemical effluents are playing havoc with the lake's rich storehouse of flora and fauna while filling it up with silt and water hyacinths. Similar has been the fate of the nearby Mir Alam and Musi tanks.

***Naini Lake*:** Tourist influx, population pressure and unplanned urbanisation have vitiated the waters of Naini Lake to such an extent that it is now unfit for even cattle. The lake, which lends its name to the hill resort of Nainital in Uttar Pradesh, is choking to death with sewage and municipal and domestic waste. The pollution is so great that it has robbed the lake of its natural waste recycling capacity, hastening its inevitable death.

***Renuka*:** Dams for hydel power, largescale mining and road construction is destroying the picturesque Renuka Lake in Himachal Pradesh. The lake, a habitat for fish, tortoise, crocodile and other aquatic creatures, is now shrinking due to the growth of elephant grass and heavy siltation from soil erosion. The local people are losing their livelihood as the region's forest wealth is dwindling at an alarming pace.

***Sundarbans*:** The world's richest mangrove swamps in the wildly beautiful Sundarbans, the last sanctuary of the Royal Bengal, are under siege. The spectre of the Minamata syndrome looms large with 397t sewage from Calcutta and 21,660ml of industrial effluents from Haldia polluting its rivers every day. The river waters show mercury sedimentation levels of 0.121µg /kg, arsenic sedimentation of 4.81µg /kg besides high presence of nitrates, phosphates, lead and other heavy metals. There is no move to control the pollution which, if unchecked, may completely destroy aquatic and human lives in the region.

***Tungabhadra*:** Discovery of shoals of dead fish in March 1994 on the banks of river Tungabhadra in Karnataka's Dharwad district brought to the fore the issue of serious pollution of the river's waters. The poisoning is the result of relentless discharge of untreated effluents by the two privately-owned polyfibre and silk manufacturing factories located nearby. Chemical vapours released into the air by these units have been causing skin eruptions,

boils, nagging cough and persistent stomach ache among villagers living in the area. A case filed against the polluting units is pending in court.

Waste Disposal

Unending advance of urban sprawls combined with the growth of a consumer society have made solid waste management an unenviable task. Civic authorities, constrained as they are by funds crunch and an inadequate and inefficient infrastructure, have had to fall back on the unorganised scavenger force, exposing it to life of dirt and disease. Little effort is being made to develop the natural disposal methods or recycling devices which could have transformed waste into gold.

***Garbage*:** Nearly 2500mt garbage, comprising household rubbish, office waste, market leftovers and hospital disposables, accumulates in Calcutta every day. A workforce of over 20,000 sanitary workers, armed with just 400 vats and 1000 trucks, is employed by the corporation for garbage collection and dumping on the lowlands on the city's eastern periphery. An estimated 40ha landfill is required annually for this colossal solid waste, something that the congested metropolis is unable to provide. A viable solution is recycling through compost manufacture, but little attention has been given to the issue. Neglect of natural recycling is costing the exchequer nearly Rs100m ($2.87m) every year. Calcutta, of course, has a reasonably good record in solid waste management in recent years. The story in other Indian metropolises, cities and towns is far worse.

***Recycling*:** Thousands of ragpickers in every city rummaging through roadside refuse dumps every day for tangled wire, cardboard, bottles and caps, pens and toothless combs earn a living by feeding the gigantic Indian recycling industry — the largest in the world. This teeming, marginalised and unorganised sector, working through several intermediate stages, rakes in enormous profits for retailers and affluent businessmen. But those who collect, sort and carry this waste for a pittance are exposed to serious diseases and hazards for which there is no compensation. Labour laws do not apply, and an unconcerned government looks away as the ragpickers — a sizeable portion of children among them — are treated as slaves. In recent years, the relaxation of import regulations has made the recycling business even more lucrative as many countries find it cheaper to import scrap to India rather than invest in waste disposal.

Wetlands

No proper study of the worth and the extent of degradation of wetlands has yet begun. The country's waterlogged wealth, therefore, remains grossly underutilised. To add to this, myopic social and economic perception is marginalising the very people who draw sustenance from these valuable and complex natural resource systems. Marshes, swamps, lakes, ponds and fertile mudflats are falling prey to the unscrupulous designs of realtors and fishfarmers, inappropriate, profit-all aquaculture technology, and government apathy. As air and watercycles get more and more disrupted, a huge storehouse of flora and fauna faces extinction. These wetlands are not only vital for their biodiversity; they ensure the survival of millions of people. The management of these wetlands, too, is mired in controversy with officials and experts concerned divided in two distinct groups, one that myopically views them as waterlogged land or a single economic resource activity and the other believing in an integrated approach that includes the local people and their traditional methods of conservation.

***Calcutta*:** Large tracts of the ecologically unique wetlands on the eastern fringes of Calcutta are up for grabs. Notwithstanding a court ban, construction

of a World Trade Centre, science city, leather complex, electronics centre, entertainment park, film institute, five-star hotels, state-of-the-art hospitals and posh housing estates have spelt boom time for landsharks and realtors. But thousands of fish farmers, eking out a livelihood from the innumerable ponds, are heading for joblessness and despair. The innate propensity of the wetlands to maintain ecological balance is at risk as birds and aquatic organisms are being hounded by the pressures of urbanisation. A natural purifier of organic waste, the wetlands is a goldmine for pisciculture and vegetable farming, providing Calcutta with 150t green vegetables and 20t fish every day. It guarantees the city's survival by cleaning its polluted air and preventing waterlogging in the monsoons. In the last 15 years, the wetlands have shrunk from over 7000ha to around 2500ha.

***Kabar tal*:** The developer-politician nexus is hungrily eyeing Kabar Tal, a 7500ha lake in Begusarai district that is Bihar's only wetlands of 'national importance.' Plans have been finalised to drain the lake and convert it into agricultural land, confirming fears that the water body will survive only till funds are found to execute the project. Government of Bihar is under pressure to dry out almost all the 400,000ha wetlands in the state, a bleak prospect that is as tragic as the fast-shrinking of wetlands in West Bengal, Bihar and the Brahmaputra valley.

***Mangroves*:** Some 68% of India's 425,000ha mangroves is under severe threat due to conversion to agricultural and urban land, clearfelling, siltation, diversion of tidal flows as well as pollution by domestic sewage and industrial effluents. Now there is the added burden of commercial aquaculture that may spell the eventual doom for these unique ecosystems. In terms of biodiversity, the loss is incalculable. for the mangroves are the habitats, breeding grounds and nurseries of over 2500 species of fish and 263 of birds, along with invertebrates, plants and fungi. The loss of livelihood of the dependent local population may well lead to dangerous social conflicts.

***Mudially*:** A sustainable eco-friendly nature park was under attack at Mudially in Calcutta's outskirts. The internationally-acclaimed park, created on 60ha marshy land along river Hooghly by a fishermen's cooperative, produces fish by trapping wastewater nutrients that sustains 400 families, treats 25ml sewage daily protecting the river from pollution, provides a green patch in an industrial area, and has become a waterfront recreation centre-cum-bird habitat. Calcutta Port Trust, original owner of the swamp, wanted its rejuvenated land back to construct a 5-star residential complex in the area. The fishermen launched a valiant struggle to save the unique waterbody. The impasse remains.

Wildlife Decimation

It is open season for the anachronistic remnants of royal gamehunters and lowly poachers. Conventional laws of illegal trade in wildlife are so porous, and selling tiger skin and bones, rhino horns, ivory and musks across the Indian border have become so lucrative, that it is virtually impossible to contain the rampant smuggling of species and wildlife from the country. Added to this are swift disappearance of habitats — deciduous jungles, grasslands, wetlands, mangroves — due to indiscriminate felling, largescale mining, industrial development and construction boom. Many exotic and rare wildlife species have become extinct and many more are endangered. Animal behaviour is showing abnormalities in a bid to adapt to the changing environment even as humans are engaged more and more in conflict with wildlife.

***Bird trade*:** Every Sunday, hundreds of caged birds are displayed on Calcutta's pavements for sale. Alexandrian or rose-ringed parakeets, hill mynas, red whiskered bulbuls, Jerdon's chloropsis, golden oriole, rosy pastor, black headed sibia, red-headed merlin and other

protected species are peddled right under the nose of wildlife law enforcing authorities. Mongoose, langur and turtle also find their way to these bird markets. The booming bird trade is having a negative impact on natural pest control and upsetting the ecological balance in wooded stretches.

***Butterflies*:** The seizure of 2000 butterflies and moths from a couple of foreigners at Delhi airport on August 15, 1994 brought home the immensity of species smuggling from India. The Trade Record Analysis of Flora and Fauna in Commerce (TRAFFIC) has also gathered evidence of several groups of insect collectors from Japan, France, Norway, Germany and Italy operating in the high-altitude areas between Manali and Leh. Agricultural scientists do not rule out the possibility of the insects being smuggled out of the country and used in biological warfare by reintroducing genetically altered varieties into the country. The many lacunae in the Indian Wildlife Protection Act prevents monitoring of such illegal exodus of valuable species.

***Elephant vs. man*:** The Asian elephant, man's best friend down the ages, is facing an uncertain future. Ivory poaching has drastically reduced the tusker population, the sex ratio being 1:100 in some sanctuaries. At the same time, shrinking elephant habitats and corridors through accelerated development and encroachments is leading to growing elephant-human conflicts. In January 1994, a 60-member herd straying to the plains in search of food from the Dalma wildlife sanctuary in southwest West Bengal, travelled through jungles, villages and towns of Bardhaman, Bankura, Hooghly and Medinipur districts and was finally turned back from Chinsura, a stone's throw from Calcutta. Villagers, harassed and frightened by the hungry beasts, chased them throughout, having little sympathy for them. Pressures of modern life is reducing the farmer's traditional tolerance of wildlife, resulting in unnatural elephant-human conflicts in which every year crops worth millions are damaged, over 200 people are killed and, often, a few of the mammoth beasts lose their lives.

***Parakeets*:** Indiscriminate use of chemical pesticides in Hooghly, Bardhaman, Medinipur and Bankura districts of West Bengal are threatening the survival of a large number of wild birds, especially the rose-ringed parakeet. With the introduction of intensive cropping in these areas, prophylactic pest control methods have become a common phenomenon and the increasing use of organophosphorus fertilisers during the parakeets' reproductive activity is causing sterility, even death. The parakeet population has dwindled substantially in the last few years.

***Rhino*:** Hundred years ago, the one-horned rhinoceros enjoyed a vast habitat stretching from the foothills of Hindu Kush mountains to Myanmar, including Nepal and Bhutan. Today, the magnificent pachyderm is restricted only to isolated patches of jungles in Jaldapara in West Bengal and Kaziranga in Assam, but even there its survival is under a shadow. Loss of habitat from reclamation of swamps, excessive grazing, repeated forest fires and floods together with poaching for the prized horn have acutely depleted the rhino population in India. An average of 50 rhinos are lost to poachers every year and an equal number in floods.

***Shells & skin*:** Calcutta and Chennai have turned into the main transit points for smuggling of turtle shells and crocodile skin to far eastern countries. Thousands of quintals of gangetic soft-shelled, star and terrapin varieties of turtle, trapped from all over the country, as well as crocodile and snakeskins, parrot or peacock feathers, quail meat and even jackal heads find their way to Japan, China, Taiwan, Singapore and Myanmar where they are used as delicacy, drugs, aphrodisiacs, decorative items and curios. Indian wildlife skin, shell and meat have a lucrative international market and such illegal transactions fetch about Rs100m ($2.87m) a year. While the forest-

dwelling hunter receives a meagre payment for his skill, the touts manage to rake huge profits.

***Siberian crane*:** India's winter visitors have virtually stopped coming. About 30 years ago, over 200 Siberian cranes used to come to the Ghana national sanctuary at Bharatpur, Rajasthan. Today, the number of this rare migratory species has come down to less than five. Shrinkage of wintering ground, hunting and poaching along the migratory route, uncertain political situation in Afghanistan and Russia, and a devastating fire in the sanctuary in 1991 are cited as the main reasons for this drastic drop in crane population.

***Tiger poaching*:** The king of the jungle is no longer safe in India, a quarter of a century after the launching of Project Tiger to preserve the species as a national heritage. Rampant and unchecked poaching of the majestic beast for its upmarket uses abroad has reduced the tiger population from an estimated 4300 in 1989 to an appalling 2500 in 1994 and it has vanished from the Dudhwa National Park on the India-Nepal border. Tiger skin, bones, whiskers, eyeballs, noses and bile find their way mainly to China, Taiwan, Hong Kong and Singapore for gourmet and curative purposes. Tiger bones cost around $225 a kg in China and after being processed and powdered fetch up to $500 per 100g. Tiger penis, much in demand as a soup delicacy, costs $1700 per piece, eyes $170 a pair and a bottle of tiger blood $57. Poaching has adversely affected forest ecology because of disruptions in the natural flow of nutrients.

***Tiger vs. man*:** Incidents of predatory animals, especially tigers and leopards, straying into villages for cattle or humans are becoming frequent in the reserve forests. Human intrusion, commercial forestry and overgrazing along with forest fires, impoverished water sources and soil erosion are steadily decimating the core area, the usual predator habitat. In the absence of clearly delineated buffer zones, the wild animals are succumbing to outside pressures, often generating conflict between villagers living in the forests' periphery and tigers and leopards finding themselves out of their preying areas. Government remains apathetic and compensation paid for the death of men or loss of cattle is usually inadequate.

CASE STUDIES

Narmada Valley Project

Greed Bulldozes Justice

It was perhaps the most gruelling train journey we had ever undertaken. Night melted into day, day dissolved into night, as the diesel-run caterpillar — the most visible symbol of progress left behind by the British — sometimes crawled, sometimes hurtled, along the 2000km east-west corridor of the country.

We were on our way to Manibeli, a remote tribal hamlet on the Maharashtra shores of the Narmada, one of the first to be devoured by the backwaters of the Sardar Sarovar dam. Medha Patkar of the *Narmada Bachao Andolan* (NBA) — Save Narmada Movement, had invited us to see for ourselves the peaceful do-or-drown battle of the villagers trying to save their life and culture from the bulldozer of 'development.'

Barely a couple of hours after the last glimpse of Calcutta's Howrah bridge had faded, our train entered the vast tribal heartland of India; and the passing view seemed a fitting prelude to

what awaited us at journey's end. One by one flashed by Kharagpur, Jamshedpur, Rourkela, Bilaspur, Bhilai: mammoth industrial townships with their sprawling plants, posh market and office complexes, tree-lined avenues — the 'temples of modern India.' Along the rail tracks cutting through the backyard was the other reality: dingy shanties black with smoke and grime, open drains spilling muck on crumbling lanes, runny-nosed children and piglets scavenging through rubbish heaps.

The townships were like islands amid endless stretches of green fields, dense forests, small hills and dancing streams. Here and there were tribal settlements: tiny hamlets with their spotlessly clean and swept courtyards; men and women working in the fields, cattle grazing in the gentle meadows; images of a hard and simple way of life.

We, who were citybred, were confused. Rural India was poor and backward, we had always been told; the miracle of industrialisation would change their lives. To what end?, we asked ourselves.

The doubts and contrary sensations reappeared when, two days later, we took a bus from Vadodara in Gujarat and reached Kevadia, a brash new township that has sprung up in the vicinity of the Sardar Sarovar dam, now under construction. Our travelling companion, Irfan Engineer, an activist working among the tribals in Gujarat's Dang district, told us that the township had come up on land belonging to villagers of Kothi, Rajpipla and three other villages.

Till barely five years ago, they used to cultivate the land here and draw sustenance from the river and forest. As many as 700 families were ousted when Kevadia was built and the few who remained were driven to the edge. Women, who once tilled their own land, now work as domestics in the households of the encroaching *babus* from the city, while their children slave in the mushrooming eateries and teastalls.

We chatted with Balibehn over a cup of tea in her hut at Kothi. She is a woman of considerable charm and determination. 'The government took away our land the year I was married,' she recalls. That was some 25 years ago. 'The little compensation we got has long since been spent.' Her husband and son cannot find any other job, so they work at the dam site. Balibehn leads the women of the village in protests against the project. 'The Kevadia usurpers have running water in their homes,' she says. 'But in 40 years our village didn't get a decent tubewell.'

The *raison d'être* of the fight at Manibeli was now becoming clearer. In Vadodara the night before, we had learnt of the brutality unleashed by the Maharashtra police on the activists and villagers. Regular raids and indiscriminate arrests, savage beatings and even molestation of women had become the order of the day. We were filled with apprehension as we set out on foot on the last lap of our journey, across the construction site of the dam at Navagam.

The sheer size of the structure and scale of operations, scurrying dumpers and earthmovers, giant cement crushers, piles of twisted steel and rusted iron, towering cranes, ropeways carrying and dumping tonnes of material — all of it left us stunned. How could the feeble voice of a handful of activists and villagers take on the might of this concrete monstrosity, especially in the face of severe state repression?

The trudge seemed never-ending. The noonday sun beat down mercilessly, burning sand blistering our feet. There was not a patch of shade, no trees to shelter under. They had all been cut down by the forest department to extract whatever it could before the land was lost forever to the swirling waters of the dam.

Just when we felt we could not walk a step further, we saw the river ahead, sparkling blue under the cloudless sky. We ran down and sank to our knees to savour its life-saving coolness. This was the holiest of the holy rivers of India. All

sins are washed away bathing thrice in the Saraswati, seven times in the Yamuna, once in the Ganga, but the mere sight of Narmada is enough. We remembered the legend.

'Rama,' Irfan called out. We were on the Gujarat side of the river and had to cross over to Manibeli. A few huts nestled among the hills and the steeple of the famous Shulpaneswar temple rose against the skyline on the Maharashtra side. 'Rama,' Irfan called again, louder. Something moved under the tarpaulin sheet on the other bank. '*Bandh nahi banega* (The dam will not be built),' cried out Irfan, '*Koi nahi hatega* (No one will move),' came the rallying cry from the other side.

'Rama has been arrested. He was dragged out of the hut and beaten up,' Lalji the boatman said, helping us into his boat. 'They smashed our *dhol* (drum),' he burst out suddenly. We listened in silence, his words unfamiliar to us Bengalis, but the meaning unmistakable.

Lalji rambled on. 'No one can evict us. I don't want to go away. This is our land.' As if on cue, we heard the distant cry reverberating in the hills: '*Jungle, zamin kimri che? Hamri che, hamri che* (Whose is the forest and the land? It's ours, it's ours).'

We felt our exhaustion melting away after we walked the dry riverbed of the Devganga, a tiny tributary of the Narmada, and climbed up a short slope to reach *Narmadai*, the first hut in the village facing the dam. That it was the headquarters of the Andolan was evident from the blue flag fluttering atop a giant *rani* (a kind of berry) tree in the open space in front. Children were prancing under the tree, vying with some goats for the tiny, juicy fruit strewn around and constantly dropping from above. Among the playful children was a sari-clad figure, our hostess, who came up to greet us warmly.

Revived by hot tea (black, with *gur*) we accompanied Medha up a hill. Some villagers were erasing the numbers forest department officials had carved on the trees prior to cutting them down. Medha joined them, raising slogans like the one we had heard on the riverbank.

Their work done, the villagers gathered together for a meeting. They were few in number for 46 of them had been arrested two days earlier. Visitors from many parts of the country had reached Manibeli and Medha introduced them all.

The talk switched to strategies to combat the police who were camping in the village. Some of the villagers were in a militant mood and wanted to take up bow and arrows against baton and bullet. The reason for their anger was the destruction of the community *dhol*, an integral part of their lives and which cost more than a buffalo. They had quietly submitted to beatings, peacefully allowed arrests; but the loss of their drum was more than they could take.

The sun was dipping behind the horizon when everyone walked downhill in a procession. The river was bathed in the fiery glow of twilight. Lalji ferried us across to Vadgam, venue of another meeting. Some families of this Gujarat village who had moved to a rehabilitation site had returned a few days ago.

'The tinshed we lived in was worse than our barn,' said Shankarbhai Tadvi. 'The land we got in Malu was not fit for cultivation and the *patel* (landowner) took away whatever little we could grow.' Pointing to the rolling hills, he added: 'There wasn't even any grassland for our cattle.'

Over the next few days we discussed many things with our hostess: tribal life and development, dwindling forests and drying rivers, economic reforms and multinationals, action plan for people's movements, her worries about the coming monsoon, the state of the world, even Marx and Hegel. In the past seven years, Medha has become one with the movement in the river valley and the tribals no longer look upon her as an outsider. 'It was difficult,' she says, with her never-fading

smile. 'It took me two years getting to know all the Madhya Pradesh villages threatened by the dam. And another two to learn Gujarati.'

What is it that has kindled such passion in her for a river, we wondered as we lay under the starlit sky. Legend has it that Narmada resisted the advances of a thousand gods to flow on, a virgin. Will the river remain pure forever or will the ravages of progress despoil her innocence? Our eyes closed as we sought the answer.

* * *

The arrested villagers and activists began to trickle back. Released on bail, they had to travel 90km without food or money. Gathered under the *rani* tree, they gave heart-rending accounts of their humiliating experience to a five-member fact-finding team led by a retired judge. The baton wounds they showed would soon heal; but it was apparent from their anger and anguish that the scars inflicted on their dignity would take a long time to fade. Our liberal conscience was outraged at this gross violation of human rights.

'Human rights?' bellowed a bearded greying man. 'What does human rights mean when they are being driven out like cattle from their land and forest?' Switching to Bengali, he continued, 'It is their right to life and livelihood that they're fighting for.' Ramesh Billorey had studied and taught in Calcutta for many years; he now works among the tribals in the Khandwa region in Madhya Pradesh where the Narmada Sagar dam is expected to come up.

We were keen to know more about the Narmada Valley Project. Our eagerness spurred Billorey to take off on his hobbyhorse.

* * *

The Narmada, unlike the other major rivers of India, flows westward into the Arabian Sea. Rising in the Amarkantak plateau of Maikal hills in Madhya Pradesh, the 1312km river flows between the Vindhya and Satpura ranges that form the great divide between the northern Gangetic plains and the southern peninsula.

Fed by 41 tributaries, its waters — sometimes swift-flowing, sometimes placid — wind through fertile plains, thickly forested hills and narrow rocky gorges. Some 21 million people dwell in this enormous basin covering 98,796km^2. Around 80% of the population, with a sizeable number of tribals, live in villages and are dependent on agriculture and forests. The river receives an annual rainfall of 117.8cm, more than half of it in the rainy season.

The idea to tame Narmada and use its surplus monsoon waters for irrigation and power was mooted way back in the late 40s. The largest river valley project in the country, it envisaged construction of 30 major dams — 10 on Narmada and 20 on its tributaries — as well as 135 medium and 3000 minor dams. Of these the two mega-dams, Sardar Sarovar at Vadgam on the Gujarat-Maharashtra border and Narmada Sagar at Punasa in Madhya Pradesh further upstream, were to feed a huge reservoir between the Vindhya and Satpura ranges.

The main aim of the Narmada valley project was to irrigate 5mha of land in Gujarat, Madhya Pradesh and Rajasthan and generate 2700MW power. The objective was to prevent the loss of monsoon waters, check floods and supply water for industrial and domestic use. It was expected to provide employment to thousands and benefit 11.5 million people.

For years the project was kept in abeyance for lack of funds and discord among the states on sharing of water, power and irrigation benefits. There were also conflicting views about the river's actual water flow as experts had come up with significantly different yield estimates. Then in 1969, the Narmada Water

Disputes Tribunal (NWDT) was set up to find a solution. Its highly controversial report, based on a water-flow estimate of 28m acre-feet, was submitted eight years later and work began in earnest. Three of the major dams, Tawa, Barna and Bargi, are complete, while Sukta and Kolar are nearing completion.

The Narmada Sagar and Sardar Sarovar dams were to be built in tandem but the former, estimated to submerge 90,000ha, never got underway, being enmeshed in controversy from its very inception. Construction of the latter, however, was taken up with great zeal at the instance of the Gujarat government of Chimanbhai Patel. His efforts bore fruit when a loan deal of $450m at an annual interest rate of 10.75% was clinched with the World Bank in May 1985. Japanese government, too, came forward with an offer of a conditional yen loan equivalent to $150m. The project cost, originally estimated at Rs64.04bn ($1.83bn) has been rising steadily and may go up to over Rs340bn ($9.7bn).

Situated 95km upstream from the Gulf of Khambhat, Sardar Sarovar was conceived as an integrated project with a 138.6m-high dam and network of over 43,000km canals, branches and distributaries. It would be the world's second-largest concrete gravity dam, and its main canal the largest in discharge capacity at 40,000 cusec.

According to the Sardar Sarovar Nigam Limited, the apex body overseeing the implementation of the project, the dam will bring water to 1.8mha in Gujarat, specially to 40 million people in drought-hit Kachchh and Saurashtra, and to 75,000ha in Barmer and Jalor districts of Rajasthan. It will also generate 1450MW power for industries in Bharuch, Vadodara, Kheda and Ahmedabad districts.

To reap this benefit, the Narmada river basin will have to sacrifice 37,000ha forest and agricultural land, mainly in Madhya Pradesh, at a maximum water level of 140.21m. Some 67,000 people in 237 villages (72% scheduled castes and scheduled tribes) will lose their land and have to be rehabilitated.

* * *

'The government is forced to keep on increasing the number to be displaced by Sardar Sarovar. Today 120,000 are identified as project-affected,' Billorey said, 'but there are at least 230,000 more affected or threatened people who can't even claim compensation.' They include people in six villages ousted when Kevadia colony came up in 1960-61, over 80,000 people to be removed for the main canal only, 4200 tribals of 108 villages to be evicted for a wildlife sanctuary, 25,000 fishermen whose livelihood depends on the Narmada's bounty, hundreds who will lose their grazing commons, and thousands to be displaced by compensatory afforestation, power sub-stations and infrastructure setups ... the list can never be complete. 'And this does not even take into account the secondary displacement of farm labour on land for rehabilitation,' Billorey added.

'Rehabilitation?' burst out Irfan, who had been silent till now. 'Do you know, Rs330m ($9.43m) has gone into building Kevadia for just 5000 officials and they plan to spend less on rehabilitating 67,000 oustees?' He went on: 'And where will they be rehabilitated? The farmers of Nimar thrive on horticulture. Where will they grow their flowers when they're moved out from the fertile plains?'

In the project-affected areas of Madhya Pradesh, Maharashtra and Gujarat all that the governments have done till now for resettlement is to forcibly evict people and relocate them arbitrarily: on barren or waterlogged uncultivable plots, far away from their own land and forests, scattered over great distances without a thought for their community life and cultural fabric. 'No village has been fully and satisfactorily resettled, many have not got the land, facilities or

compensation promised. In any case, where is the land for rehabilitation on such a massive scale?' Irfan dismissed the resettlement scheme with a shrug.

The fact-finding mission had wound up and people began drifting towards the huge log that was our bench. The giant cranes at the dam site loomed menacingly above the hills as we sipped tea and mulled over the mammoth Sardar Sarovar project and its life-endangering implications.

Is there a grand design behind all this? Why does the World Bank continue to give aid, despite its own appraisal team's doubts about the extent of displacement and resettlement measures? What was the reason that made Rajiv Gandhi bless the project in 1987, sweeping under the carpet all unresolved questions and even the reservations of his own ministry of environment? What was behind Gujarat government's unseemly haste in beginning work? Will Sardar Sarovar really be the 'Lifeline of Gujarat,' as hoardings proudly proclaimed all along our route?

'That's all rubbish,' scoffed Medha, joining us for a while. 'It's only to fool the people.' But won't it irrigate 1.8mha in the command area and provide water to 8000 villages and 131 industrial units and towns? 'The command area potential has been grossly exaggerated. Independent surveys are saying that just 42-50% of what they're claiming will be irrigated, and half of it is prone to waterlogging,' she explained. With such a huge spending on the project, the per hectare cost of irrigation works out to Rs100,000 ($2857.14), the highest-ever in the world. 'That speaks for the project's efficiency and viability,' she added.

