Environment and Human Rights

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NATIONAL HUMAN RIGHTS COMMISSION

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An Introductory Essay and Essential Readings

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Preface

Dr. Justice Shivaraj V. Patil
Acting Chairperson, NHRC

For full development as human beings, exercise and enjoyment of Human Rights by all the people is necessary. Human Rights and fundamental freedoms help us to develop our intrinsic qualities, intelligence, talents and conscience to meet our material and spiritual needs. It is needless to state that without the recognition of the right to education, realization of the right to development of every human being and nation is not possible. Article 26 of the Universal Declaration of the Human Rights (1948) inter alia states that 'education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedom. It shall promote understanding, tolerance and friendship among all nations, social or religious groups and shall further the activities of the United Nations for the maintenance of peace'. Historically, education is an instrument of development and an important factor for social change. In this view, Human Rights education is / has to be an integral part of the right to education. Of late, it is recognized as a Human Right in itself.

The knowledge of the rights and freedoms, of oneself as much as of the others, is considered as a fundamental tool to guarantee the respect of all human rights for each and every person.

On 10th December 2004, the General Assembly of the United Nations proclaimed the World Programme for Human Rights Education (2005-ongoing) to advance the implementation of human rights education programmes in all sectors. Building on the foundation laid during the United Nations Decade for Human Rights Education (1995-2004), the new initiative reflects the international community's increasing recognition that human rights education produces far-reaching results, by promoting respect for human dignity and equality and participation in democratic decision-making.

Human Rights Education cannot merely be an intellectual exercise. It acts as a linkage between education in the classroom and developments in a society.

Study of Human Rights should be included in the curriculum or syllabus in schools and colleges making it an essential part of the learning process. India has accepted elementary education as one of the basic needs of everyone. The Constitution mandates to provide free education to all children in the age group of 6-14 years. The World Conference on 'Education for All' held in Jomtien, Thailand in 1991 pleaded universal primary education in particular on education for girls and women.

The Karnataka Women's Information and Resource Centre (KWIRC), Bangalore involved various activists, advocates and key persons associated with the movement for the rights of certain vulnerable sections of the society, for developing reference material for human rights education in universities. The dossiers prepared by the experts with commitment along with the National Human Rights Commission are presented here as reference material for university students.

The main objective of these dossiers is to inspire, motivate, cultivate curiosity, shape the opinion and enlighten the university students on issues concerning human rights.

The focus of these dossiers has been on various movements that have taken place at the grass root level rather than on individual entities. These have been written in an interactive style, rather than being narrative.

The overall content of the dossiers consists of milestones at the national and international levels, critical analysis of the situation, role of various stake holders and players, action agenda etc.

Dissemination of knowledge of human rights must aim at brining about attitudinal change in human behaviour so that human rights for all become the spirit of the very living. The Commission hopes that the educational institutions and students pursuing human rights education and others interested in human rights will be benefited immensely by this series of books.

(Dr. Justice Shivaraj V. Patil)

24 November, 2006

Acknowledgements

Promoting Human Rights literacy and awareness is one of the main functions of the NHRC, as per section 12(h) of the Protection of Human Rights Act, 1993. The Commission has been serving this encompassing purpose within its best means.

Since its inception, the Commission has been endeavouring to spread human right education at both school and university levels. Pursuant to Commission's efforts, the UGC introduced human rights education at the university level, which is now being imparted in over 35 Universities/Colleges across the country, besides in the National Law Schools.

It is said that the awareness of human rights is largely limited to the educated sections of society, while ideally it is necessary to create awareness about human rights at all levels. There has been a growing realization that human rights cannot be taught only from formal documents.

For the purpose of developing reference material on human rights education in Indian universities, the Commission endeavoured to request the authors along with the Karnataka Women's Information and Resource Centre, Bangalore.

Each of these dossiers that are listed below have been authored by activists and experts who are deeply involved in, or closely associated with, the relevant movement:

1. Rights of Disabled by Anuradha Mohit, Meera Pillai & Pratiti Rungta
2. The Human Rights to Housing and Land by Miloon Kothari, Sabrina Karmali and Shivani Choudhary
3. Dalit Rights by Martin Macwan
4. Rights of Home Based Workers by Shalini Sinha
5. Women's Right to Health by N. B. Sarojini and others
6. Environment and Human Rights by Ashish Kothari and Anuprita Patel
7. The New Environmentalism – The Struggle in Narmada Valley by Sanjay Sangvai.
8. Coasts, Fish Resources and Human Rights of Fish Workers by Nalini Nayak.
9. Children in India and their Rights by Dr. Savita Bhakhry

A set of nine books is now being published in the series. Two more books on 'Right to Information' and 'Gandhian struggle for Rights such as Bhoodan and Gramdhan' are intended to be published shortly.

The Commission is grateful to the authors of these dossiers.

(Aruna Sharma)
Joint Secretary

Introduction: Environment as A Basic Human Right

The Concept

In the long evolution of the human race on this planet, a stage has been reached when, through the rapid acceleration of science and technology, we have acquired the power to transform our environment in countless ways and on an unprecedented scale.

Humanity's capacity to transform its surroundings, if used wisely and with respect to the ways of nature, can bring to all communities the opportunity to enhance the quality of life. Wrongly or heedlessly applied, or applied in inequitous ways, the same power can do incalculable harm to human beings and their environment. We see around us growing evidence of human-caused harm in many regions of the earth:

- dangerous levels of pollution in water, air, earth and living beings;
- destruction and depletion of irreplaceable life forms and natural resources;
- major and undesirable disturbances in the earth's climate and protective layers;
- gross deficiencies, harmful to physical, mental and social health, in the living and working environments of humans, especially in cities and industrial complexes.

In the above context, it is important to recognize our dependence on the earth's natural resources. *Natural resources such as air, water, and land are fundamental to all life forms: they are, much more than money and economic infrastructure, the base of our survival.*

To large numbers of humanity, especially communities that have been termed 'ecosystem people' (*people depending on the natural environments of their own locality to meet most of their material needs*)[1], natural resources are the base of survival and livelihoods. Their material and economic sustenance largely depends on these. In India alone, around 70% of the population directly depends on land-based

1 A term coined by the ecologist Raymond Dasmann. The contrasting term is 'biosphere people', those who command resources from anywhere in the world, and are not dependent on local natural resources for their survival. Most dwellers in industrial countries, and urban dwellers in other countries, would be in this category.

occupations, forests, wetlands and marine habitats, for basic subsistence requirements with regard to water, food, fuel, housing, fodder and medicine as also for ecological livelihoods & cultural sustenance (TPCG and Kalpavriksh 2005). Given this close interdependence of humans and their environment, it is not surprising that the culture of societies is so greatly influenced by their environment. They seek inspiration, knowledge, spirituality and aesthetics within their natural surroundings.

But it is not only 'ecosystem people' who are dependent on the natural environment. It is all humans, even the rich urban resident in Paris or Washington who may be under the delusion that s/he is buffered by the props of modern technology. In the growing cities of the industrialising world, millions of residents of all classes are now prone to lung and skin diseases, water-borne illnesses, and congenital abnormalities from toxics in their food and water, some of which may have originated hundreds of kilometres away. In classic cases of rebound, pesticides exported from industrial country A (whose 'aware' residents may have forced its government to ban their use in their own country) to 'developing' country B, have been found in food items imported back from B to A. The ozone layer protecting the earth from harmful solar radiation, is being punctured and depleted by industrial emissions from industrial countries, causing abnormalities in wildlife and skin cancer amongst humans. Ironically, fair-skinned people are more prone to this effect. And climate change brought about by global warming, is already causing changes in weather patterns, threatening to submerge vast tracts of low-lying coastal areas and islands, and beginning to cause havoc to agricultural systems.

Life, livelihoods, culture and society, are fundamental aspects of human existence – hence their maintenance and enhancement is a fundamental human right. Destruction of environment and thereby of the natural resources, is therefore, a violation or leads to the violation of human rights – directly by undermining the above aspects of human existence, or indirectly by leading to other violations of human rights, for example through social disruption, conflicts and even war. Conversely, human rights violations of other kinds can lead to environmental destruction, for instance, displacement by social strife/war can cause environmental damage in areas of relocation; or breakdown in sustainable common property management. The manifestations of such violations present themselves through a loss of access to clean air and water; loss of access to productive land; loss of energy sources and biomass; loss of food and health security; social and economic marginalisation; and physical displacement.

Several hundred million people have been increasingly forced to live far below the minimum levels required for a decent human existence, deprived of adequate water, food, clothing, shelter and education, health and sanitation. Development, which was supposed to alleviate such problems, has often increased them, especially by allowing the powerful sections of society to appropriate the natural resources of

poor and resource-dependent people. Communities, once proudly self-reliant, have been pushed literally or figuratively into begging for existence, their forests and water and lands taken away for 'economic progress.'

It is not only humans that are affected, but all other life forms too. The concept of environment as a basic human right, must also encompass a respect for the right of other species to survive on this planet. There are anywhere between 5 and 50 million species of plants, animals, and micro-organisms sharing the earth with us, and each has a value of its own, a role to play in a vast, complex web of interdependent connections. This range of species, the habitats they live in, and the internal genetic diversity they display, is called biological diversity or biodiversity. Such diversity is part of our daily lives and livelihoods, constituting resources upon which families, communities, nations and future generations depend. Biodiversity has numerous uses in agriculture, medicine, food and industry. It helps to maintain ecological balance and evolutionary processes, and has spiritual, cultural, aesthetic and recreational values. Its loss is, therefore, a part of the erosion of environmental human rights.

A special mention must be made here of the indigenous[2] and tribal (or

Box 1: Stockholm 1972: First International Recognition to Environment

While communities everywhere have been ecologists (without calling themselves that) in their day to day existence, and while traditions in many countries explicitly incorporated ecological principles for centuries, possibly the first time that govern-ments recognised such principles at an international level was at the United Nations Conference on the Human Environment, Stockholm 1972. This Conference considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment. It called upon governments and peoples to exert common efforts towards this end, for the benefit and posterity of all people. It stated the common conviction that:

"Humans have the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and a solemn responsibility to protect and improve the environment for present and future generations". Some of the ideas it emphasized considered humans as both creatures and moulders of their environment, giving them physical sustenance and affording them the opportunity for intellectual, moral, social and spiritual growth.

2 Though recognised by the United Nations, India has consistently opposed the use of the term 'indigenous' to describe its original residents, preferring the word 'tribal' or 'adivasi'. Tribal/adivasi people in India themselves, however, often use the word indigenous to describe themselves. In this document, where-ever applicable to India, the term 'indigenous' includes people who are classified as scheduled tribes under the Constitution of India. Also, through this document, the term mostly used is adivasi, as this avoids the sometimes pejorative connotation of the word 'tribal'.

adivasi) people of the world, virtually all of whom are faced with a serious crisis of survival. Their identity as independent communities and peoples is threatened because the economic, social, cultural, and natural resource base which enabled them to thrive as distinct peoples is being trampled upon. This intrusion is very prominent in their economy. The traditional economy of the indigenous peoples rested on their concept of and relationship with nature. For most such communities, land, water and forest belong to Mother Earth; human beings enjoy only usufructuary rights over them, nobody can own them; they ought not to be bought and sold, appropriated or otherwise privatised. Land, therefore, is an important ingredient of the indigenous peoples' identity not only for its economic usage but also for its spiritual and emotional quality.

Partly from this *relatively*[3] symbiotic relationship with nature flows the indigenous peoples' social life characterised by strongly egalitarian values and attitudes towards the other members of the community. The thrust of their social life is much less hierarchical than non-adivasi societies, though by no means is this consistent across all indigenous peoples, or through time.

The present crisis of the indigenous peoples consists precisely in the weakening and damaging of the ultimate base of their sustenance, namely land. Since the dawn of independence the Indian ruling class, effectively using the government machinery, has been alienating adivasi land in the name of 'national interests'. The biggest threat to the adivasi people is the large-scale alienation of their land through mega projects such as mines, industries, wildlife reserves, townships, highways, military establishments, and other projects in the name of 'national development' and 'national interests'.

The environmental conditions have deteriorated and worsened all over the country due to a variety of aggravating factors. The overall situation is certainly a matter of grave concern, more specially because it is affecting adversely the quality of life of the people and eroding the very foundations of the national economy and national security. As mentioned earlier, the worst affected are the poorer sections of society. The situation is compounded by slack and inadequate enforcement of laws and legislations. In this scenario, the importance of strengthening the constitutional safeguards for environment protection and nature conservation cannot be underscored. There can be no doubt that it is only by ensuring ecological security that the goal of sustainable development and national well-being will become feasible.

3 It is important to avoid a romantic notion of adivasis as consistently 'sustainable' with regard to their use of natural resources, as there is clear evidence of frequent over-exploitation or unsustainable practices. What is important, however, is that notions of restrained and responsible use of nature are almost always stronger than in non-indigenous peoples.

History of Natural Resource Use in India

The recent period in human history contrasts with all the earlier ones in its strikingly high rate of resource utilisation. Ever expanding and intensifying industrial and agricultural production has generated increasing demands on the world's resources. These demands are mostly generated from the industrially advanced countries of the North and the industrial enclaves in the 'underdeveloped' countries of the South. Paradoxically, the increasing dependence of the industrialised societies on natural resources through the rapid spread of energy and resource-intensive production technologies, has been accompanied by the spread of the myth that increased dependence on modern technologies implies a decreased dependence on nature and natural resources. Through this combination of resource intensity at the material level and resource indifference at the conceptual and political levels, conflicts over natural resources generated by the new pattern of resource utilisation are generally shrouded and overlooked (Shiva et.al. 1991). These conflicts become visible when resource and energy-intensive industrial technologies are challenged by communities whose survival depends on the conservation of resources threatened by destruction and over-exploitation, or when the devastatingly destructive potential of some industrial technologies is demonstrated as in the Bhopal disaster.

In India, as elsewhere, vital resources like land, water and forests had for centuries been controlled and used collectively by village communities thus ensuring a somewhat sustainable use of these renewable resources. This does not mean that there was no ecological destruction; indeed, the spread of agriculture was often at the expense of forests and wetlands, and the increasing dominance of cultivators was frequently achieved by driving indigenous/adivasi populations further into marginal areas. However, by and large, ruling elites in feudal and princely India left communities alone to their resources. Something like 80% of natural forests, for instance, were under common property systems, till the end of the 19th century (Singh 1986). The first radical change in resource control and the emergence of major conflicts over natural resources induced by non-local factors was associated with colonial domination of this part of the world (Gadgil and Guha 1995[b]). Levels of resource consumption among the British elite were attained by draining their many colonies, including India, of their natural resources. Colonial domination systematically transformed the vital common resources into commodities for generating profits and growth of revenues. The first industrial revolution was to a large extent supported by this transformation of commons into commodities, which permitted European industries access to the resources of South Asia. In order to accomplish this, the pattern of land use within India had been organised so as to maximize the revenue it yielded to the British crown, and the commodities it could

produce to feed the British or colonial economy. Since village communities as a whole could not conveniently be held responsible to pay taxes, land became private property or was taken over by the crown, with some (usually inadequate) stretches being left as village lands. The privately held lands were primarily cultivated lands that could be taxed heavily. In much of north and east India, the ownership was handed over to the feudal landlords, with the peasantry reduced to the status of much-exploited tenants and sharecroppers. In parts of south and west India, cultivators were assigned lands, but unable to pay high taxes, quickly became chronically indebted, losing their lands to moneylenders (Gadgil and Guha 1995 [a]; [b]).

Peasants in India have conventionally used a mix of livelihood strategies, involving cultivation, animal husbandry, and collection of resources like fuel, fodder, and livelihood materials from forests and wetlands. Such lands, as well as irrigation and fishing waterbodies, were managed collectively by village communities. This involved restraints on overuse and contributions to maintenance, such as the periodic disilting of ponds by *community* labour. However, the British had scant sympathy for community based management systems. The state took over the forests and grazing lands (with notable exceptions in parts of north-east India), rendering community control illegitimate. These lands were then dedicated to either producing timber or given over to conservation, or simply became open-access lands that suffered overuse and degradation. Extensive stretches of India's forests were exploited to build British ships and to lay extensive railway lines. Mixed forests were replaced by single-species stands of a handful of commercially valued trees, such as teak, sal and deodar. This deprived local communities of the forest produce that they depended on (Gadgil and Guha 1995 [a]; [b]).

The British were of course assisted in the task of mobilizing and draining the country's natural resources by Indian counterparts, a trend seen in most colonised nations of this region. Hence even with the collapse of the international colonial structure and the establishment of sovereign countries in South Asia, this international conflict over natural resources has neither been reduced nor, till recently, been replaced by resource policies guided by comprehensive national interests. Resource use policies, have, unfortunately, continued along the colonial pattern. In the recent past, a second drastic intensification in resource use has been initiated to meet the increasing demands of the national and international markets, aided by the 'liberalisation' policies of successive governments through the 1990s (Kothari 1998a). The most seriously threatened interest, in this conflict, appears to be that of the politically weak and socially disorganised group whose resource requirements are minimal and whose survival is primarily dependent directly on the products of nature outside the market system.

Thus, 55 years after Independence, while the country has achieved great gains in industry and commercial agriculture, it has generally failed on the poverty eradication, livelihood security and environment protection fronts.

The Constitutional and Legal Context

India has a large body of legislative measures relating to environmental issues. The backbone of these are relevant provisions in India's Constitution.

The Constitution of India, 1950, did not include any specific provision relating to environment protection or nature conservation. Presumably, the acute environmental problems being faced now in the country were not visualized by the framers of the Constitution. However, the past five decades have witnessed two major developments in this connection.

The first development took place when the Constitution (Forty-second Amendment) Act, 1976, was adopted in the mid-seventies. Specific provisions relating to certain aspects of the environment, more specially for the protection of the forests and wildlife in the country, were incorporated in Part IV- Directive Principles of the State Policy – and List III – The Concurrent List – of the Seventh Schedule of the Constitution. As a result, the Constitution has now the following provisions specifically relating to environment protection and nature conservation:

Part IV: Directive Principles of State Policy (Article 48A): Protection and improvement and safeguarding of forests and wild life: The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

Part IV-A: Fundamental Duties (Article 51-A): It shall be the duty of every citizen of India –

(g) to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.

SEVENTH SCHEDULE (Article 246)

List III - Concurrent List

Item no. 17	Prevention of cruelty to animals
Item no. 17A	Forests
Item no. 17B	Protection of wild animals and birds.

The second major development has been the jurisprudence arising from certain remarkable judicial pronouncements in recent years, more specially relating to Article 21 of the Constitution dealing with 'the right to life'. Some examples:

- In Francis Coralie Mullin vs. Union Territory – 1981 2 SCR 516, the Supreme Court held that "The right to life includes the right to live with human dignity and all that goes along with it, namely the bare necessaries of life such as adequate nutrition, clothing and shelter...."
- In *M. C. Mehta vs. UOI 1987 Supp. SCC 131*, the Supreme Court has held that life, public health and ecology have priority over unemployment and loss of revenue.
- In *Shanti Star Builders vs. Narayan Totame.- 1990(1)SCC 520,* the Supreme Court held that right to life is guaranteed in a civilised society would take within its sweep the right to food, the right to clothing, the right to decent environment and a reasonable accommodation to live in.
- In *Subhash Kumar vs. State. of Bihar- (1991) 1 SCC 598,* the Supreme Court held that right to life is a fundamental right under Art. 21 of the Constitution and it includes the right to enjoyment of pollution free water and air for full enjoyment of life. If anything endangers or impairs that quality of life in derogation of laws a citizen has recourse to Art.32 of the Constitution for removing the pollution of water or air which may be detrimental to life.
- In *M. C. Mehta vs. Union of India & Ors. 1987 SCR (I) 819 (the O*leum Gas Leak case), the Supreme Court established a new concept of managerial liability – ***'absolute and non-delegable'*** – for disasters arising from the storage of or use of hazardous materials from their factories. The enterprise must ensure that no harm results to anyone irrespective of the fact that it was negligent or not.
- In *Vellore Citizens Welfare Forum vs. Union of India, AIR 1996 SC 2715,* the Supreme Court held that industries are vital for the country's development, but having regard to pollution caused by them, principle of **'Sustainable Development'** has to be adopted as the balancing concept. **'Precautionary Principle'** and **'Polluter Pays Principle'** has been accepted as a part of the law of the country.[4]

4 'Precautionary Principle' as interpreted by the Supreme Court means that the required environmental measures should be taken by the State and statutory authorities and the lack of scientific certainty cannot be a ground for postponing such measures where there are serious threats to ecology. That the State and statutory authorities must anticipate, prevent and address the causes of environmental degradation and the 'onus of proof' is on the industry to show that its actions are environmentally benign.