But what about greening of Gujarat's drought-hit areas? 'According to the government's own estimates, between 5-79% of just 13 out of 69 *talukas* (blocks) in Saurashtra and Kuchchh will receive water, and that, too, only in the monsoon months,' Medha shot back. And this boon, instead of enriching, will increase the salinity of the soil due to seepage of seawater. 'And how absurd! They themselves admit water will get there only in the year 2025.'

So, is power generation the only gain from the dam? 'Even there, generation is projected to be less than a third of installed capacity. And once waters are released into the canals, who knows? They may not be able to produce even 50MW,' Medha said. Even if generation is cent per cent, it will still not fulfil the power requirements of irrigation and drinking water schemes. Power consumed will be much more than power produced.

But then why is the dam being built? Won't irrigation help anyone at all? 'These areas are already prosperous and water-rich. The additional flow of water will only help the shift to cultivation of cash crops like sugarcane and tobacco,' she went on. 'Who do you think will benefit? Asia's sugar and liquor barons, the multinational seeds, fertiliser, pesticide, agro-machinery companies.'

They will share the booty with rich farmers controlling the massive milk cooperatives of Kaira, Mehsana and Vadodara, the Ambani industries and the public sector IPCL whose petrochemical project at Hazira is desperate for water, construction companies and their sub-contractors, the proposed five-star hotel chains in the Ahmedabad-Vadodara-Surat belt, government departments dealing with civil works and power, Indian and foreign agencies providing technical support ...

The beneficiaries were named. But who was paying the price? 'Over 350,000 people who will be dispossessed; 40,000ha of their forests and agricultural land that will go under.' replied Medha. As also will be harmed the famous Narmada crocodile that we wishfully espied on every underwater rock of the pre-Cambrian and paleozoic geomass; the renowned *hilsas* that we were longing to taste; and the *rani* tree that we already looked upon as our refuge.

'You may not see that the next time you come,' said Medha, pointing to the Shulpaneswar temple. 'The Hindu fundamentalists are making so much noise about

the Ram Mandir in Ayodhya. Have they ever given this a thought?' was her parting shot. Shulpaneswar is considered the holiest of the thousands of shrines that have existed in Narmada valley since the ancient and medieval ages. Last monsoon the waters had reached its steps.

Sardar Sarovar waters is set to obliterate the most ancient peoples of India and their unique way of life. The Tadvi, Bhil, Bhilala, Gond, Kol, have lived for centuries in complete harmony with the forests and hills on the banks of Narmada. Their ancestors cleared forests, improved soil, domesticated animals and settled villages. It is this very land they till, living by what they grow. They use their own seeds and manure, the rains rejuvenate their fields, the forest gives them fuel, fodder and wood to build their houses. They know every tree, shrub and herbs, they know their uses. The river valley is their home and they will not leave it till they drown.

Their struggle has today become synonymous with the struggle for the right to life and livelihood against marginalisation, colonisation and the dehumanising path of 'progress' we have chosen for ourselves. Narmada might claim Manibeli this monsoon; but the spirit of the people is sure to survive to carry on their battle and spread it across the nation and beyond.

Perhaps then will stop the destructive march of 'development' that we once again saw on our return journey — from Bhilai to Kharagpur. And to Calcutta.

This is a revised version of an article written in the summer of '92. In the last five years there have been many ups and downs in the people's struggle against the Sardar Sarovar dam and the situation has now reached a critical phase. The main developments are chronicled here.

***Morse panel report*:** In September 1992, World Bank's Independent Review of the Sardar Sarovar Project (SSP) is made public.

In 1990, the Bank had acceded to the demand of human rights and environmental groups to review the project. The outcome was the appointment of the four-member Independent Review headed by former UNDP undersecretary-general Bradford Morse. The review team, which visited the project-affected areas, talking to oustees and officials alike, is convinced that the project is untenable.

'We think the Sardar Sarovar projects as they stand are flawed, that resettlement and rehabilitation of all those displaced by the projects is not possible under the prevailing circumstances, and that the environmental impacts of the projects have not been properly considered or adequately addressed,' its report states.

Regarding the Bank's own role, it comments, '... the Bank shares responsibility with the borrower for the situation that has developed.'

***India terminates deal*:** In November, Government of India decides to pull out of the credit and loan agreement with World Bank and announces it will not claim the final instalment of $170m. The move releases government from the conditionalities on resettlement and environment laid down by the Bank.

To make up for the financial shortfall, SSP is declared a 'national project' and equivalent funds from the 8th Five-Year Plan is offered.

Gujarat government, determined to go ahead, floats Narmada bonds to raise funds through public issue.

***Fast-unto-death*:** In June 1993, Medha Patkar goes on a fast-unto-death in Mumbai, demanding a review and a halt to forcible evictions in Madhya Pradesh and Maharashtra.

She is arrested and force-fed in hospital, but succeeds in making Government of India agree to discussions on the review's terms of reference.

The dam height reaches 61m. Manibeli and neighbouring villages go under the swirling backwaters and Shulpaneswar temple all but disappears. Villagers refuse to move out and are forcibly dragged to higher ground.

***Jal samarpan*:** NBA sets August 6 for *jal samarpan* (sacrifice by drowning) as no review committee is formed. Medha Patkar is arrested on the eve of action day but, in a last-minute turnaround, Government of India announces a review.

***Review panel*:** A review committee is constituted with Jayant Patil, member, Planning Commission, as its head. It is asked to present its report within three months.

Gujarat government moves High Court, seeking anticipatory ban on publication of the report.

***Dam height*:** Congress ousts BJP in the November elections and Digvijay Singh becomes Madhya Pradesh chief minister. The inter-state dispute over dam height and sharing of waters takes a new turn.

As Madhya Pradesh is slated to lose the maximum land from submergence and has to rehabilitate the largest number of oustees, Singh suggests lowering of dam height from 138.6m to 132.89m that was originally mooted by NWDT and later raised for the power component. He even offers to give up part of his state's share of power to Gujarat. Height lowering will save 38,000 people from displacement and 10,000ha from submergence. The environmental fallout will also be less. Gujarat refuses to budge.

Government of India's Ministry of Environment and Forests orders halt to construction due to failure in meeting environmental provisions on the basis of which conditional clearance had been granted.

***PM's intervention*:** In January 1994, Gujarat government assures Prime Minister P V Narasimha Rao that it will speed up resettlement and compensatory afforestation. Rao, in turn, announces construction will continue. Maharashtra seeks release of 1500ha additional forest land for resettlement. Rao orders denotification of reserved forests for the purpose.

On February 17, Gujarat chief minister Chimanbhai Patel, who had staked his political career on the SSP, dies. At his ash immersion ceremony at Kevadia colony on March 1, his widow and member of Parliament, Urmilaben Patel, pledges that construction will continue.

***Sluice gates' closure*:** On February 23, construction sluices are closed without warning and construction of spillway blocks is restricted. A number of villages are submerged.

NBA serves legal notice against Gujarat, arguing that the action violated the Supreme Court directive on a six-month notice before evacuation. The affected villagers had earlier obtained a stay against forcible eviction.

The NBA plea not to close the sluicedoors is turned down by Ministry of Water Resources. The dam continues to rise piecemeal with different blocks along its spillway reaching different levels.

***Public dharna*:** Unprecedented rains leads to severe floods in July, causing untold misery to the people in the reservoir area. When the villagers refuse to move from their homes, they are arrested and subjected to inhuman police repression.

NBA activists and the flood-affected hold a public dharna in Mumbai, demanding compensation and reappraisal of the entire project. Maharashtra chief minister Sharad Pawar invites Patkar to talks but refuses compensation outright.

Stilling basin damage: The uneven contour of the dam due to different levels of spillway blocks causes water to cascade onto its base with greater force during the September floods, damaging the stilling basin. Dam Safety Panel confirms the damage and predicts its recurrence.

Indefinite fast: From October 18, tribals and peasants begin to converge on Bhopal, capital of Madhya Pradesh, demanding halt to construction. Digvijay Singh meets NBA leaders twice but states that construction will stop only after the dam height reaches 80.3m as sought by Gujarat. On November 21, Patkar and three others start an indefinite fast in protest and demand release of the Jayant Patil committee report.

On December 5, an all-party Madhya Pradesh legislators' committee begins its tour of rehabilitation sites in Gujarat for the oustees of their state.

Court directive: On December 13, Supreme Court orders release of the review report on which a stay was obtained by Gujarat. It also directs that the states involved should file their responses by January 1995.

MLAs' report: On December 14, the Madhya Pradesh legislators' report is tabled in the Assembly. It reveals that only 2% of the over 33,000 families in the submergence areas in the state have been rehabilitated, most of them in 'waterlogged, amenity-less, barren, waste, fallow land ... (where) forest produce and grazing land is scarce.' The report seeks to stop work on the dam.

The indefinite fast is withdrawn on December 16.

Patil report: The Jayant Patil report finds several anomalies in project implementation and observes that many studies and action plans — on proposed benefits, hydrological, environmental and rehabilitation aspects — are still to be completed. It suggests reordering of priorities for water-sharing in view of the conflicting claims on water yield. Seeking accurate information on the number of beneficiaries and the displaced, it calls for alternative cost-effective approaches to watershed management.

Supreme Court finds the report 'disquieting' and requests the Patil committee to continue and collect more data.

Comprehensive review: In January 1995, NBA petitions Supreme Court for a comprehensive review of SSP.

On March 12, the apex court directs that construction cannot carry on till rehabilitation and resettlement are implemented satisfactorily.

Construction of the dam stops at 80m.

On May 5, the court postpones the July hearing of the case. It also grants government demand to raise the dam height for 'safety.'

Digvijay's plea: In July, Digvijay Singh seeks lowering of final dam height to 123.44m and subsequently to 117.04m.

Construction is kept on hold as there is no unanimity on dam height among the four states, the prerequisite set by NWDT.

***Accord reached*:** On July 17, 1996, chief ministers of the four states concerned unanimously resolve on a dam height of 132.89m with the provision to increase it to 138.6m after five years based on hydrological reports.

Patkar writes to Prime Minister H D Deve Gowda, asking for a thorough review of the entire Narmada Valley Project and a public debate on land-water management. She perceives increase of dam height beyond 117.04m, as promised by Digvijay Singh, as a 'complete betrayal.' NBA decides to intensify movement.

* * *

Construction of the Sardar Sarovar dam has remained frozen at 80m under Supreme Court ruling. Latest estimates indicate that more than a million farmers, tribals, fisherfolk, plains settlers of the Narmada river valley are crying for justice. A mind-boggling volume of public funds and the country's precious resources are going down the river in the irrational and obstinate attempt to satiate the greed of ruthless industry and desires of an urbanised, elitist, consumerist lifestyle. All in the name of development and progress.

The snowballing movement in Narmada has great significance for the future of the developing world, for it has put forth the people's voice to challenge the accepted path of growth-oriented, profit-centred capitalist development that is inherently destructive and life-endangering.

Tehri Hydroelectric Project

A Himalayan Blunder

On June 26, 1996, Prime Minister H D Deve Gowda made a trip to the Garhwal Himalaya in Uttar Pradesh to assure Sundarlal Bahuguna that Tehri dam will be reviewed, ending the veteran Gandhian's 74-day fast. Bahuguna was protesting against the continuing construction of the highest dam in Asia, just below the confluence of rivers Bhagirathi and Bhilangana, tributaries of Ganga.

The controversial dam is a classic example of the wanton destruction of the Himalayan geosystem and ecology wrought by the demands of development and has come to epitomise the shortsight of India's politicians and bureaucrats in search of peerless achievements, whatever be the sacrifice.

Catalyst for a Catastrophe

The idea of setting up a high dam in the Lesser Himalaya to harness its power and water potential was conceived way back in 1949 and a site chosen on river Bhagirathi, 1.5km downstream from the 1000-year-old holy town of Tehri, 1550m above sea level. At that time, the Geological Survey of India proposed the construction of three reservoirs — two on Bhagirathi and one on its tributary, Alaknanda — to utilise 7400m^3 water of the Upper Ganga basin that was going waste.

The project report took 20 years in the making as doubts were raised about the viability and location of Tehri dam. Several Indian and foreign experts were invited to inspect the dam site and though their views were not particularly encouraging because of the existence of a fault on the riverbed, the site was confirmed in 1965 and the project sanctioned in 1972.

The clay-core, rock-fill dam, planned to be 260.5m-high, will have a 42.5km^2 reservoir extending 45km in the Bhagirathi valley and 25km in the Bhilangana

valley. It is expected to irrigate 0.27mha in the Gangetic plains, provide 500cusec drinking water a day to Delhi and generate 2000MW power for the northern grid. To counter fluctuations in river discharge, a balancing reservoir, to be constructed 22km downstream, will add 400MW to the capacity.

What favours the Tehri site is the steep gradient of the river's downward course that creates several waterfalls ideal for hydel generation. This natural advantage, however, is offset by the seismological threat inherent in the area's topography.

About 200 million years ago the Himalaya arose from the continental collision of the Eurasian and Indian (Gondwana) tectonic plates floating on the Tethys sea. While on the Eurasian side, earth's crust thickened and moved up to form the Tibetan plateau, the subcontinental plate sheared off along two major thrust faults, one of which, 2400km-long and between 96-192km wide, is still active.

The series of major earthquakes in the Lesser Himalaya in the last 100 years — all above 8 on the Richter scale — indicate continuous subterranean activity causing severe stress and eventual rupture at several points. One section of this fault — 480-800km-long between the Kangra valley in Himachal Pradesh and the Nepal-Bihar border — has not witnessed any major tremor in over three centuries. Tehri dam is located in this Central Himalayan Seismic Gap where the Indian plate is crashing into the Asian mainland at a speed of 2cm per year.

The stress that is building up here is reaching criticality and scientists predict that when the rupture occurs it is likely to cause an earthquake — or a series of tremors — of calamitous proportions. The geological disturbances being created by the construction of the dam may hasten and intensify the catastrophe.

Being brittle and cracked, the rocks lining the walls of Bhagirathi gorge are prone to seepage and the accumulating water may exert immense pressure on the hillslopes. This along with the constantly eroding shale of the riverbed will weaken the dam's foundation, which is said to be lying on a fault. The stress may reach such magnitude that Tehri dam will not be able to withstand the weight of the immense volume of water in its reservoir and collapse, fracturing the ground and triggering a quake.

In that event over 3bn m^3 of water will burst over, obliterating the pilgrim towns of Hardwar and Rishikesh and their 200,000 inhabitants. Towns and villages on the banks of Ganga will be inundated, affecting 100-200 million people in the hills and plains.

On October 20, 1991, an earthquake of Richter magnitude 6.1 struck Garhwal, killing hundreds and causing irreparable damage to land and property. Post-mortem traces the root cause of the tremor to the Maneri Bhali barrage under construction on Bhagirathi, 100km upstream of Tehri.

Too Little for Too Much

Bhagirathi and Bhilangana are snowfed rivers which carry huge amounts of morainic debris from glaciers in the southern slopes of the Himalaya where the rate of erosion is far above normal. Consequently, the siltation rate of the rivers in the catchment areas will be very high. Tehri dam will obstruct the natural flow of the massive volumes of sediment, raising the riverbeds upstream and endangering Dharasu, Uttarkashi and other populous settlements.

The capacity of the reservoir, too, will gradually shrink, affecting the dam's lifespan. The longevity of the dam will not exceed 30-40 years, belying hopes of a 100-year run.

The reservoir of Tehri dam will inundate 112 villages, displacing nearly 70,000 inhabitants who have been living in the catchment area for generations. The idyllic Tehri town, with its historic monuments, falls in the submergence zone and will be wiped out once the dam is constructed. The dam will deprive the hill people of their riparian rights, diverting the waters to the plains which are in any case well-irrigated by three major canal networks.

Instead of resettling the displaced in the command area so that they could benefit from the dam, Uttar Pradesh government relocated them in the Dehra Dun region, which is overextended by urban expansion, limestone quarrying and tourism.

More precious forests in this already denuded land had to be cleared for the oustees, compelling them to surrender their fertile fields in return for barren patches. The rehabilitation scheme cleverly ignored the village as the unit for relocation, but settled them as individual families, thus taking away their collective bargaining power and destroying community culture.

To speed up the process of land acquisition for the project, government made several promises such as land for land and cash for the landless. After the acquisition, many of the oustees were left in the lurch and offered just cash compensation. Eventually the rehabilitation package degenerated into inadequate cash for land and nothing for the landless.

Bhagirathi and Bhilangana valleys were the pick of the fertile terraces of Garhwal. The verdant forest cover had provided fuel and fodder to the local people for centuries, sustaining a self-reliant community economy. Tehri dam is leaving them at the mercy of market forces they are ill-equipped to cope with. Marginalisation and impoverishment is the only future they have.

Never-ending Agony

The assault on the Garhwal Himalaya was launched when profiteering became the watchword for 'development' in the post-independence era. Lumbering contractors had the run of the region and the treeline began to recede at an alarming pace. Broad, fleshy-leafed oak and other trees which trapped rainwater were replaced by fast-growing pine and eucalyptus for the benefit of industry and timber mafia, depriving local inhabitants of fuel, fodder and food, and adversely affecting the ecology of the hills. The worst-affected were women who had to go further afield for fuel, fodder and water, often spending the whole day on the job.

Added to this was largescale mining, quarrying, road construction and the resultant population and tourist influx. Several hydel projects were also undertaken in a bid to exploit swift-flowing mountain rivers for industrial and urban growth. Landslides and flash-floods became increasingly frequent because of deforestation and erosion. And hundreds of hill people became refugees on their own land with no effort to rehabilitate them.

In a desperate bid to save the land from further degradation, the Chipko (hug-a-tree) movement was born in the 70s, mobilised by Gandhian social workers of the Garhwal region. Their sustained campaign drew overwhelming mass support and ultimately led to the outlawing of indiscriminate tree-felling. But even before the battle was won, Tehri dam project came up.

People in the Garhwal Himalaya have been against the project ever since its inception, though they had very little information to act upon. Their opposition coalesced into a movement after the project was sanctioned and debates generated on the seismic threat. The Chipko activists took up the issue and the *Tehri Bandh Virodhi Sangharsh Samiti* (Anti-Tehri Dam Struggle Committee) was formed.

In 1977, mass arrests and imprisonment of peaceful protesters at the dam site focused nationwide attention on the Tehri project. The movement built up a data

bank, moved Parliament and petitioned Supreme Court in its efforts to halt construction, forcing Prime Minister Indira Gandhi to order a fresh review of the project in 1980.

Construction continued in fits and starts till the experts committee appointed by government submitted its report in 1986, recommending abandonment of the project, though Rs2.06bn ($58.86m) had already been spent. But Prime Minister Rajiv Gandhi disregarded the recommendation and instead sought Soviet technical and financial aid to expedite construction. Work now picked up and so did the movement. In 1989 Prime Minister V P Singh assured Sundarlal Bahuguna that construction would stop and the next year government's appraisal committee unanimously refused to give environmental clearance to the project. The 1991 quake strengthened the movement's determination to carry on with the struggle, culminating in a mass hungerstrike at the dam site. The protesters were arrested and severe repressive measures were unleashed on the anti-dam agitators.

Meanwhile, aid for the Tehri project dried up with the collapse of the Soviet Union. In May 1995, Prime Minister P V Narasimha Rao promised a review of the project but construction did not stop.

The two decades of Tehri dam construction has been marked by closer and closer scrutiny. Pages of evaluation have kept pace with the construction rock by rock, each new report, government or independent, recommending more positively the scrapping of the project. Successive prime ministers have promised appraisals, and yet the dam grows higher and higher. One wonders if H D Deve Gowda's assurance of yet another official review had sought to buy time to add a few more rocks; or would it really end forever the agony of the people of Tehri and Garhwal Himalaya, ravaged by the inexorable march of capitalist development.

Bhopal Gas Leak

The Killing Fields of Mercenaries

The Bhopal gas disaster, unparalleled in industrial history, reveals the mercenary character of multinationals in their exploitation of developing nations and the impunity with which they get away with crimes against humanity. The almost-forgotten victims of the holocaust are a living example of the indignity heaped on the people of the third world by global vested interests in their ruthless games for profit.

Night Without End

It is difficult to visualise what exactly happened in Bhopal on the terrifying night of December 2-3, 1984. A probable scenario is worked out here from published accounts of survivors and eyewitnesses.

It was a cool night at the beginning of winter. Residents of JP Nagar, Shahjahanabad, Kazi Camp, Tilla Jamalpura, Chhola, Chhoola Kanchi, Shaktinagar, Railway Colony, were in bed. A little after midnight they were awakened, feeling breathless and eyes and throat stinging. They sloshed water to cool the body and clear the eyes, but it did not help; some tottered out for fresh air and walked into a nightmare; a few of the fortunate went on sleeping, never to wake up.

In the narrow bylanes of these working class colonies, all hell had broken loose. Thousands ran helter-skelter, screaming and coughing, trying to escape the engulfing fog that pursued them relentlessly. They collided with each other, vision blurred, doubled up with abdominal cramps, tearing off their clothes, retching and gasping for breath.

Men and women frantically called out to children lost in the melee. Many stopped in their tracks, their legs giving way, and collapsed in a heap — even before they realised what was happening. Others tried to help but did not know how, and needed help themselves. Infants fell out of lifeless arms and choked on their own blood. The old and the ailing gave up the futile run with a prayer on their lips. Reason was lost as people tripped over still-warm bodies and heartrending cries filled the dark.

There was nowhere to run. Whichever way they turned, the suffocating mist clung to them, all over the old city, on the streets, inside hutments, under trees, in the parks. Word of a gas leak from the Carbide plant passed around, but few were in a state to comprehend. Stray police patrols urged people not to panic and stay indoors while passing trucks and autos carried the affected to hospitals and safe places.

Staff on duty at police control, coughing and rubbing itching eyes, called Union Carbide several times, only to be told that there was no leak and, even if there was one, it was not from their plant. An hour later, Union Carbide's siren hooted and an engineer walked into police control to announce that the leak had been plugged. It was the first admission of the leak and it had not been plugged. All 42 tonnes of the deadly gas in the plant's storage tank E610 had escaped to cover the city of hills and lakes in a shroud.

Dawn lit up the trail of the dance of death. Streets and gutters were strewn with the dead and dying, hutments had become mortuaries, carcasses of cows, goats and dogs littered backyards, dead fish floated on lakes, trees had shed leaves and fields turned yellow. No one knew how many had perished in the nightlong horror and nearly half the city's population had fled. Overnight the capital of Madhya Pradesh had turned into a graveyard.

Death by Poisoning

By early morning, the 1200-bed Hamidia Hospital was besieged. Men, women and children, wailing in agony, overflowed the wards and filled the corridors, many dying before help arrived. Harried medical staff rushed from patient to patient, not knowing what to do. Doctors had no idea what had caused such diverse suffering and offered only symptomatic treatment.

Initial effects of gas exposure was inflammation of the lungs, acute dehydration coupled with oedema, and severe corneal burns. Cortico-steroids were administered to contain the inflammation and lasix to relieve oedema, which proved fatal in many cases. Union Carbide's doctor, when contacted, merely advised using wet cotton pads to relieve the intense eye irritation. Soon, stocks of life-saving drugs ran out and syringes had to be used again and again. Those who could barely move were released with a couple of pills to make way for the unending wave of battered gas survivors.

Makeshift camps were set up on the hospital compound to accommodate patients. They had no food, no treatment and no attention for hours. The city's health infrastructure was totally inadequate to cope with an emergency of this scale.

The biggest setback to correct prognosis was Union Carbide's calculated misinformation campaign. Insisting the gas was just an irritant, neither fatal nor lethal, plant officials appeared not to know or care what it actually was. Probably phosgene, was all they admitted, 'and it is not toxic.'

The hospital's forensic team, tirelessly conducting autopsies, was intrigued by certain features of the corpses. Most of the bodies were stark naked — perhaps they had felt unbearably hot — and showed signs of laboured abdominal breathing.

Corpses were unusually well-preserved; blood was bright red and unnaturally thick; the odour of bitter almonds was given off when cutting open lungs, which were ash-coloured and filled with fluid; the trachea was so dry that mucus flaked at a touch. The forensic team was almost certain that the killer poison was cyanide, a fact confirmed by traces found in some cells.

That very day, the administration was advised to use sodium thiosulphate as an antidote. But doctors did not heed it, the influence of Union Carbide being too strong. If the easily available antidote had been used, perhaps hundreds of lives could still have been saved.

Profit Before Safety

No one will ever know exactly how the lethal leak occurred and what deadly chemicals made up the mushroom cloud floating over the city. The only thing certain is that the plant's safety system was not up to the mark and unexplained pressure built up inside storage tank E610 containing 42 tonnes of methyl isocyanate.

The most plausible explanation was that water had trickled into the tank through one of its many pipelines, triggering a runaway reaction and a spiralling rise in temperature-pressure which caused an explosion. The tank's vent gas scrubber and flame tower did not have the capacity to either neutralise or incinerate the immense volume of gasses released.

The MIC plant had neither a backup safety system nor the stipulated number of interlocking shutdown devices. There were no detectors to indicate toxic leaks while the alarms were inadequate and could not be relied upon. Added to these, instruments in the control room were dated and not compatible with those installed in the plant. Finally, there was no chain safety system that would be automatically activated in case of accidents. In fact, the plant's design and instrumentation were technically inferior to contemporary standards, even of moderate-scale Indian plants.

Responsibility for the faulty blueprint and substandard technology lies squarely with US multinational Union Carbide Corporation (UCC), which designed and supplied equipment for the 5000t plant owned by its subsidiary, Union Carbide India Limited (UCIL). The parent company owned 50.9% shares in UCIL and had complete managerial control over the 14 Indian plants manufacturing chemicals, pesticides and batteries.

UCIL started operating in Bhopal in 1969 with a small unit for pesticide formulations. Within a few years, it decided to expand and go in for the manufacture of a range of MIC-based pesticides from a carbaryl base, under the trade-name Sevin. The new formulations, the company claimed, would be 'safer, more effective and ... handle a much larger spectrum of crops and pests.' The new plant, set up in 1978 at a cost of Rs 250m ($7.14m), initially imported the main chemicals, MIC and alpha naphthol, from UCC's plant at Institute, West Virginia, then the only MIC-manufacturing unit in the world.

The Carbide plant was an environmental hazard even before it started MIC-based production. Its waste discharge left barren stretches on verdant land around a pond, killing cattle straying into the area. The municipal authorities were aware of the possible dangers but preferred to look the other way.

When Carbide announced its expansion plans, government town planner M N Buch questioned the wisdom of locating the plant in a busy and populated area. He recommended that it be shifted beyond the city's municipal limits, but his advice was ignored.

Safety lapses were a chronic feature of the MIC plant. In 1978, naphtha stocks caught fire from sparks flying from welding rods. Three years later, a maintenance workman died of phosgene poisoning and soon after, 25 workers, affected by leakage of the same gas, had to be hospitalised.

Then again in 1982, a MIC leak from pipelines filled the plant's surrounding colonies with a cloud of toxic gas, afflicting the residents with the same symptoms as the 1984 tragedy. The frequent minor leaks became such an embarrassment that the evacuation siren was disconnected.

In its efforts to increase productivity and profit, the Bhopal plant went on a penny-pinching drive. Within three years of its commissioning, maintenance practices deteriorated rapidly. Norms were frequently violated, equipment rarely checked and raw materials not tested. The economising had been carried to such an extent that the plant's refrigeration unit was switched off during the overhaul. Pressure buildup in tank E610 might have been contained had the temperatures been low.

The plant was also running at a third of its capacity and a substantial number of skilled workers and supervisors familiar with its operations had quit. Underutilisation of capacity could be an indication that chemical experiments were being carried out in the plant which it was not authorised for or that it wanted to maintain a monopolistic hold over prices. The company lost Rs50m ($1.42m) from a Rs150m (4.28m) turnover in 1983 and Rs40m ($1.14m) from Rs120m ($3.42) turnover the following year.

In early 1984, an investigative report in a vernacular daily revealed that Bhopal was sitting on a powder keg; but government paid no heed. Union Carbide provided certain privileges to Congress ministers and bureaucrats and, in grateful return, they never took the company to task for safety violations.

In fact, when the issue of threat to Bhopal city was raised in the Legislative Assembly, the state's labour minister was dismissive. 'The factory is not a stone which can be shifted elsewhere. There is no danger to Bhopal, nor will there be,' he asserted.

Grand Delusion

The mushroom cloud which dissipated over an area of 40km^2 in Bhopal city, shed its toxins entirely on the poor. Rising from the leaking tank, it first moved up and westward, away from the city. But suddenly it turned south with the wind, to descend upon the city's densely populated shantytowns, avoiding, as if scenting privilege, the residential colonies in Shyamala Hills where the rich and powerful live.

Statistics alone cannot portray the enormity of the Bhopal catastrophe. Government acknowledged that 521,262 persons were exposed to the leak, of which 1754 died (years later, the toll was revised to 3828) and 200,000 were injured, while eyewitness accounts put the toll at 15,000 and 300,000 respectively. Independent estimates, based on number of shrouds and cremation wood sold, suggested that as many as 10,000 people died in Bhopal city alone, many more finally collapsing in the neighbouring towns and villages to which they had fled.

In the days following the leak, government identified only 19,000 victims in need of help. They had to be present in person at the relief camps to pick up daily rations and medicines — which were, in any case, in short supply — but as most were in no condition to move, they went hungry.

Government also announced ex-gratia compensation of Rs10,000 ($285.7) to the next-of-kin of the dead, Rs2000 ($57.14) for the 'seriously affected' and Rs1000 ($28.57) for the 'not-so-seriously affected.' Cash flowed like water as elections were round the corner, but who the beneficiaries were is anybody's guess. A large number had died anonymously and relatives, many at death's door themselves, were unable to provide proof. The maimed were in the same boat as bureaucrats used arbitrary criteria to decide what was serious and what not so.

Like vultures, racketeers descended in hordes to capitalise on the tragedy. The victims, poor, illiterate and incapacitated, were easy prey for unscrupulous dealers in relief funds. Private practitioners and clinics thrived on the victims' helplessness in the face of unreliable and inadequate government help. Profits of multinational pharmaceutical companies soared, clearing stocks of steroids, antibiotics, bronchodilators, dewarmers and placebos.

Meanwhile, patients suffered relapses and new symptoms surfaced, further confounding the medical fraternity. Though monetary and medical help poured in from the world over, shortage of life-saving and prescription drugs continued to plague doctors at Hamidia Hospital. The suffering of the victims was made worse by the fact that the debate on the nature of the toxic gas and its antidote remained unresolved and generated even greater heat.

At a press conference in the first week of December at the Danbury headquarters, Connecticut, UCC president Warren Anderson released a two-year-old report indicating the danger of leaks due to poor instrumentation and maintenance at the UCIL plant in Bhopal. He forgot to add that UCC itself had designed and set up the plant and, by virtue of majority control of shares, was in a position to ensure the Indian management's compliance with safety regulations. Making the report public could not absolve UCC of culpability in the tragedy.

Anderson arrived in Bhopal on December 7. He was immediately arrested along with UCIL top brass but was released within six hours, on a personal bond of just Rs25,000 ($714.28), at the intervention of the US embassy. The UCC supremo was flown out to Delhi by a specially chartered flight from where he returned home.

In the days that followed, government made no attempt to indict any UCC or UCIL official; nor did it take any steps to investigate Union Carbide operations in India. It could not, for UCIL, like other multinationals, was government's holy cow. A fortnight after the leak, the company reportedly funded a TB clinic in a gas-affected colony that was inaugurated with much fanfare by chief minister Arjun Singh, arguably to dilute the case against Carbide for punitive damages. The conspiracy to save the guilty was already bearing fruit.

In fact, UCIL always received preferential treatment from government agencies. Financial institutions vied with each other to sanction loans to the company which were often underwritten with extremely favourable terms. Though it was found to be indulging in restrictive trade practices, it enjoyed tax benefits in several ways and gained substantially from short-term withdrawal of industrial embargo on licences.

Crime Without Punishment

As the Bhopal disaster hit the headlines across the world, two Indian families in the US filed a $15m lawsuit against Carbide on behalf of the victims and retained human rights champion Melwyn Belli as their lawyer. This opened the gates for compensation claims and a host of American personal injury lawyers, moved more by greed than compassion, swooped on Bhopal. In no time, lawsuits claiming damages worth $45bn were filed in US courts, threatening to wipe out Union Carbide's entire global business.

In March 1985, the Bhopal Gas Leak (Compensation Claim) Act was passed by Parliament which made Government of India the sole representative of the victims seeking punitive damages from Carbide. Government took up some 600,000 claims in US federal courts.

Presiding Judge John F Keenan ordered Carbide to pay interim relief of $5-10m to the victims, at the first pre-trial hearing of the consolidated Bhopal litigation. Carbide reluctantly agreed to shell out $5m but dilly-dallied over a watertight plan of distribution.

The case dragged on as Government of India and Union Carbide haggled over the compensation amount. When Carbide's offer of $200m was rejected outright, the company is reported to have said it would not go beyond that sum, as 'life is cheap in India ... You cannot take the squatters on Chola Road and compensate them as if they lived in New York ... .'

The first task before Union Carbide's lawyers was to get the case shifted to Indian courts to ensure a verdict where they would pay far less compensation than they would have had to if the case was fought in New York. And indeed in 1986, Judge Keenan transferred the case to India.

Government of India sued Union Carbide for $3bn in the Bhopal district court. Right from the first day, Carbide lawyers used delaying tactics to stall justice. When the district judge ordered the company to pay $270m as interim relief in 1988, Carbide promptly went on appeal to High Court. When the judgment was upheld, it moved Supreme Court.

The litigation went on till February 1989 when Rajiv Gandhi's government suddenly agreed to an out-of-court settlement for $470m, a paltry sum which could not cover the long-term healthcare needs and restitution of the victims. The settlement was upheld by Supreme Court which absolved UCC of all civil and criminal liability in the disaster. Carbide stocks, which had touched rock bottom in the wake of the gas leak, immediately went up by $2 a share.

The grossly unfair settlement raised a public outcry and the National Front government of V P Singh challenged the verdict in Supreme Court in 1990. Anticipating a judicial review, Madhya Pradesh government had, just before the 1989 elections, conducted a fresh medical survey of gas survivors. The survey listed only 19 persons as permanently and totally disabled and 155,000 people, whose records were examined, were found to have suffered no injury at all.

The medical fraternity and human rights groups were outraged and their sustained opposition forced government to modify the survey's findings. But the apex court, in its final verdict on the Bhopal case passed in October 1991, cited these very findings in rejecting the appeal against the paltry settlement. However, it ordered reinstatement of criminal proceedings, first moved in 1985, against UCC, UCIL and senior officials of both the companies. In spite of this directive, Madhya Pradesh government allowed UCIL to sell its Bhopal plant lock, stock and barrel and move out of the city, as if it had never been. Carbide has since wound up all its operations in India.

The case against the company was diluted even more when in September 1996, Supreme Court, partially reversing its 1991 order, quashed charges of culpable homicide against UCIL officials and directed that fresh charges be framed for causing death due to negligence. The guilty have been allowed to keep their honour intact even as the victims are once more denied their rights to be heard.

Long Road to Death

Those who died in the holocaust were perhaps more fortunate than those who survived. More than a decade later, tens of thousands continue to wait for death to release them from unbearable pain and trauma.

The diverse effects of toxification are yet to be completely understood or recorded. In the congested working class areas in Bhopal, people still suffer from chronic weakness, cough, breathlessness, chest and abdominal pain, vision defects, impotency, memory loss and other severe neurological disorders.

Initially it was believed that the eyes and lungs were the organs most affected. But over time victims developed a wide range of complications. Gas exposure

damaged kidneys, spleen, liver and the gastrointestinal tract, and seriously affected the immunological, reproductive and central nervous systems. Other delayed effects included intestinal bleeding, pain in the kidneys and paralysis.

The effect of the gas on women was terrifying. Many women fatalities on that fateful night had gone into labour induced by the gas and died along with their stillborn. The rate of spontaneous abortions and stillbirths rose sharply among the several thousand women pregnant at the time of the leak. Even those who became pregnant long after the incident were not free from the danger of giving birth to deformed offspring. A 1990 study by the Indian Council of Medical Research found the rate of spontaneous abortions among the gas-affected to be a high of 24%; in the years following, the figure is 7.5% against 3% among unexposed women.

An extremely high proportion of women survivors are suffering from severe gynaecological problems such as leucorrhoea, pelvic inflammation, excessive menstrual bleeding and suppression of lactation. Many women have developed acute sensitivity to air-borne irritants, making them particularly vulnerable to smoke and steam which induce violent asthmatic reactions.

The most widespread and worrying impact on survivors is the serious and persistent psychological problems such as anxiety state and adjustment reaction. People in Bhopal are in the grip of collective neurosis and depression, a mental condition enhanced by the callousness and insensitivity around to their peculiar plight.

The deep-seated trauma has acquired a social dimension. The loss of near and dear ones, loneliness, ritual of food queues, visits to clinics and routine medical checkups, inability to work, loss of employment, being forced to live on charity — have all brought on a feeling of mass hopelessness. Pride has deserted the people as has the zest for life.

State government had planned to rejuvenate the people by creating a whole new Bhopal — complete with international airport, golf course, swimming pool et al — at an estimated cost close to the interim relief offered by Union Carbide. Outrage over the absurdity compelled it to abandon the plan and instead offer long-term dole in the form of free rations for victims and non-victims alike. The Rs20m ($57142.86) expenditure per month could only create a society of beggars.

Following the out-of-court settlement, government set up 30 claims courts along with five appellate courts. Despite this complex infrastructure, the poor victims are nowhere near receiving compensation.

The whole exercise is mired in delay, inefficiency and deceit. Victims whose claims had been registered in the early years, find their names struck off without explanation. In the absence of any categorisation, the illiterate do not know which court to go to. Middlemen are having a field day by retaining a large chunk of the compensation being paid out while courts are dismissing claims because 'claimants are not coming forward.' Besides, a major part of the funds earmarked for rehabilitation projects has gone to pay salaries of government employees.

In a final travesty of justice, the compensation package does not include disabled children born immediately after December 2. These children who were denied justice from the moment of birth are today being denied their right to life. Like their parents, they can only walk the long road to death.

Fight for Justice

Over the past 12 years, government, both Union and state, have gone back on all the promises made to alleviate the sufferings of the gassed populace. Till today, no move has been made to force Carbide to comply with the court directive on the construction of a 500-bed hospital; the ICMR

has discontinued 21 of the 23 projects to study the long-term health consequences; and the official committee of experts to register exposure-related deaths has been dissolved, although 10-15 die every month even today.

Among the many projects for economic rehabilitation, the commitment on reservation of 50% jobs for men in the Railroad Coach Factory was given the go-by while specially constructed workshops were sold to industrialists unwilling to provide mandatory employment to gas victims.

Things came to a head in 1992 when the right-wing BJP government, which replaced the Congress in 1990 in the state, downed shutters on sewing centres employing 2300 women. In a burst of spontaneous protest, the women picketed government offices, forcing the reopening of one centre employing 2000. The protests were organised under the banner of Bhopal Gas Peedit Mahila Udyog Sangathan (BGPMUS) — Organisation of Bhopal Women-Worker Victims.

The nucleus of a solidarity movement was conceived in the cloudy days of December 1984 itself. People in the city and from all over the country and the world united in groups to help the victims medically, legally and in raising awareness. Some are still continuing to help, others have disbanded. But unlike most of these groups, the Sangathan is a grassroots organisation comprising only survivors of the holocaust.

For the past few years, Sangathan members have been demonstrating in the streets, testifying in courts, and organising direct action against government inaction and bureaucratic apathy. Within a week of the out-of-court settlement, the Sangathan mobilised 3500 people to travel to Delhi to protest in front of the Union Carbide office. It also held a mass demonstration outside the UCIL plant in August 1989, to commemorate the 1942 Quit India Movement. The protest exposed the way the country had capitulated to multinationals and expressed solidarity with the most vulnerable and marginalised groups.

The Sangathan is one of the few rays of hope for the victims who have no respite from humiliation. It moved court when the BJP government forcibly evicted a large number of mainly-Muslim survivors in an anti-encroachment drive. Two years later, the Sangathan members were in the forefront of resistance to violent riots engineered in Bhopal in the wake of the demolition of the Babri Masjid.

Killing Fields

The Bhopal genocide is only a link in the chain of lethal pesticides and chemicals being developed by big industries and multinationals in their insane scramble for profit. And the third world is their favourite hunting ground where they are free to dump hazardous products and experiment with deadly chemicals.

Cities and towns, specially the congested localities inhabited by the poor, are all potential powder kegs, ready to ignite at the drop of a match. Even after Bhopal, accidents continue to plague the hazardous industries in India and other parts of the developing world. The culprits, needless to say, have no culpability.

Instead, all doors have been opened for pedlars of killer merchandise. International dealers in pesticides, agrochemicals and petrochemicals, batteries, synthetic fibre, cosmetics, pharmaceuticals, are swarming in, turning the land into killing fields. They are the outlaws who can bend the law at will. The tragedy of Bhopal has whetted their appetite.

Baliapal Missile Test Range

National Security vs. People's Safety

The setting up of the National Test Range (NTR) for intermediate missiles at Baliapal and Bhograi blocks of Balasore district in Orissa points to a devious attempt to militarise India at the expense of people's right to a secure life. The project, at an estimated budget of Rs40bn ($1.14bn), was set to further increase the stake of the armed forces in political affairs of the country, which is already witnessing heightened military intervention in civilian and administrative spheres.

Strategic Site

The NTR was originally conceived in 1979 by the Janata Party-led coalition government that ousted Indira Gandhi's Emergency regime. The range was meant to function as a base for research, test and launch of India's tactical weaponry such as medium- and long-range missiles, rockets and pilotless target aircraft. Department of Space was also expected to use it for firing polar satellite launch vehicles.

It was to be spread over 350km of the Orissa coast — from Baliapal in the north to Chilika lake in the south. In the initial stages, 150-200km range missiles were to be tested and tracked with radar of the same range. The operational headquarters was to be established at Baliapal-Bhograi, and the tracking station in the Nilgiri Hills, 35km southwest.

The military had very valid technical and strategic reasons in choosing this site. Balasore coast is crescent-shaped — Baliapal at its tip — and ideal for the intensive monitoring required after a launch. From here, missiles could easily be test-fired on a horizontal trajectory into the Bay of Bengal or even further into the Indian Ocean without fear of collision with populated islands or heavy sea traffic. Nestling on the east coast, the range was also said to be relatively freer from the prying eyes of hostile neighbours or inquisitive air surveillance.

However, selection of Baliapal-Bhograi as the test range site raised a storm of controversy. The ruling coalition that had mooted the project collapsed within the year and Indira Gandhi stormed back to power. Congress fully backed the NTR and its chosen location but, in a sudden volte-face, Janata Party, still at the helm in Orissa, strongly opposed it. (Its stand was that it had merely allowed survey of the location and had not given consent to the proposal.)

Alternative sites suggested were all rejected by Defence Ministry for various reasons. The west coast was ruled out because the Arabian Sea was 'bristling with superpower presence' — Diego Garcia is a permanent US base — and both domestic and international sea traffic was considerable. The nearness of the Maldives, an independent island nation, was also a deterrent.

The ministry surveyed Dwarka in Gujarat but found it too close to Pakistan for comfort and felt it would be open to telemetric surveillance or air attacks. Besides, it was also dangerously near the Bombay High oilfields. Similar strategic objections were raised to locating the NTR at Bindur in Karnataka and the Rajasthan desert.

A suggestion to consider the Great Nicobar Islands off the east coast was also declined for their proximity to Indonesia, weather conditions and high transportation costs of supplies.

Biju Patnaik, veteran Janata Party leader and former Orissa chief minister, was keen that the NTR be set up at Satbhaia, which fell under his own electoral constituency, Kendrapara. He claimed that the area was thinly populated and would pose almost no problem of displacement. Government

of India never seriously considered this proposal, maintaining that the marshy tract rich in flora and fauna was suitable only for a sanctuary.

Defence Ministry had clearly set its sights on the crescent land. And all speculation over the test range site was laid to rest after five long years when in October 1984 newly-elected Congress chief minister J B Patnaik publicly announced the decision to locate the NTR at Baliapal-Bhograi. It was, in his own words, his '*Puja* gift' to the people of Orissa.

The Land and its People

Baliapal and Bhograi lie on the two banks of river Subarnarekha where it flows into the Bay of Bengal. They are the most populated blocks of Balasore, Orissa's smallest district bordering West Bengal. Baliapal, with 112,000 residents, has a population density of 441 per sq. km, while the corresponding figures for Bhograi are 174,000 and 538 respectively, against the state average of 151 persons per sq. km.

Legend has it that Shiva once came down to Baliapal to teach farming to humans. He was so enamoured by the picturesque region that he stayed on earth for seven long years, forgetting his impatiently waiting consort, Parvati. The fertile deltaic land is the granary of Orissa — an island of prosperity in a backward state — where the people flourish on the cultivation of rice and cash crops such as cashew, coconut, groundnut and betel leaves.

The rain-rich area yields two or occasionally three bumper harvests a year with little irrigation. Just 1.2% of the cultivated area of Baliapal and 0.8% of Bhograi is irrigated, mainly by the brackish waters of the Coast Canal built by the British in 1885 and now weeded over.

Besides farming, the people of the coastal villages also engage in fishing, a lucrative occupation in the quiet undisturbed waters. The abundant catch is sold locally and enough is left over for export to West Bengal.

Among all his crops, the Baliapal farmer gives pride of place to the *Banarasi patta*, a type of *paan* (betel leaf) much fancied by connoisseurs across the length and breadth of India, and even as far as West Asia. The sandy-loamy soil and moist climate is just right for cultivation of several varieties of this lush green vine that creeps all over specially-constructed, 6-7 feet high bamboo structures called *baraja*.

The vine is plucked once a fortnight through the year except in winter when a much higher yield of the finest leaves is plucked after two months. Each vine yields 5-6 leaves per plucking and even a small *baraja* (1000-1300 vines) can produce 6000 leaves a fortnight, going up to 70,000 leaves per plucking in winter.

The vines require regular watering and a lot of care, and the whole family is engaged in tending the crop. Prosperous Baliapal farmers earn a substantial portion of their livelihood from *paan* cultivation.

Threat of Displacement

To set up the NTR, Government of India originally planned to acquire 160km^2 land — 115km^2 for the test range and 45km^2 for the safety zone — most of it prime agricultural holdings for cash crops.

The acquisition would have affected a population of 70,102 from 99 villages in Baliapal and 31 villages in Bhograi. However, Defence Ministry was forced to

whittle down the scale to 102km^2 on the insistence of the state government. As per the revised plan, 54 villages — 41 in Baliapal and 13 in Bhograi — with a population of 40,793 would be affected. Government claimed that there would be no displacement for the construction of administrative and residential complexes.

Unofficial estimates reveal that the total loss of immovable property would be around Rs3bn ($85.71m), while the loss of income and source of employment would come to about Rs1.5bn ($42.85m) per annum.

The test range would also devastate the fragile ecology of the region. The destruction was initiated with the construction in Nilgiri Hills of the radar tracking station and renovation of an abandoned World War II airbase at Rasogobindopur, 35km west of the site.

In the Name of Rehabilitation

The revised land acquisition plan was followed by the announcement of a programme 'to rehabilitate displaced persons in well-planned model villages with all facilities for comfortable living.' Each family was given 10 decimals of homestead land and a Rs15,000 ($428.57) built-up house at the resettlement sites, located within 10-15km of the test range, and Rs1500 ($42.86) in cash for the transportation of household goods. Called 'model Indira villages,' the sites were to accommodate 400 families each, and would boast of all-weather roads, electricity, schools, dispensaries, banks and community centres.

Compensation for lost agricultural land was to be paid in cash and not provided on the basis of land for land. This would in no way compensate for the loss of livelihood of farmer families, especially those engaged in *paan* cultivation. While the homestead land at the rehabilitation sites was adequate to put up small *barajas*, the betel vine would not grow on that soil. The cash would last for a few years but the lost land would have supported generations of each family.

While identifying those eligible for compensation, a large number of the would-be displaced were left out because government claimed as its own 40% of the land to be acquired. Some 1500 families who had cultivated this land for generations were branded as 'encroachers' and threatened with marginalisation.

The rehabilitation scheme promised employment to one member of each family identified as displaced. For this, nine industrial units were to be set up in the area which was expected to give a fillip to local entrepreneurs. But the employment potential these industries were to generate was far less than the number of promised jobs. Besides, the would-be displaced are agriculturists and could work only as unskilled labour that would hasten their inevitable destitution. A special scheme for the resettlement of fisherfolk in a model village covered 800 families while the government's own estimate puts the number of affected families at 1116.

A sum of Rs250m ($7.14m) was earmarked for implementation of the rehabilitation scheme. An independent survey calculated the estimated loss in terms of land, crop, property, small industry, labour and transport to be a staggering Rs4.12bn ($117.7m).

Orissa's performance in resettling oustees from various projects such as Hirakud and Rengali dams, Rourkela Steel Plant and so on is not particularly noteworthy. Thousands are still awaiting rehabilitation more than 30 years after they lost hearth and land. The NTR could only add to this long waiting list.

People's Resistance

It began informally. The people of Baliapal-Bhograi, restive following bits of information filtering through that their land would be taken away for a project couched in official secrecy, gathered in small groups to discover the truth. The meetings began to be held more frequently and soon a few concerned citizens of the area started to mobilise the villagers. The leading light of this campaign was local Janata leader Gadadhar Giri, who had for years been fighting for the rights of the peasantry.

The agitation was formally launched in December 1985 under the banner of *Uttar Balasore Khepanastra Ghati Pratirodh Samiti* (KGPS) — North Balasore Missile Base Resistance Committee — following the official notification of land acquisition. Led by Giri, KGPS was able to attract people from all sections, irrespective of caste or class barriers. Women joined the movement en masse — and so did children — to save their *bheeta maati* (hearth and home) and their *barajas*.

The movement snowballed with the active participation of local political workers of all parties — from Congress and Janata to the Left and ultra-militant Marxist-Leninist groups — ignoring their parties' stand at the state and national levels. The coming together of such disparate groups for a common cause laid the foundation of a militant mass upsurge.

The turning point came on April 1, 1986, when 15,000 people stopped the District Collector from entering the area to inspect land acquisition work. He was forced out of his jeep and had to walk back 8km to his office. From that day on, no government official on NTR work was able to enter the area even when escorted by paramilitary forces. In May 1989, an 8000-strong force of paramilitary and policemen had to abandon 'Operation Baliapal' when thousands of women and children formed a human barricade in nonviolent *satyagraha*, preventing their entry.

Government retaliated with repressive measures and economic blockade, halting all developmental work and stopping supplies of basic necessities. But the movement advanced undaunted, and for three years KGPS functioned as the de facto people's government.

The militancy reflected by the people's struggle lay in the participation of the poor, belonging to lower castes. Attempts were made to discredit the movement by labelling it an agitation of prosperous landowners but, in fact, Baliapal-Bhograi has few large landholdings. Prosperity lies in *paan* cultivation that was begun in the area by the lowly Barajia and Gola castes who came from Bengal as sharecroppers in the early decades of this century. Gradually, cropping patterns changed with intensive *paan* trade and introduction of cash crops, facilitating the upward social mobility of lower castes.

Finding cash crops lucrative, upper-caste Khandayats and Rajus, original peasant cultivators of the area, also took to *paan* cultivation and put up *barajas* on their land. The landowners themselves turned cultivators and the landlord-sharecropper relationship gave way to a climate of competitive capitalism since the 60s. The threat posed by the NTR shattered the remaining caste barriers.

The leitmotif of the Baliapal struggle was Mother Earth. Enduring bonds with one's land and birthplace resulted in widespread popular participation and lent the movement a fair degree of autonomy which precluded its hijacking by any established political trend. The agitation grew into a way of life for the people of Baliapal, sparking a socio-cultural renaissance never before witnessed in the area. Songs burst forth from peasant lips, poetry blossomed in the green vineyards, plays became the passion of the ordinary folk. From mere concern for hearth and home emerged a vision that encompassed more universal issues of peace and belligerence.

The movement suffered a setback with the death in 1987 of Gadadhar Giri. But the people continued his legacy of peaceful resistance, prompting government to set up an interim test range at Chandipur, just south of the crescent. The successful launch of long-range missile *Agni* from this range in May 1989 and a devastating cyclone a year later dampened the militant fervour of the agitation.

Meanwhile the political scenario in the country became volatile. The National Front came to power in Delhi, defeating Rajiv Gandhi's Congress at the hustings. On November 7, 1990, prime minister V P Singh reportedly promised a KGPS delegation that the NTR would be shifted to another site. On the same day, his government was voted out of power in Parliament, leaving the Baliapal issue to an uncertain future. The impasse continues.

The Real Intention

The national test range has been projected as a programme meant for military purposes as well as for collection of satellite data on agriculture, mineral wealth and flood control. But the choice of Baliapal makes it abundantly clear that NTR is not an extension of India's space programme. Space research is being adequately handled from Thumba and Sriharikota with their inherent geodesic advantages. In fact, India's first medium-range ballistic missile, *Prithvi*, was successfully launched from Sriharikota.

In all likelihood, the Baliapal range will be used to develop IRBMs and ICBMs so that the military can easily reach targets in and beyond the subcontinent in the Indian Ocean, West Asia and China. The determination to spend billions of rupees on the project and the long range sought in the missiles emphasise the point that development of nuclear and thermo-nuclear warheads is on the cards. It is only the naive who will believe the army plans to fire floral greetings at its neighbours.

Belligerence or Survival?

The NTR is all part of an enforced consensus to make India a military superpower. Jingoism in the name of national security is a game that every political party plays despite the country's avowed principles on disarmament, nuclear non-proliferation and peace. In the process, people's lives are endangered and their safety inevitably takes the backseat.

The setting up of the NTR and the peaceful struggle of the people of Baliapal against it is a prime example of this increasing confrontation between chauvinistic ultra-nationalism and the people's struggle for survival.

Chilika Shrimp Farm

Sold Out for Dollars

Chilika is the largest brackish water lake in India. Spread over Orissa's Puri and Ganjam districts on the east coast, it is nurtured by several small rivers and flows into the Bay of Bengal through a long creek.

The picturesque lake is a protected bird sanctuary. Its sweet-saline waters is the winter abode of countless birds from faraway Siberia and the Arctic, and a playground for innumerable species of fish and marine life. Chilika is not only a veritable paradise for nature lovers, it also provides sustenance to thousands of farmers and fisherfolk living along its banks.

In the monsoon months, the rain-fed lake brims with freshwater. But the sea creeps in throughout the arid seasons and the waters gradually become briny. For a short period in this eternal cycle, sweet and salt mingle to turn the waters brackish. Aquatic plants thrive in this unique ecosystem, making it an ideal spawning ground for shrimps.

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Export promotion has become the catchword ever since Government of India ushered in the era of economic liberalisation and reforms. It is the panacea for everything that has made India's position precarious in the global economy: colossal international debts, massive foreign exchange crunch and a huge deficit in foreign trade.

The 7th and 8th Five-Year Plans (1987-97) called for increased investments in export-oriented sectors and offered incentives, subsidies and other benefits to industries and projects catering to overseas markets. Big industry is now diversifying into areas hitherto unexplored to rake in quick profits in foreign currency. Government is going all out to help them by providing land, infrastructure and R&D facilities.

One sphere which has received the blessings of policymakers is marine fishery. Though the 8th Plan provides for a marginal increase in marine fish production — from 2.27mt, achieved at the end of 7th Plan, to 2.65mt at the end of the ongoing plan — the raise is sought to be achieved in an unprecedented short period.

The focus of this ambitious venture is on shrimp farming since it has a ready export market. The traditional fisheries in rivers and lakes are facing myriad problems due to dam construction, siltation and depletion of fish stock and, therefore, efforts are on to reach the target through intensive modern aquaculture projects.