'Polluter Pays Principle' as interpreted by the Supreme Court means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. Remediation of environment is part of the process of 'Sustainable Development' and as such the polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damage to the environment.

- In *Indian Council of Enviro-Legal Action vs. Union of India, 1996 3 SCC 212* (the Bichhri pollution case), following the decision in the Oleum Gas leak case and based on the polluter pays principle, the polluting industries were directed to compensate for the harm caused by them to the villagers in the affected areas, specially to the soil and to the underground water.
- Enunciating the doctrine of 'Public Trust' *in M. C. Mehta vs. Kamal Nath (1997) 1 SCC 388,* the SC held that resources such as air, sea, waters and the forests have such a great importance to the people as a whole that by leasing ecologically fragile land to the Motel management, the State Government had committed a serious breach of public trust.

Such wide interpretations of Article 21 by the Supreme Court have over the years become the bedrock of environmental jurisprudence, and have served the cause of protection of India's environment (and to a lesser extent, of livelihoods based on the natural environment). Adding to this is a large number of laws relating to environment, enacted over the last few decades (see Box 3).

However, a number of groups (Foundation for Ecological Security, with Legal Action for Wildlife and Environment, supported by Kalpavriksh and others) have also pointed out that the Constitution is deficient in that it does not explicitly provide for the citizen's right to a clean and safe environment. In a recent submission to the committee set up to review the Constitution, these groups have proposed a number of amendments to the Constitution, for ensuring environment protection and nature conservation (FES and LAW-E 2001). These include:

1. Recognition and incorporation of Environmental Rights as separate and independent *Fundamental Rights* in the Constitution of India. These follow from the above-mentioned interpretation to the term 'Right to Life', as given by the Supreme Court. This could be further specified to include right to clean drinking water, and to a clean and pollution-free environment.
2. Replacement, within the *Directive Principles of State Policy*, of the term 'forest' by the term 'life supporting natural ecosystems'. The reason for this suggestion is that the Courts and other authorities, including the forest departments, have been interpreting the term forest to mean land with trees. As a result, land without trees is not considered as a forest and there is a lack of interest in protecting other important ecosystems such as grasslands, deserts, marshes, mangrove, etc. With the better understanding of these diverse ecosystems and their importance to humankind there is a need to preserve them.
3. Incorporation, within the *Fundamental Duties*, the responsibility of panchayats and municipalities to give due regard to ecological aspects

and to protect the environment, including life supporting natural ecosystems such as forests, rivers and lakes, and wild life, in the preparation of plans for economic development and social justice. This would also necessitate incorporation, into the Eleventh Schedule relating to the Panchayats, an item for "protection of the environment and the promotion of ecological aspects".

4. Empowerment, under the Constitution, to the Supreme Court and the High Courts, to grant compensation for the breach of the Fundamental Right guaranteed under Art. 21 of the Constitution. This is due to the fact that currently, this right can only be enforced against the 'State', as defined in Art. 12 of the Constitution, and not against private parties. As a result, the Courts are unable to protect the right to life of a person qua a private party and gross violations of this fundamental right to life cannot be remedied by the Courts in exercise of its Writ jurisdiction under Art. 32 or Art. 226 of the Constitution. The aggrieved person is required to file a suit for damages in a civil court, which is time consuming and even counter productive in relation to the very right guaranteed by the Constitution.

The above provisions and suggestions are also implicitly contained in many of the sections that follow, and in the appended readings. What we have tried to do in the rest of this essay is to provide glimpses of the erosion of environmental human rights, and their revival and protection, in different sectors and

Box 2: Inter-generational Rights to the Environment?

An issue that is increasingly coming up in discussions relating to the right to a safe environment, is that of the rights of future generations. Do unborn generations have a legal right to a secure natural environment, much as we in the current generation would like to have? Even if one were to accept this in principle, how would this translate into law?

An interesting precedence on this has been set by a 1993 judgment of the Philippine Supreme Court, in the case *Minors Oposa vs. Secretary of the Dept. of Environment and Natural Resources*. The Court allowed a class action by Filipino children, acting as representatives for themselves and for future generations, arguing for a halt in timber cutting in national forests. The Court held that the petitioners were qualified to sue on behalf of current and future generations, and accepted their statistical evidence about how much forest cover is required to maintain a healthy environment for all generations.

This is a critical issue for resolution and action in India.

Source: Action Aid 2002.

sections of Indian society. Since communities whose rights are being trampled upon are often 'organised' according to the ecosystems and resources they depend on, the sections below also partly follow this logic. But first, we give an overview of the changing trajectory of environmental rights in India, from a historical perspective.

Box 3: Environment and Related Laws and Policies in India

(Note: this is not a comprehensive list, but contains most of the key laws and policies. It is arranged in chronological order of year of enactment or passing)

The Indian Forest Act, 1927*: *An Act to consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce. Created various categories of forests for different management and regulatory regimes.

The Prevention of Cruelty to Animals Act, 1960: An Act to prevent the infliction of unnecessary pain or suffering on animals.

The Water (Prevention and Control of Pollution) Act, 1974, amended 1988: An Act to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.

Forest (Conservation) Act, 1980, amended 1988: An Act to provide for the conservation of forests and for matters connected therewith or ancillary or incidental thereto.

***The Air (Prevention and Control of Pollution) Act 1981, amended 1987*:** An Act to provide for the prevention, control and abatement of air pollution.

The Environment (Protection) Act, 1986, amended 1991: An Act to provide for the protection and improvement of environment and for matters connected therewith with the following key rules/notifications:

- Declaration of Coastal Stretches as Coastal Regulation Zone (CRZ), 1991, amended 2001
- The Scheme on Labeling of Environment Friendly Products (ECOMARK), 1991
- Eco-sensitive Zone (a series of notifications declaring specific sites)
- Environment Impact Assessment Notification, 1994, amended 2002
- The Rules for the Manufacture, Use, Import, Export and Storage of Hazardous micro-organisms Genetically engineered organisms or cells, 1989
- Hazardous Substances Management (a series of Rules dealing with municipal solid wastes, batteries, recycled plastics, chemical accidents,

hazardous micro-organisms and genetically engineered organisms/cells, hazardous chemicals, biomedical wastes, and other hazardous wastes).

- Noise Pollution (Regulation and Control) Rules, 2000

***The Forest Policy, 1988*:** A policy that emphasises the twin objectives of ecological stability and social justice. Highlighting the need for stronger conservation measures, it points to symbiotic relationship between tribals and other poor people and forests. It recommends treating local needs as 'the first charge' on forest produce, and creates space for the participation of forest-dependent communities in the management of forests.

The Public Liability Insurance Act, 1991, amended 1992: An Act to provide for public liability-insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.

***Constitution (73rd Amendment) Act 1992*:** An Act to empower panchayat bodies to manage local affairs, including environmental resources such as water, land, agriculture, animal husbandry, social/farm forestry, minor forest produce, and fisheries.

***National Conservation Strategy and Policy Statement on Environment and Development, 1992*,** with guidelines for integrating environmental considerations into development.

The National Environment Tribunal Act, 1995: An Act to provide for strict liability for damages arising out of any accident occurring while handling any hazardous substance and for the establishment of a National Environment Tribunal for effective and expeditious disposal of cases arising from such accident, with a view to giving relief and compensation for damages to persons, property and the environment and for matters connected therewith or incidental thereto.

***Panchayat (Extension to Scheduled Areas) Act 1996*:** An Act to extend the 73rd Constitutional Amendment to Scheduled (predominantly tribal) areas, providing ownership or control over some natural resources such as minor (non-timber) forest produce.

The National Environment Appellate Authority Act, 1997: An Act to provide for the establishment of a National Environment Appellate Authority to hear appeals with respect to restriction of areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the Environment (Protection) Act, 1986 and for matters connected therewith or incidental thereto.

The Wild Life (Protection) Amendment Act, 2002: An Act to provide for the protection of wild animals, birds and plants and for matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

The Biological Diversity Act, 2002: An Act to provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

The Right to Information Act 2005: An Act to provide the right to information to all citizens (useful in accessing information regarding environmental matters, including projects/processes that affect the environment).

Scheduled Tribes (Recognition of Forest Rights) Bill 2005: A bill to recognise and vest the forest rights and occupation in forest land in forest dwelling Scheduled Tribes who have been residing in such forests for generations but whose rights could not be recorded; to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land.

Active judicial intervention by NGOs, community groups, and others, have also set a series of important precedences that go beyond what the bare laws provide. There are many initiatives in Public Interest Litigation (PIL). Some of these include the cases against the construction of the Tehri Dam (Tehri Bandh Virodhi Sangharsh Samiti vs. State of Uttar Pradesh, 1992 SUP (1) SCC 44) and Narmada Dams (Narmada Bachao Andolan vs. Union of India AIR 1999 SC 3345); against deforestation (**T. N Godavarman Thirumulpad vs. Union of India, 2000 SC 1636, a case that has since then spawned dozens orders pertaining to forests in India); against mining in the Aravallis** (Tarun Bharat Sangh, Alwar vs. Union of India 1992 SC 514, 516); against mining in the Dehra Dun hills (Rural Litigation and Entitlement Kendra, Dehradun vs. State of Uttar Pradesh, 1985 SC 652); against mining in *adivasi* lands of Andhra Pradesh (Samatha vs. State of Andhra Pradesh, 1997, a judgment with important consequences for acquisition or use of *adivasi* lands elsewhere too); on implementation of the Wild Life (Protection) Act 1972 (WWF vs. Union of India, WP No 337/95); on implementation of Coastal Regulation Zone measures (Indian Council for Enviro-Legal Action vs. Union of India, 1996(3) SCALE: 579); on protection of the coastal area against destructive practices (Prof. Sergio Carvalho vs. The State of Goa and Others, 1989 (1) GLT 276); on the right of citizens to inspect official records (this was before the Right to Information Act came into force) (Goa Foundation and Ors. vs. North Goa Planning and Development Authority and Ors. 1995(1) GLT 181); against forest logging and other environmental aspects of Andaman and Nicobar Islands (SANE, BNHS, and Kalpavriksh in the

matter of Godavarman Thirumulpad vs. Union of India, IA No. 502 of 1999 in WP (Civil) No. 202 of 1995). The judgments in these and other cases have set important precedents and directions for the further development of policy, law and practice.

For instance, the Godavarman and the *WWF vs Union of India* cases have led to the following orders:

1) No forest, National Park or Sanctuary can be dereserved without the approval of the Supreme Court.

2) No non-forest activity is permitted in any National Park or Sanctuary even if prior approval under the Forest (Conservation) Act, 1980 had been obtained.

3) New authorities, committees and agencies have been set up such as the Central Empowered Committee (CEC) and the Compensatory Afforestation Management and Planning Agency.

Some judgments not directly related to environmental cases, also have significant implications for the struggle to establish environment as a human right. Mention should especially be made of a number of cases in which the Constitutional Right to Life (Article 21) has been interpreted widely to include a series of basic rights that include environment and livelihoods. In Francis Coralie vs. Union Territory of Delhi (AIR 1981 SC 746), Justice Bhagwati observed: "We think that the right to life includes the right to live with human dignity and all that goes along with it, namely, the bare necessaries of life such as adequate nutrition, clothing and shelter over the head and facilities for reading, writing and expressing oneself in diverse forms, freely moving about and mixing and co-mingling with fellow human beings." In Shantistar Builders vs. Narayan Khimalal Totame (AIR 1990 SC 630), the Supreme Court said: "Basic needs of man have traditionally been accepted to be three – food, clothing, and shelter. The right to life is guaranteed in any civilized society. That would take within its sweep the right to food, the right to clothing, the right to decent environment and a reasonable accommodation to live in." In Olga Tellis case (AIR 1986 SC 180) the Supreme Court observed "An important facet of that right is the right to livelihood because, no person can live without the means of living, that is, the means of livelihood. If the right to livelihood is not treated as a part of the constitutional right to life, the easiest way of depriving a person of his right to life would be to deprive him of his means of livelihood to the point of abrogation…. That which alone makes it possible to live, leave aside what makes life livable, must be deemed to be an integral component of the right to life."

The Roots of the Crisis

Environmental problems in India arise from a number of proximate or surface causes:

- Economic growth has necessitated a corresponding expansion in energy availability for industrial, agriculture and domestic purposes. There has, till recently, been little regulation of the environmental impacts of such expansion.
- The level of environmental literacy is low, especially amongst decision-makers, and there is a gross under-valuation of the economic and material values of the environment.
- The policies and programmes of the Central and State Governments have not incorporated environmental principles, with the result that many development projects have been conceived for short-term gains without considering their long-term ecological and social impacts.
- The growing human and animal populations are making increasing demands on natural resources resulting in the exploitation of resources in an unsustainable manner.
- The general indifference of the industrial sectors on aspects of environmental safety and protection have led to the spread of avoidable air, water and soil pollution.
- The inability to convert the oft-repeated rhetoric of growth with equity into reality and the neglect of the livelihood needs of the adivasis and rural people have resulted in persistence of real poverty (including scarcity of resources).
- The uncontrolled consumerism of the upper classes, which seem completely oblivious to the limits of resource use, has put serious pressure on natural resources.

But while these are the proximate or immediate causes, the fundamental factors behind the crisis are deeper.

This environmental crisis is causing enormous disruption of lives and livelihoods, threatening the collapse of its entire life-support system. The poor and disprivileged

classes of humans and the other non-human species unfortunately have to bear the main brunt of these environmental problems. *Ironically, the crisis is rooted deep in social, economic and political structures, more specifically in relations of inequity of three kinds* (Kothari 1995):

1. *Intra-generational inequity*: Heirarchical relations between classes, castes, races, communities, countries and sexes, within one generation, create conditions for ecological destruction. Those in power are able to dictate the use of the majority of resources regardless of consequences on others, while forcing the powerless to depend on and further degrade meagre resources. This has been the case with land, for instance, in societies with a tremendously skewed ownership pattern.

2. *Inter-generational inequity:* Entire generations of human beings, as yet unborn, who will depend on the same resources that we do, have no voice in decisions regarding these resources. This generation's over-exploitation of water, land, soil, and biodiversity, will leave little for future generations, except abundant toxic wastes, barren wastelands, polluted waterbodies, and a handful of pest species that have thrived on human wastes.

3. *Inter-species inequity*: Humanity shares the earth with a mind-boggling diversity of life-forms, perhaps upto 50 million species of plants, animals, and micro-organisms. This explosion of biodiversity is not only a source of wonder, but the very bedrock of human existence. Yet, simply because we have the might, we have considered it our right to colonise ever-increasing spaces on earth, driving out thousands of species. Over one-fourth of all biodiversity is threatened with extinction in the next few decades, unless we can drastically change the way we deal with the earth.

Inequities in the relations between people and countries have also allowed the imposition of unsustainable and destructive models of 'development'. The process of 'development' has been characterised by the massive expansion of energy and resource-intensive industrial and urban activity, and major projects like large dams, commercial forestry, mining and chemical-intensive agriculture (CSE 1999). The resource demand for the economic progress of a minority of people, has lead to the narrowing of the natural resource base for the survival of the economically poor and powerless. This has happened either by direct transfer of resources into cities and industrial complexes, or by the destruction of life-support systems for rural communities everywhere.

Box 4: Root Causes of Biodiversity Loss

India's draft National Biodiversity Strategy and Action Plan identifies the following as the root causes of biodiversity loss (and consequently also, the loss of related livelihoods and cultures):

1. The **model of development** that India has followed, which has centred on large scale industrial expansion, commercial (monocultural) agricultural production, and increasing the consumption of goods and services through exploiting natural resources, with scant regard for sustainability.

2. The **erosion of customary rights and management system** regimes over forests, pastures and common lands and water bodies, which were attuned to ecosystem specific natural resources; starting in the colonial period and extending to beyond Independence, common property rights administered by customary resource management were replaced by state owned rights, or state administered individual (private) rights. Unsustainable and reckless harvesting from forests, wetlands, and other ecosystems, has ensued partly due to such erosion of traditional management systems of resource use.

3. **Increasing social, political, and economic inequities** which pervade both rural and urban, and traditional and modern India. Inequities between land-owning peasants and forest-dwellers in the past have, for instance, often led to severe deforestation. The ongoing process of market driven economic liberalization and globalisation has enhanced the inequities and destruction.

4. **Inappropriate and unclear tenurial arrangements and inter-departmental conflicts.** Many tenurial conflicts are rooted in the blanket processes of state acquisition of forest and revenue lands as well as communal water management systems without detailed surveys of existing uses and users.

5. **Changes in cultural, ethical and moral values**. This has created alienation of local communities from natural resources; the spread of homogenous attitudes such as the notion that wheat and rice are the only grains worth eating; the de-valuation of their traditional/indigenous knowledge; displacement of local communities due to large scale development projects and inadequate or non-existent rehabilitation measures; and urban consumerist lifestyles, that often set the model for rural and semi rural areas, which are largely bereft of cultural or ethical links with biodiversity.

6. **Lack of recognition of the full values of biodiversity**. There has been *an ethical and cultural under-valuation* as is evident in the rapid decline

in the protection being accorded to sacred groves and landscapes, and to species. *Productivity under-valuation* has occurred because of the myth that traditional cultivars which are essential for a diverse cropping system are low yielders. *Non-appreciation of water and other ecosystem services* by today's planners has led to a lack of understanding of the critical role that ecosystems play. Modern India's health policies and programmes have consistently ignored the *health value* that elements like medicinal plants and traditional crops have provided. Agricultural policies and programmes do not even acknowledge the role of agrobiodiversity in nutrition and health. Economic planning and budgeting in India has not taken adequate account of the enormous *economic value* of biodiversity, especially of 'services' like water security and soil productivity.

7. **Inappropriate, inflexible, weak, and contradictory laws and policies.** These have caused contradictions between polices and laws relating to environment on the one hand, and those relating to industrial development, commerce, and welfare on the other; lack of an adequate integration of biodiversity concerns into most policies and laws; centralising tendency of some laws; weak enforcement; inadequate empowerment of citizens to use the existing policies and laws or to challenge them when inimical to biodiversity conservation; and no holistic land use plan and policy that can specify fragile areas as off-limits to development processes like mining.

8. **Demographic changes,** including: the growth in population since the time of Independence; the localized demographic movements, of which the most dramatic, yet least recognised has been the movement of persons (several million) displaced by large development projects, including large dams; illegal immigration from within and outside the country; and unrecognised refugees of policies that have forced people off the land.

9. **Inappropriate trade regimes,** especially in their focus on export of natural resource based products without caring about the sustainability of the resource or the livelihoods of those already dependent on this resource. Impacts on biodiversity from trade are likely to significantly increase in the next few years, with India's acceding to the World Trade Organisation's treaties. Export policies that spread monocultures and export oriented cash crops are being encouraged, at the cost of biodiverse farming systems.

Source: TPCG and Kalpavriksh, 2005.

The International Context

The Indian situation is shaped by, and in turn shapes, the international context. This context is made of a complex set of relations and exchanges, including:

1. Multilateral development and aid agencies and their policies/programmes
2. Trade and related organisations/agreements
3. Bilateral and multilateral agreements and treaties, on development and on environment
4. Technological, social, and political forces, including the forces of homogenisation and consumerism

The current ideology of 'development' owes its origin, at least in part, to the aggressive pushing of the western industrial model by the major international donors of the post-World War II period. The International Monetary Fund and the World Bank are possibly most culpable, for bulldozing dozens of countries into accepting such a model. Billions of dollars of loans or aid from these and other multilateral and bilateral donors, has been channelised into mega-projects and economic policies like liberalisation and 'structural adjustment'. While the blame for taking their countries towards this suicidal course cannot but rest substantially with the sovereign governments of these countries, there is no doubt that many international agencies were also behind it.