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Chilika has become the promised land of Indian big business. Its natural propensity to breed prawns makes its blue waters irresistible to the Tatas, the country's most well-known corporate giant. And Orissa government has tied up with it to share the aquagold.

Together the partners have conceived the Integrated Shrimp Farming Project (ISFP) in the backwaters of Chilika. Initiated in 1986 by Janata government in the state, ISFP proposes to begin intensive prawn cultivation in 6000ha, to be leased for 15 years, and produce 1500mt shrimps annually. The harvest will be ensured by a 400mt hatchery, 4000mt feed mill, and a 1500mt processing plant.

A Rs0.2bn ($5.7m) public limited company, Chilika Aquatic Farms Limited, has been floated with the state government holding 49% shares, Tata Iron & Steel Company next with 30%, Tata Oil Mills Company 18%, and Otto India Private Limited 3%. The deal has been brokered by the Orissa Maritime and Chilika Area Development Corporation.

When the project gets underway, a part of Chilika will be enclosed by a 13km embankment to form an artificial lake. It will then be parcelled into small ponds which will be filled up with seawater or freshwater as and when required. Some 150 pumps will operate overtime to maintain the right proportion of brine and freshwater needed for prawn cultivation.

Left to nature, it takes 90 days for shrimp larva to grow to its full size at 50g. The aquaculture project proposes to breed 250-300g shrimps in 30-40 days. To achieve this breeding miracle, protein-rich feed, chemical fertilisers and pesticides will be pumped into the waters. The poisonous effluents will be dumped into the creek joining Chilika with the sea.

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The 8th Plan intends to bring 400,000ha under aquaculture. By the end of the 7th Plan, 65,000ha brackish water was covered by shrimp farming and another 20,000ha is expected to be utilised in the current plan period. Also on the anvil is a $100m World Bank project for the development of aquaculture in inland and brackish waters.

Promoters of shrimp farms promise that the blue revolution is nature-friendly and will use only barren or fallow coastal stretches. Its inputs are organic and will have no adverse effect on the soil, while the nutrient-rich waste will nourish aqualife. The cascading effect will economically benefit coastal population, generating employment and raising their standard of living. The world market for seafood is growing at a phenomenal pace and India must cash in on the craze now to set right its precarious balance of payments situation.

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The natural ebb and flow of Chilika is set to lose its rhythm with the ISFP embankment which will dislocate the fish route. The excess monsoon water in the Puri-Ganjam area, which used to drain out into the sea through the lake, will not find an outlet and cause waterlogging of 14164.5ha under 18 panchayats. Chemicals and pesticides will destroy the spawning grounds and the pumps will scare away the birds. Cattle will not be able to graze on the new grass on the islands springing up in the arid seasons.

The 80,000-strong fishing community of Chilika has been paying rent to Orissa government for fishing rights in the lake. But till now their rights over the fertile waters have not been registered, allowing big business to take over their resource base with ease.

The embankment, now under construction with the leasing of 400ha to the joint venture company, prevents access of fisherfolk to the lake and they have no place to anchor their boats. The catch is concentrated in the artificial lake as their way to the sea has been blocked and the fishermen are returning with empty baskets.

The project has promised employment but very few hands will be needed to run the mechanised units. Some 40 managerial and technical staff will man the farm, while 200 fish farmers and 100 guards will work the ponds as contract labour. When the Tatas are done with shrimping they will look for greener pastures, leaving behind a polluted waterbody and a dwarf catch for the fisherfolk.

Land prices in Chilika are shooting up as the lake shrinks at an alarming rate. It has already shrunk to 916km^2 from 1265km^2 in 1963, mainly due to the formation of sandy ridges at the mouth of the sea by silt deposited at the rate of 13mt a year. Shrimp farming will prevent silt, emptied into the lake by rivers, from being washed away and further block its passage to the sea.

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Shrimp hatcheries have devastated the southern coast of Bangladesh with waterlogging and salinity. New fish farming technology has destroyed the ecology of coastal Thailand and big aquaculture projects in African countries have ended in financial ruin. Export of packaged shrimp in all these countries have made businessmen millionaires and compelled thousands of fishfarmers to migrate inland. The United States and Japan have long coastlines with greater potential for aquaculture; yet they import shrimps from the developing world.

Capital-intensive and mechanised aquaculture is becoming the rage of India's export-oriented economy. The country's coastline will soon be dotted with artificial ponds, hatcheries and fish-processing units. Big business has smelt quick returns and is pouncing on the catch-rich waters

which rightfully belong to the traditional fishing communities. Who cares if, in the process, the land and its people are pauperised.

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The fisherfolk and the villagers around Chilika have organised themselves under the banner of *Chilika Bachao Andolan* (Save Chilika Movement). The shrimp farm project awaits the clearance of Government of India's Environment Ministry. In December 1996, Supreme Court ordered a moratorium on coastal aquaculture.

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West Coast Power Projects

Welcome to Plunder

The marauders are back. Multinationals on the make have been arriving in hordes ever since the opening up of the Indian economy. Their latest and coveted destination is the West Coast — from the idyllic, hilly tracts of Ratnagiri in Maharashtra to Karnataka's Dakshin Kannada district, one of the few remaining unspoilt biosphere reserves of the world.

On a Recolonisation Trail

Five centuries ago, Portuguese seafarer Vasco da Gama dropped anchor at Calicut on the southwest coast of India, heralding an era of imperial conquests. The pirates who followed him extended their tyrannical reign along the Malabar and Konkan regions in the Western Ghats.

Today, just 50 years after the departure of the European colonialists from Indian soil, plunderers from another continent are retracing the route of the Portuguese. Vasco da Gama and his followers came uninvited; but the red carpet is being rolled out for the fresh arrivals from the New World.

A Favourable Deal

Among the first to be welcomed is US transnational giant Enron Power Development Corporation, on a joint venture with General Electric and Bechtel Enterprises. The TNCs, under the aegis of Dabhol Power Company (DPC), has been given a blank cheque to set up a $2bn, 2184MW thermal power plant at Ratnagiri.

The deal is a classic example of pandering to multinational whims. Enron has never before set up a plant of this capacity; in fact, the generating potential at DPC is more than half the total power produced by Enron plants across the world. The company has also demanded much higher revenue from this project than its power division can hope to receive from its entire global network; its worldwide revenues amount to $64m while it is seeking $1600m a year from DPC. To add to that, Enron's per unit generation cost at Ratnagiri will be more than double that of its largest plant at Teeside, Britain; Maharashtra consumers will have to pay through their nose for the high energy cost and Enron will reap the benefits of huge repatriable profits.

In their eagerness to please Enron & co., governments of India and Maharashtra set aside financial, legal and environmental considerations to acquiesce

to all arbitrary conditions. The power purchase agreement (ppa) signed with the company was loaded entirely in its favour. Indigenous enterprise was willing to take risks and invest in the power sector; yet, Government of India went to the extent of offering a counter-guarantee in case of default in payment by the state power board and Maharashtra government, though there is no such precedent in fast-track projects. State government was also expected to pay penalty for any delay or stoppage of construction.

Having ensured that Enron takes all, government invoked the Maharashtra Industrial Development Act, 1961, to acquire land for the project, presumably for 'development' in the 'national interest.' More than 700ha of productive land, comprising over 1300 plots belonging to 600 farmers, was offered for the DPC plant without the consent of the landowners, with no provision for resettlement. In its EIA report — incomplete and full of factual errors — Enron threatened that land would be acquired 'by use of such force, as may be necessary.'

When it comes up, the plant will spell doom for the Konkan ecology. It will discharge pollutants beyond permissible limits that will affect the mango groves and horticultural gardens which the Konkan region is famous for; millions of rupees worth of mangoes are exported each year from this area. The rich marine life will also be threatened by the dumping of volatile and cancerous effluents such as hydrazine and release of hot water into the sea. In case of leakage in its pipelines and pumping stations, deadly methane gas will fill the atmosphere. Acid rain and ozone depletion, too, are not ruled out. The project was given environmental clearance, overruling serious objections raised by the experts committee and environmentalists.

DPC's parent companies have dubious environmental and ethical track records. Enron reportedly violated US Environment Protection Agency rules; GEC is listed among the 10 'Least Wanted' corporations in the US; and Bechtel was accused of bribing South Korean officials to grab contracts for nuclear power plant construction.

Glorious reentry

The Enron deal, initially approved by the Congress government in the state, was scrapped in August 1995 after Shiv Sena-BJP was voted to power. The right-wing Hindu nationalists were at that time riding the *swadeshi* (self-rule) wave and were critical of handing over core sector projects to foreign investors. In an effort to discredit the Congress, it discovered serious discrepancies in the breakup of preliminary expenses presented by Enron.

The company had shown a sum of $22m as 'education expenses' of which it could produce accounts for only $14m. The remaining amount was alleged to have been either paid out as bribes to Congress ministers or misappropriated by Enron officials. Charges of graft in the Enron deal were accordingly filed in the Mumbai high court by the Shiv Sena-BJP government.

In a seemingly retaliatory move, Enron, too, went to court demanding compensatory payment for the delay in implementing the Ratnagiri project. Maharashtra was footing a bill of $250,000 a day and its liability for halting the project had already reached $4m by August 1995.

Shiv Sena-BJP's resolve to resist the entry of the foreign power company, however, turned out to be just a political stunt. The deal, sure enough, was reworked and Enron was brought back soon after. The short-lived BJP government that was sworn in at New Delhi after the May 1996 general elections cleared the renegotiated ppa and revalidated the counter-guarantee before bowing out. The Standing Committee on Energy, whose chairman was the BJP finance minister, had earlier been categorical that there was no need to provide counter-guarantee in the renegotiated deal. The Central Electricity Authority's sanction to the ppa was still awaited.

History repeated itself a few days later. Among the first things that the United Front Cabinet did after taking oath was to okay the Enron clearance. The constituents of the Front, specially the left parties, had been vehemently opposed to the Enron project.

Since then, all obstacles to Enron's reentry are being removed posthaste. In an affidavit filed in Mumbai high court in September 1996, the Shiv Sena-BJP government withdrew its charges of corruption against the company; in return, Enron decided to drop the arbitration proceedings and write off all of Maharashtra's liability for delaying the project's implementation. The last hurdle was crossed when a writ petition challenging the project on grounds of ppa, counter-guarantee, lack of transparency and so on, filed by a leftist trade union, was quashed by Mumbai high court in December.

Enron has announced resumption of construction work at the soonest and is lining up similar projects in Tamil Nadu and other Indian states. After 500 years, Vasco da Gama's followers could not have asked for a better deal.

Power Games

While the now-off, now-on game of Enron was going on, another MNC project was quietly poised to conquer Dakshin Kannada district in the Malabar region — the Cogentrix thermal power project.

The MoU for the 1000MW project was signed in the early 90s during the Congress regime in Karnataka. Power generation in the state was far short of the growing demand created by an industrial boom and galloping urbanisation. It was felt that a high dose of foreign investment in the power sector was the only way to avert the impending crisis.

The project to be set up at Udipi, near the port city of Mangalore, is undertaken by Mangalore Power Company floated by an international consortium led by US-based Cogentrix Energy Incorporated. It involves an exorbitant outlay of Rs 43.87bn ($1.25bn), at an interest rate of 16% payable even before the commissioning of the plant.

A year before the Cogentrix deal was initiated, the public sector National Thermal Power Corporation had offered to set up a 420MW plant at a cost of Rs9.5bn ($0.27bn) at the same site, but was turned down as it was perceived to be too expensive. Yet almost five times the amount was not considered prohibitive for a plant just 2.5 times the capacity.

Initially, Cogentrix had proposed a 6x167MW project at a cost of Rs50.8bn ($1.45bn) but later altered the configuration to 4x250MW and lowered the outlay as it was charged with 'padding up.' Finally, Central Electricity Authority approved the project in December 1995 for Rs39.5bn ($1.13bn).

Under the contract, consumers were to pay Rs4.50 per kWhr for power supplied by the plant, a hike of 40% over current rates. Not only would the consortium receive a hefty bonus for all power produced beyond 85% plant capacity, but would also get the entire deal underwritten in the form of counter-guarantees by Government of India.

The project did not get off the ground because of protracted wrangling on the ppa. The controversy came into the open when prime minister H D Deve Gowda was accused of approving the deal in a hurry soon as he assumed office, and that he was involved in a Rs1bn ($28.57m) payoff. Though he staunchly denied in Parliament that he had given the green signal, Karnataka's chief minister confirmed the ppa had been initialled on January 18 when Deve Gowda was heading the state government. A privilege motion was moved against him in Parliament.

The revised ppa was settled at Rs2.35 per kWhr and Ministry of Environment cleared the project on June 11. It now awaits Government of India's approval of counter-guarantee.

When commissioned, the power plant is likely to lay waste large tracts of Dakshin Kannada's pristine rain forests and cause great hardship for the local population. Transportation and storage of 5200-5300t imported coal it will consume every day — with ready stocks for at least 45 days — will lead to severe atmospheric and ground pollution. The estimated 685t flyash the plant will generate will seep into the soil and contaminate groundwater, even streams and lagoons, while 70-80t sulphur dioxide emissions may cause acid rain in the Western Ghats.

Cogentrix has been offered 77mcm water daily at concessional rates from a barrage on the Mulki, a seasonal river rich in fish, virtually sealing its fate and that of the fishermen dependent on it. It will also endanger marine ecology from the discharge of hot water into the sea from its desalination plant.

In Karnataka, the craze for power, as a catalyst for development, has been so pervasive that changing political fortunes have made no impact on its spiralling rise. Whether it is the Congress or the Janata Dal at the helm in the state, the battlecry remains, 'power at any cost.' The result is extension of open arms to greedy international business mafia promising to fulfil the power needs of a power-craving state.

Approaching Doomsday

The arrival of Cogentrix has opened wide the floodgates to mega-industrial ventures in Dakshin Kannada. Chemical, coal and petrochemical-based industries are making a beeline for the region and since 1990 an estimated investment of Rs128bn ($3.66bn) has already been cleared, Rs105bn ($3bn) for just seven mega-projects. By the turn of the century investments will go up to Rs248bn ($7.08bn) in 17 large-scale, 560 medium and 17,000 small-scale industries. The business boom is being aided by development of infrastructure facilities such as the new Mangalore port, Konkan Railway project and proposed international airport.

As industries spread their tentacles, Mangalore and Udipi are being strangled by an unstoppable urbanisation spree. In less than a decade, population has nearly doubled, land prices have sky-rocketed, housing, water supply and sewage problems have become acute, and civic amenities have reached the point of collapse. Traffic density in the Mangalore-Udipi corridor, already among the highest in the south, is expected to increase by 400% at the end of this decade. By the turn of the century, Mangalore will have earned the dubious distinction of becoming a typically polluted Indian metropolis.

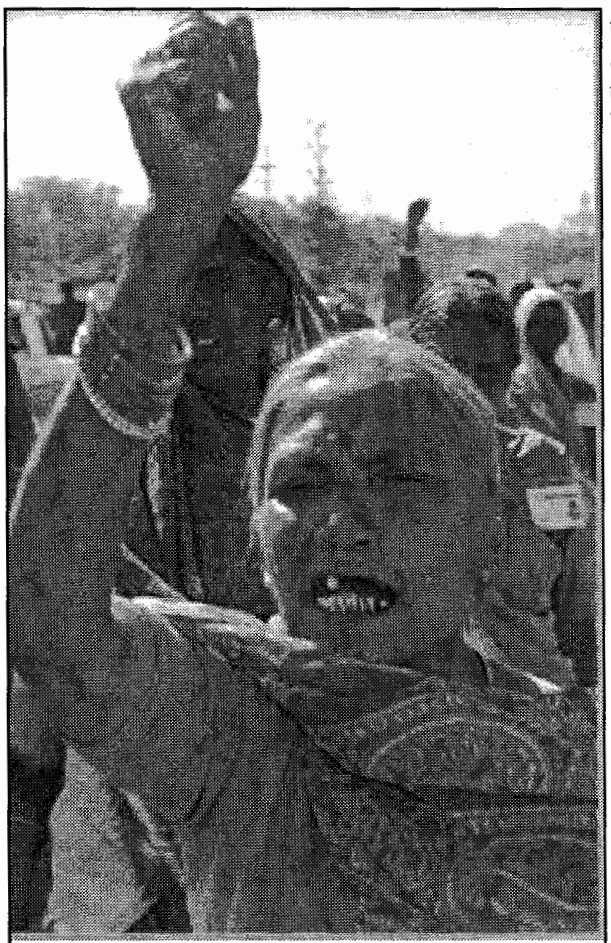
The dramatic rate of industrial and urban growth poses a serious threat to the ecologically sensitive and biologically diverse Dakshin Kannada district. Rapid depletion of groundwater will create a severe water famine and hazardous effluents will put an end to the thriving fisheries, leaving more than 300,000 fisherfolk without livelihood. The inevitable outcome of the industrial juggernaut will be soil degradation and the marginalisation of the farming community. The process has been speeded up with government declaring fertile paddy fields and lush forests as barren.

According to an environmental master plan study conducted by the Danish organisation DANIDA on behalf of Karnataka government, atmospheric pollution will rise by a factor of 9, wastewater discharge by a factor of 4, and solid hazardous waste will touch 14mt by AD 2000. The industrial boom has clearly rung the death knell for Dakshin Kannada.

People Protest

In August-September 1995, mass protests by irate fishermen disrupted life in the district. Their anger was directed against the Rs20.9bn ($0.6bn) Mangalore Refineries and Petrochemicals Limited (MRPL) for the threat to fish breeding and feeding grounds from the dumping of untreated effluents into the sea. Though the dispute was resolved with MRPL agreeing to abide by all environmental restrictions, such protests have long been simmering in the region.

Growing awareness of the impending ecological disaster, displacement and loss of livelihood have brought together farmers, fisherfolk, activists and local inhabitants. Under the banner of Save Dakshin Kannada Campaign, they are spreading out into the villages to mobilise support for a broad-based mass upsurge to protect the last vestige of the bountiful Western Ghats from the industrial steamroller.



Gas victims demonstrate outside the Indian subsidiary of Union Carbide, marking the 10th anniversary of the world's worst industrial disaster. More than 2000 people died on December 3, 1984 when methyl isocyanate gas leaked from the pesticide factory. Sunil Malhora, Reuter.

People's struggle against Enron and Cogentrix are of invaluable significance in the light of the new economic policy which is selling out India's economic and ecological interests. For the past few years, specially after the signing of the 9th GATT, 1992, there has been an onrush of TNCs through the open doors. Companies such as Motorola, General Electric, Cargill, DuPont, Mitsubishi, Sumitomo, Asea Brown Boveri, Hewlett Packard, MacDonalds, Pepsico and Coca Cola are multiplying their investments in the country, taking advantage of the cheap labour, and selling their products in the growing middle-class market. All in the name of globalisation.

The people's struggle has a long road to traverse. TNCs and their followers in the country, fully backed by the mainstream political parties and the state, will not easily give in. They have a great deal at stake in pursuing the path of 'development' they have charted for India. Economic reforms and open-door policies have aroused their lust for loot. The outcome of this emerging battle will perhaps determine whether India will retain its economic independence or surrender its sovereignty to global capital.

STATISTICS

Economy

Per Capita Income

Year	Population (in million)	Per capita income (in Rs)	Real per capita income (base 1982)
1950-51	361	239	1406
1960-61	439	328	1640
1970-71	548	675	1875
1980-81	683	1630	2012
1990-91	846	4983	2581
1994-95	904	284	2799

Note: *In the 80s the rate of increase of per capita income was 2.5%; in the 90s, the decade of liberalisation, the rate is only 1.6%*

Agriculture

Year	Agricultural production index	Agricultural productivity index	Foodgrain production (million t)
1950-51	46.2	62.4	50.8
1960-61	68.8	77.1	82.0
1970-71	85.9	92.6	108.4
1980-81	102.1	102.9	129.6
1990-91	148.4	133.8	176.4
1994-95	162.0	145.0	189.8

Industry

Year	Industrial production index 80-81=100	Finished steel production (million t)	Cotton cloth production (bn sq. m)
1950-51	18.3	1.0	4.2
1960-61	36.2	2.4	6.7
1970-71	65.3	4.6	7.8
1980-81	100.0	6.8	9.6
1990-91	212.6	13.5	17.8
1994-95	250.6	15.4	21.1

Power

Year	Capacity (million kW)	Generation (bn kWh)	Villages electrified ('000s)
1950-51	2.3	6.6	3
1960-61	5.6	20.1	22
1970-71	16.3	61.2	107
1980-81	33.3	119.3	273
1990-91	74.7	289.4	481
1994-95	91.7	385.0	496

Source: In Quest of Development: A Statistical Brief, *Calcutta, Nagarik Mancha, 1997*

Position in the World Economy

External Trade Account
(in million $)

Year	Exports	Imports	Trade balance
1990-91	18143	24075	-5932
1991-92	17865	19411	-1546
1992-93	18537	21882	-3345
1993-94	22239	23307	-1068
1994-95 (April-Dec.)	18328	20339	-2011

External Debt

Year	Debt service as %age of current receipts	Total debt as %age of GDP
1980-81	9.3	13.7
1985-86	16.7	17.4
1988-89	26.5	19.7
1989-90	25.2	21.5
1990-91	24.7	21.4
1991-92	24.6	27.3

Source: Economic Survey, 1992-93

** 1980-81 $5.56 billion; 1991-92 $56.85 billion*

** Today India is the world's third-largest debtor with an external debt of $100 billion. Its repayment liability is $20 billion: $14bn for debt servicing, $6bn as trade deficit* (FICCI, 1996-97)

Human Resources

Population

	Unit	1991
Population	million	846
Urban	million	218
Rural	million	629
Male	million	439
Female	million	407
Females per 1000 males	number	927
Birth rate	per 1000	32.5
Death rate	per 1000	11.4
Life expectancy at birth	years	58.2
Male	years	57.7
Female	years	58.7

Human Development

	Year	
Under-5 mortality	1992-93	109/1000 live births
Maternal mortality	1992-93	453/100,000 births
Total fertility	1992	3.6
Literacy	1991	52.2%
Male	1991	64.1%
Female	1991	39.3%

Source: In Quest of Development: A Statistical Brief, *Calcutta, Nagarik Mancha, 1997;* The progress of Indian states, *UNICEF, 1995*

India and the World

Human Development Index 1992

Country	HDI	Rank
Argentina	0.882	30
Bangladesh	0.364	146
Brazil	0.804	63
China	0.594	111
France	0.930	8
Germany	0.921	15
India	***0.439***	***134***
Japan	0.937	3
Kenya	0.481	130
Mexico	0.842	53
Pakistan	0.483	128
South Korea	0.882	31
UK	0.916	18
USA	0.937	2

Source: Human Development Report, *UNDP, 1994*

Infrastructure 1990

Country	Access to safe water (pop.%)	Paved roads 000km	Rail track 000km	Power generation (bn kWh)
Bangladesh	78	6.6	2.9	8.1
Brazil	87	161.5	22.4	222.2
China	72	n/a	n/a	621.2
France	100	741.2	34.6	419.5
Germany	100	496.0	41.8	454.7
India	***73***	***759.8***	***75.3***	***286.0***
Japan	96	782.0	24.0	857.3
Kenya	49	6.9	2.7	3.0
Mexico	89	82.0	26.3	122.5
Pakistan	55	86.8	12.6	43.9
S Korea	93	34.2	3.1	118.7
UK	100	356.5	16.6	319.0
USA	n/a	5169.0	205.0	3031.0

Source: World Development Report, *World Bank, 1994*

Underdevelopment

Poverty Line

	Population (million)	%age population
Total	350	45.0
Rural	283.1	48.4
Urban	66.9	34.7

Source: *50th Round of NSS, 1993-94*

Healthcare 1991

	Total	Per 1000 persons
Primary/community health centres	22,900	0.027
Hospitals	13,700	0.016
Dispensaries	27,400	0.032
Doctors	411,000	0.487
Nurses	385,000	0.456

Source: Statistical Outline of India, *1995-96*

Elementary Education

Year	6-14-year-old non-participant (in million)	%age of total population
1911	44.14	90.5
1951	49.18	71.5
1961	47.94	59.9
1973	44.80	37.8
1978	55.30	42.1
1992	19.18	12.0

Women

Sex Ratio

Year	Females per 1000 males
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	934
1991	927

Employment By Sector & Gender —1991

(%age composition)

	Female	Male
Agriculture		
Owner/sharecropper	34.6	39.9
Landless worker	44.2	20.8
Animal husbandry, fishing, forestry	2.1	2.1
Mining, quarrying	0.3	0.7
Cottage industry	3.5	2.1
Other industry	3.8	8.8
Construction	0.7	2.3
Trade & commerce	2.2	9.0
Transport	0.3	3.5
Other services	8.3	10.8
Total	**100.0**	**100.0**

***Source**: Census 1991*

School Enrolment by Gender

Year	Cl I-V (6-11 years) Boys	Cl I-V (6-11 years) Girls	Cl VI-VIII (11-14 years) Boys	Cl VI-VIII (11-14 years) Girls
1950-51	13.77	5.39	2.59	0.53
1960-61	23.59	11.40	5.07	1.63
1970-71	35.74	21.36	9.43	3.89
1980-81	44.29	28.49	13.93	6.79
1990-91	58.10	41.02	20.84	12.44
1991-92	59.22	42.36	21.45	13.00

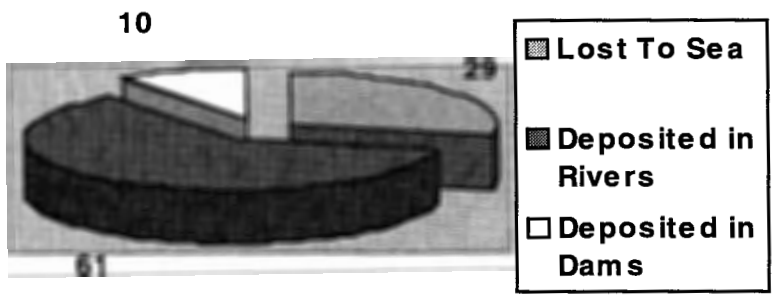
Source: Education for All: The Indian Scene, *Department of Education, Ministry of Human Resources Development, Government of India, December 1993*

Environment

Flood Damage

Decade	Pop affected/ area affected (in million)	Crop damage/ area affect (Rs/ha)	Tot. damage/ total area affected (Rs/ha)
1950s	2.47	235	93
1960s	2.71	377	210
1970s	4.51	847	717
1980s	5.88	2051	2557

Soil Loss



Source: State of India's Environment: A Citizens' Report, *New Delhi, CSE, 1991*

Soil Erosion
(*in mha*)

	Dry region	Humid region	All India
Water & wind erosion	70.2	50.9	121.1
Waterlogging	3.9	4.6	8.5
Salination	3.3	3.9	7.2
Nutrient depletion	16.4	9.7	26.1
Total	93.8	69.1	162.9

Land Degradation

Land degradation acounts for 4-6.3% productivity loss in total agricultural output per year which amounts to $1.5-2.4bn.

Source: DTE, October 15, 1996

Deforestation

At the time of independence in 1947, India had a forest cover of 19.8% of the total land area; by 1996 it had come down to 11.2%. The destruction to the country's forests in 50 years has been more than twice that in 100 years under colonial rule.

Source: *Gadgil, Madhav & Ramchandra Guha,* Ecology & Equity, *New Delhi, Penguin, 1996*

Denudation in the Himalayas

Location	Denudation rate (mm/year)
Himalaya	1.00
Ganga-Brahmaputra watershed	0.70
Darjeeling area	0.5-5.0

Soil Loss for Himalaya Road Building

Length of roads	44,000 km
Debris removed to make these roads	1760-3520 mcm
Debris generated by each km of road per year	550 cum
Debris generated by all Himalayan roads per year	24.2 mcm

Source: State of India's Environment: A Citizens' Report, *New Delhi, CSE, 1991*

Environmental Costs

Surface water pollution	59%
Soil degradation (agriculture)	20%
Rangeland degradation	3%
Deforestation	2%
Tourism	2%
Urban air pollution	14%

Source: DTE, October 15, 1996

Cost of Deforestation

Forest type	Deforested area 1981-90 ('000ha)	Replacement cost approach		Market value approach	
		Aver annual reforestation per ha ($)	Annual reforest cost ($ million)	Aver annual sustainable yield(cu. m/ha)	Annual reforest cost ($ million)
Tropical rain	495	75	37.1	1.25	61.9
Moist deciduous	378	75	28.4	2.00	75.6
Dry deciduous	2141	75	96.3	1.00	64.2
Hill & montane	355	75	21.3	1.50	42.6
Total	3369		183.1		244.3

Source DTE, October 15, 1996

Displacement from Projects

Type of projects	Displaced	Rehabilitated	Backlog
Coal and other mines	1,700,000	450,000	1,250,000
Dams and canals	11,000,000	2,750,000	8,250,000
Industries	1,000,000	300,000	700,000
Sanctuaries and parks	600,000	150,000	450,000
Others	1,200,000	300,000	900,000
Total	**16,500,000**	**3,950,000**	**11,500,000**

Source: *Fernandes, Walter, J C Das & Sam Rao:* Displacement and Rehabilitation – An estimate of extent and prospects, *Indian Social Institute, 1989*

Urbanisation

Air Pollution in Major Cities

Cities	spm levels (mg/m³)
Delhi	460
Calcutta	460
Mumbai	220
Chennai	150
Bangalore	190
Hyderabad	150
Ahmedabad	200
Jaipur	230
Nagpur	230
Kanpur	350

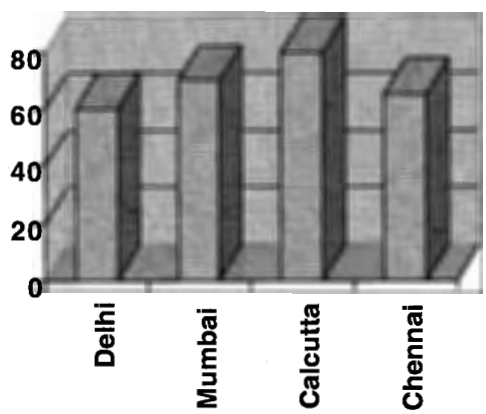
Health Cost of Air Pollution in Cities

	Physical impact	$ million
Premature deaths	40351	170-1615
Medical treatment1	9.8million	25-50
Minor ailments	1.2 billion	320-437
Total		**517-2102**

Source: Down to Earth, *Oct. 15, 1996*

Noise Pollution

Ambient noise levels in residential areas (in decibel)



Source: Hindu Survey of the Environment, *1994*

Vehicle Population

	1951	1971	1993
Two-wheeler	0.3	5.8	170.3
Car, jeep, taxi	1.6	6.8	33.3
Bus	0.3	1.0	3.8
Goods vehicles	0.8	3.4	16.0
Others	0.04	1.7	29.6

Source: India Today, *Dec. 15, 1996*

Burden of Water-borne Diseases
(million DALYs)*

Disease	Female	Male	Total
Diarrhoeal	14.39	13.64	28.03
Intestinal helminths	1.0	1.06	2.06
Trachoma	0.07	0.04	0.11
Hepatitis	0.17	0.14	0.31
Total	15.63	14.88	30.51

**Disability-adjusted life-years*
Source DTE, October 15, 1996

Chemical Disasters After Bhopal

Date		Place	Deaths	Injuries	Nature of mishap
1985	Dec	Shri Ram Food and Fertilisers, Delhi	2	500	Oleum gas leak
1987	June	Kaluparghat, Bhuban eswar, Orissa	4	NA	Ammonia gas leak
	July	Bhorari Industrial Area, Pune, Maharashtra	—	420	Sulphur trioxide leak
	Nov.	Behrampur, Ahmedabad, Gujarat	—	5000	Oleum gas leak
1988	May	Deese Town, Ahmedabad, Gujarat	19	53	Acid tanker overturned
1989	Oct.	Chlorinators India, Ganjam, Orissa	6	100	Chlorine gas leak
1990	Nov.	Indian Petrochemicals Ltd, Nagothane, Maharashtra	35	50	Explosion in gas cracker plant
1991		Gwalior Rayon & Silk Mills, Gwalior, Madhya Pradesh	9	100	Explosion in filling unit
	Nov.	Dahanu, Maharashtra	100	19	Chemical explosion from overturned tanker
1992	April	Naya Bazar, Delhi	12	—	Chemical explosion in warehouse
	Sept.	National Fertiliser Ltd, Panipat, Haryana	11	11	Ammonia gas leak
1993	March	Century Rayon, Sahad, Maharashtra	11	123	Sulphuric acid gas leak
1994	Oct.	Jhansi, Uttar Pradesh	30	25	Factory explosion

Source: *Hindu Survey of the Environment, 1995.*

Waste Import

Country/Product	Year	Quantity ('000 kg)
Australia		
Plastic	Jan.-Sept 93	74
Non-lead metals	1992	33621
Lead battery	1992	126
Canada		
Copper & alloys	1992	960.37
Ash & residue	1992	1226.46
Non-ferrous	1992	90.33
Plastic & polyesterine	1992	42.28
Sweden		
Zinc	1994	211 mt
Copper	1994	660 mt
Zinc ash & residue	1994	1172 mt
Iron & steel scrap	1994	23846 mt
UK		
Ash & residue	Jan.-July 92	524.65
Copper	Jan.-July 92	2443.58
Lead	Jan.-May 1992	501.94
Other metals	Jan.-July 92	719.18
USA		
Metal scrap	1990	1794011
Plastic	1993	7841.8
Tin plate	1993	26802.36

Source: The State of Indian Economy, PIRG.

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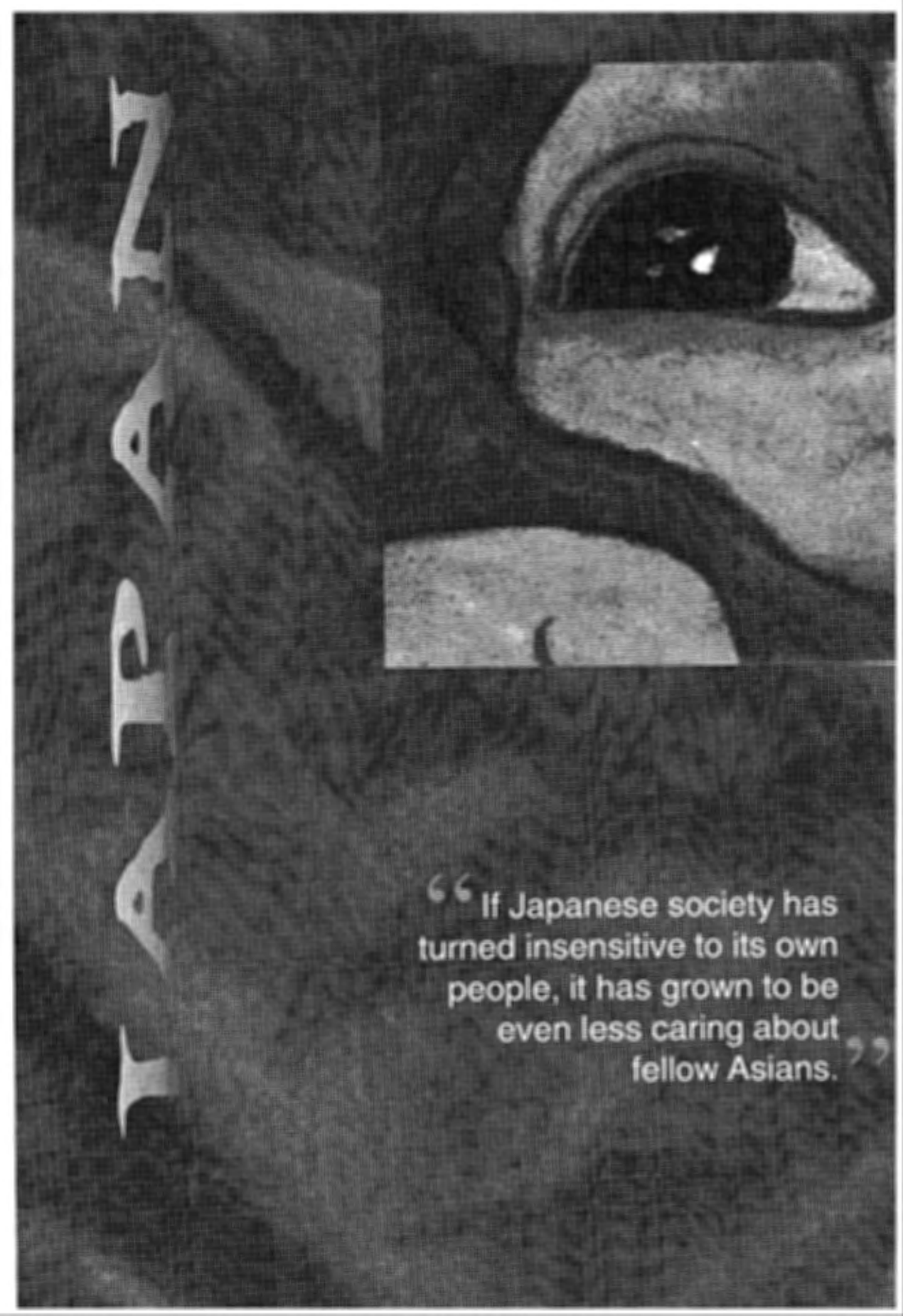

JAPAN
"If Japanese society has turned insensitive to its own people, it has grown to be even less caring about fellow Asians."

JAPAN

Fujibayashi Yasushi, Elson E. Boles, &
James J. Keezhangatte[1]

Post-War Economic Boom in Japan: Growth by Invitation

The debatable desire of the third world to catch up with the first world has been constrained by the fact that the latter has been monopolising the world's most profitable activities for the past few centuries, ever since the expansion of economic territories became the creed of developed industrialised nations. Of course, there may be more first world countries in 1997 than in 1697, but there are even more third world countries that have since become part of the world economy. In fact, the gap between the rich and poor countries is greater today than it has ever been. No individual nation-state, let alone a third world variety, was ever in any position to alter this situation.

However, by 1980, the Asia-Pacific imperial state called Japan did catch up with the first world in terms of per capita GNP and emerge as the monopoliser of the most profitable sectors of the world-economy, pushing into the background even some of the European stalwarts. But it could offer no model of economic growth for others in the third world to follow. This was not just due to the tremendous costs that such a success story entailed but also because it sprung from a historical opportunity that came Japan's way and could not be expected to come the way of other third world nations. Japan, after its defeat in the war, was invited to the ranks of the world's wealthy nations by the US out of necessity, and it made the best of the bargain.

A Garrison State Turns the Tables

The invitation came in the early 50s, soon after the communist revolution in China and the start of the Korean war. The US — having acquired greater power over the world than any other nation ever had in history — designed to turn Japan into an occupied garrison state which could act as a counter to the spread of communism. South Korea and Taiwan were only too willing to be the two pillars of this cold war strategy. For the US, it was also crucial that Japan's postwar reconstruction surpassed that of West Germany, its main competitor in the capitalist bloc and which had the backing of the whole of west Europe. Moreover, Japan's success implied the victory of an ideology — the world could be shown that free-market, capitalist development polices worked better than the socialist path to progress.

The strategy was to infuse Japan with massive reconstruction aid which came in several forms, including an impressive equivalent of the Marshall Plan. It also granted the Asia-Pacific island nation free access to the cheap resources of southeast Asia, thereby aiding the rebirth of Japanese imperialism, albeit in a new form in accordance with the post-colonial world.

Indeed, a demilitarised Japan's overseas investments were protected free of cost under the US cold-war military umbrella. The arrangement enabled the country to save billions of yen that would have otherwise gone into war-preparedness and allowed all its capital to be funnelled into the conversion of the military-industrial complexes into peacetime productions (or US military needs).

To put Japan's renewed import of raw materials and infused aid-capital into profitable use, an external market was imperative as an outlet for the items the country produced, specially since the domestic market was badly squeezed by the devastations of the war. The US resolved this problem in two ways: first, its own government itself became a key consumer of Japanese goods and services — machinery, metals, chemicals, armaments, and recreation services including prostitution purchased by the US military forces during the Korean and Vietnam wars. A thrust on heavy industry, thereby, became the hallmark of Japan's postwar reconstruction. Second, Japan was given privileged access to the US market and the yen a very favourable exchange rate against the dollar. In April 1949, the Japanese currency was set at the fixed rate of ¥360 per $, merely a fraction of its value in the international market prior to the war. This gave Japan a tremendous comparative advantage in trade, even enabling it to undersell US light industry producers in the US itself as well as in other US-dominated markets.

By the late 60s and early 70s, Japanese firms relaunched trade with its former colonised neighbours through the export of low-priced commodities but reserved the higher-priced consumer goods for the US where they were in great demand. In fact, even though the US economy was wrecked by inflation and unemployment from colossal deficit expenditures during the Vietnam war, Americans were able to maintain their standard of living and relative purchasing power on account of the steady import of consumer items from Japan. In a way, almost in a reversal of roles, Japan was subsidising the US in its hour of crisis.

A Repressive, Corrupt Regime

For Japan to play this role effectively, domestic labour costs had to be kept under strict control. With the beginning of the cold war, the US had enforced on the Asia-Pacific nation the infamous 'reverse course' policy changes which called for partial remilitarisation and unleashing of state repression on democratic and progressive labour unions. Diehard capitalist-roaders who assumed charge of the Japanese government, aided by the occupying US forces, took every step to break up democratic movements and militant trade union struggles, and provided generous support to conservative and corporate-sponsored labour organisations. The majority of Japanese workers were, thus, forced to abandon any control over their workplace and working conditions, and trade union activity was confined to wage guarantees and job security. The outcome of this process was the emergence of the highly oppressive and exploitative life-time, seniority-oriented employment system. It is not without some irony that under such rigorously hierarchical labour rental arrangements many Japanese workers have become company loyalists to the point of *karoshi* — death from overwork.

The US sponsored repression of progressive forces also laid the foundation for the return to power of ultra conservative politicians, even class A war criminals such as Prime Minister Kishi, as members of the Liberal and the Democratic Parties (which later combined to form the LDP). The conservatives created one of the world's most profitable (for politicians and contractors) and corrupt

public-works systems in the world. Infrastructure development received the bulk of the national budget in order to support export-oriented heavy industries. During 1955-1965, as much as 15 to 20% of a rapidly increasing national budget was allocated to public works for the development of electric and nuclear power, highways and dams, the high-speed "bullet train," ports, airports, industrial complexes, and so on.

Public works grew into an unstoppable political monster which generated billions of yen for the LDP and its shadow kingpins. *Doken ya kokka*, the "construction-contractor state" emerged as the decisive force in Japan's postwar political-economy. Bribe scandals, such as the infamous Recruit stocks-for-favours affair involving several Prime Ministers and gangsters, occurred with such regularity that for most Japanese, politics and corruption are synonymous and unstoppable.

Squeezing Out Societal Values

Rapid industrialisation and infrastructure development as well as the US-aided trade boom that catapulted postwar Japan into the centrestage of the world economy had a calamitous impact on the country's environment, resulting in frequent outbreaks of serious diseases, loss of livelihood and a number of socio-psychological problems. The much-discussed Minamata mercury poisoning of the 50s, the waste island of Teshima and the recent revelations about leakage in the nuclear storage facility at Aomori are testimony to the catastrophic fallout of the perverted strategy of economic expansion pursued by the Asia-Pacific islands nation since the war. Today, an increasing number of people, including hundreds of thousands of Japanese children, suffer from respiratory ailments and skin disorders from ever-rising air pollution in the cities; water-borne and vector-infused diseases have become rampant as greater volumes of industrial effluents clog the waterways; the lives of an ever-increasing number of people are getting more and more endangered with oil spills, nuclear and hazardous chemicals leakages, factory fires and road accidents becoming an almost everyday occurrence. The spectre of Hiroshima-Nagasaki has returned to Japan through another route.

In its unending pursuit of profits, the repressive political machine rode roughshod over any opposition which came in the way of the ill-conceived public works projects. Sometimes, entire communities were forced out of their land for the construction of factories or infrastructural works. Cultures and ways of life have perished in such mindless onslaughts. People's resistance to these cruel displacements were more often than not responded to with brute coercion.

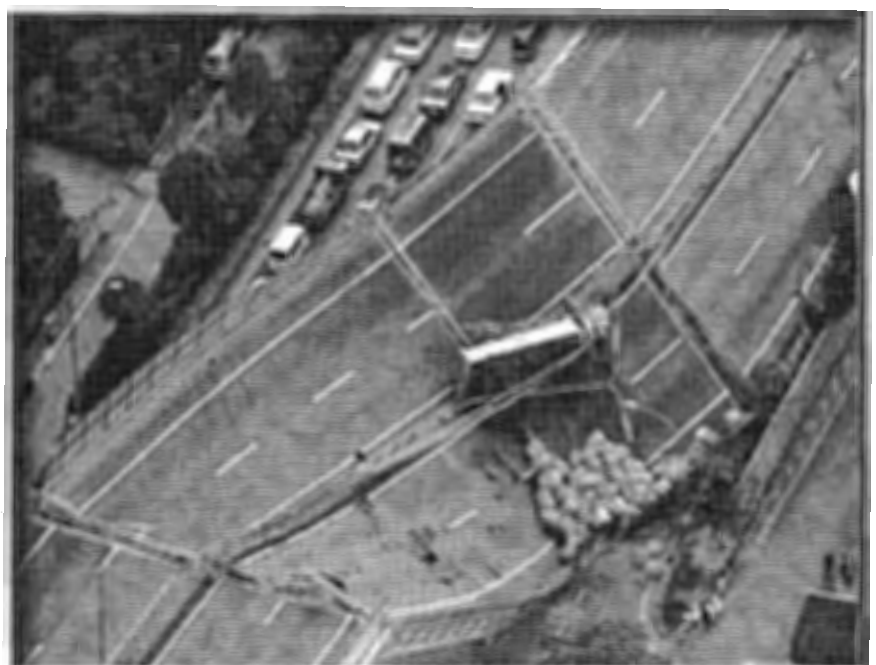
More importantly, the phenomenal rate of urbanisation and with it the emergence of a constantly-changing, technology-centred lifestyle has also emptied the Japanese society of its human qualities. Elderly on their own in the countryside lack adequate home-care services while remaining first sons cannot find mates and frequently resort to taking advantage of the poverty of other Third World women by importing brides. In urban areas, elderly day labourers without homes are left to live and die on the streets. The heartless attitude of the Tokyo government was made clear in recent years. While it poured billions of yen into the refurbishing of the metropolitan art museum, it spent by comparison a minuscule amount on temporary housing for the elderly homeless who are malnourished, sickly, and freezing to death on Tokyo's cold winter streets. Monetary gain, and nothing else, has become the highest value in life, its degenerate philosophy permeating every corner of Japanese society. A de-traditionalised, upwardly mobile Japan faces the biggest moral crisis in its history.

Asian No More

If Japanese ruling class has turned insensitive to its own people, it has grown to be even less caring about fellow Asians. Koreans, born and raised in Japan, are frequently the victims of 'quiet racism'; migrant workers are usually subjected to the humiliation of mandatory fingerprinting; women, imported to serve as sex workers for Japanese men, are beaten up by Japanese police and immigration officials. And the government has yet to own up to its horrific past during World War II and pay compensation to thousands of women forced to be sex-slaves (so-called "comfort women") by the Japanese military.

It is now an open secret that Japan is exporting poverty and pollution to other Asian countries. Much of its aid funds to poorer Asian nations are mere facades for acquiring greater stakes over the receiver countries' industries and markets. Many of its pollution-inducing plants and technology have already been or are being relocated in Korea and China. Huge forest tracts in Southeast Asia and precious mineral resources in India have fallen prey to the prying eyes of Japanese industry in its ever-expanding search for raw materials. It is the less developed countries which feed the wheels of Japan's gigantic industrial machine while their own people are robbed off their natural resource base. The global consequences of unchecked rural "development" choked Southeast Asia this year with smog from fires that raged across Indonesia during late 1997.

Today, Japan is one of the world leaders controlling the global economy. It now has an honourable place among the handful of economically developed first world nations. The Asian giant has responded well to the invitation extended after the war by the western powers. Japan is no model for other underdeveloped countries; indeed Japan is a source of their ills as its voracious industrial machine leaves destruction and misery in its path. Where has its Asian identity gone, its abiding link with the continent it belongs to?



Traffic lies backed up in the city of Kobe alongside a section of the collapsed expressway destroyed by the earthquake. Masahuru Hatano, Reuters.

GLOSSARY

Depastoralisation

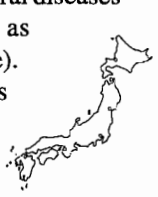
Farmers of the land of the rising sun are awaiting a sunset, that of agriculture and forestry. Since the end of the war and the beginning of the industry-oriented economic miracle, both the farmers and their farmlands and forests have been disappearing in Japan at a rapid pace. Rice cultivation, once the primary occupation of the Japanese villager, has been all but abandoned even as, faced with its own vanishing woods, the country has turned into the biggest ravager of southeast Asia's rain forests as the world's largest importer of tropical timber. An NGO country report presented at the UN summit on social development describes Japan's agricultural 'crisis' as one of 'disintegration.'

Agriculture: In 1960, there were 6.057m farming households in Japan and the cumulative area under cultivation was 8.129mha. By 1994, the farming families had dwindled to 3.644m and the cultivated area to 5.083mha. In the mid-90s, only 15% of Japanese farmers supported themselves solely through agriculture, the rest depended on non-agricultural work to make both ends meet. The deathknell of Japanese agriculture, already bearing the brunt of growing neglect due to increased thrust on industrialisation, was rung when government initiated its policy of reducting rice production. Earlier, half of Japan's agricultural land was devoted to rice cultivation and seven out of 10 farming families were wholly or partially engaged in rice production. But in 1990, there were 220,000ha 'abandoned paddy fields' — the land left fallow for one year. Modernisation and technological innovations, too, have contributed to the marginalisation of rice farming by introducing elitist landowning patterns and shoring up productivity. These also led to a reorientation of Japanese agriculture toward 'selective expansion,' for instance, diversification into cattle-raising and fruit production. With more and more capital-intensive farming, farmers now borrow 35 times more than they did 25 years ago and make big investments on machinery. No wonder, the Japanese farmer today has become *kikai bimbo* or machine-poor.

Environmental Pollution

As everywhere, Japan's rapid industrialisation has led to unprecedented pollution. As the country's air, water and land get filled with toxic particles, hazardous industrial effluents and non-organic wastes of a highly technological society, diseases of all kinds, incurable and fatal, are breaking out throughout the island nation. With the corporate profit-raking culture holding sway, pollution control laws have become more conspicuous by their non-enforcement rather than strict implementation.

Air: In 1993, major air pollutants in Japanese cities and industrial towns were sulphur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO) and suspended particulate matter (SPM). Respiratory disorders — chronic bronchitis, bronchial asthma, asthmatic bronchitis and pulmonary emphysema — are the major offshoots of such high levels of air pollution.[2] The corelation between air pollution and respiratory disorders is so acute that several diseases were ealier named after the areas where they most frequently occurred, such as Kawasaki asthma (Kanagawa prefecture) and Yokkaichi asthma (Mie prefecture). In the suburbs of metropolises like Tokyo and Osaka, photochemical smog has been causing irritation of the eyes and pharyngolaryngeal mucosa.



Garbage: In 1992. the volume of industrial wastes, coming mainly from factories, construction areas, hospitals and automobile dismantling units, was 430mt, while that of non-industrial domestic wastes amounted to 50.2mt. It meant that a family of four threw away 15t waste per annum. Dealing with such huge and ever-increasing mass of domestic wastes became a serious problem for the municipalities which had to concentrate on efforts to reduce wastes and develop technology for recycling. What caused an even more serious problem was that the wastes were illegally dumped in thinly-populated countryside and the mountains. The affected residents in at least 300 such garbage sites have gone to court with litigations against illegal dumping, but the practice continues. A smug administration is content with the attitude that for the greater interest of business and urban development such small sacrifices are inevitable.

Land: In Japan, soil and groundwater pollution caused by illegal dumping from factories have became a serious socio-environmental issue. There have been several instances of industrial waste being secretly buried in the factory premises or in surrounding areas. There have also been instances of industrial wastes disposed of in waste-treatment plants contaminating groundwater and the surrounding soil. *Itai itai* disease was the result of such effluent discharges from zinc and lead mines in Kamioka, Yoshishiro county, Gifu prefecture flowing into the Jintsu river and contaminating soil in the Toyama plain and along the river's lower reaches. Chronic arsenic poisoning also occurred in Sasagatani district of Shimane prefecture in 1970 and in Toroku district of Miyazaki prefecture in 1972. People who worked or lived in the vicinity of active arsenic mines became victims of arsenic poisoning.

Water: Water pollution in Japan predates the current industrial upsurge. From the time the country began to develop its mines and industries, people have been killed and local environments devastated from the discharge of harmful wastewater. The first major incident of water poisoning took place as a result of the outflow of pitwater from the Ashio copper mine in Tochigi prefecture into the Watarase river which damaged soil and paddy fields along the river's lower reaches. Minamata disease in Kumamoto prefecture and Niigata mercury poisoning in Niigata prefecture are examples of water poisoning leading to incurable diseases and loss of life. Water pollution is also caused by indiscriminate disposal of sewage containing synthetic detergent used in kitchens and bathrooms. The official claim is that the water quality standard for a healthy life is almost fully met though, according to the 1997 *World Development Report*, 95% of the population have access to safe water.

Yokkaichi: In the 60s, Yokkaichi city in northern Mie prefecture saw an outbreak of severe asthma among its residents. The epidemic was caused by oxides of sulphur and nitrogen released into the city's air by the giant petrochemical complex built there after the war. *Yokkaichi Zensoku,* the name of the respiratory ailment, was the result of withering sulphur dioxide in the air affecting mucosa and cilia in the throat, bronchial tube and lungs. With lung infections, the heart too was affected, resulting in pulmonary cardiac diseases and emphysema with pathological destruction. The outcome was slow and lingering death.

Industrial Poisoning

Since the 50s, incidents of widespread industrial poisoning have been occurring with unfailing regularity. However, for a long time, Japanese imperial and local governments colluded with the corporate sector to dilute and even deny the occurrence of such incidents so that the guilty firm did not have to pay damages. It was only in the 70s that the right of victims to compensation was established in rulings on four major lawsuits regarding industrial poisoning — *itai-itai* disease (1971), Niigata Minamata disease (1971), Yokkaichi Asthma (1972), and Kumamoto Minamata disease (1973). The landmark judgments also underlined that it was the responsibility of industries

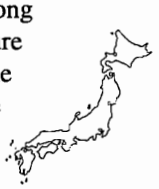
to ensure that their activities were non-polluting. The judgments led to the passage of the Pollution Related Health Vitiation Compensation Law of 1973 that provided victims right and access to medicare, but a revision of the law in 1987 resulted in the withdrawal of such medical facilities, virtually shutting the door on victims' rights to apply for certification and seek compensation for damages.

Itai Itai: The effluent discharge from the zinc and lead mines of Kamioka Mining company in Kamioka, Yoshishiro county, Gifu prefecture, into the Jintsu river contaminated the soil of the Toyama plain along the lower reaches of the river and caused the *itai itai* or 'ouch-ouch' disease. The disease, caused by cadmium poisoning, appeared mainly in the town of Fuchu and affected mostly women aged 35 or over who had had two or three pregnancies. It left the victims with spontaneous pain in the inguinal region, lower back, back, and joints, with muscular movement easily causing bone fractures, steppage gait and hunchback.

Kanemi: The world's largest and first major episode of food poisoning by polychlorinated biphenyls (PCBs) occurred in 1968 in the city of Kita Kyushu. Around 14,000 people who consumed contaminated cooking oil manufactured by the Kanemi Soko Co. were affected and over 100 people were believed to have died. The tragedy was caused by the negligence of Kanemi Soko and Kanegafuchi Chemical, manufacturer of the PCBs. The victims experienced chloracne, a severe skin disease, as well as cardiovascular and central nervous system disorders. A group of 44 victims won a complete legal victory when the Fukuoka District Court found both companies guilty of negligence under the civil law and instructed them to pay the plaintiffs ¥682m ($2.5m). A similar decision was rendered by the Kokura branch of the same district court, which in March 1978 awarded 729 plaintiffs ¥6.1bn ($28.8m) in damages to be paid by the two companies.