Unfortunately, despite the widespread evidence of the ecological and social disruption caused by the industrial model of development, most donor agencies have retained an essentially 'business-as-usual' attitude, even as they mouth platitudes of 'human development' and 'ecological sustainability'. For instance, the World Bank has put increasing amounts of money into environmental projects, but its overall development portfolio in countries like India remains highly unsustainable, thereby negating whatever good impacts the environmental projects may do (Caufield 1998; George 1990). Even many of its environmental projects, such as forestry and ecodevelopment projects in several states, have been severely criticised for increasing state control and unsustainability of the forest and wildlife sectors (Baviskar 1998; Cheria 1995; Hiremath et.al. 1997; Karlsson 1998; Kothari 1998b; Kumar et.al. 2000; Poffenberger et.al. 2001).

In India, a process of globalisation has begun in 1991, and has entailed a series of macro-economic and other policy measures that have had far-reaching

consequences for the country's citizens. A series of annual reviews from 1991 to 1998 showed, for instance, how a systematic weakening of the environmental regulations took place to make it easier for foreign corporations and their Indian counterparts to establish themselves (Kothari 1998a). Sectors such as mining, fisheries, agriculture were opened up to large-scale exploitation for foreign markets or by foreign companies, or for elite domestic consumption. At the same time, democratic spaces were in many cases squeezed, to tackle the increasing protest from affected populations (of which there was a great deal). Many people died in police firing linked to these protests (e.g. at Kashipur, Orissa, in 1991, when adivasis agitated against the leasing of their common lands for mining to a foreign corporation; and at Kalinganagar also, Orissa, in 2006, when adivasis protested against the Tata companies' upcoming industries.). Access to information was curtailed, and more and more activists found themselves being branded 'extremists' or 'terrorists' so that the state could use relevant anti-terrorist laws (Kothari and Kothari 1993). A detailed report on globalisation in South Asia, by the Mahbub ul Haq Human Development Centre, has revealed the serious impacts that it is having for the region and its people (Mahbub ul Haq Human Development Centre 2001).

Increasingly, the policies and programmes of these multilateral agencies are being joined by economic instruments such as the World Trade Organisation (WTO). This body and its constituent agreements (on trade, agriculture, intellectual property rights, and so on) are hoisting a set of very drastic policy and programmatic shifts in countries. In India, for instance, it has meant the opening up of the economy to the entry of mass-produced cheap agricultural and industrial goods, weakening of environmental regulations on exports and imports and on industrial/commercial activities, dilution of environmental impact assessment and coastal zone regulations, changes in intellectual property laws so that commercial monopolisation of life forms and related knowledge has become possible, and many other such measures. While some good, may well come of a 'freer' and more globalised economy if we are able to get some useful technologies, the over-whelming trend is towards greater ecological destruction and social disruption. Intellectual property regimes promoted under the Trade Related Intellectual Property (TRIPs) agreement, are already forcing countries like India to accept patents and other IPRs that are inimical to their interests. The widespread protests against these trends in India and elsewhere, have even been echoed in the halls of the United Nations and other international bodies; for instance, in 2001 the Sub-Commission on the Promotion and Protection of Human Rights, of the UN Commission on Human Rights, passed a resolution expressing serious concern about the implications of IPRs as promoted by TRIPs (UNCHR 2001).

The other major international influence with negative consequences is that of the 'ideology' of material consumerism. Without propagating the myth that Indians were always predominantly spiritual and espoused material goods, it must be

stated that the last few decades have seen an increasing trend towards materialism becoming the ultimate goal of existence for very large parts of middle and upper class Indians. The entry of mass media, now global in reach, has in no small measure contributed to this, as has the easier availability of technologies and market mechanisms to make consumer goods more and more accessible.

On the positive side are a series of international agreements, ranging from human rights instruments to environmental treaties (see Box 5).

Box 5: International Environment and Human Rights Instruments

There are several international instruments relevant to environment and human rights. In particular, the following may be noted:

Environment instruments

***Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar) (1971)*:** Commits countries to protect and sustainably use wetlands that are considered to be of importance at an international level. There is no specific corresponding law in India, but many of the sites designated by India under this Convention, are protected under the Wild Life (Protection) Act 1972, or relevant state laws. www.ramsar.org.

***Convention on International Trade in Endangered Species (CITES) (1972)*:** Prohibits or restricts the trade, between countries, of species of plants and animals considered to be threatened. India implements this through the The Export-Import Act. www.cites.org.

***Vienna Convention for the Protection of the Ozone Layer (1985) and Montreal Protocol (1987)*:** Calls upon countries to take measures to limit or prevent activities that could cause damage to the ozone layer. In India, the Ozone Depleting Substances Rules of 2000, under the Environment Protection Act 1996, are the relevant domestic legislation. Under the Montreal Protocol, India is to phase out most ozone depleting substances (such as CFCs), by 2010. www.unep.ch/Ozone/pdfs/viennaconvention2002.pdf.
hq.unep.org/ozone/Montreal-Protocol/.

***United Nations Framework Convention on Climate Change (1992) and Kyoto Protocol (1998)*:** Calls upon countries to reduce emissions that are responsible for global warming and climate change. http://unfcc.int and http://unfccc.int/resource/docs/convkp/kpeng.html.

***Convention concerning the Protection of the World Cultural and Natural Heritage (WHC) (1972)*:** Commits countries to protect outstanding sites of

cultural importance, including monuments, buildings, archaeological and other culturally important sites, and of natural importance, including natural features, geographical formations, and natural sites. India's World Heritage sites that are of biodiversity/wildlife significance are not covered by a specific law, but are protected under the Wild Life Act 1972. www.unesco.org/whc.

***Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel) (1989)*:** Commits countries to protecting human health and the environment by minimizing hazardous waste production whenever possible, and regulating the transboundary movement of such wastes. Relevant rules for some hazardous substances have been made by India under the Environment Protection Act 1986. www.basel.int.

***Convention on Biological Diversity*:** Framed in 1992 and coming into force in 1993, this legally binding agreement commits member countries to take actions for conservation of biodiversity, sustainable use of biological resources, and equitable sharing of benefits relating to biodiversity. www.biodiv.org.

***United Nations Convention on the Law of the Sea (UNCLOS) (1994)*:** Commits countries to a legal order for the seas and oceans which will facilitate international communication, and will promote the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment. No specific law has been enacted in India to implement this. www.un.org/Depts/los/index.htm.

***Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998)*:** Commits countries to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm and to contribute to their environmentally sound use, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties. www.pic.int.

***Stockholm Convention on Persistent Organic Pollutants (2001)*:** Commits countries to protect human health and the environment from persistent organic pollutants (POPs). POPs are chemicals (such as many pesticides) that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms and are toxic to humans and wildlife. India has only recently (January 2006) acceded to this. www.pops.int.

Human Rights and Livelihood Instruments

***International Covenant on Civil and Political Rights (ICCPR) (1976)*, and *International Covenant on Economic, Social and Cultural Rights (ICESCR) (1976)*:** Commit countries to respect a number of rights, including that of self-determination, use/disposal of natural wealth and resources, place of residence, and so on. India accepted these Covenants with some qualifications, including for instance that 'self-determination' does not apply to its people. It has also not accepted the Optional Protocol to ICCPR, which would make the rules enforceable in international courts, but the Supreme Court has repeatedly accepted the application of ICCPR in India. www.unhchr.ch/html/menu3/b/a_cescr.htm and www.unhchr.ch/html/menu3/b/a_ccpr.htm.

***Universal Declaration of Human Rights (1948)*:** The basic international agreement protecting a range of human rights. www.un.org/overview/rights.html.

***UN Comprehensive Human Rights Guidelines on Development-based displacement (1997)*:** Adopted by an experts meeting convened by the United Nations, lays down guidance to countries to minimize forced displacement, and ensure that no human rights are violated while displacing people for development projects and processes. India is yet to formulate a national set of guidelines or rules for displacement, resettlement, and rehabilitation. www.hri.ca/uninfo/resolutn/forced-evictions.shtml.

***UN Guiding Principles on Internal Displacement (1998)*:** Prohibits displacement within a country, including in cases of large-scale development projects which are not justified by compelling and overriding public interests. www.unhchr.ch/html/menu2/7/b/principles.htm.

***ILO Convention No. 169 Concerning Indigenous and Tribal Peoples in Independent Countries (1989)*:** Provides for comprehensive rights to such peoples, including the right to determine their own developmental priorities. India has not ratified this Convention. http://www.ilo.org/ilolex/cgi-lex/convde.pl?C169.

***Draft UN Declaration on Indigenous Rights (1994)*:** A potentially powerful instrument that provides indigenous peoples the right to self-determination, to not be dispossessed of their lands and resources, and not be displaced from their territories. Unfortunately has remained a draft for more than a decade. www.unhchr.ch/huridocda/huridoca.nsf/(Symbol)/E.CN.4.SUB.2.RES.1994.45.En?OpenDocument

Finally, there is also the growing global movement against the negative forces of globalisation. This movement has brought together activists and campaigners on human rights, ecologists, womens' rights, children's rights, pacifists, and many others. It has spawned a series of massive protests in many parts of the world, and increasing networking in the search for ecologically and socially responsible development alternatives such as the World Social Forum. A number of Indian groups and movements are part of this international networking, drawing sustenance from it and in turn influencing its course.

This essay does not have the space to develop on the above issues further, but at relevant places in the analysis below, mention will be made of international forces as they influence domestic trends and events.

Forests and Forest Dwellers

Commercialisation and Neglect of Common Property Regimes

The exploitation of India's forests provides a striking example of how post-Independence state policies have favoured the elite at the cost of ecosystem people, while at the same time promoting the unsustainable use of a renewable resource. In what is still a biomass-based economy, most segments of Indian society – peasants, adivasis, pastoralists, city dwellers and industry – have a heavy dependence on the produce of the forests, as the source of fuel, fodder, construction timber or industrial raw material. Some of the most basic needs and livelihood sources of the masses of India's ecosystem people revolve round natural resources: small timber for fuelwood and thatch; bamboo for huts and basketweaving; plant material for tools and implements used in agriculture, hunting and fishing. Their livestock graze extensively in the forest and in some parts, tree fodder lopped by hand has several important uses ranging from medicinal to livelihood sources. Unfortunately, successive governments (colonial and independent) have often viewed the needs of these ecosystem people as a burden, as 'biotic' or 'anthropogenic' pressures. Some lands were set aside, from which ecosystem people were expected to meet their substantial and biomass needs, but clearly their size could not sustain the increasing needs. Over vast stretches of forests, pastures, and wetlands, ecosystem people had no longer any rights, only 'privileges'. Simultaneously, sophisticated and often effective systems of common property (CPR) management by villages, were replaced by a single centralised bureaucracy, leading to a break-down in these CPR systems. Many of these areas became no man's lands, overused without restraint by all and sundry (Gadgil and Guha 1995 [a]).

With the take-over of forests by the state, the traditional or customary rights of forest-dwellers were gradually converted into privileges and, even further, into concessions. In other words, over the process of a few decades, hundreds of thousands of families were reduced from relative self-sufficiency to a dependence on the 'charity' of the state. The state 'conceded' to allow people to use forests, as if these forests always belonged to it! Simultaneously, commercial forestry was contributing significantly to the decimation of forests and their biological diversity.

Of all the environmental problems facing the country, the problem of deforestation has received maximum public attention. Ironically, public criticism has also focused heavily on policies of afforestation. For a considerable part of the Forest

Department's history, afforestation programmes were undertaken with the primary aim of meeting the needs of urban and industrial markets while the glaring fuel and fodder crises facing the common people continued to grow. Several thousand hectares of the natural shola-grassland vegetation of the Nilgiris, with tremendous biological uniqueness, have been replaced by monocultural plantations by the Forest Department. Species such as eucalyptus, teak and pine, which were chosen, did little for ecological restoration, for enhancing soil fertility or for soil and water conservation. Nor did they meet local people's livelihood needs (CSE 1985).

These afforestation programmes, thus, were often as anti-people as was outright deforestation. For instance, rural women, whose lives revolve around collection of fuel and fodder, have almost nowhere been involved in these programmes. Though social forestry is a term to denote tree-raising programmes to supply firewood, fodder, small timber and minor forest produce to rural populations; it has in the past been distorted to benefit the upper classes. Critics of the programme have strongly held that the wood produced in social forestry programmes is ending up in urban and industrial India, instead of in the homes of the poor. This could well have further reduced rural employment, and land under food production, and promoted absentee landlordism (CSE 1985).

In a radical departure from the policies of the past, the National Forest Policy of 1988 acknowledged that the biomass needs of ecosystem people must have primacy over commercial demands of industry. Some attempts have also been initiated to set up management systems involving local communities. For instance, taking its cue from some successful initiatives in participatory forestry in West Bengal and elsewhere, the Government of India issued a circular in 1990, urging all states to adopt a programme of Joint Forest Management (JFM). Over the last 15 years, JFM has spread like wildfire, with over 8 million families involved in over 84,000 JFM committees in 28 states, covering over 17 million hectares (MoEF 2005). This has undoubtedly been a step forward, but has also been heavily criticised for not going anywhere near far enough in giving control and decision-making powers to communities. It has also in many cases created conflicts with or undermined self-initiated or more longstanding community based forest management systems (Pathak and Bhatt 2003).

In the meantime, the subsidized supply of forest raw material to industries goes on; while the large masses of ecosystem people continue to meet their biomass needs in an unregulated fashion from open access lands. For instance, bamboo forests in many parts of India have been nearly wiped out by paper mills. It is an indication of the anti-poor character of the government policies that these mills were till recently given bamboo at prices far below the market price, while adivasis, who once obtained free bamboo for their livelihood from the forests being destroyed by the mills, now had to buy it in the market. In fact, till not so long ago, paper mills in Karnataka were paying Rs.15 per tonne of bamboo, while the poor could

purchase it only at Rs. 1,200 per tonne (CSE 1985)! As pressure from industries and urban consumers continues to grow, the ecosystem people have to depend lesser and lesser on forest area for their essential needs of fuel, fodder and shelter, forcing them to destroy their own resource base (Kothari 1995).

Another major issue confronting forests and livelihoods is that of encroachments. A very large part of India's forests are believed to be encroached upon, with serious biodiversity loss as a consequence. However, the picture is by no means simple, as the term 'encroachment' itself has been subject to misuse and misinterpretation, to the detriment of both forests and forest-dwellers (see Box).

Box 6: Forest 'Encroachments' and Disputed Claims

Encroachments on forest and pasture/grazing lands are a widespread phenomenon in India. Official figures put the extent of encroachment at 1.25 million hectares (MoEF circular to all states, dated 3 May, 2002), though this is complicated by the fact that the definition of 'encroachment' is subject to misinterpretation (see below). Such encroachments are a threat in many ways, including large-scale clearfelling of natural forests. Even where in many cases each such encroachment may be small in size, together they lead to fragmentation and 'honeycombing' of the forest, or disruption of wildlife corridors. States with a very high level of reported encroachment include Assam, Madhya Pradesh, Karnataka, Maharashtra, and Chhattisgarh.

The situation is, however, complicated by the fact that the definition of 'encroachment' is unclear. As has been pointed out by a number of NGOs and social activists, large stretches of land which have traditionally been under cultivation have been labeled encroachments due to improper and outdated land records, confusion between the records of the Forest and Revenue Departments, and incorrect classification of temporarily unused lands (e.g. under shifting cultivation) as forests (Kalpavriksh 2002). On the other hand, there are also powerful vested interests that have encroached, as also poor people who have been forced to encroach on forests due to economic compulsions or lack of rehabilitation after being displaced from 'development' projects.

It is critical to distinguish between poor, long-standing forest dwellers and powerful vested interests, who have ended up getting clubbed together in the same category of forest land 'encroachers'. This has taken place due to the following reasons:

(i) The arbitrary processes by which village commons, often including the cultivable lands of adivasi communities, were designated as state owned forests without survey and settlement of existing rights required under the Indian Forest Act, as noted by the MoEF itself (MoEF, 1990a; Sharma 1991 and 2003).

(ii) The poor condition of land records on the basis of which people get classified as encroachers. Most hilly lands with more than 10 degree slope in Orissa, for example, have still not been surveyed but are being treated as state property. The majority of the state's adivasi population lives in these areas without being granted their legitimate land titles (Das & Associates 1995; Sarin 2002). In many states, whereas the Revenue Departments have continued issuing land *pattas* for such lands under land re-distribution programmes, the Forest Departments label such *patta* holders to be encroachers on forest land (Sharma 1991; MoEF 1990b). Steeped in customary and oral traditions, the adivasis are unable to produce the kind of documentary evidence required to prove their pre-1980 occupation of land. (Sharma 1991).

(iii) Continuing displacement of forest dwellers from their lands and forests by 'development' projects, without clear state commitment to ensuring their fair and just rehabilitation. Large numbers of adivasis in Orissa have frequently been evicted from their lands without even minimal compensation due to lacking land titles (Saxena 2001). The only option for such forest-dwellers is to go and settle on other public, often good forest land.

A series of circulars issued by the MoEF in 1990 pointed to this complex scenario, and suggested methods of dealing with encroachments in a nuanced manner. A report by the then Commissioner of SC/ST also suggested various ways out (Sharma 1991). But there was little further action taken on this for over a decade. The matter has again gained prominence with MoEF's May 2002 circular and a report urging action by the Supreme Court's Centrally Empowered Committee, evictions in a number of states, subsequent protests by communities and social action groups, and a clarificatory letter by MoEF later in 2002. As of early 2003, the matter is pending in the Supreme Court.

Meanwhile, the Government of India has proposed a Scheduled Tribes (Recognition of Forest Rights) Bill 2005. This Bill aims to do what should have been done soon after Independence, which is to recognize the customary and traditional rights of forest-dependent populations. It recognizes that the absence of such recognition has meant widespread exploitation and misery, as also environmental loss. It extends rights to forest lands occupied before 1980, as also rights to the use of forest produce; but concurrently, it also obliges right-holders to carry out various responsibilities for conservation and sustainable use. Soon after introduction, the Bill became embroiled in considerable controversy, with one section of environmentalists fearing it will be the 'death-knell' of India's forests. As of March 2006, a Joint Parliamentary Committee was deliberating the Bill for final adoption by the Parliament.

It is also worth mentioning that there is little, if any, attention being paid to encroachments on non-forest ecosystems. Vast areas of grasslands, including those that were common grazing lands of communities, as also wetlands and coastal areas, have been taken over by vested interests. In general, little action has been taken against such encroachments, either by panchayats or by government agencies. The above-mentioned Bill too does not cover this aspect, with the exception of those grasslands that may have got included legally as 'forest' lands.

(Adapted from TPCG and Kalpavriksh 2005).

One radically different strand within official forestry programmes has been the attempt to conserve habitats and their wildlife. Against great odds, officials and NGOs managed in the 1970s to push wildlife conservation as a political agenda, and secured a portion of India's territory as protected. However, the most serious problem with these conservation efforts has been their socio-economic impact. In the last few years, wildlife conservation measures have come under heavy attack for being socially unjust, and therefore shortsighted. Specially targeted has been the country's most ambitious conservation effort, the creation of a Protected Area (PA) network (Kothari 1997).

Protected Areas and Local Communities

By 2005, India had an extensive network of 92 national parks and 500 sanctuaries, covering about 15.67 million hectares or some 4.7 per cent of its territory (MoEF 2005). This network of PAs has helped to conserve a significant part of India's biodiversity, including a wide diversity of habitats and species. The factors causing biodiversity loss would have gobbled up these areas too if it were not for the protection given. This is illustrated by several examples, such as the Marine National Park in the Gulf of Kutch, fighting what is so far a successful battle against a proposed Reliance Industries oil refinery. NGOs and politicians have successfully stalled attempts to use the Bhitarkanika Sanctuary in Orissa (home to the world's largest nesting sites of the threatened Olive ridley sea turtle) for trawling jetties; and the Balukhand Sanctuary (Orissa) for a hotel complex. But these successes are only one side of the story. The other side is one of considerable human suffering and violation of human rights, and conflicts which are threatening to undermine these successes. Contrary to the conventional middle-class image of PAs as pristine habitats untouched by human communities dependent on them for sustenance and livelihood; a national survey conducted in the mid-1980s by the Indian Institute of Public Administration revealed that 69 per cent of the PAs surveyed had human population living inside, and 64 per cent had community rights leases, or concessions inside them. Nearly 20 years later, the situation is not too different. A rough extrapolation of available data from the same survey reveals that there are at least three million people living inside PAs, and several million more using

them from adjacent settlements. This includes some of India's most traditional communities, including several hunting-gathering, pastoral and fishing peoples (Kothari 1997; Kothari et.al. 1995).

The declaration of PAs and the imposition of regulations under the Wildlife Protection Act, 1972 (WLPA) was almost always done without consulting these communities, and resulted in their rights being terminated or abridged, or access to basic resources being cut off without adequate provision of alternatives. The WLPA prohibits all human intervention or settlement in national parks, and allows only a limited intervention in sanctuaries. Displacement of communities, resource use restrictions, and harassement by government officials, have caused severe hostility and resentment amongst local communities (CSE 1999).

Over the years, a two-way conflict situation has developed, with PAs adversely affecting local people, and local communities becoming ecologically destructive. PAs have had the following major impacts on people (Kothari 1997):

- Forced displacement from national parks, core zones of sanctuaries or special conservation areas like tiger reserves. Relocations in most cases, have been poorly carried out, though officials involved in some of them (e.g. Kanha National Park in Madhya Pradesh) claim a relatively high degree of success, and there are indeed some small-scale ones that have been satisfactory, such as Bori village from Melghat Sanctuary, Maharashtra. The more common impact has been the curtailment or extinguishing of local community land and forest rights, or access to natural resources inside PAs. This has had a direct impact on their survival and livelihood base, for even basic inputs like cooking energy and fodder for livestock have become hard to obtain. Traditional activities have suddenly become 'illegal', and villagers report considerable harassment and bribe taking by forest staff. To add insult to injury, the reasons for the curtailment of rights, or any viable alternatives have rarely been explained or provided to the villagers. Certain additional amendments (1991) to the WLPA have further curtailed local community activities, by prohibiting all activities causing damage to the habitat of a sanctuary (a provision already in place for national parks). One immediate effect of this was that some state governments severely restricted or banned collection of non-timber forest produce from within PAs. However, the 1991 Amendment also added a provision to allow continuation of rights within sanctuaries, a change has in some cases been used to protect basic resource rights. Then in 2002, the Wild Life (Protection) Amendment Act has again led to regression, with a potentially disastrous provision that alternatives have to be provided for people's rights as soon as an area is intended to be declared a sanctuary…in other words, before even deciding on the final extent of a protected area, the links of the local people could be severed

from the area's resources[5]! More recent judicial pronouncements and their administrative interpretations have made the situation even more serious. A Supreme Court order in 2000 prohibited the removal of any dead or decaying trees, grasses, driftwood, etc. from any area comprising a National Park or Sanctuary (I.A. No.548 of 2000 in writ petition (civil) No.202 of 1995). Though this order was related to a particular instance of surreptitious moves by a state government to resume timber felling inside parks and sanctuaries, the Ministry of Environment and Forests (MoEF), and the Court appointed Centrally Empowered Committee (CEC, set up in 2002, to look into and advise the Court regarding issues of forest law violation), directed all state governments to negate all rights inside all such protected areas. Ignored completely in the orders of the Supreme Court and their interpretation by MoEF and CEC, is the fact that this would in effect, divest 3.5 to 4 million people living inside these areas, or otherwise dependent on their resources, of all rights to resources (Kothari 2005). The ultimate effect would only be forcible displacement of these people, many of whom belong to the country's most sensitive indigenous communities. By 2004-05, the impacts were already being felt by communities in states like Orissa, Rajasthan, and Madhya Pradesh, as removal of non-timber forest produce was prohibited or severely restricted. In some of the protected areas of Orissa, studies suggest that this has resulted in widespread collapse of the already fragile economy of tribal communities (Kumar and Giri Rao 2004; Kalpavriksh 2006).

- The protection offered by PAs and the WLPA has resulted in an increase in the population of some species (elephants, wild boar, nilgai, lions, leopards, bears) in some areas. This results in a 'spill-over' of animals unable to find adequate food and territory, or of those who actually prefer human-made habitats like fields. In addition, people are no longer allowed to retaliate, as they may have done in the past; officials are especially harsh when villagers attempt to retaliate against threatened species. Finally, human intrusion into wildlife habitat has also increased manifold. The result of all these factors: direct human-animal encounters leading to human injury and death, livestock lifting, crop raiding and property destruction. Crop damage by species like the wild boar and nilgai is so widespread that some states have allowed their hunting in from areas of high damage.

Given the situation, a feeling of hostility amongst local communities has quite naturally built up. In an increasing number of areas this has manifested itself in the form of physical clashes between villagers and wildlife staff or other state forces, physical damage to habitats by irate villagers, poaching or support to outside poachers, and even demands for denotification. This discontent is often

5 For a fuller critique of the Wild Life (Protection) Amendment Act 2002, pl. see Kalpavriksh 2003.

voiced in destructive ways, e.g. the widespread incidences of fire in several PAs (the result of willful neglect or even deliberate action); and attacks on forest staff by angry villagers (Kothari 1997). Ironically, conservation itself is the victim, as many of these communities increasingly turn to 'illegal' or ecologically destructive livelihood means; in some the sanctuaries of Orissa, for instance, tribal villages have taken to intensive goat rearing, using the surrounding forests for grazing.

This conflict is one of the most serious threats faced by our PAs and the biological and cultural diversity they contain. A protection strategy, which alienates local communities, is unjust to them and disrespectful of their fundamental rights, as also shortsighted for wildlife conservation.

The PA-people relationship is, of course, by no means one-sided. Increasingly local communities are putting excessive pressure on natural habitats, or becoming conduits to serve urban and commercial demands. Ecologists point out that local resource use is no longer sustainable, because the population of the local community or that of their livestock has risen, or because their demands have gone up in response to urban consumerist values. Some striking examples of ecologically damaging and unsustainable activities of the ecosystem people are as follows:

- overhunting of herbivores leading to severe shortage of prey for the tiger, forcing it out of reserves and into conflict with surrounding villagers;
- shifting cultivation practices especially in north-eastern India;
- selling of adivasi-owned forests to saw mill owners;
- burning of forests for sal (*Shorea robusta*);
- seed and tendu leaf collection, oriented for the market.

Wildlife habitats also face considerable encroachment. Out of 204 PAs studied in the IIPA PAs study, about 35 reported encroachments. This is a difficult issue to resolve in PAs just as much as in forests outside PAs (see Box 6 above). On the one hand, a lot of the encroachment is by poor people who have no alternative. On the other hand, commercial interests also encroach (e.g. Borivili National Park, Mumbai), using poor people as fronts. More often than not, state governments have 'regularized' these encroachments, hoping to increase their vote banks or other 'earnings'. The Forest Conservation Act of 1980, which attempted to discourage such regularization, has been repeatedly violated in the process, in spirit if not in letter (Kothari 1997).

While wildlife conservationists and community rights advocates argue with each other, the urban-industrial economy, a sector which has no qualms about destroying biological or cultural diversity for short term commercial gains, reaps benefits. There are examples by the dozen in India, of mining, commercial fishing and

forestry, dam construction, government office construction, road building, tourism and a variety of other commercial and 'development' activities inside national parks and sanctuaries (CSE 1999; see also Section 10 below). The extent to which state governments are willing to compromise to please the urban-industrial lobby is illustrated by the spate of denotifications carried out or proposed. And what is most unfortunate is that, very often these denotifications are proposed under the name of the local community from within the PA, which would otherwise need to be relocated (Kothari 1997). For instance, in the late 1990s, the Himachal Pradesh government deleted over 1,000 hectares from the Great Himalayan National Park, stating that this was to free two resident villages from the restrictions that the National Park status would have imposed. In actuality, the deletion was to make way for a proposed hydro-electricity project! In the last few years, construction work related to this project has ruined what was an important habitat for threatened species like the Western tragopan pheasant.

Commercial and developmental incursions are also often responsible for developing conflicts between conservation objectives and community rights/needs (see Box 7 for an example of this).

Box 7: Rajaji: Commercial Roots of Community-Government Conflicts

The root of many people-park conflicts lies in these urban-industrial pressures. A classic case is that of the Rajaji National Park in the Himalayan foothills of Uttar Pradesh. This is a centre of a bitter conflict over the forest Department's moves to evict the nomadic pastoralists or Gujjars. While the department and many conservationists have focussed on the alleged overgrazing by the Gujjar's livestock, the local activists have hit back by pointing at the corruption reportedly rampant in the Forest Department. The truth is that the park's forests, wildlife (including elephants) and human inhabitants have been victim to the fragmentation of habitat cause by the expansion of the cities of Dehradun, Haridwar and Rishikesh. Industries, power channels and army camps, increasing animal-human conflicts in the area, where the elephants are now trapped, have cut off traditional elephant migration routes. The Gujjars have become an easy scapegoat for the government, which is unable to control the urban-industrial expansion around the park. This is not to say that the impact of grazing and fodder lopping can be ignored, but simply that the deeper causes of degradation are not addressed. A focus on Gujjars is both unfair and narrow. Some of the communities like the Van Gujjars of Rajaji have proposed alternative management strategies that involved people residing in and around the park in conserving it, and take into consideration their livelihood needs. These strategies may not be perfect, and may need to be balanced by some essential wildlife concerns, but they cannot be neglected, as the government has done so far.

Vested interests also often use people-park conflicts as fronts to pursue their own agenda. Politicians are habitual exploiters of such situations, especially if they can see a potential vote bank in the aggrieved local communities. In the Sanjay Gandhi (Borivili) National Park outside Mumbai, land developers have regularly encouraged poor people to encroach, projecting the issue as one of the rights of slum-dwellers, and eventually taking over the land themselves or deserting the same communities when they received the evacuation orders (Bavadam 2003). On the other hand, some conservationists too have taken a hard stand, not appreciating the human crisis that slum-dwellers find themselves in.

In 2004, the nation was shocked to learn that the famous Sariska Tiger Reserve in Rajasthan had no tigers left! They had all been poached, under the nose of the Forest Department. Subsequent debate include a wide range of views on the cause of this crisis (and the general crisis that the tiger and many other species face in India), with some people asserting that local people have to be moved out of these habitats, and others stressing that it is only with their involvement that wildlife can be saved (Thapar 2003; Singh 2003). A Tiger Task Force set up by the Prime Minister recommended a dual approach, with relocation of people from the most critical tiger habitats (with guarantees for proper rehabilitation) and co-existence strategies for other habitats where people and wildlife have to continue living together (Tiger Task Force 2005)

More recent attempts by governments, NGOs, and communities themselves, have to some degree reduced the conflicts and moved slowly towards participatory conservation (see 'Reconstruction' on page 81).

Grazing Lands and Graziers

Of the four major components of our lands – croplands, forestlands, wetlands, and grazing lands, the last have been most neglected. Large areas of former grazing lands have come under agriculture leading to a severe decline in fodder availability. The result is a hungry and malnourished livestock population. On the other hand, overgrazing prevents regeneration of forests and accelerates soil erosion (CSE 1985). A variety of factors have also considerably increased the spread of non-palatable weeds on pasturelands.

The effects of haphazard grazing on the environment are alarming. Land degradation due to overgrazing leads to desert-like conditions, which in turn reduces animal productivity and increase the economic pressure on human beings that depend on animals for their livelihood (Khurana 1999). Ecological degradation from overgrazing in terms of thinning of forests; deterioration of common property resources, often force pastoral people into becoming landless labourers (Gadgil and Guha 1995[a])

Village common lands and cultivable wastelands, formerly available for grazing, are being diverted to other uses, both by the State and the *panchayats* (village councils). In pastures still remaining, overgrazing does not give a chance to many species to recover. Consequently perennial grasses are replaced by seasonal varieties that have a low nutritional value and by unpalatable weeds (Khurana 1999).

Box 8: Is Grazing Necessarily Destructive?

While excessive grazing is undoubtedly a problem in many parts of India, grassland managers and scientists cannot always pass the buck for ecological destruction to grazing, as was done in the early 1980s in the Keoladeo Ghana National Park in Bharatpur, Rajasthan. A total ban on overgrazing was imposed in the wetland. A conflict ensued between the Forest Department and the local graziers, *in which seven villagers were killed* (Prasad and Dhawan 1982). Ironically, the ban soon proved disastrous for the birds for which the sanctuary was created. In the absence of buffalo grazing in the wetlands, the grass grew abundantly, choking shallow waterbodies and rendering the birds 'homeless' (Vijayan 1990).

Research from various other ecosystems such as the Himalayan grasslands, also suggests that within limits, grazing does not cause loss of biodiversity or of ecosystem functions.

Most of the livestock depends on common property resources for grazing, accessible to every member of the specific village community with no exclusive right to anyone. Land reforms introduced by the government have reduced the area under grasslands as well as the diversity of lands under common property resources. While the issue of land rights evokes friction between the forest department and livestock owners, areas under the revenue department are being diverted to other uses, such as redistribution to the landless. Village common lands are degraded and lands formerly managed and protected collectively by the community are now used without a sense of ownership or responsibility (Khurana 1999).

The migrant communities – both the pastoralists and the shifting cultivators remain the most neglected. Such communities have been affected by the loss of pastures and forests, blockage of migratory routes, and the hostility of settled populations whose cultivation practices have changed so that migrants are no longer welcome. Some of India's most uniquely adapted livestock breeds and crop varieties which were found with such communities, are now increasingly being lost. There is still no clear policy thrust on these communities, or on the deep ecological knowledge they hold (Mishra 2002; Vivekanandan 2002).

Nomadic shepherds and their animals are increasingly unwelcome guests in almost all their former range (Sabharwal 1999). This could be because their numbers and that of their livestock have increased substantially, thereby spoling the balance they had with the resident populations. Or else resident people may have changed their cropping patterns, and feel that outside livestock could cause too much crop damage. Or, finally, grazing lands may have been taken over by the state or by industries and cities, forcing nomads to search for greener pastures and leading to potential conflicts with people in these new locations.

A case in point is that of Madhya Pradesh, where several clashes between nomads and foresters have been reported. Not surprising, since, according to official estimates, one million sheep, goats, cattle and camels from Rajasthan graze in Madhya Pradesh forests every year, and local resident communities no longer tolerate the intrusion (CSE 1985).

Agricultural Lands and Farmers

Indian agriculture has changed dramatically over the last few decades. State objectives in the farm sector shifted substantially after independence. A priority was to enhance food production, along with the production of raw material for agro-based industries such as the textiles, sugar, and so on (Shiva 1991). A series of drought years in the 1960s provided the backdrop for a radical new thrust in agriculture, the so-called Green Revolution. Ushered in with the dwarf wheat varieties, and with substantially enhanced investment into the formal seed sector and widespread extension services, the Indian farmer was fed a major dose of external inputs: seeds, irrigation, loans, pesticides, fertilisers, and institutional back-up. While on the one hand this had the undoubtedly visible effect of enhancing grains production and reducing dependence on food imports, it has also had a series of negative impacts that threaten to undermine the gains made, and has in fact taken us on a slow but surely suicidal course.

The ill-effects on the environment are glaring (Kothari 1997):

- millions of hectares of lands are losing their productivity because of waterlogging and salinisation caused by careless surface irrigation, or are becoming imbalanced in their nutrient composition because of the pumping in of chemical fertilisers, or are getting poisoned by pesticides;
- chemical poisoning of water and food is widespread;
- erosion of topsoil as repeated commercial cropping does not allow adequate fallows, or due to other mismanagement factors, is so serious it merits being labeled a national emergency;
- loss of seed, livestock, and other agricultural biodiversity threatens the very genetic base of agriculture;
- loss of the organic links between farming, animal husbandary, and forests, and so on, undermines the sustainability of rural economies and cultures.

The impacts on people and communities are severe: poisoning through food, to the extent that even the breastmilk of mothers have pesticide levels above permissible limits; death and injury to thousands of farm workers by badly made machinery and pesticide contamination; marginalisation of small farmers who cannot sustain the investments needed in chemical-intensive commercial farming; and others. Each of these impacts is a violation of human rights.

At Kasargod, Kerala, over two decades of aerial spraying of the pesticide endosulfan for cashew nut production, in the government owned Plantation Corporation of Kerala, has been linked to severe birth defects, cancer, and premature deaths. Residents of villages around the plantation have been afflicted with different illnesses which, according to the villagers, were not present before the plantation started its operations. People also noticed the death of fishes, honeybees, frogs, birds, chicken and even cows. NGOs like THANAL (Thanal Conservation Action & Information Network) and Center for Science and Environment (CSE), had to repeatedly raise the issue and conduct independent health studies, to bring this to public attention. Endosulfan spraying was finally stopped, but the after-effects linger on (Vijayalakshmi and Kaur 2006).

Perhaps most debilitating is the increasing reliance of farmers, even medium ones, on the government and the corporate sector, and the consequent decrease in being able to control one's own resources and destiny. Common property systems, once finely tuned in every village, have broken down as agricultural strategies and policies promote private initiatives and profit-making.

An increasing number of farmers are facing the economic treadmill, spending more and more on seeds, irrigation, fertilizers and credits to achieve the same output. Such trends are comparative to land tenure systems during the colonial times. The farmers are once again getting sucked into the vicious cycle of borrowing money, burdening themselves with debt the repayment of which is at a high stake. Several other effects of modern farming have brought insecurity to the lives of farmers. For instance, the traditional paddy fields in north-eastern, south-western and central India provided not only rice but also fish, frogs and other elements of biodiversity which were an important part of diet of several communities, especially adivasis. Modern paddy fields, which require large amounts of chemical fertilizers and pesticides, are devoid of much of this biodiversity, with a resultant loss of nutrition and the ability to withstand climatic vagaries. Similarly, in Kerala (Western Ghats), farmers grew a profuse mix of fruit trees and food crops on slopes, along with paddy in the valleys. The former is now increasingly being replaced by plantation of single cash crops like tea, so that there is as heavy dependence on the market for food requirements (Kothari 1997; Kothari 1999). Even those farmers, who succumbed to the aggressive state-sponsored drive to enhance cotton production, have suffered heavily as cotton being a very fragile crop, demands very heavy doses of pesticides with all the accompanying risks of environmental damage. ***The increasing incidence of suicides amongst cotton and other cash-cropping farmers, in several states of India, should act as a horrifying wake-up call that there is something drastically wrong with our agricultural policies and programmes (Simms 1999; Hardikar 2006; Sainath 2006).***

It is not just individual farmers and farming communities that are threatened, but the future of agriculture in the country itself. With the advent of the Green Revolution in the mid-1960s, a handful of laboratory generated varieties have been promoted over vast areas, particularly in the plains of northern India. A wide range of species has thus been replaced by a handful of profitable ones, and a narrow genetic range of financially lucrative varieties replaces genetic diversity within the same crop species. The net long-term effect of these and other practices has been a massive displacement of indigenous crop diversity. This erosion of agricultural biodiversity threatens the long-term stability and sustainability of agriculture and thereby the farmers themselves in many ways. Ecologically, there are serious dangers in such an approach, e.g. of a build-up of resistence in pest populations and thus of large-scale pest outbreaks in monoculture crops. The failure of a single HYV crop due to any natural calamity is a crippling blow to a farmer who has no other crop to fall back on. Such farming practices result in an increasing dependence of the farmer on the industry-dominated market and government (Shiva 1991).

The 1990s saw a new onslaught on Indian agriculture: liberalisation of the agro-industry sector, and weakening of laws and regulations that once protected farmers from being taken over by the corporate sector. The New Economic Policies are emphasising cash cropping for exports (e.g. floriculture), lifting of land ceiling and other laws so that corporate farmers can have huge land-holdings and non-farmers can purchase agricultural lands, heavy sops to industries processing agricultural produce, and so on…all likely to cause further ecological destruction and marginalise the already marginal farmers (Kothari 1998a).