Minamata: In the 50s, the effluent waters of the acetaldehyde-synthesising plant of Chisso Corporation (then Nippon Chisso Hiryo) discharged organomercury compounds into Minamata Bay, causing mass deaths of fish in the sea and local dogs and cats. This was followed by the Minamata disease among the fisherfolk and their families. In 1953, it was publicly acknowledged that organic mercury was the cause of the dangerous disease, but the official 'discovery' came three years later. The Minamata syndrome consisted of numbness of the extremities, perioral numbness, centripetal constriction of the visual field, loss of hearing, clumsiness of minute movements, articulation disorders, tremor and ataxia. In cases of congenital Minamata disease, cases of mental retardation was common. In 1959, Chisso and the prefectural government forced the victims to accept a settlement that provided for a measly compensation package in lieu of the victims losing their rights to further claims. A decade later, the Minamata victims sued for compensatory damages and received a favourable ruling in 1973. Keeping aside administrative wrangling and dillydallying over identification of the victims, it is believed that some 200,000 people have been affected by the poisoning and are on the way to gradual death. In 1996, forty years after the outbreak of the Minamata epidemic, Chisso and government once again forced the victims to accept what it called the final settlement, a rehash of the original 1959 scheme. After 40 years, Kumamoto Prefectural government attempted to restore 'normalcy' by removing a 2-km fence which closed fishing in Minamata Bay since 1974. Minamata exposes the unholy nexus that exists between government and the corporate sector in contemporary Japan. *(See case study)*

Niigata: In 1965 symptoms similar to those of Minamata disease were noticed among the people in a fishing and farming district in the city of Niigata of Niigata prefecture at the mouth of the river Aganogawa. The symptoms and pathology were the same as in Minamata disease and, hence, the Niigata disease came to be known as the 'Second Minamata.' As in Minamata, mercury was found to be responsible for



contaminating the river fish *nigoi* (*Hemibarbus barbus*). That year, Showa Denki's Kanose factory, located 60km upstream of the Aganogawa river, had discharged mercury-containing effluents into its waters. Victims of the Niigata mercury poisoning filed for compensatory damages in 1967 and received a favourable ruling in 1971. By December 1979, there were 610 officially-designated surviving victims, 73 were dead and 119 applicants were still awaiting official acceptance of their victim status.

Teshima: Teshima of Kagawa prefecture, a small island in the National Park with a land area of 14.6km^2 and a population of 1500 fisherfolk, is located in the east of the Island sea. Hazardous dumping on this island began in the late 70s by local companies located in the eastern coast. In 1978, residents filed complaints against companies regarding suspected harmful substances in the waste they dumped. Though the Takamatsu District Court (Kagawa prefecture) ruled that 'harmful substances should not be dumped,' Kagawa prefectural government allowed dumping of 'wood chips and dirt used for feeding in earthworm nurseries.' By the end of the 80s, the dump site covered 30ha, 20m in depth, to become the largest-single dump site in Japan. In 1996, Ministry of Health and Welfare claimed that the prefecture's decision was 'inadequate.' Efforts to clean up the mess were slow in coming even as the residents continued their legal battle for a clean environment. In June 1997, the Environmental Disputes Coordination Commission offered a mediation plan which included the construction of a waste processing plant, the cost of which was to be borne by government and Kagawa prefecture. The Commission also indicted Kagawa prefecture on its failure to stop the dumping in Teshima. *(See case study)*

Lifestyle

The postwar economic boom in Japan brought with it an entirely different lifestyle. As millions are absorbed in the highrise, fiercely competitive urban milieu, traditional Japanese values and ways of life are being replaced by a new alienating culture where money-making is the sole preoccupation. Drugs, sexual perversion, gambling and mindless luxury have become the obsession of a depraved urban elite.

Golf: Since World War II, the popularity of golf, a costly sport, has increased tremendously in Japan. In 1988 there were approximately 640 golf courses being used by some 12m golfers. With interest in the game has been steadily on the rise, resistance to the construction of golf courses is increasing. In 1990, news of the planned construction of a golf course on Kotan mountain in Hokkaido drew spontaneous resistance from a group of four women which launched the 'Group to Save Mt Kotan's Lake and Forest.' Environmentalists argued that golf courses caused environmental degradation and landlessness by displacing farmers. An awareness campaign was launched to inform people about the adverse effects of golf courses and signatures of almost 10,000 people from all over Japan were collected on a petition opposing the Kotan construction. In November 1992, the petition was submitted to the town authorities, who abandoned the plan in March the following year on the plea that the developer had backed out. The question remains: For how long will Mt Kotan be without holes?

***Pachinkoholism*[3]:** Pachinko was introduced as a harmless game for children in 1948. Today, this bagatelle game of pinballs crossing the one-armed bandit, has turned into a mammoth and increasingly controversial industry. It is now a thinly disguised form of gambling, offering token prizes that the players exchange for cash. And the pachinko has become a big employer which earns a colossal revenue. The 18,000 pachinko parlours in Japan employ a quarter of the country's service sector, earning a revenue of more than ¥30 trillion ($270bn), more than the automobile industry. The pachinko's commercial notoriety emerges from its strong links with the *yakuza*, the Japanese mafia. A survey by *Minichi Shimbun*, Japan's leading daily, identified 30 cases within a period of 15 months in which children met with accidental deaths while their parents

played pachinko. Children themselves have become victims of a game originally meant for them.

Militarisation

After the surrender of the Japanese forces at the end of the war, the Asian nation was converted into a garrison state by the US. Several strategic islands were, under the pretext of protecting Japan from communist expansionist moves, were turned into naval bases and occupied by US troops. The occupation continues even today and Japan has had to bear the main brunt of the maintenance and upkeep. Even more than the financial drain, the socioeconomic and political fallout of such continued occupation has been disastrous. According to the terms of the surrender, Japan cannot remilitarise.

Okinawa: Okinawa, one of Japan's small prefectures, with an area of 2265 km^2 was home to 1.3m people and host to 75% of US bases in Japan that occupied 20% of the land. Okinawa hosted 60,000 US military personnel and Japanese government as the host nation, provided $5bn a year — 70% of the cost of maintaining the bases — to support the US forces. More than 50 years after US forces touched shore on Okinawa, the land of 30,000 Okinawan families remain occupied by the bases, their women continuing to be exploited. Economically, Okinawans have the lowest income per capita in Japan with an unemployment rate of 6%, nearly twice the national average. The economy with its poor returns from sugarcane and tourism, relies on subsidies, tax concessions and other handouts from central government for almost 80% of its revenues. For a long time, Okinawans have been struggling to regain control of their land, forcibly taken away from them when 550,000 GIs landed on April 1, 1945. In January 1987 a plan to construct a Harrier launching pad site in Aha was thwarted by the villagers. The 'Onna uprising' which halted the construction of 'urban warfare training facility' at Camp Hansen in 1989 was another example of Okinawans' resistance to the bases. The exploitation of women which began with the rape of a 50-year-old woman by William Board in 1954, continues, the most recent being the rape of a 12-year-old girl by US marines on 4 September, 1995. On 21 October, 1995 around 85,000 people gathered in Ginowan, southern Okinawa to rally for the reduction, if not withdrawal of the US bases. The women from Okinawa raised their demands at the World Conference on Women in Nairobi in 1985 and in 1995 at the Beijing Women's Conference. The '*Unai* (sisterhood) Festival' has kept alive the women's demands in Okinawa.

Natural Disasters

Earthquakes and typhoons are the biggest natural scourges of Japan but traditional Japanese society had developed ways and means of coping with the twin phenomenon. With industrialisation and the advent of a money-centric pattern of life, not only has the country been unable to face the wrath of nature but it has also aggravated the misery associated with natural calamities. Bureaucratic inefficiency and corruption have time and again come in the way of mitigating the suffering of the disaster-affected.

Hanshin: The great Hanshin earthquake shook Kobe and Awajishima of Hyogo prefecture and the surrounding areas on the morning of January 17, 1995. More than 6000 people died, 40,000 were injured, 300,000 homes were destroyed leaving 400,000 people homeless. The earthquake was a natural disaster but the disease and misery that came in its wake was in no way an accident. It was a man-made calamity that was clearly evident in the absence of disaster preparedness and the measly relief that was handed out to the affected. The annual budget of the prosperous Nishinomiya

City (Hyogo prefecture) for 1994-95 was approximately ¥152.5bn ($2bn), but a mere ¥45m ($45,000) was allocated for tackling the disaster. There was thus no money for water, rice, bread, milk, blankets, in fact, for nothing. The post-quake scene also shattered the accepted wisdom that older buildings were more fragile than newer ones. Many well-built traditional structures stood, while poorly-made new buildings collapsed revealing the vulnerability of public works created out of a nexus among politicians, bureaucrats, and construction companies. It was remarked that victims were killed four times: the first time they perished directly in the earthquake, the second time they died (many of illness) in the evacuation centres, the third time in the temporary housing that was set up afterwards (some of disease, some of suicide), and finally in the reconstruction.

Nuclear Power Projects

Japan's nuclear-safety record is worsening, according to Kiyoshi Sakurai, a former specialist at the governmental Japan Institute of Nuclear Safety who is now an independent researcher.[4] The number of nuclear power generation facilities in operation at the end of fiscal year 1994 was 47, with a total output of 38,541MW and nuclear power generation accounted for 18.1% of total power generating capacity of 212,914MW and 27.5% of total electric power generation of 906,705GW-hours. The country's nuclear power plants and nuclear-fuel-reprocessing plants are situated in the depopulated countryside. In the past people in these areas were forced to accept the nuclear plants, as they brought in subsidies, though it was the people in the urban areas who took advantage of the power generated. However, anti-nuclear forces are beginning to exercise their influence. The people of Makimachi in Niigata prefecture recently voted against the construction of a nuclear power station.

Monju: In December 1995 a sodium leak occurred at the Power Reactor and Nuclear Fuel Development Corporation's (PNC) fast-breeder reactor facility at Monju in Fukui prefecture. The reactor used a mixture of highly toxic plutonium and enriched uranium as fuel, with a capacity to produce 280,000kW electricity. The leak occurred when three tonnes of volatile liquid sodium, the reactor coolant, burst from its cooling circuits. In 1984 Greenpeace had warned that the Monju reactor 'could explode like an atomic bomb,' and the activists had submitted a petition signed by 15,000 people demanding its closure. The facility has been closed since the leakage.

Tokai Mura: Failure to properly extinguish a fire on March 11, 1997, at a PNC nuclear fuel plant at Tokai Mura in Ibaraki prefecture, 110km north of Tokyo, set off an explosion exposing 37 workers to radiation. The cause of Japan's worst nuclear accident was poor technology. Common asphalt was used to give nuclear waste a slurry consistency before being poured into drums for storage in warehouse. Since asphalt had a low ignition point, a fire could result if adequate attention was not given to temperature controls during the process. Plant operators thought that they had contained the fire but, 10 hours later, an explosion knocked out windows and doors, providing an avenue for radiation to escape into the atmosphere. The PNC found traces of radioactive caesium-137 up to 60km from the site. There was fear that long-lasting isotopes, including plutonium-239, were released. Apart from being radioactive, plutonium is 30,000 times more poisonous than cyanide. A single particle, if ingested, can lead to lung cancer. What was even more disconcerting was a consistent effort to suppress evidence and cover up the accident.

Overseas Exploitation

Japan's expansionist ambitions had been in evidence in the inter-war years, reaching its peak during World War II. Following the surrender of Japanese troops, it was widely expected that the land of the rising sun would no longer be an imperialist power. The phenomenal ascendancy of Japan in the global economy in the postwar period has belied that expectation. The imperial Asian power continues with its aggressive colonising tendencies in the less developed world with impunity, not militarily but with yen power.

Comfort women: Ever since the discovery of direct evidence in 1993 that the Japanese imperial army forced 50,000-200,000 Asian women to act as sex slaves —euphemistically called 'comfort women' — during World War II, Japanese government has been making every effort to evade its responsibility, refusing to fully admit and pay proper compensation to the victims. Instead, in July 1995, it initiated the 'Asian Women's Fund,' financed through private channels, to help the former sex slaves without admission of guilt. Many Asian associations rejected the fund calling on Japan to publicly recognise the damage suffered by the women. 'I was robbed of my life when the Japanese military made me a sex slave! If Japan tries to deceive us again with civic donations, it's like killing me twice' said Yun Do Lee from South Korea.[5] The first Filipino woman to bravely come forward to testify against the Japanese Imperial Army died in August 1997.

Development aid: Japan's official development assistance (ODA) includes grants-in-aid, technical assistance, loan aid, and financial support to international organisations engaged in development and relief work. In the past years this assistance has increased significantly. In 1990, it was $9069m which went up to $11,259m in 1993 —59.5% to countries in South and East Asia, 2.2% to West Asia , 15.9% to Africa, 9% to Latin America, and 1.7% each to Europe and Oceania. The development assistance funds are believed to be used to support Japan's own economic goals, for it finances 'unnecessary' projects in developing countries. At a different level, ODA funds environmental destruction — the Three Gorges Dam project on the Yangtze river in China, a trans-isthmus canal in central America, creation of huge lakes in arid central Africa, and hydroelectric schemes in the Amazon being some of them. The development assistance also creates 'aid-dependency' in some countries — Myanmar and Pakistan rely on Japan for as much as 80% of their total bilateral foreign aid. The long-term loans, which are part of ODA, also lead to debt problems for the receiver countries. The 'ODA attitude' was summed up by a businessman who said that there was little profit to be made from projects dealing with basic human needs.

Pollution imperialism: Japan has effectively emulated the path of the first world industrialised nations which, faced with strict pollution control in their own countries, have been relocating their polluting industries in the less developed world. Such 'pollution imperialism' happens through relocation of polluting industries, investments with local partners in such industries, export of inappropriate pollution control technology, export of waste, and transfer of environmental destruction. Thai Asahi Caustic Soda Company, which started operations in 1966 in a suburb of Bangkok, is a prime example of Japan's pollution imperialism. Environmentalists monitoring the Bangkok plant have found mercury pollution in the local environment. Among Japan's other overseas deals are a joint venture in South Korea by Marubeni-Iida and Chisso Engineering with a Korean partner for polypropylene manufacture; Ulsan Chemical Company in South Korea established by a Japanese chemical company that moved there after causing serious soil pollution from waste landfill in lowland areas of Tokyo; and the Cagayan de Oro in Mindanao, Philippines, set up by Kawasaki Steel Corporation after being forced out of the industrial area in Chiba. The Sumaran Diamond Chemical Company, a subsidiary of Mitsubishi

Trading Group, is seriously polluting the waters in the surrounding areas in Indonesia while Asian Rare Earth (ARE), jointly owned by Mitsubishi Chemical industries and Malaysian partners which produces yttrium from monazite is doing the same thing to Bukit Merah in Malaysia. Mining and timber industries such as Mamut Copper mine in Malaysia and Leite mine in the Philippines financed by Japanese investors and ODA have also created pollution in the lands they have been sited.

Wood lust: Japan is the world's number one importer of tropical timber, its purhases accounting for as much as 30% of the world trade. In the 60s, the country played a big role in the deforestation of the Philippines, while in the 70s and early 80s, it contributed significantly to the massive degradation of Indonesian forests. It was claimed that the tragic flash floods in Ormoc, Lyete province in the Philippines which killed 8000 and left 120,000 homeless in November 1991 resulted from deforestation. Later, facing an Indonesian ban on log export, Japan turned towards the Malaysian states of Sabah and Sarawak for acquiring 90% of its tropical timber requirements. The Penans and other indigenous peoples in Sarawak resisted such indiscriminate logging by blockading roads, thereby focusing international attention on the plight of the forest-dwelling population in these states. But, with its insatiable hunger for tropical timber, Japan remains unrelenting. It has now set its eyes on the virgin rain forests in Papua New Guinea, Brazil and Indochina. Approximately 80% of the imported tropical logs are converted to plywood for use in furniture and construction industries. Japan consumes more than 23m m^3 tropical timber per annum.

Public Works

In 1995, out of the total annual budget of ¥71 trillion,[6] Japanese government allocated about ¥9 trillion for public works. The fund was for building and maintenance of roads, harbours, fishing ports and airports, upkeep of mountains and rivers, and improving housing, sewage system and agricultural infrastructure. The largest proportion— about 30% — was earmarked for roads. Public works in Japan is planned and enforced to benefit the system called '*doken-ya kokka*' or 'construction-contractor-state', based on a corrupt structure of interdependent relationships between construction businesses, their politician allies and bureaucrats specialising in construction. Together, they create and implement large development projects which are initiated through corrupt deals and net huge profits for them. For the common people such public works only bring in displacement, misery and a degraded environment.

Narita Airport: Construction of the new Tokyo International Airport, one of the busiest in the world, remains incomplete even 18 years after its opening. Better known as Narita Airport, it is located 66km east of Tokyo in the city of Narita, Chiba prefecture. In 1966, the New Tokyo International Airport Authority was established and put in charge of the construction, management and operation of the proposed airport at Narita. Sato Eisaku's cabinet selected the site and construction work, based on a controversial design, began in 1969. The work was delayed from 1971 to 1975 and the brand new airport was opened three years later, though construction had not been completed. Government is yet to purchase 21.3ha land, the last bit needed for completion. Farmers and students have been opposing the construction since inception, though their numbers have declined. Japanese laws, drafted in reaction to the state's dictatorial powers prior to the war, gives property owners strong rights against government land acquisition and farmers have been taking recourse to these laws to stall the construction. *(See case study)*

Dams: Till 1994, 2536 dams were constructed in Japan, submerging 156,873ha land. The dams were built with a view to securing enough water for industrial, agricultural and household uses, generate electricity and control floods. However, in the 80s due to the drastic increase

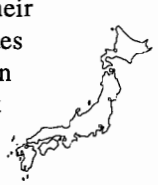
of water use by industry for rapid growth, the country's water resources diminished. The reliance on hydropower dwindled as electricity began to be generated by thermal and nuclear means. As to controlling floods, it began to be recognised that protection of forestry on the mountains was a more effective measure. Apart from the known problems of environmental destruction, displacement and seismic instability that dams cause, the need for dams, have gradually decreased. Yet, Japanese government has formulated plans for the construction of 576 more dams.

Nibutani: The Nibutani Dam (Hokkaido) which began to be filled with water in April 1996, submerged 4.3 km^2 of paddy fields of the Ainu people. The dam's original purpose of providing water to an industrial zone fell through when many of the companies withdrew from building factories in that area. But government pushed on with the project, giving it a new 'multi-purpose' dimension, including flood control, irrigation and power generation. However, there was already a thermal power station in the industrial area, with two turbines, one which was not required to be operated. The area had witnessed no floods since 1922, and there was no shortage of irrigation water. Thus the Nibutani Dam was constructed without any real need for it and in the face of strong opposition from the Ainu people. The dam served no purpose while the Ainu lost their holy land, which was the very basis of their identity.

Socio-Economic Malaise

Japan's outstanding economic development since the war was believed to have eradicated poverty and unemployment while lack of social integration was considered to be a thing of the past. However, Japanese NGOs, in their country report to the UN Summit for Social Development, stated that Japan was creating 'new poverty' both at home and abroad, and it had sustained its economic growth through such poverty. The much publicised full-employment covered only male employees of the major corporations; women, middle-aged and elderly employees, and workers in the informal sector were not so fortunate. Behind the facade of social integration, there were exploited women, uncared-for disabled, lonely elderly, neglected children, marginalised indigenous people such as the Buraku and Ainu, and thousands of migrant workers struggling to eke out a living in isolation and poverty.

Ageing poor: Around 12% of Japan's population was aged 65 or over in 1989 and growing at the rate of approximately 650,000 per year. At this rate, the aged are expected to comprise 25% of the population by 2020, making Japan a country with the largest elderly population in the world. In 1960, there were 11 taxable younger workers for every retiree; in 2025, there would be only two. Supporting such a large, non-productive population would require major adjustments to the financing and structure of public services. The ageing of the population has become an important concern since the early 80s and the issue of financing health services for the elderly has become significant in Japan today. In a survey conducted by *Nihon Keizai Shimbun* in 1996, it was found that the preservation of pension and welfare schemes was considered the most important issue for Prime Minister Hashimoto Ryutaro to address. The provisions for a national system of free healthcare for the elderly were replaced in 1983 by the 'law concerning health and medical services for the aged.' This new law stipulated that healthcare expenses for the elderly were to be covered by fixed rate contributions from prefectures, municipalities, the National Health Insurance programme, employee insurance plans and the individual. The elderly had to bear a part of the cost of their healthcare.Their problems acquired a new dimension through changes in attitudes towards them. The elderly were growing apart from their children, resulting in loneliness, guilt and resentment. Economically, socially and psychologically it was a raw deal.



Ainu: The Ainu are indigenous people of Ainu Moshiri, 'the land of the humans,' which was renamed 'Hokkaido' in 1869 during the Meiji period, and adjacent islands. Ainu Association of Hokkaido (AAH) holds that the land of the Ainu people was unilaterally appropriated by government of Japan under the guise of a colossal development project known as *Hokkaido Kaitaku.* It introduced an aggressive policy of assimilation with the mainstream population through systematic destruction of the Ainu culture and way of life. The Ainu language was banned, expressions of traditional culture was denied and centuries-old occupations were destroyed, in true colonial style. The Ainu became the object of oppression, exploitation and discrimination because, up until 1986, Japan claimed that it was a 'mono-ethnic nation.' In 1984, the AAH adopted 'A Proposal for Legislation Concerning the Ainu People,' which stated clearly that the Ainu were an independent ethnic group in Japan and demanded that seats be set aside for the Ainu in the National Diet and local assemblies. In August 1994, Kayano Shigeru became the first Ainu Diet member in the history of Japan. The new Ainu Law was passed in the Lower House on May 8, 1997, and would take effect within three months. The new legislation replaced the controversial 1899 'Hokkaido Former Aborigine Protection Law.' There were 23,860 people who identified themselves as Ainu. But the actual number was estimated to be five times that.

Amakudari: *Amakudari* refers to the practice of reemploying former high-level bureaucrats in private-sector positions after their retirement from government. Literally *amakudari* means 'descent from heaven,' in recognition of the elite position that bureaucrats traditionally held in Japanese society. In fact, the practice grew out of mutually beneficial individual and private sector motivations. The bureaucrat, who retired at 47-55 years of age with a relatively modest pension, looked for a second career within the private sector. The private corporation, one the other hand, wanted to have access to government contracts and information and gladly offered appointments to former bureaucrats. The web of *amakudari* was found at both domestic and overseas economic activities.

Buraku: Buraku, literally meaning 'hamlet,' refers to an oppressed minority community within the feudal class hierarchy. In August 1965, government's Consultative Council on Dowa (a bureaucratic term for Buraku, literally meaning 'assimilation,') Measures filed a report with the Prime Minister, in which the Buraku problem was described thus: 'The Buraku problem is discrimination rooted in the class system developed at the feudal stage of Japanese history, in which a certain group of Japanese were deprived of their economic, social and cultural rights. Even today people belonging to this group are deprived of their basic rights, and are not fully ensured of the civil rights that any citizen should be entitled to. It is the most serious and most cruel social injustice.' According to a survey, there are 6000 Buraku communities with a population of three million. The official government figures were that there were 4443 Buraku communities with a population of 2,159,105 of which 892,751 were of Buraku origin. The Buraku liberation struggle was started with the formation of the National Levellers Association in 1922 and the National Committee for Buraku Liberation (NCBL)in 1945 which was reorganised and renamed as Buraku Liberation League (BLL) in 1955. The long and persistent struggle was finally rewarded when In July 1969, government consented to legislating the 'Law on Dowa Special Measures.' It enforced improvements in the conditions of Buraku communities with better housing, roads, sewage facilities and community centres. Subsequently, the rate of the community's enrolment in senior high schools and job opportunities improved substantially. The struggle ahead looks towards an effective and thorough solution to the problem of Buraku discrimination through raising the educational level of the community, securing stable jobs and business opportunities and eradication of discriminatory attitudes.

Haemophiliacs: In 1985 doctors at Teikyo University hospital in Tokyo administered blood products to haemophiliac patients that infected them with HIV. A total of 1800 haemophiliacs

were infected and 400 died of AIDS. AIDS victims in Japan face widespread discrimination, and only a handful have fought openly for their rights. The stigma attached to the dreaded disease is so great that many of those infected prefer a lonely death in a foreign land to the shame they would face at home.

Immigrants: Immigrants in Japan are under the jurisdiction of two laws — 'Alien Registration Law' (Registration Law) and 'Immigration and Refugee Recognition Law' (Immigration Law) — which severely restrict the number of foreigners allowed to work in the country as well as type of occupations they can take up. Ironically, as Japanese business prospered, the demand for night club entertainers went up and government easily allowed large numbers of Thai, Filipino, Korean, and now Chinese, women to enter the country. Moreover, the construction boom in the 80s, stimulated by the 'bubble economy,' could not have been sustained without cheap male foreign labourers. There were, thus, 1.1m foreign workers with labour permits at the end of 1995. These included approximately 60,000 women admitted to work in Japan with 'entertainment visa' and were forced to provide sex-related services, 130,000 young people admitted with 'training visa' but were actually working, about 180,000 foreigners granted the special status of *Nikkei-jin* or foreign nationals of Japanese descent, and more than 300,000 (120,000 women) overstaying foreign workers. At least 500,000 low-paid foreign workers did the so-called 3K (3D) jobs — *kitanai* (dirty), *kitsui* (difficult) and *kikenna* (dangerous). The 3K jobs are mainly in construction, cleaning and factory work which the country's younger generation refrain from doing as they usually take up jobs in more profitable areas of the world-economy in which Japanese firms monopolise. The basic rights of foreign workers are left unprotected with regard to employment contracts, salary payments, welfare and living environments. Many workers are cheated by their companies which fire them without paying wages, do not properly compensate those injured, and maintain highly abusive working conditions.*(See case study)*

***Koreans*:** Japan's relationship with Korea — characterised by expropriation of Korean soil and natural resources, cruel suppression of the nationalist movement, imposition of the *kaminka* (assimilationist) policy which included forcing the use of Japanese names, drafting Korean soldiers and civilians for the imperialist war, forced labour in factories and mines, among other things — is often described as 'a history of crimes'; the treatment meted out to persons of Korean origin living in Japan is no less criminal. The most visible of the various discriminatory practices that Koreans in Japan are subjected to is the requirement of re-entry permits every time they leave Japan. Mandatory finger-printing had been in force for years till the Alien Registration Law was revised in January 1993. Most of the 700,000 Koreans living in Japan are the descendants of forced labour brought into the country. Mimizuka or Ear Mound in Kyoto is a memorial that glorifies Japanes atrocities on Koreans.

Urban Stress

The breakneck pace of urbanisation is taking its toll on Japanese society. Apart from the inevitable social and psychological problems associated with the swift breakdown of traditional lifestyles, the physical and moral health and well-being of the people are under severe stress. Road accidents are on the rise, pollution is everywhere and violence is a game that children play. Its only a matter of time before the entire edifice of Japan's urban showcase is shattered to fragments.

Road toll: Death toll from traffic accidents reached its peak in 1970 with16,000 fatalities. Though the accident toll has come down since then, more than 10,000 lives are still lost every year on an average and more than 300,000 lives have been lost in the past 30 years from traffic accidents. Yet, the extension of highways and roads continue to be promoted as a significant aspect of infrastructure

development, while automobile manufacturers merely issue periodic calls for safe driving. The tremendous rise in hazardous vehicular emission and noise pollution is another side to the increase in traffic. In June 1996, a group of 102 people filed a damage suit against the state, Tokyo metropolitan government, an expressway corporation, and seven car-makers, claiming that the diseases they suffered were caused by vehicular pollution.

School allergy: For hundreds of thousands of Japanese schoolgoers, schooltime is also the time for headaches, fever or nausea. This psychological distaste for going to school may be attributed to bullying — physical or mental attacks by stronger pupils on weaker ones — that emerged as a serious problem in the 70s and 80s. After the Tokyo Metropolitan Board of Education defined bullying as objectionable behaviour, the incidence of physical abuse has decreased considerably but verbal abuse and the practice of ostracising unpopular students continue. There are no definite explanations for bullying, but according to one theory, decrease in space due to urbanisation deprives the children of an opportunity to play together in groups, denying an atmosphere for healthy emotional development.

CASE STUDIES

Minamata Tragedy

Silencing through 'settlements'

On the 40th anniversary of the incident, the problem of unrecognised victims was solved, but I cannot express the sadness of not having been granted recognition as a patient until the very end. We will have to go through the rest of our lives with these sick bodies and the feeling of not being able to accept things as they are. . . on the surface the conflict has ended, but the Minamata disease problem will not be over until the last of us dies.[7]

These words of 66-year old Sasaki Sumito reflects his hatred of and anger at the Chisso Corporation, the main culprit of the Minamata disaster which killed his father and took away his own health, and his rage with and distrust of the national and prefectural governments.

Sasaki had lived two-thirds of his life with double suffering — the physical pain of the disease itself and the psychological trauma of having to struggle against the apathy of both the company and the bureaucracy. Never recognised as a Minamata victim, he could not acquire the status necessary to receive compensation or pension. His case supposedly ended with the lumpsum payment of a measly ¥2.6m from Chisso. When he refused to accept this, the only road ahead was a no-end-in-sight court battle. Perhaps it would have been better had he spent his remaining days confronting the physical pain rather than face despair and loneliness in trying to climb the cruel high wall set up by the criminal corporation and governments.

The Minamata syndrome was officially recognised in 1956, and three years later, a settlement was reached between the victims and the company responsible for the poisoning through mediations of the Kumamoto prefectural government. Since then Japanese imperial government, prefectural government and Chisso Corporation have repeated time and again that with that settlement 'the Minamata disease case is over.' The victims feel otherwise; left with no choice, they did sign the settlement, but the curtain has not come down on the Minamata issue.

The Minamata disease owes its origin to the largescale mercury poisoning which broke out in the 50s affecting the life, health and livelihood of thousands of people living along the Shiranuikai Coast in Kyushu. Today, it refers not only to the medically incurable condition the poisoning rendered but also to a hopelessly hard-to-cure political, economic and social disease festering at the lower levels of Japanese society.

In 1959, the year in which the Minamata settlement was signed, a research team from Department of Medicine, Komamoto University, reported that, 'the agent causing Minamata disease is a form of organic mercury which is absorbed by humans through fish.' The discovery of high levels of organic mercury in fish in the surroundings of Minamata Bay confirmed this. The findings posed a grave dilemma for the fisherfolk of the region for the fish they caught in the bountiful sea not only provided them with their own daily food, but was also their largest source of income. If they made any demands for compensation against the polluter Chisso, it would let the market know that fish from Minamata Bay was dangerous. Signboards declaring 'We don't sell Minamata fish,' were already being posted in fish shops in Minamata City. The livelihood of the fisherfolk was being severely squeezed.

Left with little choice, the fisherfolk began applying pressure on Chisso, demanding at least a stop to drainage of mercury-contaminated waste into the bay. The victims held a two-month sit-in in front of the company gate, but Chisso would not yield to giving anything more than compensation for lost fishing grounds. In the end, under the dual strains of their collapsing livelihoods and the isolation that came from the tendency of Minamata's local society to cast away the afflicted minority, the victims accepted a compromise formula proposed by the governor of Kumamoto. The proposal offered ¥300,000 for each death, ¥100,000 for each survivor (just ¥30,000 if the victim happened to be a child), and ¥20,000 as 'sympathy gifts' for funeral expenses. At the same time, the compensation beneficaries were forced to sign a contract stating: 'Even if it becomes clear that Chisso is the cause of Minamata disease, I will not make any claim whatsoever in the future for compensation.' The Minamata tragedy had officially ended.

However, a second 'ending' began with the intervention in 1969-70 of the central government's Committee on Compensation Claims. In 1968, 12 years after the formal discovery, government finally concluded that, 'the cause of Kumamoto Minamata disease is methyl mercury compound created from acetaldehyde acid equipment inside the Minamata Factory of Shin Nihon Chisso,' and the following year established the Committee on Compensation Claims to mediate between Chisso and the victims. The main aim of this apparently welcome move was to create divisions within the victims' organisations which were raising uncomfortable questions. The intention became clear when government's own Ministry of Health and Welfare enforced conditions on the organisations that they sign contracts pledging to obey the terms of the committee's eventual proposal without any complaint. Inevitably, the victims split into two factions — one agreeing to obey the conditions (the 'entrust faction,' with a total of 75 victims), and the other rejecting the mediation and attempting to achieve its demands through a court struggle (the 'lawsuit faction,' with 112 members). Later, the ploy led to further splits in the victims' groups, and created complex fissures within Minamata's local society.

The decision of the lawsuit faction was based on the experience 10 years earlier of the humiliation inflicted by the 'sympathy gift contracts.' The settlement proposal issued by the claims committee in 1970 vindicated its stand. According to this settlement plan, families received ¥3.2m-¥4m for each death and survivors a pension of ¥170,000-¥380,000, but the committee said 'under current law, Chisso bears no legal responsibility.'

Nevertheless, the lawsuit faction managed to wrest victory through a 1973 ruling which found Chisso guilty, and concluded: 'The company bore a high responsibility to try to prevent beforehand the harm to life and health of the local residents posed by

the release of waste from the chemical plant.' In subsequent negotiations with Chisso, the faction was able to extract compensation worth ¥16m-¥18m.

Minamata's third 'ending' came two decades later with yet another settlement in 1995-96. Sasaki's painful testimony at the beginning of this article suggests that many more such endings may follow.

Discarded by the company castle town

One can find 'company castle towns' with their pyramid-like structures, throughout the land of the rising sun. Their origins can be traced back to the Edo Period, when towns sprung up near the castles built by *daimyos* (feudal lords) who were given charge of local administration. In today's industrial cities the *daimyo* has been replaced by large corporations and, in many such places, these firms wield tremendous power and influence over local politics. Classic examples are Toyota City, the home of Toyota Motor Corp., and Hitachi City, the site of Hitachi Ltd.

In these cities, various communities and groups — workers and their families, employees and families of sub-contractors, merchants and small industries, the local government which receives large amounts of corporate tax, and the various semi-governmental semi-private organisations surrounding the local administration — are all supported economically by the company. Therefore, the majority of local residents are economically and sometimes psychologically dependent on the company, its well-being and profit generation being their first priority.

Minamata City, home of the Chisso Factory, was one such castle town. A premier chemical manufacturer for 90 years, Chisso began operations here in 1908 as an electric chemical factory using carbide to absorb and combine with nitrogen from the air to produce nitrogenous fertiliser. In 1932, it switched to manufacturing methyl mercury, which is used in the production of acetaldehyde. This was the beginning of the gradual pollution of Minamata Bay.

Chisso retained its great hold over the city in the postwar era as well, continuing as a major manufacturer of acetaldehyde, compound acetic acid, and polyvinyl chloride resin. Of the city's total population of 40,000, the company employed 3500 people directly. About half the population received some form of economic benefit from Chisso, and half the city's revenues came from the company.

As a result, the victims of mercury poisoning found it very difficult to point their finger directly at Chisso as the main polluter of Minamata Bay. As one victim said, 'the factory is a castle, the workers are retainers, and it seems it is very difficult for commoners to approach.'

Another factor which impeded the resolution of the Minamata case was Japan's post-war economic situation. The amazing turnaround of the Japanese economy during the 60s and 70s, was brought about by the development of export-oriented industries such as automobiles and heavy chemicals. The bureaucrats of the time could not have even dreamt of the possibility of closing down an important chemical plant such as Chisso. In a 1995 interview on NHK (Japan Broadcasting Corp.), an economic bureaucrat of that period said,

... At that time, nobody could stop factory waste drainage. I believe it was a conscious crime that a decision was made, buoyed by the idea of the benefice of industry, not to assist the victims, many of whom were fishing people.

In fact, it had become the norm in Japan that whenever a company caused environmental destruction, a group of 'hired academics' appeared on the scene. These were researchers who invariably issued research reports making out strong cases in defence of government and the errant firms. In the case of the Minamata disease, a Tokyo Institute of Technology professor came up

with the hypothesis that it was food poisoning caused by rotten fish; another researcher suggested it might have been caused by explosives from shells dropped in the ocean by the Japanese army during the war. Such outrageous propositions only delayed identification of the true cause of mercury poisoning.

There were, of course, technicians at Chisso who knew that methyl mercury was being released during the production of acetaldehyde. Through experiments on cats, one conscientious doctor affiliated to the company had come to the conclusion that methyl mercury was a deadly chemical. However, the unflinching loyalty of the Chisso workers to their company — a universal trait among Japanese workers in the postwar era — took priority over the lives of the victims, and the process of identification of the cause of the Minamata syndrome dragged on for years.

If any of the people who knew about the cause of the poisoning — the technicians and doctors inside the company, the hired academics who stood up for the company for a price, the people in peripheral industries who supported the company, the economic bureaucrats who pushed for 'economic growth first,' — had dared to speak out against the real culprit, the sufferings of the victims would have been considerably less. The fact was that illegal dumping of methyl mercury by one company was solely responsible for the Minamata disease. But Japan's political and social environment was such that this simple fact could not be established. Consequently, the damage was amplified beyond reason, causing enormous suffering from which tens of thousands of people would never recover.

Corporate interests first

After the 1973 ruling, people who had concealed the fact that they were suffering from the disease came out into the open in increasing numbers. Many of the victims who had kept their illness secret for years fearing social stigma and isolation in every sphere of their lives, began, with the support of their families and encouragement from sympathetic doctors, to raise their voices seeking recognition as Minamata victims. The number of afflicted, which was generally believed to be in the hundreds, quickly climbed to nearly 20,000 in Kumamoto and Kagoshima prefectures.

However, Chisso Corporation and the bureaucracy, callous from the start, viewed the problem of recognition as merely a budgetary exercise. The complexity of the application procedures for recognition and the fact that many applicants were disqualified by the Recognition Committee for unclear reasons, underlined that in postwar Japanese society, corporate interests came before pain and suffering inflicted on the common people.

Till May 31, 1996, 17,172 people had applied for recognition as disease-affected in Kumamoto and Kagoshima prefectures, but only 2260 had been recognised, a rate of just 13.2%. There were many cases in which spouses, who had eaten the same contaminated food for decades, applied, and only one was recognised as a patient and the other was rejected for minor differences in their symptoms. In response to the use of such irrational criteria for identification, some 3000 people throughout the country launched a lawsuit to nullify their rejections, and courts began to admit the responsibility not just of Chisso but of the central and Kumamoto prefectural governments as well. It is in this context that the final 'settlement' was announced.

In 1995, having ruled out the possibility for years, government announced that it would now accept a 'settlement.' This agreement included a payment of ¥2.6m, but also involved — as with the first settlement — signing an agreement that

The recipient of the lumpsum payment agrees to not in the future file any lawsuit demanding compensation for damages, conduct any independent negotiations, or

perform any activity aimed at gaining recognition according to the Law for Compensation for Health Damaged Caused by Pollution.

Clearly, when confronted with a disease that cannot be easily cured by modern medicine, the Japanese bureaucracy tends to cling to the stance of pressuring people: 'We'll pay money, so you have to agree not to make any further demands.'

The agreement also includes a clause that 'The national and Kumamoto prefectural governments will devise appropriate policies to assist Chisso Corporation to ensure that the lumpsum payments are definitely paid.' A group of 58 victims who did not agree with this clause refused the 'settlement,' and chose the route of continuing to demand a ruling from a court. For them, the Minamata affair was not yet over.

Even for the many victims who accepted the official ending, it was not an end to their pain. The stigma associated with the disease had not changed and Minamata, as a social issue, had just begun.

Forty years of Minamata are also 40 years of Japan's race at full tilt down the road from being a loser in the war to a first world economic power. It is also 40 years of despair, of a gradual slide to a sick society, physically and psychologically. If Japan had turned its attention away from achieving superpower status through corporate glory, and instead looked carefully and objectively at the cause of the Minamata tragedy and many other environmental issues, Minamata would have been a closed chapter today. As things stand, Japan has neither the will nor the power to prevent such environmental disasters. A second outbreak of the Minamata disease occurred in Niigata prefecture in 1964-65; no one can say with confidence that there will be no third and fourth, and fifth, Minamata in the future.

Narita Airport

Stealing the land of the people

Narita Airport is Japan's representative international airport — 50 airlines from 38 countries use it, with an average of 340 flights arriving and departing every day, carrying 65,000 passengers and 4300t of freight. But for almost two decades since its opening in 1978, only a single Runway A, of the three which were planned (A, B, and the perpendicular C Runway), is in operation. This shows that not only was the construction design flawed and unrealistic, but also that the plan to build such a mammoth airport was not economically viable, and probably unnecessary.

The biggest obstacle in the way of completing the construction was the illegality of the procedures that had been adopted to acquire land. The bureaucracy, charmed by the ideology of development simply could not appreciate the love that the farmers of Narita felt for their land. As Yanagawa Hideo, whose family had worked to cut back bamboo and cultivate the land for three generations since his grandfather came as a coloniser, said, 'The value of agricultural land is not simply decided by area measured in hectares or square metres. Land which was built over years or decades cannot be expressed simply by area.'

But the zealous administration had no time for such sentiments and used force repeatedly and unjustly to annex their land for the airport. They were following a mistaken road from the very beginning. However, the victims of this mistaken policy were the farmers, not the government.

In July 1966, Sato Eisaku's cabinet selected the area for the construction of the new international airport without ever consulting the local residents. Even today, more than 30 years later, Japan's official gateway is still incomplete, and 21.3ha, or 2% of the planned land, has still not been purchased.

Legal violence

In acquiring land for the Narita airport, Japanese government took recourse to the Compulsory Purchase of Land Act (eminent domain law) first promulgated in 1889, and enforced in its current form in 1951. As the country entered the period of high economic growth and there was great demand for land for largescale infrastructure such as roads, airports, and industrial parks, the Act was amended to allow for the fixing of a land price as a means to acquire vast tracts in a short time. This revision, passed in 1967 in the midst of a large anti-airport movement by farmers, was made in the belief that it would encourage farmers to sell their lands quickly, before refusal to sell sent land prices crashing.

At first glance, the land acquision procedure appeared democratic. But once the Act was invoked, government did not hesitate to use coercion to take the land it wanted. In 1971, the green fields of Narita were the arena for violent confrontations over land expropriations. Several agitating farmers and students were injured and three policemen were killed. A young farmer exhausted from the struggle, even committed suicide. The note he left behind read, 'I hate those who brought an airport to this place.'

The claims and resistance of the farmers

Narita was once a land of gentle hills and placid rivers and streams winding through lowlands. The farmers who inhabited these lands and lost them to the airport were not a homogenous group. Some who had settled here before the Edo Period in the 14th and 15th century or earlier, lived in the lowlands which is now called *koson* (old village), and grew rice using water from the rivers. Others came in the Meiji Period (end of the 19th century), and occupied the highlands where they planted cash crops such as wheat and peanuts. A third group came in after the war and settled in the difficult hilly terrain overgrown with bamboo and shrubs. They cleared the land and planted wheat, peanuts, and sweet potatoes. Many of them had lost their homes in the wartime bombings or had come back from the Manchurian colony, and had little experience in farming. Though not of farming stock, most of them had grown to love the land they had opened up.

Government had targeted the people cultivating less fertile land believing it would be easier to acquire. But as construction began, its expectations were only half fulfilled. Many farmers agreed immediately, but there were others who continued to resist militantly for over two decades.

The first protests were sparked by the manner in which the site had been selected without any consultations with the local people. Many people who had settled in the Narita area because of the national policy to solve postwar food shortages were now being asked to pack up and leave as a result of a new national policy, just when they were beginning to enjoy the fruits of their hard work to make the land cultivable.

Opposition to the construction of Narita airport also came from most of the residents of the area who were apprehensive of noise and accidents. Despite the near-universal hostility towards the project central government freely handed out grants totalling ¥29bn yen to two prefectures and 17 cities, towns, and villages over 15 years since 1978. Local assemblies vied with each other in passing resolutions in favour of the airport and accusing the farming community of creating confusion. Meanwhile government and

New Tokyo International Airport Authority refused to hold a single discussion in spite of the farmers' countless petitions and proposals for revisions.

It was only in 1991, after 25 years, that regular dialogues finally opened between some of the farmers and government-New Tokyo International Airport Authority, on a new plan to create an 'experimental village on a global scale.' There are still some farmers who refuse to attend these meetings, but a hopeful light has appeared in the unproductive conflict over the construction of Narita airport. It is not clear, though, that there will be easy answers to the myriad problems of how to deal with the rest of the planned construction after so many years of antagonism.

Unnecessary and unfinished

One reason why Ministry of Transportation began claiming in 1961 that a new international airport was necessary to complement Tokyo's sole commercial airport, Haneda, was the projection that by 1970 arrivals and departures would surpass the 175,000 mark, exceeding Haneda's capacity. In addition, it was felt that a 4000-metre runway would be necessary to accommodate future supersonic transport planes (SSTs). Haneda airport did not have such a long runway and lengthening it was unfeasible as it would narrow Tokyo Bay.

More than three decades have gone by and the SSTs are yet to arrive. Furthermore, the expansion of Haneda into Tokyo Bay, which was once thought to be unfeasible, is now almost complete, rendering it capable of accommodating 230,000 flights a year. The major rationale for building a new airport at Narita was clearly a figment of imagination. Interestingly, there is talk now in Ministry of Transportation circles that Tokyo needs a third airport.

The outlay for Narita Airport, has already reached over ¥600 trillion, demonstrating once more the power of the construction-contractor-state nexus in Japanese public works. No wonder, development for the sake of development is the beloved creed of Japan's noveau elite.

Teshima Dumpsite

The backyard of prosperity

The 400km-long Seto Island sea between Honshu and Shikoku islands has always been an important waterway for marine transportation. The sea route, dotted with nearly 2000 beautiful islands, is a magnificent sight and was designated as a National Park as early as 1934.

Teshima, Kagawa prefecture, is an elegant little island in this park with a land area of 14.6km^2 and a population of just 1500. Till about two decades ago, the residents of this island sea island lived a contented life, eking out a livelihood from small-scale fisheries. But no longer.

In the late 70s, Teshima was targeted as a dumpsite for industrial waste. Almost all the neighbouring cities and industrial areas — Osaka, Kobe, Okayama and Takamatsu — began to pour their rubbish and wastes into this unspoilt land. By the early 80s, more than 20 companies from seven metropolises and prefectures had joined the fray, and by the 90s, more than 500,000t waste had covered its eastern coastline, contaminating the sea and the soil. Incidence of asthma and other respiratory ailments, mainly among children, grew dramatically in the area but all appeals by the local people to stop dumping came to nought.

It was only in 1995 that government took up the issue and initiated arbitration procedures.

However, as is usually the case, negotiations have been dragging on and there is no move to either stop the dumping or work out a definite plan for a proper, scientific management of the mountains of waste that piles up every day. It shows how little the Japanese authorities care for the rural minority when it comes to the development of big cities.

Industry means waste

The scourge of Japanese industrialisation is its generation of gigantic amounts of wastes. In 1993, Japan's industrial waste was 397mt, 89% the total waste of 447.3mt. Of this, approximately 100mt was buried wihin the the country's own territory, the rest incinerated or recycled.

Such wastes, in general, consist of a variety of substances — contaminated dirt, construction waste material, livestock excrement, slag, used oil and plastic, acid, alkali, other factory waste, clinical waste, automobile parts and what not. Inevitably, the wastes of chemical industries are highly toxic and are the major source of serious diseases. If not handled or managed properly, they can create havoc for the living environment.

Yet, and despite the regulatory 'law on waste treatment and cleansing,' dumping on rural mountains or small islands of dwindling population continues unabated. There is hardly any attempt to enforce the waste management law and industries easily get away with such illegal dumping. According to research by Ministry of Health and Welfare, 40% of the waste generated in Tokyo metropolitan area is dumped elsewhere.

In July 1996, among the total number of industrial waste disputes in Japan, 114 were related to environmental pollution and inadequate waste management, the rest being complaints by the local people — 229 cases of industrial waste and 45 of general waste. Such cases come up every year throughout the country from Okinawa to Hokkaido, and their number is on the rise. Teshima is among the worst with nearly 400 disputes pending on an average.

No punishment for dumping

Dumping on Teshima began in the late 70s by local companies in the east coast area of the Island sea. In 1978, local inhabitants filed complaints against these companies regarding suspected harmful substances in the waste. Takamatsu district court, Kagawa prefecture, attempted mediation in the dispute on the grounds that 'harmful substances should not be dumped.' The prefecture government, however, granted permission to dump 'wood chips and dirt used for feeding in earthworm nurseries.' It was such an absurd move that even Ministry of Health and Welfare had to point out in 1996 that the prefecture's decision was 'inadequate.'

After Kagawa prefecture's generous allowance, the number of companies dumping on Teshima increasedphenomenally. The power of the administration and the business, thus, overshadowed the voice of protesting people. The companies, on their part, promised that the waste would be used as 'landfill for building resorts' and that they would create a 'cooperation fund' for the local government.

By the end of the 80s, the size of the putrid dump heap reached 30ha and 20metre in depth — the largest single dumpsite in the country. Since the island was grossly under-equipped to tackle such a colossal amount of waste, much of it was simply incinerated, enveloping the surrounding area with a veil of thick white soot. Dark, highly toxic fluids also drained into the sea where yellow tail fish nurseries are located.

Later, it was revealed that harmful substances such as lead, cadmium, and PCBs

were present in the waste. The Hyogo prefectural police prosecuted the polluting companies in 1990, 12 years after permission for waste dumping was issued by the administration. According to their investigation, quantities of PCB and trycloethlyn substances reached 60 times the national standards and mercury 1.6 times permitted limits. In another investigation, high quantities of dioxin was also detected.

A 1993 medical examination showed that the rate of asthma afflictions among children in the area was higher by 1.4% of the national average: 9.6% (14 out of 146) primary and junior high school children in Teshima were suffering from the disease. Some of the small fisheries along the coast were forced to give up their businesses to avoid secondary effects on consumers. In 1995, residents of Teshima organised a symposium and expressed their anger, arguing that 'the countryside, where the population is dwindling, has become a garbage dump site.'

The Teshima dumping became so bad that environmentalists from all over the world had to intervene. Greenpeace, which has been campaigning for the prevention of sea pollution since 1995 based on 'World Action' adopted by the 1995 United Nations Environment Programme (UNEP), selected Teshima as one of the targets in its 'Zero Dioxin' campaign. The international group visited Teshima with its campaign boat 'Greenpeace.'

Meanwhile, following the prosecution of the polluting companies by Hyogo prefectural police, the 'Teshima Residents' Conference on Waste Management' was formed, and it demanded that Kagawa prefecture remove the waste. The local government, however, rejected the demand on the ground that 'the prefecture is not legally responsible.' The conference then filed a petition for Environmental Pollution Arbitration with the Environmental Disputes Coordination Commission of the Prime Minister's Office.

By September 1996, the commission had conducted 11 arbitration suits over Teshima. Over the sessions, seven proposals, which combine solutions were recommended, including the removal of the waste from the island, the construction of a new dump site, alternative handling-management of the waste in the island, etc. However, the estimated outlay on these proposed solutions were exorbitant. For instance, the cost of enclosing the existing waste dump with concrete, the simplest method, was estimated at ¥6.1bn, while removal and disposal of the waste was expected to cost more than ¥20bn. The prefecture, which was responsible for permitting waste dumping in the first place, had no intention of spending such a huge amount, while the companies which had been prosecuted did not have the financial capacity. The commission was powerless to enforce its own decision.

In June 1997 the commission offered a mediation plan that suggested that a processing plant to treat the waste be constructed in Teshima at an estimated cost of ¥15bn to be paid by government and Kagawa prefecture. While it reprimanded Kagawa prefecture for being 'lazy' in enforcing supervision of polluting companies, it did not include the sentence 'Kagawa prefecture should apologise to the residents of Teshima,' which the residents had demanded. The prefecture agreed to the plan immediately, but the residents did not. They welcomed the proposal for a waste treatment plant but could not accept it without an apology from Kagawa prefecture. They finally agreed after long discussions.

According to this mediation plan, it will take 10 years after the completion of the plant to finish treating all the 500,000t waste dumped at Teshima. As 37-year old Ishii, one of the five representatives of Teshima Residents, said, 'After 10 years this island will be 'zero' from 'minus'. How many years will it take to revive our wounded island after that?'

Immigrant Workers

Exploitation with state support

Foreigners in Japan are under the jurisdiction of two laws, first enacted in 1952 — Alien Registration Law and Immigration and Refugee Recognition Law — which severely restrict them from working in the country, especially as unskilled labour. However, the construction boom in the 80s under the 'bubble economy' could not have been sustained without largescale use of immigrant labour. So government took to double standards, ignoring regulations when foreign workers were needed on jobs and enforcing the law when the need was fulfilled. Such arbitrary standards have made the status and condition of foreign workers in Japan untenable, leaving their basic rights unprotected with regard to employment contract, salary payment, welfare and the living environment.

Japan witnessed a surge in the number of immigrant workers following the rapid rise of the yen against the dollar triggered by the Plaza Agreement in 1985. By the end of 1995, there were 1.1 million foreign workers with labour permits: 16,000 women admitted on 'entertainment visas' to work in the country but actually forced to provide sex-related services; 40,000 youth on 'training visas' but in reality employed in productive work; more than 200,000 foreigners granted a special status called *Nikkei-jin* or foreign nationals of Japanese descent (children and grandchildren of Japanese emigrants in Brazil, Peru, Indonesia and elsewhere); and an estimated 300,000 overstaying foreign workers — including 120,000 women — without any labour permit but working at construction sites or in small factories or providing sex services.

At least 500,000 low-paid foreign workers are employed in the so-called '3K' (3D) jobs — *kitanai* (dirty), *kitsui* (difficult) and *kikenna* (dangerous). These jobs are mainly in the construction industry, small factories and lowly services which the younger generation Japanese shirk from.

Entertainment or sex?

There are 16,000 foreigners in Japan with entertainment visas, 85% being Filipinas and the rest Thai and Russian. The fact that most of those holding such visas are women points to the real intent of allowing this kind of immigration.

In the 80s, Japanese men used to rush to Manila on sex tours. When strong complaints flowed in from the Philippines about these binges, Japanese government introduced an alternative in the form of a concession policy that allowed Filipinas easy entry into Japan. The entertainment visa naturally attracted hordes of women to seek a livelihood in the prosperous neighbouring country and work in its nightclubs, hot spas and tourist sites. The entertainment industry in the island nation, too, found it more economical to employ foreign hostesses than Japanese ones. These immigrant women are called *Japayuki-san* (women who come to Japan), the inverse of *Karayuki-san* (women who went abroad), the name given to women sold to southeast Asian cities as prostitutes before and during World War II.

The life of the hapless *Japayuki-san* is full of misery and often ends disastrously. In a tragic incident in 1991, three Thai women were convicted for the killing of a fellow countrywoman in a bar owned by a Japanese at Ibaraki. The three women had arrived in Japan full of hope that they would find work in a restaurant. Instead, they were forced into prostitution on the very day of their arrival by the Ibaraki barowner, and their passports were confiscated by the woman who was killed, herself a victim of circumstances, who was compelled to assist the boss in his nefarious deals. The three women, unable to bear their humiliation, decided to flee and killed the victim to get back their passports.

The trio are serving jail sentences though the real culprits are those Japanese men who are remorselessly taking advantage of the economic needs of helpless foreign women and, thereby, violating human rights. Even after this incident, there has been no letup in arrivals of Filipinas and Thai women at Narita Airport.