The latest catchword, the so-called New Green Revolution, is biotechnology. Promising the moon, major Indian and multinational corporations are cashing in India's 'moving into the 21st century' slogan. In 2000, the Government of India allowed trials of genetically modified crops in fields, and in 2001 cleared the sale and cultivation of genetically modified cotton without long-term studies on its consequences. These new technologies are not only ecologically suspect, they are also socially questionable, for like the Green Revolution, they are likely to favour the big and corporate farmer over the small one who will not be able afford the inputs, as also increasing the dependence of farmers on corporate and governmental agencies.

While certainly not the only cause, it is clear that the economic treadmill, itself partly a result of the ecological and social havoc caused by the Green Revolution approach, is a factor in increasing conflicts in intensive agriculture areas.

What is also clear is that there are viable and visible alternatives. Organic or sustainable farming, using local inputs of biologically diverse crops and livestock,

organic manure, a mix of different cropping and animal husbandry strategies, inputs from forests and wetlands, and indigenous knowledge, is proving to be as productive as the Green Revolution, without all the attendant costs (see 'What are the Alternatives?' on page 77). To spread such an alternative, however, it is important to tackle the current economic policies which subsidise chemical and high-input agriculture, otherwise organic farming will always remain at a disadvantage. The more the human rights and environmental perspectives can be infused into agricultural policies, the more this may happen.

Wetlands, Coasts and Fisherfolk

Yet another category of ecosystem people whose dependence on living resources has also been undermined in recent decades is fisherfolk, both along the seacoast and on rivers and other freshwater bodies. These communities, which depend predominantly on the catch and sale of fish, have recently been threatened by encroachments on their territory (Gadgil and Guha 1995 [a]), and heavy pollution.

Inequities in the control over wetlands are not necessarily new. For instance, in Bihar, there has existed a feudal system of control over large stretches of rivers, such that small fisherfolk have little or no control over the fish catch. Big and small fisherfolk have been a part and parcel of coastal communities. However, inequities within traditional structures were perhaps not very highly pronounced till commercialisation added to them. It is the last few decades, as in agriculture, that has again seen a sea-change in this sector.

Three major new trends have brought about this change: the introduction of commercial trawling in the Indian seas (first with Norwegian and other external aid), the spread of intensive aquaculture on its coasts, and the increasing stranglehold of public and private sector fisheries corporations in the inland waters.

India's coasts have seven million fisherfolk, most of them dependent on traditional forms of fishing. Some of the fishing communities have (or had) elaborate rules regarding fishing, to ensure sustainable harvests. The last few years have seen the increasing entry of large-scale mechanized vessels, often owned by outsiders or by a handful of rich fisherfolk, which have caused havoc to the coastal and marine ecosystem and to the livelihoods of traditional fisherfolk. Not only fish diversity, but other fauna are also affected; dolphins, dugongs, turtles and others are victim to the extensive netting practices of these vessels. Exports of fish and fish products as a whole, with marine products as their major component, have more than tripled in the 1990s. Unfortunately, lured by foreign exchange prospects, our government has given in to this unjustified and unsustainable demand. Proponents of trawling claim that these ventures will be allowed to fish only in deep waters, where traditional fisherfolk do not go. But past experience has shown that trawler owners find it convenient and cheaper to fish closer to shore. Also, trawlers are often used in fish-breeding season, when traditional fisherfolk usually give the seas a rest (Kurien and Thankappan Achari 1994).

The survival of the coastal ecosystems is in jeopardy due to aquaculture farms, set up over an estimated 85,000 ha of ecologically fragile land along the 6,000 km long coastline regulation zone (CRZ) of Goa, Kerala, Gujarat, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Orissa, West Bengal and Pondicherry (CSE 1999). As

India's natural fisheries are being depleted by siltation and damming of rivers, and by pollution and overfishing, the culturing of carp in fresh water ponds and shrimps in brackish water fields is becoming a lucrative business. But such farming has destroyed large stretches of mangrove forest, and caused serious pollution (CSE 1999, Vivekanandan and Kurien 1998). In India, surveys by the National Environmental Engineering Institute (NEERI), and NGOs, have shown serious negative impacts of commercial acquaculture in several states. The environmental and social repercussions have been shown to have economic implications as well, due to damage to farm land and salt pans, wage loss to farmers, fall in rice production, and losses in fishing income. In Nagai Quaid-e-Milleth distirct of Tamil Nadu, and Nellore District of Andhra Pradesh, studies have shown that per unit of area, intensive aquaculture has provided less than half the employment that farming previously did (Raj and Dharmaraj, undated). Establishing private or corporate control over water bodies, especially where they earlier served as common property resources, can lead to conflicts on many different scales.

The results of these trends are already proving to be disastrous for India's marine ecosystems and traditional fisherfolk. The seriousness of the situation can be gauged by the fact that over the last few years, hundreds of thousands of fisherfolk have struck work on several occasions, protesting the trawling and aquaculture policies of the government. Violent clashes keep happening, between small fisherfolk and the trawler or shrimp farm owners. Even the Supreme Court has had to acknowledge the matter, and has given favourable judgments in cases seeking a ban on trawling and aquaculture (Gadgil and Guha 1995 [a]).

Box 9: Conflicts in Chilika Lake

A classic example of the conflict between the commercial sector and ecosystem people, with the former using the state to capture resources previously under the control of the latter, is that of the commercial shrimp culture in Chilika Lake, India's largest brackish waterbody. Spread over 11,000 sq.km in the state of Orissa, this huge lagoon is connected by a narrow channel to the Bay of Bengal. An estimated 100,000 fisherfolk depend on this ecosystem for their livelihood. A number of commercial ventures (including, at one point before they were forced to pull out, the Tatas), have started intensive shrimp farming, primarily for export. This has led to a host of problems for the local fisherfolk and the fragile ecosystem itself. Aside for the declining availability of fish for them, the construction of large embankments, which are a part of the commercialisation, have increased threats from floods and waterlogging. These farms also pollute the ecosystem with artificial protein feeds and affect local wildlife. In 1999 and 2000, local fisherfolk retaliated by physically demolishing shrimp farms, and ugly incidents of shooting by the farm-owners were witnessed. Subsequently, through the Chilika Development Agency and other organisations, the lake has been partially freed of commercial aquaculture farms.

‘Development’ vs Environment and Livelihoods

While many of the above examples are representative of the malaise that afflicts India’s current development model, given below are three sectors of development that clearly illustrate where we have gone wrong in our single-minded pursuit of ‘progress’.

For the large masses of people, especially in so-called ‘backward areas’, the phrase ‘national development’ has meant the imposition of externally designed projects that have primarily external benefits. What most local people get, is the rapid decimation of the natural resources they depend on, and/or a growing burden of pollution and wastes. Some of the residents do benefit, but that is more by the ‘trickle-down’ effect than by any conscious design. The three sectors that illustrate this the best, are mining, large river valley projects, and industrialisation.

Mining

India’s rapidly growing economy needs voracious amounts of minerals. By a quirk of fate, most of these minerals are under forested or rural areas, rich in biodiversity, and where communities are heavily dependent on the area’s resources. Across vast stretches of such areas, surface and underground mining has been extended over the last few decades.

The ecological and social impacts have been horrifying. Tens of thousands of hectares of land have been rendered completely barren and unproductive, with little done till recently to restore any of them. Much of the mining area in India is being carried out in forested regions. The obvious result is deforestation and erosion. Mining wastes pollutes streams and rivers. Ore fines and toxic substances, carried by rainwater into nearby watercourses makes the water unfit for human use. Continuous dewatering by underground mines also affects water resources. These mines annually pump out millions of litres to drain mine galleries and release it into nearby watercourses. This causes flooding, silting, waterlogging and pollution. They also lower the surrounding water table, reducing the available groundwater (Vagholikar and Moghe 2003; see also http://www.mmpindia.org/).

Mineral dust is a pervasive feature of all mining areas. It is generated by wind, sweeping dust from waste heaps, blasting and the use of heavy machinery. Blasting also produces noxious fumes that are released into the atmosphere. Air

pollution in mining areas causes respiratory diseases and eye ailments. Dust generated by mining and mineral-based industries also reduces agricultural productivity (CSE 1985).

Local populations, including adivasis, are the worst sufferers. Mining forces them into an extremely brutal environment, highly accident and disease-prone. The worst affected are the adivasis of central and eastern India, whose lands and forests have been extensively destroyed by mining and associated industries. Displaced communities have undergone an overnight transformation from relatively self-reliant people to callously abused peoples.

Increasingly, mineral-based production units like coal-fed power plants, steel plants and cement factories are located near the mines. Every mining enterprise leads to conversion of agricultural or forests land to other purposes such as roads, railways and ropeways for mineral transport, infrastructure for administrative purposes, and so on. In effect, the total land affected by mining is many times larger than what is actually mined or leased out, all to the detriment of local communities and the environment.

Over the 1990s, the threat of mining has increased manifold due to liberalisation and globalisation. Some of the world's largest and most notorious mining companies are entering India, and the government has bent over backwards to accommodate their interests. This sector has emerged as one of the country's biggest threats to ecological and livelihood security (see also Box 10).

The main laws governing mining are the Mines and Minerals (Development and Regulation) Act, 1957, and the Mines Act, 1952. The National Mineral Policy 1993 is the main policy framework. Though these documents contains a number of environmental safeguards when planning and implementing mining projects, and though a number of environmental laws have restrictions on mining, most of these have been violated across the country. For instance, the National Conservation Strategy and Policy Statement on Environment and Development, 1992, recommends restriction on mining and quarrying activities in sensitive areas such as hill slopes, areas of natural springs and areas rich in biodiversity. A considerable portion of the mining that has since then been approved, has been in precisely such areas. Moreover, a number of loopholes exist in many of these laws and policies, enabling destructive mining. For instance, no environmental clearance (under the EIA notification of the Environment Protection Act 1986) is required for mining projects for major minerals below 5 ha, leases for minor minerals, and prospecting/ exploration of any minerals (other than oil). Secondly, no public hearings are needed for mining leases of major minerals of size 5-25ha, and offshore exploration activities beyond 10 kms. from the nearest habitated village boundary, goathans

and biodiversity rich areas. These exemptions have been exploited to extend mining into many ecologically sensitive areas, with no say in decision-making given to local people or environmental experts (Vagholikar and Moghe 2003).

Box 10: Undermining India

In early 2003, the environmental group Kalpavriksh brought out a detailed, nation-wide study of the impacts of mining on natural ecosystems, wildlife, and people. Its highlights:

- Mining activities are destroying some of India's most ecologically sensitive areas, including catchments that provide water security to millions of people;
- At least 90 wildlife sanctuaries and national parks, and 100s of other ecologically sensitive areas with unique biodiversity and wildlife, are threatened;
- Culturally and economically fragile communities residing in these areas, including many adivasi/adivasi groups, are seriously affected by mining;
- Since the economic liberalisation phase in the 1990s, the mining sector has opened up thousands of sq. kms. of the country for reconnaissance and prospecting activities, many of which are taking place in some of our most ecologically fragile areas;
- Many mining activities are in gross violation of environmental policies and laws, of the constitutional guarantees to adivasis and other communities, and of the National Mineral Policy's own assurance that "ecologically fragile and biologically rich areas" would be avoided;
- Government of India and state governments need to take urgent steps to declare ecologically and culturally sensitive areas as being off-limits to mining, to commission an independent assessment of the impacts of the mining sector, to make necessary changes in the mining policies and laws, to ensure ecological restoration of already mined areas, to provide alternative employment to workers before closing down mines in ecologically sensitive areas, and to set up an expert group to explore ways of sustainable material and energy use, including the reduction of luxury and wasteful consumption of minerals;
- Communities, people's groups, and NGOs, need to unite and network more strongly, to resist the increasing take-over of sensitive areas for mining.

Source: Vagholikar and Moghe 2003.

Large Dams

Along with land, water is the resource in widest demand. Some of the most violent conflicts have arisen over conflicting claims to water. The attempt to capture control over water is ancient, some of the best-known examples being from the so-called 'hydraulic' states where large-scale irrigation were one means to retain control over large command areas. Conflicts between rural and urban areas for water use are also commonplace.

The most controversial use of water resources, arising from conflicting claims, is by the construction of large dams. From colonial times and even more so after Indepedence, these structures have been seen as a potent symbol of progress, the 'temples of modern India', in Prime Minister Jawaharlal Nehru's terms. And again, like any mega-development project, while they have delivered undoubted benefits, big dams have also caused such severe negative environmental and social impacts that their very desirability has been called to question.

Much like mining, it so happens that most of the 'productive' sites for building big dams are forested, and/or populated by ecosystem people. Relatively untouched by 'modern development', such sites are easy to target, ironically with the argument that dams will help to bring prosperity to them. The actual consequences are often quite the reverse.

Since Independence, between 4.5 to 9 million hectares of forest land have been diverted for dams, according to extrapolations of data on a number of dams (CWC 2000 and other sources, cited in Singh et.al. 2000). Perhaps an even larger area has been affected by 'multiplier effects' such as illegal timber felling in the name of clearing the submergence area, timber felling for construction purposes, deforestation for resettling displaced people and for making construction colonies, and so on (Singh et al 2000). Apart from the resulting ecological impacts, such forest loss has direct impacts on dependent

Box 11: Taloda: Pitting Poor Against Poor

A part of the population displaced by the Sardar Sarovar Project in Maharashtra is being resettled in the Taloda area. 1700 hectares of forests in the area were cut down for this purpose. The result: adivasis already dependent on the forest for their sustenance, lost their survival resources. A protest by some of them ended in the tragic death of one woman in police firing. SSP oustees now settling there face the unpleasant prospect of living alongside hostile residents, who feel, justifiably, that they are encroaching on what was their territory. This is a classic case of the government simply not having adequate uninhabited and unused land to resettle large numbers of people, thereby raising a fundamental doubt about the viability of projects like SSP.

communities, including those not directly impacted by the dam. Other environmental impacts of dams are also direct blows to livelihood security, e.g. disruption of downstream water and silt flows, causes losses in fisheries in the river and the coastal areas, robbing fisherfolk of their livelihoods (Singh et.al 2000). For example, approximately 750 families along a 150 km river stretch downstream of Broach town made a living out of catching *hilsa* fish. It has been feared that the construction of the Sardar Sarovar could interfere with *hilsa* migration and these families could be rendered unemployed (Kothari 1997); this has indeed begun to happen as the dam wall has come up over the last few years.

By far the most direct impact on people, by dams, is displacement of people from the areas being submerged, or being taken over for canals, construction colonies, or other dam-related infrastructure. No official estimate exists, but several million people have been so uprooted (see Box 12 on next page). In the past, there was no resettlement or rehabilitation at all, people were simply told to leave and to fend for themselves. Increasing concern about the social impacts of such processes has forced the state to institute resettlement and rehabilitation (R&R) programmes in some states, but shockingly, there is still no comprehensive R&R policy for the country.

Box 12: Development Refugees

Forced displacement caused by planned 'development' projects like dams, mines, thermal power plants, industries, railways, roads, ports, wildlife reserves, and others, have necessitated the acquisition of private and community lands in rural areas. Unfortunately, the common property resources are also the lands on which most adivasi, forest, coastal, and mountain dwellers live and depend for their sustenance. The result has been physical and livelihood displacement of a colossal magnitude.

Involuntary displacement of people due to a deliberate economic policy is not new to India. It existed in the colonial times and has intensified in the decades of planned development. There are no official figures available for the number of people displaced, but social scientists and academics estimate it to be in the order of 20 million plus (Fernandes et. al 1989; Taneja and Thakkar undated; Singh et. al 2000). The government admits that most of these have not been adequately rehabilitated. Many have faced multiple displacements, as new projects take over lands previously given to them during an earlier resettlement process, or which they have occupied in the absence of resettlement being provided.

Policy makers and international financial institutions garb the negative connotations that the word 'displacement' evokes, with the pretentious phrase

of 'relocation'. But in actual practice it, more often than not, remains a 'forced eviction'. The Vienna Declaration and Programme of Action, 1993, to which India was a party, clearly identifies 'forced eviction' as "gross violation of human rights".

The physical act of involuntary displacement occurs at a time, though it sets in motion a succession of chronic, inevitable and traumatic events due to the disruption in the established pattern of life of the people displaced. Production systems are dismantled, close-knit kinship groups are scattered, long established relationships are disrupted, traditional sources of employment are lost, market-links broken and several cultural customs get dissolved. The systems of social hierarchy and leadership lose their credibility, and ancestral symbols and shrines, graves and monuments and an entire sense of history and cultural identity are irretrievably lost. The obvious result of such sudden changes is both, social and economic impoverishment. The psychological trauma is profound because people find themselves landless, jobless, without food, shelter and access to community resources.

It is an irony of fate that the ones who suffer the most from these development projects are called the beneficiaries of the compensation and rehabilitation packages. The commonly accepted belief that 'some people have to pay the price for reaping the benefits of development' is also conveniently lopsided in favour of urban citizens, industrialists, and rich farmers, who actually reap most of the benefits.

Displacement is especially disruptive in the case of adivasis. They have to leave behind their land and the forests upon which they depend for their livelihood. Many of them have no skills to take up any other activity for a living. The compensation is poor, both in monetary terms and in terms of the socio-cultural changes forced on them by these projects. Indeed, the experience of dam oustees in India validates the grim judgment of the anthropolgist Thayer Scudder that "next to killing a man, the worst you can do is to displace him". A series of investigations by the Indian Peoples Tribunal on Environment and Human Rights has brought out the widespread suffering that large dams such as Sardar Sarovar, Maan, and Bargi, have caused (for the full reports, see http://www.iptindia.org/main/ipt.php?Page=Inquiry&Inquiry= Displacement).

Experience from dozens of dams suggests that:

- rehabilitation has usually been considered an obstacle in implementing a project and an extra financial burden;
- the authorities always try and get away with the minimum;
- cash compensation is usually inadequate, and the much more desirable

policy of land for land, is almost impossible to implement in the case of large-scale displacement;

- facilities provided differ from project to project;
- R&R is usually treated as a 'technical' project, handled by engineers, rather than as a human and sociological issue;
- several critical resources available at the sites of original residence are almost never provided at the R&R sites, e.g. forest resources, grazing lands, fishing opportunities, and so on;
- rich farmers often manage to get higher compensation and better alternative lands, whereas, the poor keep running from pillar to post.

Most distressing is the fate of families, such as in the Singrauli area of eastern India, which have displaced four times over: successively by dams, mines, power stations, and urbanisation. Completely shattered, such families have simply lost the will to live.

Rather than learn from the mistakes of the past, India is going in for a rapid expansion of water mega-projects. In the north-eastern region alone, some 168 dams are being considered, mostly for power generation meant to be exported to the rest of India (Menon et. al 2003; Menon and Kohli 2005). The environmental and social costs of these will be colossal, and there is considerable opposition from people's groups in most of the north-eastern states. Even more ambitious is the so-called 'River Linking' scheme that the central government has proposed. This will involve several major dams and massive canal-building to transfer water from one river basin to another, with the assumption that the former has water 'in surplus'. Several experts have raised questions about the technical and financial feasibility of this scheme, but more worrying is the potential ecological and social disruption it will cause, as dams and canals will cause major destruction of natural ecosystems and displacement of people, the transfer of water could also bring with it unwanted organisms, and the reduction of water flowing into the sea (supposedly 'surplus' and 'waste'!) could cause coastal erosion, collapse in marine fisheries, and disruption in the lives of countless fisherfolk (see series of articles in *The Hindu Survey of Environment 2003)*.

Industrialisation: Haphazard and Toxic Development

For decades, industrialisation has been equated to development all over the world. However, as elsewhere, few people in India have paid attention to the debit side of industrialisation, especially to the growing dangers it poses to the health of people. While many people die a slow and steady death brought about by the

growing pollution of the general environment and the increasing hazards in the occupational environment, others die in a cataclysmic way as thousands did in Bhopal. The chemical diaster at the Union Carbide pesticide factory at Bhopal has rudely woken India to the fact that the country's industrialisation has reached a stage when even catastrophic accidents can be expected. Industrialisation is creating a high-risk environment for everyone, though it is ultimately the poor who face the highest risks and dangers. They get the dirtiest, most hazardous of jobs and poverty forces them to live in an unhealthy environment. India faces a disastrous 'double burden' of disease. While most old ones continue to be rampant, newer ones are making rapid strides.