Nikkei-jin for auto industry

Aichi, Kanagawa, Shizuoka and Gumma prefectures are the hub of Japan's giant automobile and related industries and home to famous names such as Toyota, Nissan, Suzuki, Honda, Yamaha, Fuji Juko (Subaru) and Yazaki Sogyo. Not coincidentally, these areas also have a high concentration of Brazilian and Peruvian *Nikkei-jin* visa holders, accounting for almost half the over 200,000 foreigners granted that visa in the country. There is little doubt that Japan's automobile industry prefers to employ these workers as contractual labour as a means of coping with the domestic labour shortage.

Though the rigid hierarchical structure of the auto industry, supported by contractors and sub-contractors, is similar to that prevailing in the Japanese construction business, there are some striking differences between the two in their choice of the type of labour force. Unlike the construction industry, the relationship between car manufacturers and their contractors is fixed, and any violation of law by the latter reflects directly upon the former whose business success depends to a large extent on their corporate image. So the automobile industry restricts itself to lowpaid *nikkei-jin* workers, leaving the construction business to employ illegal aliens like overstaying foreigners. In this, the aotomobile manufacturers have the wholehearted support of government which consistently ignores periodic media reports about visas being granted to fake *nikkei-jin.*

The *nikkei-jin* have no trade union to take up their cause and, thus, have no platform to air their grievances regarding low wages or poor working conditions. The majority of Japanese automobile manufacturers are untrouched by labour disputes and exploit their workforce with impunity.

Trainees for low-wages

To overcome the problems faced by small factory owners reeling under wage hikes and labour shortages, Japanese government has resorted to a clever strategy of bringing in youth from underdeveloped countries on 'trainee' visas and make them work on low pay. This group is brought into the country to 'learn and acquire the technology, skills or knowledge,' and are not classified as workers, putting them outside the purview of all labour laws. They are excluded from even the meagre benefits offered to other immigrant workers in the form of labour accident compensation, minimum wages or medical schemes.

Initially, the trainee system had been created to train workers for overseas plants and factories of Japanese companies. The training was imparted by semi-governmental organisations under the jurisdiction of Ministry of International Trade and Industries and Ministry of Foreign Affairs such as the Association for Overseas Technical Scholarship (AOTS) and Japan International Cooperation Agency (JICA). The number of trainees had been around 15,000 every year until the mid-80s, from when it began to rapidly increase and by the early-90s Japan had almost 50,000 trainees a year.

Most of these youth are placed in factories manufacturing specialised products, or in highly mechanised farms, working on jobs that teach them no skills they can use when they return home. Moreover, though they do the same jobs as their Japanese coworkers, their monthly wages, ranging between ¥50,000-¥80,000, is not only one-third of what Japanese workers get but also less than

half the amount overstaying aliens are paid. So, some of the trainees overstay their visas and become undocumented or illegal aliens.

Some foreign youth are also trained in their homeland before being brought into Japan. The Association for International Manpower Development of Medium and Small Enterprises Japan (IMM Japan) was established in 1991 with permission from Ministry of Labour to train international human resources for smaller companies. It brought in some 3000 Indonesian men in their early twenties, and placed them with small companies throughout Japan. Their three-month training in Indonesia included a programme to inculcate flexibility and obedience along with things like the Japanese army-style salute. Clearly, exploitation of immigrant workers in Japan has the blessings of the Japanese government.

Overstaying aliens in construction

Japan's big cities are a hive of construction activity that never seems to stop. Since the late 80s, foreign workers at construction sites have become a familiar sight. However, as Immigration Law prohibits foreigners to work as 'simple (unskilled) labour' — which is all that the construction industry offers — most of the foreign workers are overstaying aliens without work permits, whose number is said to be more than 300,000.

The major reasons why the admission of foreign labour continues to be prohibited are strong resistance from Japanese construction workers who are afraid of being replaced by foreign workers, objections from labour unions which support the domestic workers' apprehensions, ethnocentric emotions among ordinary citizens, and bureaucrats' resistance to change legal and social systems. But government itself provided the loopholes in the law to allow entry of foreigners on tourist visas to supply cheap manpower for the construction boom of the late 80s.

The growth of the construction sector declined after the puncturing of the bubble economy, and job opportunities for overstaying foreigners shrank. Many of these workers were absorbed in small industries such as food processing, machine parts production and newspaper delivery, that were plagued by manpower shortage. Today, the choice of jobs for alien workers is expanding and the number of overstaying foreigners is steadily increasing.

Japanese labour laws guarantee the rights of all workers, regardless of their nationality and status of stay (even undocumented workers or illegal aliens are protected by labour laws). So theoretically, immigrant workers have the right to protest if they face work-related problems such as unpaid wages, labour accidents or discrimination in pay. In reality, however, it is difficult for them to register their protests being 'illegal' workers. Often foreign workers are not even informed of their rights.

More than 500,000 alien workers continue to be exploited as Japanese government is not willing to take any decisive action to resolve the issue. In fact, the basic problem of illegal entry is that it has been institutionalised, creating conditions in which alien workers will continue to be deprived of their fundamental rights for a long, long time to come.

STATISTICS

Economic Boom

GDP growth
(¥100 m)

Fiscal year	Real GDP	Percentage increase over previous year
1965	1,029,849	6.2
1970	1,733,668	8.0
1975	2,158,490	3.9
1980	2,690,242	3.3
1985	3,227,529	4.6
1989	3,841,413	4.3
1990	4,045,610	5.3
1991	4,191,038	3.6
1992	4,204,934	0.3
1993	4,194,904	-0.2
1994	4,219,926	0.6

Source: Japan Almanac, Asahi Shimbun, 1996

Per Capita National Income Growth
(Unit: 1000)

Year	Per capita national income	Percentage of increase over preceding year
1965	266	10.4
1970	571	16.8
1975	1,085	9.6
1980	1,671	7.1
1985	2,124	5.8
1989	2,553	5.8
1990	2,723	6.7
1991	2,870	5.4
1992	2,891	0.7
1993	2,893	0.1

Source: Japan Almanac, Asahi Shimbun, 1996

Growth of International Trade (IMF method)

(Unit: $ million, - = deficit)

	1970	1980	1990	1993	1994
Current balance	1,970	- 10,746	35,761	131,448	129,140
Trade balance	3,963	2,125	63,528	141,514	145,944
Exports	18,969	126,736	280,374	351,292	384,176
Imports	15,006	124,611	216,846	209,778	238,232
Invisible balance	-1,785	-11,343	-22,292	-3,949	-9,296
Transfer balance	-208	-1,528	-5,475	-6,117	-7,508
Long-term capital	-1,591	2,324	-43,586	-78,336	-82,037
Basic balance	379	-8,422	-7,825	53,112	47,103
Short-term capital	724	3,141	21,468	-14,426	-8,897
Errors/omissions	271	-3,115	-20,877	-260	17,778
Overall balance	1,374	-8,396	-7,234	38,426	20.428

Source: Japan Almanac, Asahi Shimbun, 1996

Agriculture

Fiscal year	1960	1970	1980	1990	1993
Gross domestic product (¥ bn)	16,681	75,299	245,547	432,589	466,764
Of which, agricultural production (%)	9.0	4.2	2.4	1.8	1.5
Total exports ($ million)	4,055	19,318	129,807	286,948	360,911
Of which, agricultural exports (%)	4.1	1.9	0.7	0.4	0.4
Total imports ($ million)	4,491	18,881	140,528	234,799	240,670
Of which, agricultural imports (%)	19.7	17.2	10.6	11.1	12.6
Total working population (10,000 persons)	4,465	5,109	5,552	6,280	6,454
Of which farm workers (%)	26.8	15.9	9.1	6.2	5.2
National general accounts budget (¥100m)	17,652	82,131	436,814	696,512	774,375
Of which agriculture related budget (%)	7.9	10.8	7.1	3.6	4.4

Source: Ministry of Agriculture, Forestry and Fisheries. Note: Cotton, wool and natural rubber are not included in agricultural imports and exports. National general accounts and agricultural related figures include supplementary budget figures

Public Works in National Budget

(¥ billion)

Fiscal year	Total value	Public works %
1970	8,213	1,410(17.2)
1975	20,837	3,314(15.9)
1980	43,681	6,801(15.6)
1985	53,223	6,922(13.0)
1990	69,651	7,013(10.1)
1995	70,987	9,240(13.0)

Source: Japan Statistical Yearbook 45th Ed. (1996)', Edited by Statistics Bureau, Management and Coordination Agency, 1995.

Power Generation
(million kW-hour)

Fiscal year	Total	Hydro%	Thermal%	Atomic%	Others %
1960	115,498	58,481(50.6)	57,017(49.4)	—	—
1970	359,538	80,090(22.3)	274,782(76.4)	4,581(1.3)	85(0.02)
1975	475,794	85,906(18.1)	364,616(76.6)	147(0.03)	
1980	577,521	92,092(15.9)	401,967(69.6)	82,591(14.3)	871(0.2)
1985	671,952	87,948(13.1)	423,164(63.0)	159,578(23.7)	1,262(0.2)
1990	857,272	95,835(11.2)	557,423(65.0)	202,272(23.6)	1,742(0.2)
1993	906,705	105,470(11.6)	550,180(60.7)	249,256(27.5)	1,799(0.2)

Source: Japan Statistical Yearbook 45th Ed (1996)', Edited by Statistics Bureau, Management and Co-ordination Agency, 1995.

Pollution

Grievances Against Environmental Pollution

Fiscal year	Total	Air pollution	Water pollution	Soil pollution	Noise pollution	Vibration pollution	Ground subsidence	Bad smell
1980	54,809	9,282	8,269	230	21,063	3,031	34	12,900
1985	51,413	9,036	7,617	222	19,364	2,582	39	12,553
1990	49,359	9,496	7,739	233	18,287	2,144	37	11,423
1993	43,175	8,837	7,570	215	14,779	1,774	22	9,978

Source: Japan Statistical Yearbook 45th Ed. (1996)', Edited by Statistics Bureau, Management and Coordination Agency, 1995.

Land Expropriation by Government

Year	District	Expropriated area (ha)	Displaced houses
1955-60	Sunagawa Town (Tokyo Metro)	18	150
1956-60	Ogawa Town (Ibaraki Pref.)	235	143
1958- 65	Oguni Town (Kumamoto Pref.)	409	365
1966-	Narita City (Chiba Pref.)	670	250

Source: 'Records of the Symposium on Narita Airport Issue', edited by Editing Committee, 1995.

Road Accidents

Year	Number of accidents	Persons killed	Number of motor vehicles (1000)
1940	30,777	3,241	217
1950	33,212	4,202	388
1960	449,917	12,055	3,302
1970	718,080	16,765	18,587
1980	476,677	8,760	38,939
1990	643,097	11,227	60,651
1994	729,457	10,649	68,185

Source: Japan Statistical Yearbook 45th Ed. (1996)', Edited by Statistics Bureau, Management and Coordination Agency, 1995.

Pollution-related Health Damage
(end-December 1982)

Region	Disease	Designated regions	Number of certified persons
Class I ('non-specific' diseases)	Chronic bronchitis, bronchial asthma, asthmatic bronchitis, pulmonary emphysema and their complications	Regions including southern coastal region of Chiba City, 19 wards of Tokyo, the whole city of Osaka, etc.	85,581
Class II ('specific diseases')	Niigata-Minamata disease	Lower Agano River basin	571
	Itai-Itai disease	Lower Jintsu River basin	35
	Minamata disease	Coastal area of Minamata bay	1,343
	Chronic arsenic poisoning	Sasagadani district of Shimane prefecture	10
		Toroku district of Miyazaki prefecture	108
Total			87,648

Source: Environmental Agency (Japan)

Food Poisoning

Year	Cases	Victims	Deaths	No. of victims per case
1975	1,783	45,277	52	25.4
1980	1,001	32,737	23	32.7
1985	1.177	44,102	12	37.5
1988	724	41,439	8	57.2
1989	927	36,479	10	39.4
1990	926	37,561	5	40.6
1991	782	39.745	6	50.8
1992	557	29,790	6	53.5
1993	550	25,702	10	46.7

Source: Ministry of Health and Welfare.

Social Maladies

Bullying Cases
(Unit: cases)

Year	Instances of bullying in elementary school	Instances of bullying in junior school
1985	96,457	52,891
1986	26,306	23,690
1990	9,035	13,121
1991	7,718	11,922
1992	7,300	13,632
1993	6,396	12,817

Source: Management Coordination Agency 1994

Note: 1985 figures are for period from April 1 to October 31 at public schools

Students Refusing to Attend School
(unit: persons)

Year	Elementary school students refusing to attend school	Junior high school students refusing to attend school
1982	3,624	20,165
1984	3,976	26,215
1986	4,407	29,673
1988	6,291	36,110
1990	8,014	40,223
1992	10,436	47,482
1993	11,469	49,212

Source: Management Coordination Agency 1994.

Note: 1985 figures are for period from April 1 to October 31 at public schools.

Imperialism

Economic Assistance
(unit:$ million)

	1970	1980	1990	1993
Total	1,824	6,766	18,731	15,877
Total ODA	458	3,304	9.069	11,259
Total bilateral assistance	372	1,961	6,786	8,044
Grants	121	653	3,014	4,499
Grants assistance	100	375	1,680	2,628
Technical assistance	22	278	1,334	1,871
Government loan	250	1,308	3,772	3,545
Contributions to multilateral institutions	87	1,343	2,282	3,215
Other government funds	694	1,478	3,367	3,842
Export credit	350	823	-1,025	54
Direct investment financing	143	767	4,102	3,156
Finances to multilateral institutions	201	-112	290	631
Private funds	669	1,958	6,192	618
Export credit	387	74	12	1,938
Direct investment and others	265	1,566	5,468	2,356
Finances to multilateral institutions	18	318	711	-3,809
Grants by private voluntary agencies	3	26	103	159

Source: Japan Almanac, Asahi Shimbun, 1996. Note: - indicates recovery surplus.

Recipients of Bilateral ODA
($ million)

Country	1995	Share of ODA %
China	1380.15	13.07
Indonesia	892.42	8.45
Thailand	667.37	6.32
India	506.42	4.80
Philippines	416.13	3.94
Mexico	288.29	2.73
Sri Lanka	263.70	2.50
Bangladesh	254.89	2.41
Egypt	242.75	2.30
Pakistan	241.03	2.28
Top Ten Total	5153.15	48.81

Source: Ministry of Foreign Affairs, Government of Japan, in NGO guide to Japan's ODA .

Investment in Asia-Pacific 1951-94
($ million)

Country	Amount in $	Number of investments
Australia	23,932	3,363
Bangladesh	143	44
Brunei	124	32
China	8,729	2,931
Hong Kong	13,881	1,371
India	462	213
Indonesia	16,981	2,374
Malaysia	6,357	1,899
New Zealand	1,376	452
Pakistan	232	66
Philippines	2,817	1,068
Singapore	9,535	2,928
Sri Lanka	148	143
South Korea	5,268	1,984
Thailand	7,184	3,106
Taiwan	3,997	2,615
Vietnam	238	81
Others	120	108

South China Morning Post, August 13, 1995.

ENDNOTES

[1] *The paper was put together with the Introduction by Elson E. Boles, Glossary by James J. Keezhangatte, and Case Studies by Fujibayashi Yasushi. The authors also wish to thank Masumi Azu and Peter Yokoyama for all their help in identifying and translating documents.*

[2] *The official claim is that air quality in Japan's cities is within WHO standards.*

[3] *This term was borrowed from an article that appeared in* The Economist, *July 6 1996.*

[4] *Kiyoshi Sakurai's remarks ought to be seen of growing unease over nuclear power installations discussed in 'Nuclear bombshells: Accidents and cover-ups threaten to derail Tokyo's energy programme,'* Far Eastern Economic Review, *May 8, 1997.*

[5] *For a more detailed discussion on Asian Women's Fund see* AMPO *vol. 27 no.3 pp14-16.*

[6] *Since there were fluctuations in the exchange rate between the Japanese yen and the US dollar, it has been difficult to follow one fixed exchange rate. Some indicative exchange rates are $1 = 1991 — ¥134.50; 1992 — ¥111.18, 1993 — ¥111.18; 1994 — ¥102.23; 1995 — ¥94.07; 1997 — ¥121.*

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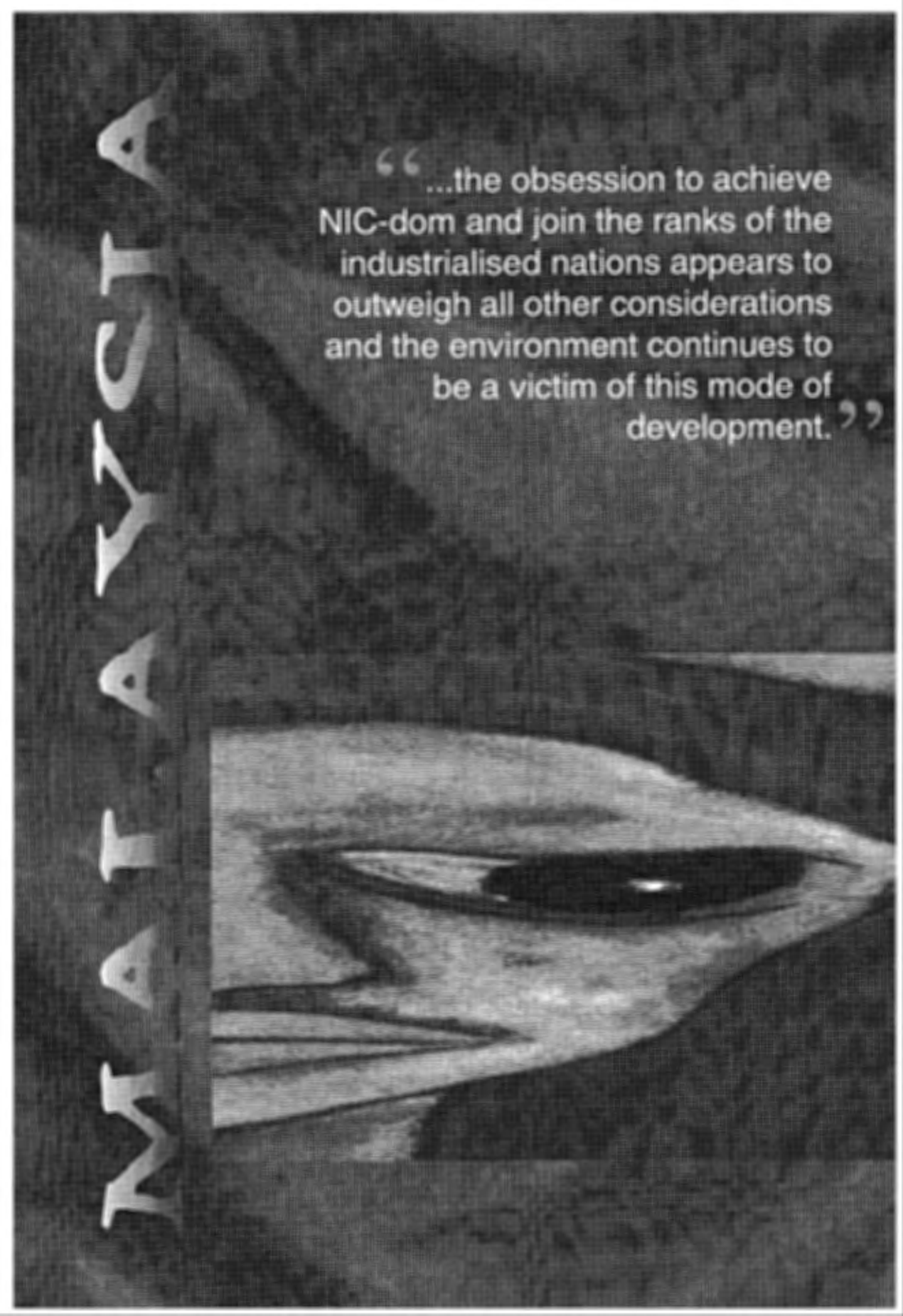
A victim of Minamata Disease


MALAYSIA
"...the obsession to achieve NIC-dom and join the ranks of the industrialised nations appears to outweigh all other considerations and the environment continues to be a victim of this mode of development."

MALAYSIA

Tan Pek Leng*

Capitalist Growth in Malaysia: Free Development or Free Market?

Though Malaysia's development strategy has undergone some twists and turns, the underlying premise has been a commitment to free enterprise. A combination of richly endowed natural resources, a generally high level of economic prosperity, long-standing social safety-net provisions and fairly far-sighted development planning, albeit in the capitalist mould, has allowed the country to avoid the worst excesses of inequality. Nonetheless, the disparities that characterise a capitalist economy have always been present and, indeed, have become increasingly prominent. In other words, every phase of Malaysia's development history yielded its victims, though the cohort concerned and the nature of the disadvantages they suffered might have changed over time.

Malaysia's development experience can conveniently be divided into three phases, each marked by distinct policies and goals. The first period, spanning 1957-69, saw the immediate post-colonial state assuming an essentially laissez-faire posture. This engendered internal contradictions that finally flared up in racial riots in May 1969, prompting a switch to heavy state intervention in the economy. Since the mid-80s, however, the Malaysian government has been divesting from the economy through an aggressive programme of privatisation. The following is a brief chronicle of the formulation and implementation of Malaysia's development policies and their effects.

1957-69: Breaking free

Not unlike other newly independent countries, the post-colonial government of Malaysia embarked upon a programme of development emphasising economic diversification and industrialisation to reduce Malaysia's over-reliance on tin and rubber — a legacy of the colonial economy. Diversification took the form of encouraging the cultivation of alternative crops, particularly oil palm, and this was carried out by converting existing rubber plantations to oil palm

* The author would like to thank the Consumers Association of Penang for access to the vast resources of its library in the preparation of this paper. The assistance of its unassuming but very competent librarian, Mr Cheng, is very much appreciated.

cultivation and through the opening of new land schemes by the Federal Land Development Authority (FELDA). The establishment of FELDA land schemes formed the main thrust of rural development efforts, supplemented by other measures to increase agricultural productivity and rural incomes as well as the provision of rural facilities such as roads, schools, clinics and irrigation.. Rural development efforts were, however, constrained by the government's reluctance to act against established vested interests such as foreign monopoly over fertiliser supply and Chinese merchant control over marketing.

With regard to industrialisation, the government embarked on import-substituting industrialisation by offering tariff protection as well as infrastructure and credit facilities to mainly British-owned manufacturing firms seeking to enhance market dominance after Independence. With the limited domestic market and skewed income distribution, import-substitution inevitably slowed down in the mid-60s and led to a shift to export-oriented industrialisation. To attract these new labour intensive industries, the government revised its investment incentive package in 1968 to ensure the continued inflow of international capital. Independence, hence, did not reduce Malaysia's dependence on foreign markets and capital.

This laissez-faire development strategy did little to ameliorate the inequitable consequences of the increasingly capitalist-dominated economy. Income inequality grew among the population and within all the major ethnic groups in Malaysia, while unemployment increased, especially in the late 60s. Meanwhile, an increasingly restive Malay middle class sought greater opportunities for upward mobility and wealth acquisition. In May 1969, the ruling Alliance coalition secured less than half the total votes cast in the general elections. Within days, ugly racial riots broke out. These events proved to be a watershed in both heralding a change in government leadership as well as a revamp of the economic policy.

1970-87: Redistribution towards free economy

The government announced a New Economic Policy (NEP), ostensibly to create the socioeconomic conditions for improved ethnic relations and national unity. The NEP had two declared prongs, namely to eradicate poverty and to 'restructure' society to eliminate the identification of race with economic functions. The primarily redistributive thrust of the NEP necessitated the partial abandonment of laissez-faire policies in favour of greater state intervention in public resource allocation as well as public-sector ownership and control of business enterprises.

From the start, it was the restructuring exercise — essentially inter-ethnic redistribution — which seized the imagination of policy-makers and potential beneficiaries. It mainly involved state intervention to increase Malay ownership of the Malaysian economy, e.g. by developing large public enterprises purportedly on behalf of the Malays. These public corporations were either wholly-owned by the government or joint ventures, usually involving foreign partners, and have generally become large business ventures. Public spending for these enterprises expanded very rapidly in the 70s. Actual public development expenditure for the various public corporations and agencies in the commercial and industrial sectors increased from RM37m ($14.8m) in 1966-70 to RM1552m ($621m) in 1971-75 and more than doubled to RM3370m ($1348m) in 1976-80.[1] By the mid-80s, over 800 enterprises were officially identified as being in the public sector.[2]

The setting up of these public enterprises, which were allocated substantial resources and accorded much operating autonomy, allowed the politicians, senior government officials and members of the royal houses to amass the great wealth and power which became essential elements of political patronage. Increasingly, a political following could be acquired with financial enticements and 'money politics' became a catch-phrase in Malaysian politics. This conspicuous convergence of political and business power has had important implications for modes and patterns of wealth

accumulation and distribution and, of course, income inequality. Though official policies to restructure the pattern of wealth ownership in the Malaysian economy have undoubtedly succeeded in increasing the Malay share of corporate capital, they also appear to have had a regressive impact on the country's income distribution. By government's own admission, income disparities within the Bumiputera community are higher than among the other ethnic groups. The history of the public sector since the early 70s, hence, has been a sad story of inefficiency, state protection, corruption, 'money politics' and frequent losses. The fact of the matter is that the public sector was hardly accountable to the public, but instead became the means for capital accumulation and self-aggrandisement for powerful and influential politicians, government officials and businessmen.

Although poverty eradication schemes have the potential to benefit a far greater proportion of the Malay population than restructuring-type activities, during the course of the NEP the state's commitment and priorities — as reflected by expenditure allocation — shifted increasingly away from poverty eradication towards restructuring. The ratio of allocation for restructuring compared with poverty eradication rose steadily from 22% under the Second Malaysia Plan (1971-75) to 37% under the Third Malaysia Plan (1976-80) and 47% under the Fourth Malaysia Plan (1981-85).[3] However, in the Fifth Malaysia Plan (1986-90) this ratio was revised downwards but the reduction has to be seen in the context of a recession which severely limited public resources, the increasing disgruntlement with public enterprises and the imminent switch to emphasis on the private sector as the engine of growth.

According to official statistics, the incidence of poverty had been reduced from 49.3% in 1970 to 17.3% in 1987, but the accuracy of these figures has been challenged.[4] There is no denying, however, that poverty eradication measures have brought benefits, especially for the Malay peasants and more specifically those in the officially designated poverty target groups such as rubber smallholders, rice farmers and fishermen. Non-Malay Bumiputeras, such as the Orang Asli and those in Sabah and Sarawak, complain, though, that they have been neglected by existing poverty eradication priorities. The primarily non-Malay rural poor on plantations and new villages feel even more marginalised. Similarly, most of the urban poor believe that poverty eradication measures are not directed at them.

In fact, much of what goes on in the name of poverty eradication, even among rural Malays, does not necessarily have a lot to do with reducing poverty. Undoubtedly, provision of rural infrastructure and social services, as well as other efforts to increase rural productivity have gone a long way towards improving rural welfare generally. However, such efforts tend to benefit more the relatively better-off in rural areas — big landowners and the better educated —rather than the poorer rural folks who are generally less well educated and possess fewer economic resources, such as land. Hence, for example, landless rural labourers have benefited little from poverty eradication measures except perhaps indirectly.

Under the NEP, poverty eradication is conceived in absolute terms with no concomitant commitment to reducing relative poverty. Under the circumstances of relatively high growth, averaging 7.5% per annum in the 70s and 5.9% per annum in the 80s, and the skewed distribution patterns resulting from restructuring activities, it comes as no surprise that income inequality has been steadily on the rise.[5] The income share of the bottom 40% of the households was 14.5% compared with 50.3% for the top 20% of the households in 1990.[6]

The recession of 1985-86, forced a thorough rethinking and revamp of Malaysia's economic policy. Resource constraints compelled the reduction of the role of the public sector and increased government efforts to stimulate the private sector, especially foreign investment and export-led growth, through a package of new incentives. Apart from the adjustments in fiscal, monetary and exchange rate policies, steps were taken to liberalise and deregulate the economy so as to encourage local and foreign investors to expand their