Industries, which are known to produce potentially toxic and hazardous wastes, are pesticides, dyes and pigments, organic chemicals, fertilizers, non-ferrous metals, steel and chloralkali manufacturing plants. Chemical industries, including the pesticides industries, produce highly toxic wastes. The disposal methods of these industries are still very primitive, with landfilling being the major practice. Generally, industries neutralize the toxic waste-water from the plants with lime and the neutralized liquid effluents, which are still highly toxic, and discharge into rivers and ponds with little or no treatment. The sludge and other solid and semi-solid wastes are disposed off on fallow public land. This in turn, among other ills, creates filthy conditions simultaneously developing secondary health hazards – those of mosquito-borne diseases (CSE 1985; www.toxicslink.org).

The range of direct and indirect health hazards from these chemical effluents is as wide as the chemical components themselves and the consequences may make their presence felt immediately or may even have a more residual effect. The hazards may vary from simple skin disorders to more complex and fatal illnesses such as cancer and organs damage/dysfunction. The perils from the use of some of these compounds are also marked at various stages of their processing – right from their acquisition as raw material, handling during manufacture and disposal of their effleuents, to their use as end products and their disposal post-use (CSE 1985).

Box 13: Toxics Underground: The Story of Bicchri

In Bichhri, a nondescript village 15 km away from Udaipur in Rajasthan, the wells contain, instead of clear water, a brownish cocktail of iron, gypsum, H-acid and other pollutants; known as 'coca-cola' by local farmers (Sebastian 1997). The highly acidic contaminant corrodes the rock walls of the wells and seeps into the surrounding areas. Bichhri's woes began in 1987 with the emergence of the Silver Chemicals factory to manufacture H-acid, a naphthalene-based dye intermediate. A few months later, villagers found their well-water turning brownish-red due to seepage of effluents from the unit. The H-acid sludge had

been dumped on bare ground and chemicals from the sludge had seeped into groundwater. The groundwater aquifers and nearly 90 wells were polluted. The damage caused by the untreated, highly toxic wastes resulting from the production of H-acid and the continued discharge of highly toxic effluent from the sulphuric acid plant has inflicted untold misery upon the villagers and long-lasting damage to the soil, underground water and to the environment of the area in general. Most of the land affected by the water remains barren or with substantially low production. Even the water that seeps into farms through irrigation canals from the Udaisagar lake, turns brown as it percolates through the contaminated soil. Vegetable and wheat crops show stunted growth. The fodder in the area is not fit for use and the milk yield from cattle has gone down drastically. The contaminated drinking water can cause liver damage and cancer. It is estimated that about 400 farmers distributed among 11 hamlets have been directly affected by the groundwater pollution. Incidences of skin diseases in the area are reported. Most of the wells in four directly affected villages and in 20 neighbouring villages are in a state of disuse. The water and solid contamination was found to be persisting even several years after the incidence.

Though the Supreme Court in Writ Petition 967/1989 (1996.02.13) provided for rectification of environmental damage in its judgment of 1996, it did not address the real problem of the villagers – no compensation was offered to the victims of Bichhri. While the Bichhri units have been seized and sealed, the owner has set up a similar unit in Vapi, Gujarat, which continues to function!

Thermal power plants have emerged as one of the major pollutants in urban India. The coal used in thermal power plants is rarely good quality and subsequently emissions of suspended particulate matter, sulphur dioxide and fly-ash in the atmosphere are very high (Dhara 2002).

Nuclear Power and Nuclearisation

The invention of nuclear power was initially heralded as providing electricity that was “safe, clean, and too cheap to meter”. We now know that it is, on the contrary, very unsafe, highly polluting and very expensive. Indeed it being an outmoded, dangerous technology that has left a legacy of irretrievable contamination, and a trail of disease, death and futile costs. This industry the world over has failed to demonstrate that it can safely deal with the inevitable consequence of the nuclear fuel cycle and its highly dangerous wastes.

Today the nuclear empire in India consists of uranium and heavy earth mines, fuel fabrication factories, heavy water plants, nuclear power stations and spent fuel reprocessing plants. But projects undertaken by India’s Department of Atomic

Energy (DAE) have been an environmental liability. The highly toxic radioactive wastes generated by nuclear power plants pose the biggest headache to the nuclear industry. The wastes have not only to be handled extremely carefully during the separation of plutonium but also have to be stored for thousands of years. Many believe that a final solution to the problem will never be found. It is widely reported that workers at the various atomic power stations in India are regularly subjected to radiation exposures much in excess of the permissible levels. Leaks and ill-serviced machinery are a common feature at the power stations. The extreme radioactive contamination makes maintenance and operations of the stations extremely difficult as well as expensive leading to failures in machinery, emergencies and accidents (Bidwai 1999).

The DAE is known to employ unskilled and uninformed labourers from nearby villages, especially for maintenance jobs in radiation-infested zones where radiation levels are very high. Over-exposure to radiation is a routine occupational hazard in the nuclear industry. The 'maximum permissible limits' of level of exposure to ionising radiation are flexible in practice, and almost all ways stretched on the exigencies of nuclear power plant operations. In reality, however, ionising radiation is among the worst of poisons, producing cancer and irreversible genetic deformities. There is overwhelming evidence to show that there is no safe level of radiation exposure (CSE 1985).

Effluents from nuclear stations contain high amounts of toxic substances and frequently some waste uranium. These effluents are often allowed to flow onto the ground as the sedimentation tanks are either not built, not maintained or are overflowing. This results in contamination of the soil and groundwater affecting the neighbouring settlements, causing blood disorders and abortions to occur among their inhabitants.

The other deadlier product of atomic research is the nuclear weapon, the most destructive creation of humankind in history. Nuclear tests including those performed underground as in South Asia, are likely to cause damage to natural resources that will last for centuries. The experience of weapons production around the world also shows that those involved in the entire cycle – from mining of uranium to the fabrication of weapons – have suffered grievous injury, not to mention the incalculable damage caused to the soil and water resources.

Nuclear weapon states harm people all over the world via their atmospheric or underground testing programmes. The affected populations include (Makhijani 1999):

- the soldiers and civilians who participate in atmospheric testing, doing what they believed was a patriotic duty;

- the people who live near nuclear weapons plants, mines and processing factories;
- people downwind who suffer heavy radioactive fallout from testing and production activities;
- workers in nuclear laboratories and factories;
- subjects of human experiments done without informed consent;
- generations far into the future who will continue to bear the health risks of the enormous burdens of nuclear pollution.

After the first nuclear test explosion at Pokhran in 1974, some of the wells in the area were sealed by the DAE. Water samples have been collected at regular intervals, people have been prevented from using these wells, though they have not been told why. After the second series of experiments in 1998, water from a tube well in a village 7 km south of Pokhran, became jet black. Reduction in yield and fat content of milk has been reported from the neighbouring villages. The possible pathways of radioactivity could be the underground drinking water and dairy products. The gases and particles vented out during blasts would have been carried away by the desert wind (Padmanabhan 2000).

The final aspect of nuclear power and arms is the extremely high level of secrecy that they are cloaked in. Evoking 'public interest' as a reason for obtaining information regarding these sectors, simply does not work, as the relevant laws in India (the Atomic Energy Act 1962 and the Official Secrets Act 1923) provide almost complete immunity to the nuclear establishment. Denial of access to information is widely considered a serious violation of human rights, and there is no industry that epitomises such violation as the nuclear industry.

The Working Environment

According to United Nations sources, nearly 180,000 workers die annually, worldwide, as a result of work-related accidents and occupational diseases. Another 110 million suffer non-fatal injuries. Occupational hazards include unhealthy working conditions as in the physical conditions at the work place, chemicals exposed to during work, noise and even psychological stresses related to the job (CSE 1985, CSE 1999).

Invariably, the poorest are the worst affected. Forced to work in what are occupationally the most hazardous conditions, they are too poor to afford protective gear, too unorganised to be able to demand better working conditions, and unable to afford treatment.

The gravest occupational diseases are caused by the inhalation of dust, or exposure to hazardous chemicals. Dust inhalation causes a series of lung diseases, their gravity depending on the type of dust, its fineness, concentration, period of exposure and the victim's health.

Silicosis is caused by dust containing free silica or silicon dioxide. It was first reported in India in the Kolar gold mines in 1947, and has since been uncovered in various other mines and industries: coal, mica, silver, lead, zinc and manganese mines and pottery and ceramics, sand blasting, metal grinding, building and construction work, rock mining, iron and steel industry and several others. There is no effective treatment and can only be prevented by rigorous dust control and regular medical examinations, both of which are almost invariably absent in industries situated in remote areas.

Asbestosis is caused due to inhalation of a silicate which is used for the insulation of buildings and ships and in car brake linings. The silica dust deposited in the lungs causes pulmonary fibrosis, leading to respiratory insufficiency and death; in more severe cases, it causes cancer of the air tubes and the gastrointestinal tract. Asbestos is mined in Bihar, Andhra Pradesh, Karnataka and Rajasthan. Working conditions in most of these mines are truly primitive. Thousands of adivasis are employed in the mines, where they have to crouch for hours in dingy underground tunnels. Such exposure is compounded by the fine dust particles settling on the adivasi villages in the neighbourhood.

The most common disease associated with industries utilizing coal is pneumoconiosis. The workers who are long exposed to coal dust are not only rendered incapable of hard work but can also succumb to it. The coal dust predisposes a person to tuberculosis, hastening the course of the otherwise latent disease.

The growth of the Indian chemical industry has been phenomenal. Exposure to chemicals in the work environment is known to have adverse health effects. Among the deadliest chemicals inhaled are fumes emitted in lead industries. Sulphuric acid, oxides of nitrogen, zinc and other chemicals are also highly injurious and can cause cancer, chest pain, bleeding, impotence and abortions. Even crane operators in the docks have been reported to suffer from such diseases when handing toxic substances. Chemical units manufacturing insecticides too are a particular cause for concern. Lack of precautions in handling the equipment causes leakages of toxic chemicals leading to toxicity symptoms such as headache, vomiting, nausea, stomach-ache, skin and eye irritation and respiratory complaints.

Box 14: Government Staff, Also on the Losing Side!

Social activists, in their justified zeal to point to state policies of exploitation, sometimes forget that huge sections of the government itself are badly affected by the working environment. Annually, dozens of forest officials and staff get killed or wounded in the course of carrying out their duties, falling prey to armed poachers and timber mafia. Upright officers get abruptly transferred by their political bosses, with no consideration for the resulting personal and professional trauma. Amongst the most badly affected are traffic police constables, having to work for hours in conditions of extremely high air and noise pollution. Only recently has the government woken up to these issues, but half-hearted measures such as issuing dust masks to traffic police, are hardly the solution.

Unguarded machines and workspaces are primary causes of accidents in industries and mines. Severed fingers and limb and head injuries are common occurences. Flying and falling objects, explosions, fires and structural collapses add to the toll. Factors which lower workers' concentration are night shifts, double shifts, high heat and noise conditions, poor lighting, vibrations and high work speeds.

The harmful effects of noise include increased annoyance, mental tension irritability and emotional disturbances at work and at home. Yet another occupational health hazard is psychological and the common symptoms vary from lack of concentration, irritability, insomnia, somnolence, unmotivated laughter, bad memory, depression and impotence.

Another sector of workers exposed to hazards is farmers and agricultural workers, through the profligate use of fertilizers and pesticides. The latter, in particular, are most hazardous. In fact, many of the pesticides freely used here are banned in the West. Typical examples are DDT, BHC, and methyl parathion. Large-scale aerial spraying of crops poses danger to not only the farmers, but also to neighbouring areas and those consuming the crops. Pesticide poisoning is known to cause cancer, stunted growth of farm workers and their children, deformities, blindness, diseases of the liver and the nervous system. Other dangers that farm labourers are exposed to are brucellosis, which is conveyed by germs and worms in contact with cattle; anthrax, which wool sorters contract and affect the lungs; 'farmers' lung', is a disease borne by germs and causing asthmatic conditions. Since women and children work together with men in the field, they too are vulnerable to these hazards, and often more so because they generally have less immunity. Workers in ancillary factories such as those manufacturing pesticides, are also prone to skin disorders due to direct exposure to the chemicals with dermal toxicities.

Workers' environment remains one of the most neglected areas of both research and action. Even trade unions, usually quite active in India on workers' issues, have by and large not addressed this issue, preferring to focus on other issues such as wages.

‘Natural’ Disasters

Natural disasters such as floods, droughts and famines are to be expected on an average, once every four to five years in India. A detailed study commissioned by the Swedish Red Cross found that from the 1960s to the 1970s, the average number of disaster events per year increased by one half, the average number of people killed per year in these disasters over six times and the average number of people affected by them all over the world, almost doubled – an increase that could not be justified merely by population growth. The Swedish Red Cross Study concluded: “some disasters, particularly droughts and floods, have become seemingly endless processes that are growing only larger and larger.” Environmental destruction is increasing the hazard-proneness of the affected areas, and increasing poverty is making large and growing numbers of people more vulnerable to these disasters.

Poor people in poor countries are affected the most when a natural disaster strikes. Within a country, natural disasters are almost choosing their victims by class – the poor living on the margins of environment. Many natural disaster experts argue that the so-called natural disasters (floods, droughts, cyclones, landslides and earthquakes) are equally social and political disaster events. They are no longer ‘disaster events’ but more like ‘disaster development processes’. The great famines of the early part of this century in eastern India, for instance, are now acknowledged to be more a result of the political and economic regimes prevalent at the time.

Given India’s population density, consumption patterns and the attitudes of a growing number of people, pressure on our fragile ecosystems will only increase. Humans are an integral part of nature and whatever happens to nature happens to humans, most often with an immediacy that is not captured in the crisis of global warming or ocean pollution. *Indeed, natural calamities in many instances have not remained entirely ‘natural’ either in their occurrence or the devastation they cause. They have, in fact, become accentuated by, sometimes even created by, human actions.* The indirect effects of mass degradation and over exploitation of natural resources, which are also playing an important role in maintaining a harmonious balance on earth, show up in more destructive forms such as ‘natural calamities’. Floods, landslides, cyclones, famines, earthquakes are known to stimulated or catalysed some of the ‘developmental’ projects such as desilting, deforestation and soil erosion; reclaiming lands from shorelines; mismanagement and over

exploitation of water resources; building of large dams, hydel power plants etc., respectively. There are numerous examples of such occurrences and their exaggerated consequences (see Box 15 and 16).

Box 15: Controlling Floods, or Increasing Them?

The state of Bihar, due to its geographical conditions, has been prone to both droughts and floods (Mishra 2000). The loss of property and life these 'natural' calamities have caused in past have been high and so in its zeal to curb the destructive phenomena, the Bihar government adopted a completely misguided and short-sighted solution to control floods. Embankments were constructed around rivers to prevent damage from floods, as it was believed that when a river is strait-jacketed between embankments, its spills are prevented, protecting the area outside them from floods. However, several crucial consequences are conveniently ignored:

- Sediment in the river-flow is prevented from spilling over and slowly gets deposited within the embankments, raising the bed level of the river. The embankments must therefore be constantly raised, but there is a practical limit to doing this.
- Fertility of the land decreases deprived of the fertilising silt that spreads over it.
- The embankments stand as a wall between the river and its tributaries, preventing the normal flow of water and thereby causing waterlogging in the countryside. Seepage of the river water into the countryside compounds the problem.
- The tributaries cannot discharge their water into the river and the sluice constructed to facilitate the process cannot be opened during the monsoons for fear of the main river water entering the tributary, and flooding newer areas in the protected countryside. Embanking the tributaries does not help either. It only locks the rainwater between the embankments of the main river and the tributary.

Although many of these facts are known to the engineers, governments continue to construct these impractical embankments. The figures clearly indicate the irony of the situation: some 3,465 km of embankments at a cost of about Rs. 850 crore have been built along the rivers of Bihar to date. At the same time, the flood-prone area in the state rose from 25 lakh hectares in 1952 to 68.8 lakh hectares in 1994!

Box 16: The Orissa Cyclone, How 'Natural'?

Thousands of people and hundreds of thousands of cattle died, houses and villages vanished forever, 80 per cent of the crop was destroyed, thousands of trees were uprooted, and over a hundred thousand hectares of land were devastated by the cyclone in Orissa in October, 1999 (Shah 2000).

Interestingly, while there was a widescale destruction along much of the coast, the stretch adjoining the Bhittarkanika Sanctuary survived the fury. The reason? It was protected by the extensive mangrove forests of the area, which help to bind the soil and cushion the first impact of any fierce storm of this nature. And while the claim by some environmentalists that the cyclone was a result of the mangrove destruction was certainly distorted, there seemed little doubt that such destruction had intensified the impacts of the cyclone.

Post-cyclone, there has been a widespread demand to take up mangrove reforestation along the entire coast. Such reforestation, however, is not easy, and until there is much greater ecological literacy amongst the decisions-makers of the state, and greater empowerment of coastal communities, there is no guarantee that what is planted will remain!

Such disasters are happening, or waiting to happen, along the entire coastline of India. In other parts, where coral reefs that once protected the coasts have been destroyed, the sea is rapidly eating up land along the coast, and the ferocity with which tidal waves lash the land has increased. Coastal communities are at the greatest risk from such 'natural' disasters.

Biopiracy and Patenting

The vast majority of the earth's biological diversity is found in the tropics. Over the last few centuries, the genetic wealth that this diversity encompasses, has passed extensively around the world, exchanged through traders, colonial rulers, and migrants. While all societies have benefited from this, there have also been significant inequities in the distribution of these benefits, and in retaining access to the resources and related knowledge. The United States of America, for instance, has gained much of the genetic base for its thriving agricultural economy, from the tropics, without any significant commercial returns flowing back to the countries of origin; this is also the case with several other industrial countries (Klose 1997, Kloppenburg 1988, Crosby 1986).

Countries like India not only possess immense biological diversity, but equally important, a vast store of knowledge and information relating to this diversity. In their day-to-day interactions with plants and animals, over generations, local communities have developed sophisticated systems of indigenous knowledge, reflecting the continuous, cumulative and collective innovation of the people. Most (but by no means all) of this knowledge has traditionally been freely available within and between communities; it has been treated as common property.

A considerable amount of genetic material has gone out of India in the last few centuries (while much has also come in from other tropical nations). There is no comprehensive information on this, but some indicative examples are available. Spices (pepper as a notable example), cotton, mango, soybean, and several medicinal plants, were some of the crops and wild plants that went in the nineteenth and early twentieth century. In more recent years, several collaborating research institutions, and national and multinational pharmaceutical and seed companies have realized the potential of India's germplasm. They are setting up ventures for prospecting, and for drug or seed production, often with local collaborators. Botanists study Indian medical texts, and visit herbaria and areas where the plants grow. They collect enough plant material for their own herbarium and prepare extracts for analysis. They also try to access the immense but scattered information available with local people, relevant to such species.

International inequalities in benefits derived from biodiversity, are mirrored in the relationships between various classes within a country. Local communities have been not only responsible for the conservation of natural habitats, but also for finding new uses for biological resources, including developing a diversity of

crops and livestock. A considerable amount of individual and community effort and expertise goes into this process. A substantial part of the crop 'improvements' done by modern biotechnology, or by drugs developed by the pharmaceutical companies are based on this traditional wealth of knowledge and resources. But very few of the 'outside' benefits accruing from the use of germplasm and related knowledge developed by a local community, has flowed back to this community. Indeed, the invocation of a 'global' and/or 'national' interest has grossly and consistently been misused, to take away resources and knowledge of local communities without a concomitant flow back.

It is therefore not surprising that peoples' groups in various parts of the world have begun to claim exclusive right, or at least prior claim to the natural resources found on what they consider their land, to the crop and livestock diversity they have developed and to the knowledge related to these resources. A number of declarations of indigenous and adivasi peoples have asserted this, as does the U.N. Declaration of the Rights of Indigenous Peoples. The strongest support comes from the recently signed Convention on Biological Diversity (CBD). The CBD commits countries to respect local community knowledge and practices, to take community consent before using such knowledge widely, and to share the resulting benefits with them on an equitable basis.

A more recent factor in the international and national inequities relating to genetic resources, is that of intellectual property rights (IPRs). IPRs are rights to thoughts, ideas and information regarding new inventions and processes, enabling an inventor to exclude imitators from the markets for a specified time. The stated purpose of such rights is to stimulate industrial innovation, by offering higher returns (profits) than the market would normally offer. Copyrights, patents and trademarks are commonly known IPRs. While such IPRs are over a century old, their extension to living beings and related technologies is a recent phenomenon and one which has evoked considerable controversy.

Box 17: The Theft of Turmeric

The patenting of products and processes derived from plants based on local communities' or otherwise traditional knowledge has become a major issue of conflict in the IPRs domain. The patenting of the properties of *haldi* (turmeric) is such an example.

The use of turmeric as a wound healer was granted a US patent (patent no. 5401504) in 1995 to two expatriate Indians – Suman K. Das and Hari Har P. Cohly. This patent was challenged by the Indian Council for Scientific and Industrial Research (CSIR). The case filed with the US Patent Office was on the

ground of it being 'prior art' or existing public knowledge (and not a new invention), turmeric being used in India for thousands of years for healing wounds and rashes. The US Patent office had to uphold the objection and cancel the patent as the CSIR case was strongly backed with an ancient Sanskrit text and a paper published in 1953 in the Journal of the Indian Medical Association.

Similar controversies have arisen with regard to the patenting of products, processes, and extracts of at least another 20 plants traditionally used in India. These include *neem (Azadirachta indica),* the *basmati* variety of rice, and others. Though sometimes misrepresented as patenting of the plants themselves, such patents are a major violation of the ethical (and now legal) obligations to recognise the prior intellectual contributions of communities and countries, and share appropriate benefits.

Many of the patent claims, such as those on *haldi, neem,* and *basmati,* are coming under challenge by the Indian government or NGOs like the Research Foundation for Science, Technology and Natural Resource Policy. Already some impressive victories have helped to nullify some of the patents and patent claims. But such fire-fighting is expensive and time-consuming; what is really needed is to *prevent* such patenting in the first place, by putting into place appropriate national legislation and mechanisms to control and monitor the flow of bioresources and related knowledge.

Sources: GRAIN 2000; GRAIN/Kalpavriksh 2002

Till recently, IPR regimes were country-specific, and it was not legally possible for the industrial countries to impose them on 'developing' countries. However, with the coming into force of the Trade-Related Intellectual Property regime (TRIPs) in the mid-1990s, this situation has drastically changed. This regime allows the imposition of more or less uniform IPR regimes, and forces countries that had so far resisted, to introduced patenting of life forms, private monopolistic plant breeder regimes, and other systems that will violate the rights of local communities and hasten the erosion of biodiversity. India is beginning to succumb, with the passing of the Plant Varieties and Farmers' Rights Act 2002, and the Patents (Amendment) Act 2002.

IPR regimes in the context of 'free trade' and 'free liberalisation' have become instruments of piracy at three levels (as illustrated in Box 17 above):

- Resource piracy, in which the biological and natural resources of communities and the country are taken freely, without recognition or permission, and are used to build up global economies.

- Intellectual and cultural piracy, in which the cultural and intellectual heritage of communities and the country is freely taken without recognition or permission and is used for claiming IPRs such as patents and trademarks, even though the primary innovation and creativity has not taken place through corporate investment. An instance is the use by U.S. corporations of the trade name '*basmati*' for their aromatic rice.
- Economic piracy, in which the domestic and international markets are usurped through the use of trade names and IPRs, thereby, destroying local and national economies where the original innovation took place and hence wiping out the livelihoods and economic survival of millions.

Increasingly, however, communities, NGOs, and strong networks at national and international level, are fighting against the juggernaut of IPRs. This includes challenges to corporations that are indulging in biopiracy or trying to impose their domination on seeds and other farm inputs, alternative intellectual rights regimes to protect indigenous knowledge and resources, community-led documentation of knowledge, and legislative measures (see 'Revival' on page 78).

Urbanisation

Urban growth across the world is phenomenal, and India is no exception. About one fourth of its population is already in urban areas and thousands of people are pouring in from rural areas every day. Unable to cope with this influx, almost every Indian town and city is well on its way to becoming an urban nightmare. Chaotic traffic, mushrooming slums (see Box 18), piles of garbage and high levels of air and water pollution, are making life miserable for residents. This is leading to an increasing incidence of health problems. Once again, the worst hit are the poor, who are often jobless and have to scrounge around for water, food and shelter.

India is facing a collapse of its urban environment. Towns and cities are drowning in toxic (both industrial and domestic) wastes and industrial pollution. Water supply agencies have failed in most parts of the country, to supply clean and adequate water. People are turning more to the use of groundwater, further depleting and polluting its reserves. Rivers and streams passing through urban areas are all turning into open sewers. Most of the air quality counts in India are much above World Health Organisation (WHO) guidelines, literally making India's urban centres 'lethal gas chambers'. The unprecedented spurt in the number of vehicles has emerged as the most significant contributor to poison in the urban air.

It is not only the rights of its own residents that an Indian city violates. It is also the rights of rural communities, whose resources are siphoned off to feed the enormous appetite of the city. The exploitation of land (including topsoil for bricks), forests, water, minerals, fish, and other such inputs needed for the wasteful consumerism of urban dwellers, is a direct cause of the dispossession of livelihood resources that the rural poor are dependent on.

Box 18: Slums: India's Urban Shame

In a country like India, urban poverty and rural-urban migration are closely related. The cities as compared to villages promise more convenient work, and steadier and higher wages. Many or most migrants see urban earnings as supplementing the rural, their urban stay as temporary and their places of origin as their permanent homes. Migration is a strategy on the part of the peasant families to bring some of the city's wealth to the village. Urban exploitation of rural resources, through many of the development processes described elsewhere in this essay, directly or indirectly force rural populations to migrate to nearby towns.

Once in the city, finding adequate land or housing to live in, is virtually impossible. Ironically, the glittering upper class houses and commercial complexes, to make which construction labourers are brought in from rural areas, ensure that land prices are sky-high, taking them totally out of reach of the lower classes. Squatting in slums and footpaths is therefore the only option…only to be cursed by those in the glittering houses!

Conditions in a slum are more than shocking. A typical slum is a conglomeration of shanties housing several people crammed into one small room (over 20 in Mumbai). No house has a private toilet and many do not even have access to community toilets, forcing them to use open spaces for defecation. Drainage facilities are poor with uncovered drains. This lack of amenities makes slum environment extremely disease-ridden, with a high incidence of respiratory diseases, gastro-intestinal disorders, skin diseases, worms, ear, nose and throat infections, and tuberculosis.

India's urban slums are amongst the most visible examples of the violation of environment-related human rights, and a classic case of victims of 'development' being further victimised.

What are the Alternatives?

If ecological destruction and the concomitant violation of human rights is by now pervasive in India, what is the way out? Are environmentalists advocating a total cessation of development, a 'return to the primitive' mode of existence? How would the needs of our increasing population be met, if ecological safeguards are to become barriers to agricultural and industrial development?

Answers to these questions are coming from local communities who have not forgotten their roots, from government officials who go off the beaten track, from NGOs who dare to question the system, from individuals who our society unfortunately still thinks of either crazy or dreamy-eyed romantics. In all these cases, the essence of the answer has been the marriage of ecological ethics and human values and rights. What has also been critical is that these answers have exploded the myth of the *single* answer, a sort of universal blueprint which can be implemented everywhere. Such a blueprint will not work, because there is a diversity of ecological situations, diversity of cultural situations, diversity of governance structures, and so on. Nature has not found one universal solution to the problem of finding food, finding a mate, surviving the elements. Humans would do well to learn from such diversity.

What kind of solutions and alternatives are being tried out, what are the elements of hope? There are at least the following six:

1. Resistance (to 'development' projects and processes that are destructive)
2. Revival (of traditions that are still relevant, in the same or modified manner)
3. Reconstruction (synthesising traditions and modern processes/knowledge into new combinations)
4. Redefinition (of some key terms and paradigms of development)
5. Reorientation (of attitudes towards nature and fellow humans)
6. Restitution (handing back of territories, resource rights, and knowledge ownership)

Resistance

More and more people are resisting the imposition of inappropriate developmental models and projects, the exploitation of nature and of disprivileged classes. Such resistance goes back a long way; for instance, environmentalists often cite the

example of the Bishnoi community in Rajasthan, members of which died in large numbers 350 years back in an attempt to resist tree-felling by the king. They clung to the trees, even while king's soldiers hacked them down mercilessly. In modern times, the Chipko movement sometimes cites this as one of its inspirations. This Himalayan peasant struggle was perhaps the most famous movement of the 1970s and 1980s, catching the imagination of millions of people in its simple but powerful imagery of women and men hugging trees to save them, and spawning several similar movements around the world.

Resistance to destruction is now widespread in India. At least a dozen major dams, which would have destroyed forests and villages, have been stalled or stopped by mass movements. Movements such as the Narmada Bachao Andolan have raised fundamental questions about the appropriateness of mega-dams. Many such mass movements have joined together into networks such as the National Alliance of People's Movements, and the Bharat Jan Andolan. Several million small and traditional fisherfolk across India's coastline have protested against destructive trawling and industrial aquaculture, and managed to get policy changes that would severely restrict large-scale commercial fisheries. Small villages like Plachimada in Kerala have resisted corporate giants like Coca Cola, forcing it to shut down its plant because it was causing water shortage and pollution (see http://www.indiaresource.org/campaigns/coke; also Venugopal 2003). Like the Bishnois, some of these recent movements have faced serious repression from the state and from corporate sectors: e.g. the leader of the trade union movement in eastern India, the Chattisgarh Mazdoor Sangharsh Samiti, Shankar Guha Niyogi, was killed by the industrial barons he was challenging. Niyogi was one of the few union leaders in the country who had the vision to bring workers' rights and environmental issues together. In the last few years, firings at several proposed mining and industrial sites in Orissa have resulted in many tribal activists being killed.

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

Revival

There is an amazing revival of environment-related traditions in many parts of India. This is not the fraudulent and dangerous kind that some political parties are espousing, but revival in terms of those aspects of our Indian traditions, those aspects of community knowledge and practices, which stood people in good stead

for centuries, and are still relevant to today's crisis. It is a people-led revival, not to be confused with the so-called traditionalism inspired by political ambitions.

In the Garhwal Himalaya there is a group of farmers, called the Beej Bachao Andolan (Save the Seeds Movement). The Beej Bachao Andolan (BBA) is reviving traditional practices of agriculture like *baranaja,* a multiple cropping system, which provided the household with many of the produce it required, while maintaining the fertility of the soil. It may not feed the market, and therefore is less 'lucrative' than, say, switching to soybean (which agricultural departments want farmers here to do). But soybean does not feed the local farmer. He/she gets more money from it, but that money as we know is not necessarily used for nutritional food for the children. BBA is therefore also reviving hundreds of varieties of *rajma* (beans), rice, wheat, coarse cereals, and other crops, in a bid to bring back a more stable, more nutritious, and more self-sufficient form of agriculture. It has linked up to the women's movement Mahila Samakhya, to reach out to women farmers in several dozen villages of the area.

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

This has been amply demonstrated by a number of farmer-led, NGO supported movements. In Andhra Pradesh, for instance, the Deccan Development Society consists of several hundred small women farmers (many belonging to the disprivileged Dalit castes). It has over the last two decades, transformed a bleak agricultural situation of indebtedness and poverty, into one of relative self-sufficiency and empowerment (www.ddsindia.com). It has done so by reviving a diversity of traditional and organically grown crops, linking farmers with consumers, forming women's collectives and joint land holdings, taking control of the public distribution system and introducing into it the local grains, developing watersheds, and other such measures that closely link sustainable farming, nutrition, and socal transformation.

Agriculture is not the only field where this kind of revival is taking place. In the same communities that BBA is involved with (Jardhargaon, Lasiyal, Nahin-Kala, Jajal, and many other villages in the region), and dozens of other communities across India, people have taken control back over the forest and natural resources which had been taken away either by the state or private corporations. They are saying: these forests are ours because our livelihood is dependent on it; you outsiders

will come, use it, and go away when it is destroyed, but we have to stay here. In many of these cases, earlier traditions of forest/wetland management are being brought back. There are even cases of new 'sacred' sites being declared, an astute move by communities to protect forests through religious or spiritual sanction, much as the thousands of sacred groves and sites that once dotted India.

The revival of traditional knowledge as being of contemporary significance, is paralleled by increasing concern about its piracy, as elaborated in Section 13 above. Several agencies are therefore addressing the issue of protecting such knowledge, and ensuring that communities and individuals who hold it and who continue to make innovations, are recognised and rewarded. Amongst the several steps in this direction, are the following (GRAIN/Kalpavriksh 2002; Dhar 2002):

- Community-led documentation of biodiversity-related knowledge, called Community or People's Biodiversity Registers, a process that not only helps to produce the documentary proof of the knowledge being already in the public domain, so that IPR-seekers cannot claim private ownership to it, but also helps revive pride in the modern significance of traditional knowledge; however, critical issues of protecting the Registers themselves from piracy, need to be urgently sorted out;
- Proposed models for community level IPR regimes, which could help protect community knowledge while avoiding the pitfalls and traps of current individualised IPR regimes (e.g. those bring proposed by N.S. Gopalakrishnan for a committee of the Ministry of Human Resource Development, or by groups like Navdanya, or some state government agencies such as for Kerala);
- Provisions in the Biological Diversity Act 2002 that offer a broad framework for traditional knowledge protection (but urgently need subsidiary rules to make these provisions effective);
- Benefit-sharing arrangements like the one between the Kani adivasis in Kerala and the Tropical Botanic Garden and Research Institute, a central government institution, in which a herbal drug developed from the knowledge of the adivasis was commercialised, and a share of the profits channelised back to an adivasi trust fund (though valid questions regarding the ownership of the knowledge and control over the herb itself, have been raised).

While revival of traditional practices and beliefs is a clear new trend, even more interesting and powerful is the ability of communities and citizens to innovate, especially when changing conditions require adaptations. This is where 'reconstruction' comes in.

Reconstruction

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

Several communities and NGOs and officials are experimenting with a mix of old and new, in areas such as water harvesting, sustainable agriculture, forest regeneration, and fisheries (Kothari et.al. 2000). Through this, areas which had become completely barren and dry, with severe drought situations year after year, have been reclaimed and brought back to life. Such integrated development work, based on watershed management, is now spread over hundreds of villages across the country. A wonderful example is the work done in 500 villages of Alwar district, Rajasthan, where villagers have built over 3000 small *johads* (checkdams), converting a water-deficient area to a water-surplus one (see Box 19). Simultaneously, catchments which had become completely deforested have been revived. Other examples like Ralegan Siddhi (Maharashtra) and Sukhomajri (Uttaranchal) are well known, and have become a major pilgrimage spot for anyone wanting to work on alternative land and water management. Such initiatives in different agro-ecological conditions in the country have demonstrated that big dams may simply be unnecessary.

Box 19: From Drought to Plenty: Rajasthan's Villages Revive Themselves

The livelihood strategy in the semi-arid regions of Rajasthan is a combination of rainfed cultivation and animal husbandry. Water conservation has traditionally involved trapping water during the short rainy months by constructing a series of small dams and tanks (*johad*). *Johads* require regular maintenance. It is also important that the slopes of the hills remain forested to avoid soil erosion from the hills silting the ponds. In the years following Independence, over-dependence on the Indian state for irrigation caused the villagers to ignore repair and maintenance of the *johads*. At the same time, excessive tree-felling in the hilly areas not only stripped the area of vegetative cover, but also increased soil erosion and silting of *johads*.

The impetus for a revival of the water management system in villages in the Alwar region, was created during awareness marches organised by the NGO Tarun Bharat Sangh in the mid-1980s. During this campaign, the links between forests, soil and water were highlighted. Subsequently, a combination of community wisdom, NGO perseverence, and voluntary labour, saw the construction of several thousand *johads* and other water harvesting structures. From being depressingly drought-prone in the 1980s, by the 1990s hundreds of villages became water sufficient (some even surplus), agricultural production doubled or tripled, and forests regenerated.

More than anything else, the sense of empowerment this has given to the villagers is remarkable. So strong is this that 70 villages in the catchment of the river Arvari (which has become perennial again due to the water harvesting initiatives) have come together to form a *sansad* (parliament). This Arvari Sansad meets every six months to take decisions with regard to land, water, forests, and even law and order problems. Women are still not a strongly visible part of this process, but are increasingly being empowered to also speak up and participate.

Sources: Shresth 2001; Samantaray 1998

In many parts of India, forest officials, NGOs, or community leaders have also pushed for Joint Forest Management (JFM) arrangements, through which forest regeneration is done with the incentive of generating revenue or locally needed forest produce. Reportedly, JFM is now spread over 17 million hectares in 28 states (MoEF 2005)! Though there are justified criticisms of the process still being state-dominated, and often creating conflicts with existing community initiatives, many JFM initiatives have undoubtedly been a step forward from the former exclusive control of the Forest Department. Changes are also slowly but surely coming about in wildlife conservation policies and programmes, from a purely exclusivist approach to participatory ones. Official initiatives in this are dominated by 'ecodevelopment' programmes, in which an attempt is made to provide secure (usually alternative to existing) occupations. This has worked well in some places (e.g. Periyar and Kalakad Mundanthurai Tiger Reserves), transforming situations of conflict and ecological destruction to cooperation, regeneration, and conservation (Jain 2003, Dutt 2001, Melkani 1998). However, the ecodevelopment model has also been criticised for focusing on 'weaning' people away from protected area resources rather than strengthening their positive links, for not truly devolving decision-making powers regarding the management of protected areas themselves, and in some cases for actually increasing conflicts and disempowerment (Baviskar 1998; Cheria 1995; Hiremath et.al. 1997; Karlsson 1998; Kothari 1998b). Other initiatives in conservation and natural resource management in wetlands have also gone a certain distance in being more participatory; one of the more interesting stories is of Chilika lagoon, where physical and social interventions by an innovative institution, Chilika Development Authority, have revived a dying and conflict-ridden lake and given its fisherfolk as well as its unique wildlife, a fresh lease of life (Pattnaik 2003; Kothari and Pathak 2006). The new National Wildlife Action Plan (2002) has also gone a certain distance in this respect. Unfortunately, recent court rulings (notably of the Supreme Court) have been somewhat detrimental with respect to securing community rights and responsibilities in conservation areas (as described in 'Protected Areas and Local Communities' on page 37).

A number of villages and people's movements have also tried to reclaim rights to waterbodies and aquatic resources. The Ganga Mukti Abhiyan has attempted to

empower small-scale fisherfolk against the fish mafia on the Ganges in Bihar. Community-managed fisheries in the Tawa Reservoir have been a powerful example of the potential of people-centred resource management, though the state government has repeatedly tried to sabotage it (see Box 20).

Box 20: Tawa Reservoir and the Tawa Matsya Sangh

There are several economic resource reserves with biodiversity value in the country today. The Tawa reservoir in Madhya Pradesh is one such site where the local adivasi communities are resisting attempts at commercialization, as it would impact their livelihoods. They have formed the Tawa Matsya Sangh (TMS) (a fishing co-operative) after a struggle under the leadership of the Kisan Adivasi Sangathan. The Sangh comprises 38 primary cooperatives of adivasi persons whose villages were submerged following the construction of the Tawa dam on the Tawa River, a tributary of the Narmada, in 1975. For the first time in Madhya Pradesh, the TMS has attempted to provide an alternative means of livelihood to adivasi persons displaced by a dam, which was built as a part of the Narmada Project. At present the committee of directors of the Sangh consists of 13 elected members. It is the main decision-making body for the day-to-day affairs of the TMS. These decisions are implemented by three people who are familiar with accounting and managerial work

The local people, primarily Gonds and Korkus, were cultivators and seasonal collectors of forest produce who caught fish in order to supplement their diet. After the construction of the dam they took to fishing for survival in the face of little or no rehabilitation after the submergence (Prasad 2001).

At the end of 2002, there was news that the state government is not likely to renew the fishing lease of the Sangh or co-operative. After a stiff resistance, the lease was renewed, though with several conditions which the Sangh had to again fight against. In 2006, the lease comes up for renewal once again, the local people are apprehensive that the government will not give it to the Sangh. Meanwhile, a conflict situation has once again cropped up in late 2005 as the government has proposed to include the reservoir in the Satpura National Park, which would effectively mean an end to any fishing or draw-down cultivation.

Source: TPCG and Kalpavriksh 2005; Field visit by authors, 2006.

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

Box 21: Women's Empowerment and Sustainable Agriculture

A quiet revolution is unfolding in a few dozen villages of Medak District of Andhra Pradesh. A low-rainfall are largely dependent on rainfed agriculture, this area has been home to some very sophisticated, traditional practices of dryland farming and animal husbandry. Unfortunately there has been considerable erosion of these practices and the associated knowledge, under the influence of several factors including the spread of 'modern' agriculture. But in the last 15-20 years, relevant traditions have been revived, and new techniques and ideas merged with them, to produce a vibrant economy and culture.

This revolution is being led by the most downtrodden of Indian society, Dalit women. As members of the community-based organisation Deccan Development Society, these women have taken up the following: (http://www.ddsindia.com):

1. A Community Gene Fund programme with 75 dalit women's groups in 75 villages. Till 2002 the Society has been able to develop 55 gene banks in 55 villages. It has retrieved over 75 varieties of landraces consisting of millets, pulses and oilseeds. Together they have banked over 16,000 kgs of seeds in the community banks, which are sufficient to sow over 7,000 acres. A total of 2,700 women are participating in this programme.
2. An alternative Public Distribution System (PDS*),* designed to an entirely community managed PDS system based on coarse grains, locally produced, locally stored and locally distributed. The model focuses on the poorest of the poor among the dalit women. These women have been motivated to initiate and take control of the PDS system in their area. This may be the first ever decentralised PDS system in the country, with no need for external subsidies.
3. Developing 'Dalit Watersheds'. These watersheds employ the same principles as applied in conventional practice. However, the focus in this initiative is only on lands belonging to the Dalits. Since these lands are usually situated in the upper reaches of the catchment, the project focuses its resources here. These are reclaimed, made cultivable for food crops. This is to ensure food security for dalit households. Besides creating a subsistence base for the Dalits, the initiative also aims at relocating control over agricultural processes and food production in the hands of the Dalit and other poor women of the area.
4. Promoting traditional knowledge along with new techniques, as relevant, in conjunction with the local **Krishi Vigyan Kendra** (KVK)**.** KVK has developed eco–friendly, non-chemical methodologies to tackle certain agricultural pests. It has relied primarily on farmer's innovations to achieve this.

Building capacity of community members to handle their own video-making, community radio, alternative school, and other tasks and processes.

Alternative technologies and processes are also part of the reconstruction process. Viable models of energy production and efficient use, without having to go in for mega-projects, have been worked out by scientists and energy experts, but these have been consistently ignored by the state. Increasingly, though, such models are being tried out on a micro-scale, and are showing that at least as far as energising villages is concerned, they are viable. In the case of urban areas, the alternative approach will have to encompass demand management and efficient use, for city-dwellers simply use wastefully copious amounts of power. The Delhi government has recently made roof-top water harvesting mandatory in all new construction, a move inspired by the successful example of Dewas town in Madhya Pradesh. This would be at least one step towards reducing the city's parasitic dependence on water from outside. Technical developments and scientific methodologies have also been applied to enhance ecosystem services, as in the case of biogas plants, smokeless *chullas* (woodstoves), and so on.

A critical part of reconstruction is participatory planning. Examples of village-level planning exercises involving local people, such as those in the local resource mapping exercises in Kerala, are rare but inspiring. Another ambitious attempt at combining local to national level planning in a participatory manner, has been the National Biodiversity Strategy and Action Plan process (see Box 22).

Box 22: India's NBSAP: Linking Human Rights and Biodiversity

An ambitious attempt to break the conventional barriers between environment and development, and between state-dominated planning processes and 'ordinary' citizens, has been the National Biodiversity Strategy and Action Plan (NBSAP) process. From early 2000 to end-2003, this process focused on the twin priorities of *ecological security* (including the conservation of ecosystems, species, and essential ecological functions on which all life depends), and *livelihood security* (especially of those people who depend directly on the health and diversity of natural resources for survival).

The NBSAP was a Ministry of Environment and Forests (Government of India) project, sponsored by the GEF through UNDP. In an unusual departure from past practice, its technical execution was entrusted to a NGO, Kalpavriksh, and the administrative coordination to a public sector corporate entity, the Biotech Consortium India Ltd. The process produced a series of action plans on the entire spectrum of biodiversity, and on a range of issues relevant to biodiversity (biological, economic, ethical, socio-cultural, and technological). It did this starting from the local level (village/district/micro-watershed), to state levels (all 33 states and union territories of India), upto the ecoregional levels cutting across states, and finally at the national level. Most importantly, it did this

through the involvement of fisherfolk, adivasis, farmers, scientists, activists, academics, government officials, artists, armed forces personnel, corporate executives, and all other relevant sections of society. Upwards of 50,000 people substantially participated in the exercise. Dialogues and joint planning exercises between many development, welfare, and conservation departments and agencies, took place. A series of participation methods were used, such as public hearings, biodiversity festivals, foot marches, boat rallies, workshops and seminars, children's competitions or exhibitions, mass media, and so on.

Several of the local, state, ecoregional, and thematic action plans, and thematic papers produced as part of the NBSAP process, have focused on the linkages between livelihoods and biodiversity. The national level plan, built partly on these plans and papers and on dozens of other documents, dwells at length on the links between various fundamental human rights and biodiversity. This includes issues of tenurial rights to livelihood resources (especially common property resources like pastures, forests, waterbodies, coasts, and marine areas), the right to decision-making with regard to such resources, the necessity of seeking informed consent of local communities in any decisions relating to their resources and livelihoods, and so on. Also focused on are the corresponding responsibilities, related to conservation of biodiversity and sustainable use of biological resources. The draft national plan lays out over 100 strategies and several hundred specific actions, that need to be taken to safeguard ecological and livelihood security.

The hope is that with such large-scale participation and the grounding of the plan in local and state-level processes, there will be a greater thrust to implementation than has been the case in previous national planning exercises. This could also be linked to the implementation of the Biological Diversity Act 2002, which too has some potential to further the interests of the most marginalised people who depend on biodiversity for their survival (see Kalpavriksh 2006b).

Unfortunately, after the final report was submitted to the MoEF in end-2003, it has stalled the production of the final action plan for over two years. No substantive reasons have been given, other than that the report is being reviewed, and that it awaits the finalization of the National Environment Policy (a draft of which was initiated only in 2004!). Kalpavriksh has meanwhile gone ahead with the publication of the final national report, containing also all the local, state, ecoregional, thematic, and subthematic reports (totaling over 100) produced during the process.

(*for further details, see* www.kalpavriksh.org; the national report is available as TPCG and Kalpavriksh 2005; see also Apte 2005)

Redefinition

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

Another term which is being questioned and redefined is *productivity*. Over the last 30 years, agricultural productivity has meant single-output goals…the more the output of foodgrains, or milk, or wool, the more productive the system. Compare this with the goals of traditional agriculture, which, from the same farm, would try to optimise the output of grains, livestock produce, fodder, supplemental foods, etc. A modern rice field is given high marks if it produces high grain yields; a traditional one would have been considered great if it produced a high mix of grain, fish/crabs/prawns, stalk as fodder, etc. So when the 'dwarf' wheat brought in the so-called Green Revolution in India, it certainly increased grains output, but it also seriously decreased fodder output.

'Productivity' from an agricultural system should mean the total quantity and quality of biomass and other output from the system, perhaps also as a ratio of what inputs have gone in. Seen in this sense, a lot of traditional agriculture (though by no means all of it) was far more productive than a lot of modern farming. A modern wheat or rice field, for instance, has much less fodder, and almost no other food or nutritional value (all the other life is killed off by pesticides and fertilisers). The farmer who gets more money with such farming is certainly richer, but this does not necessarily translate into better nutritional inputs for him/her and family, in fact this may decline because of the loss of supplemental foods that were earlier freely available. If further impacts such as the loss of forests due to over-grazing by cattle or over-lopping for fuel by people who no longer get these needs from the fields, is added, the personal and social costs are indeed high.

Not least of all, the concept of personal well-being itself needs redefinition. Obscenely indulgent advertisements on 'the good life' push the concept that human well-being is achieved only at higher and higher levels of material consumption. The concept of simple lifestyles has been bulldozed in the process, even begun to be equated with poverty! This can change only if people in the rich and elite classes are made acutely aware of the consequences of their personal lifestyles, both to the environment and to communities far away from them, and are shamed or forced into appropriate action.

Reorientation

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

These attitudinal changes are very difficult, and this is where alternative education and awareness programmes are critical. This would need a radical change in the current educational system itself. A prominent activist of Kashtakari Sanghatana, a group that has done excellent work on reviving the rights of adivasis living in the Dahanu region of Maharashtra, was recently complaining that the success they have had over the last 20 years in reviving adivasi pride in their own culture and practices, is being undermined within the last 3-4 years due to influences from the mass media and formal education. Both these systems teach the adivasis that their own values and lifestyles are 'primitive', outdated, unfashionable, even uncivilised; they must fully cover themselves, if possible with a three-piece suit; they must learn English, or at least Marathi, and discard their own adivasi languages; they must entertain themselves with TV and video games, rather than with adventures in the forest and playing in the dust; they must think of other species, and even women, as inferior beings; they must become Hinduised, celebrate mainstream festivals, pray to mainstream gods.

This is really India's biggest long-term challenge: how to reorient the mind to be much more in tune with nature, and with other humans. In this too, there are interesting initiatives taking place. At Biligiri Hills in Karnataka (also home to a wildlife sanctuary), a community-based organisation working with the Soliga adivasis has introduced a system of education which encourages their own customary methods of teaching and learning, while also bringing in the more modern formal system. In the villages of the Narmada valley, the anti-dam movement has introduced *Jeevan Shalas* (Life Schools), where learning with nature is the essence.

Also increasing, amongst sectors of society which were mutually hostile till now, is an understanding of each others' points of view. Forest officers have become more sensitive to local community needs and rights, local people are more aware

of the constraints within which forest staff work. The attitude of politicians is changing; in Orissa a politician fought, at risk to his own life, to stop trawlers from destroying the coast.

Box 23: Building Bridges: Human Rights and Wildlife Conservation

Traditionally at loggerheads with each other, wildlife conservationists and those working for the rights of local communities, are beginning to see common ground. In particular, they perceive a common enemy in the rampant industrial and commercialisation process that threatens to uproot both nature and ecosystem people. Paving the way for this realisation is a series of events, including a chain of national and local dialogues called 'Building Bridges'. Started in 1994, and pegged by groups such as Kalpavriksh, Tarun Bharat Sangh, Ekta Parishad, Sanctuary Magazine, and others, these dialogues have brought together social activists, adivasis, forest officials, wildlife conservationists, scientists, artists, journalists, and others, to discuss common ground and build strategies in which both ecological security and human rights can be protected.

A decade after they started and seemed to be moving forward a more progressive agenda, a major setback occurred with a highly polarized debate around the disappearance of the tiger from Sariska Tiger Reserve (and its rapid decline in other parts of India), and the introduction of a Bill to confer forest land and resource rights to *adivasis*. Some conservationists took the hard position that sites like Sariska needed to be freed of human presence (meaning eviction of resident villages), while some human rights activists argued that rights to forest lands were non-negotiable. In this charged atmosphere, a number of conservation and social action groups got together in February 2006 to organize a national consultation on 'The Future of Conservation in India'. The Consultation brought together 40 key individuals from a range of sectors, and has framed an agenda for joint action that could, if sustained, once again build bridges, and take forward some critical actions integrating conservation and livelihoods. (See www.kalpavriksh.org, for the Consultation Statement and report.)

Restitution: Decentralising Governance

Perhaps the greatest change needed, one that encompasses the elements discussed above, is that of decentralising the system of decision-making, in effect restoring the ability of communities to take charge of their own situation. In 1993, the Government of India brought in a potentially revolutionary amendment (the 73rd) to the constitution, which gave village *panchayats* and *gram sabhas* much more power to conduct their own affairs. Even more radical is the subsequent extension of this amendment to scheduled (predominantly adivasi) areas (spread over 6-7 states), e.g. in the provision that all non-timber forest produce in these areas

would now be owned by the adivasis, and that they would have the power to protect their customary practices and cultures. Unfortunately in both cases implementation has been painfully slow, as politicians and bureaucrats in many states are stalling the process.

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

Decentralised governance is also a potential outcome of the 74th Amendment in the Constitution, pertaining to municipal corporations and district level planning. For the first time, citizens across the country can demand participation in decision-making that affects their lives. Again, however, like the *panchayat* legislation, the true potential of this constitutional change is far from being fulfilled.

Decentralised governance has also increasingly become a part of decision-making on development and environment processes. For instance, most development projects now require public hearings to be organised before a decision is taken to accord them environmental clearance. Another critical element of decentralised governance is the right to information. This has been stridently demanded for years by Indian citizens, and has resulted in a Right to Information Act 2005; prior to this some states already had such an Act under which granted at least limited information access. In individual states like Rajasthan, cities like Delhi, and villages like Mendha (Lekha) (see Box 24), powerful people's movements have achieved access to information even without statutory provisions.

A potentially powerful circular to involve local people in development planning, was sent out by the central government in 1996. Letter No. 11-30/96 – FC (Pt,) issued by MoEF to Chief Secretaries of each State asserts in point 5: "It has been observed that in respect of a large number of proposals the Central Government is receiving representation from NGOs/local public bodies against the diversion of forest land on loss of forest land, environment and ecological grounds. Therefore, the Central Government feels that it is essential to have the opinion of the local people whenever a project is coming up in that area. Therefore, it has been decided that whenever any proposal for diversion of forest land is submitted, it should be accompanied by a resolution of the '*Aam Sabha*' of Gram Panchayat/Local Body of the area endorsing the proposal that the project is in the interest of people living

in and around the proposed forest land." Unfortunately, this has hardly been implemented by states, nor has the centre been pro-active about enforcing it.

Some states have taken their own steps towards more effective decentralization. Nagaland, making use of its special constitutional status giving it a great degree of autonomy, has enacted the Nagaland Village and Area Council Act 1978, and the Nagaland Communitisation of Public Institutions and Services Act, 2001. Under the former, village bodies are given considerable powers over local matters, including those related to land and forests. Under the latter, the state can devolve the authority to manage education, water, health, forestry, and other aspects to village bodies, which also makes local government line departments answerable to these bodies.

Box 24: A Village Achieves Self-Rule

Mendha (Lekha) is a small village of 300 Gond adivasis, nestled in the forests of Gadchiroli district, Maharashtra (Pathak and Gour-Broome, 2001). This region has extremely diverse moist and dry deciduous forests, as well as a diversity of adivasi communities.

In the 1970s, the government of adjoining Madhya Pradesh, proposed a big hydroelectricity dam in Bastar district. For the adivasis of the region, the project not only meant displacement, but also destruction of forests on which their livelihood and culture depended. This realisation (brought about by some NGOs actively opposing the dam) led to a strong local opposition to this project, which caused the government to shelve it. This movement brought in another important realisation to the adivasis: that forests and other natural resources faced serious external and internal threats, which needed to be brought under some local system of control.

In Mendha, the villagers started a movement towards self-rule, through discussions over self-empowerment, gender equity, and capacity-building. Villagers increasingly mobilized themselves to take control over the forests. Out of the total 1900 ha. area of the village, nearly 80% is forest, which, apart from subsistence farming, is the mainstay of the local economy and culture. The Van Suraksha Samiti (Forest Protection Committee) formed to take decisions regarding the forest, took two important decisions in the late 1980s:

1. All domestic requirements will be met from the surrounding forests without paying any fee to the government or bribes to forest staff. This will be regulated by a set of rules for sustainable extraction, including a strict ban of any commercial use of timber.

2. No outsider, government or private, will be allowed to carry out any forest use activities without the permission of the village.

Through stubborn resistance, the villagers stopped a paper mill that had been given a government lease to extract bamboo from Mendha's forests. They also took up soil and water conservation works, and curtailed their own activities that could be destructive, e.g. setting fire and encroaching onto forest land. The village has also managed to bring its forests under the Joint Forest Management (JFM) scheme of the state government. This rare feat (as the JFM scheme was at that time applicable only to degraded forests) allows the villagers to share the benefits arising from collection of Non Timber Forest Produce (NTFP) and bamboo extraction rather than the destructive practices of timber felling. Mendha's residents are also trying out innovative ways of earning a livelihood, and their *gram sabha* (village council) is so empowered that even government officials have to seek its permission before carrying out any activity there.

What Can You Do?

What all the actual and potential alternatives described above demonstrate is that Indian society, as indeed all countries of the world, need to move towards an integration of deep ecological sensitivity and human values, rights and responsibilities. Such an integration will have to inform our choice of human welfare and development strategies, and of economic and technological systems. Decentralised decision-making, access to information, respect for community-based and individual knowledge, recognition of the rights of other species, searching for local solutions to local problems, and educational systems that build ecological and human sensitivity...these are some of the major elements of a sustainable future for the human species. The recognition of environment as a fundamental human right is one cornerstone of a strategy to reach towards such a future.

We can all do our bits in making this happen. As students and young persons, you have a number of opportunities to act. For instance:

1. Use your abilities as a student to investigate and study, or simply observe as keenly as possible, the status of the environment around you. Notice anything amiss, like a forest or clump of trees being cut, a park being eaten up by construction, people labouring in horrible working conditions, or a factory emiting foul-smelling pollution? Talk about this with other youth and students, and to your teachers and parents. Find out what action you can take... e.g. asking those who are cutting the forest whether they have the permission to do so, finding out who your local forest-or tree-related authorities are, and reporting to them. Or trying to catch the attention of some mediaperson to the environmental damage, to do a newspaper story.

2. If you are students of science (natural or social), you could conduct a special study on critical environmental issues around you. Such a study could be used by the local authorities, or by some local NGOs and/or the local communities, to help them tackle the problem.

3. Form an environmental forum or club in your educational institution, and/or in your neighbourhood, so that you are not alone in taking up the relevant activities. As a group, you have much more strength on your side!

4. Ask your educational institution to purchase or obtain essential readings on environment (such as the ones listed in this Dossier), so that students have access to them in the library. If you have permission, you could even set up a special environment section.

5. Whatever you learn, make sure you spread it widely…through talking to others, through a bulletin board, through the school/college magazine, through columns meant for young people in local newspapers, through the internet, and whatever other means you find.

6. Find out about environmental and human rights organizations in your region/city, contact them, find out what they are doing and whether you can help them out in some way. Voluntary student inputs to NGOs is often appreciated, especially by small NGOs that do not have many resources to employ lots of people.

7. Take whatever action you can, if you see environmental damage or injustice being caused. For instance, if there is a community being uprooted by a dam or power station or some other 'development' project, try to help them by spreading news on their plight, helping them with your skills as a writer/photographer/scientist/engineer, etc., getting them in touch with experts who could help them, and so on. You may have limits to how much 'activism' you can do as a student, but remember that anything you can do to help, would be appreciated.

8. If you can, choose environment-related disciplines (which are not only natural science ones, but could also be social science, economics, etc), or make extra-curricular efforts to study environment-related subjects. Specialisation in these would certainly help. However, remember that whatever subject you are doing and whatever profession you take up, you can be an environmentalist and human rights activist.

Check Your Progress

1. Critically analyze the role of colonialism in exploitation of natural resources of India.

2. Give short notes on the following:
   (a) Sustainable development.
   (b) Developmental refugees.

3. Enumerate various constitutional provisions, related laws and policies concerning environment protection with relevant case laws.

4. Discuss the relationship between protected area and people citing example from the Indian experience.

5. Discuss in detail the various aspects of the conflict between development and environment.

6. "Inequity the relation between people and country have also allowed the imposition of unsustainable and destructive model of development". Discuss this statement in the light of various international human rights and livelihood instruments.

7. Discuss the role of human action in the natural calamities by taking Orissa cyclone as a test case.

8. Discuss the various solutions and alternative which are being tried out concerning ecological destruction and the concomitant violation of human rights.

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Compiled by: Ashish Kothari and Anuprita Patel*

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