



## **2. The challenge of good health**

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## 1. The challenge of good health

### Highlights

- Environment and health intricately linked, but in practice and policy the concerned ministries have absolutely no coordination or common programmes to address environmental health issues
- Few common programmes exist between ministries and agencies and the gaps they create are filled by agents of corruption. Pollution control, water and sanitation programmes, epidemic prevention, and basic health care and relief are prominent hubs of corruption.
- Ministry of health and family welfare claims to have made significant strides in basic health indicators, its achievements are few in terms of addressing challenges of modern diseases and in effectively controlling the resurgence of traditional diseases
- Ministry of environment and forest's main agency to control pollution – the state and Central Pollution Control Board have failed to deter polluting industries from polluting or effectively regulate pollution

Environmental factors contributes significantly to health burden. In India, 60 per cent of malaria, almost all gastro-intestinal and respiratory diseases, and significant proportion of organ specific diseases (like biliary cancer in the Gangetic plains described on page --), skin diseases, are caused because of poor environmental conditions. Many new syndromes like cancers, tumours, birth defects that spillovers of modern diseases on populations that have not even overcome traditional diseases that have plagued them for centuries.

Environmental health is firmly established as a critical field in most developed countries across the globe. But this is yet to take off in developing countries like India. The politics both at the level of bureaucracy and politician have ensured that policy and regulatory gaps exist and that environmental interventions that can reduce health burden are not adopted. This is amply evident in adopting clean fuels, providing safe drinking water, controlling diseases like malaria, or by simply ignoring their prevalence.

Health achievements in India on the other hand have commendable on the other hand – if one is to assess them on the basis of targets set and achievement.



Through the years - 1951-2000 Achievements

Indicator	1951	1981	2000
<b>Demographic Changes</b>			
Life expectancy	36.7	54	64.6(RGI)
Crude birth rate	40.8	33.9(SRS)	26.1(99 SRS)
Crude death rate	25	12.5(SRS)	8.7(99 SRS)
Infant Mortality Rate (IMR)	146	110	70 (99 SRS)
<b>Epidemiological Shifts</b>			
Malaria (cases in million)	75	2.7	2.2
Leprosy cases per 10,000 population	38.1	57.3	3.74
Small pox (no. of cases)	>44,887	Eradicated	
Guineaworm ( no. of cases)		>39,792	Eradicated
Polio		29709	265
<b>Infrastructure</b>			
Dispensaries and Hospitals and (all )	9209	23,555	43,322 (95–96-CBHI)
Beds private and public	117,198	569,495	8,70,161 (95-96-CBHI)
Doctors (allopathy)	61,800	2,68,700	5,03,900 (98-99-MCI)
Nursing personnel	18,054	1,43,887	7,37,000 (99-INC)

From the Draft National Health Policy, page 2

**Box: International efforts in understanding and meeting challenges in environmental health**

Many developed countries have created opportunities to increase interactions between the various stakeholders and incorporate environment and health in each other's agenda. Cross border pollution issues, ozone depletion and climate change are some important environment change issues that impact health, which have been instrumental to bring out policy changes within countries. To meet the common commitments, countries seek assistance and cooperation at local, regional and global level, devise rules and create capacity, and institutional and policy changes. Many countries have constituted effective committees to address environment and health as a common goal, and a few have even merged environment into their health ministry (see box: International efforts in understanding and meeting challenges in environmental health).

- Some countries have a common ministry for environment and health like Singapore has probably the most comprehensive programme on environmental health. Their Ministry of Environment's motto is : protecting public health and enhancing the environment. The Belgium Ministry for Social Affairs, Public Health and Environment and Barbados Ministry of Health and the Environment also has an integrated programme to manage health and environment links. States and provinces within country frameworks are experimenting with environment and health. Certain states in the US, for example Kansas and Colorado have a health and environment department. The state of Sarawak, Malaysia, has a Ministry of Environment and Public Health, Sarawak.



- Some countries have a common ministry for environment health and social development. Some European governments for instance Austria, have a ministry for labour, health and social affairs. Greece's Ministry for the Environment, Physical Planning and Public Works integrates the three aspects in its planning and implementation. Hong Kong's Environment and Food Bureau (EFB) works closely with the Food and Environmental Hygiene Department, Waste Reduction Committee (WRC) and the Health and Welfare Bureau. The Education and Manpower Bureau (EMB) is responsible for industrial, technical and educational training, and the bureau of labour affairs also has within its charge the Occupational Safety and Health Council (OSHC), which allows for more direct intervention in bettering the occupational health standards in Hong Kong.
- Some countries have a common ministry for environment, health and other issues Argentina's Ministry of Social Development and Environment has a Secretariat of Sustainable Development and Environmental Policy which addresses climate change, health and migration issues. Finland's Ministry of Social Affairs and Health has two specialised agencies to study and regulate consumer product safety.
- Some governments have special legislations on environment and health New Zealand's Ministry of Environment covers all health fallouts within its programmes and suggests interventions to the health ministry. Sweden has a Ministry of Health and Social Affairs which helped the environment ministry to prepare its strategy for the Johannesburg meet specify) with a special focus on environmental health in Africa. Many north European countries such as Norway, Finland and Germany, and Japan, New Zealand among others have a special interest in monitoring radiation and its impact on human health, and have instituted special bodies within the their environment and health ministries.

The Department of Health and Human Services (DHHS) of the US has specialised institutions like the National Centre for Environmental Health (NCEH), Agency for Toxic Substances and Disease Registry (ATSDR), Environmental Health Policy Committee (EHPC) and the National Center for Environmental Health (NCEH) to assist regulatory bodies and policy formulation. President Clinton's government initiated in 2000 a special task force on children's health and passed a presidential order stating – Health Canada, the health ministry of Canada has a comprehensive environmental health programme. The World Bank and the WHO have both initiated programmes on environmental health at region and country level. As yet, there are no countries in the developing world that have integrated the health and environment under a common governance regime. The Indian Ministry of Environment and Forest (MoEF), initiated a committee to prepare a report on environment and health, which was tabled in May 2000.

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## 2.1 Health and Environment in India's policy framework

In India, the overall national focus on 'development' and 'growth' has shaped health and environment policies, and there is an obvious and urgent need to co-ordinate these goals. The grim truth is that existing structures for governance do not give the government or other actors the tools, capacity or incentive to address environment and health problems in an effective,



linked way. Attempts to make these links are often met with resistance. Adoption of cleaner fuels, data on industries, pollution, health and donor programme data (specially World Bank programmes on malaria control and the integrated infectious diseases surveillance programme) from government offices is virtually impossible to procure.

The public health agenda only narrowly addresses environmental health. First, because of most policies are conceived to population control and preventive medicine. Even where environmental health *could* have been well-covered - for instance, among the preventive measures taken for disease control - it has been omitted, at best disregarded as the responsibility of a different ministry. Possibly the only concerted effort to control a disease has been in the guinea worm control programme (see box – on --). Even obvious programmes like tuberculosis control and smoke-less chulha, social forestry and biogas programmes did not join forces to improve natural resource management and health. Malaria and other vector borne diseases too can be controlled with the cooperation with other stakeholders (see box – pg. --, which shows that at least 30 prominent contributors to vector borne diseases are actually apathetic to fight the problem).

It was only recently, in 1999-2000, that the first government committee was appointed to decide how one could combine expertise, connect the relevant agencies and improve regulations and laws, in order to legitimise health-environment links (see box). The abysmal and unacceptable state of public health and undeniable levels of environmental degradation speak for themselves.

A report by the Confederation of Indian Industry (CII) in 2002 finds that it will take India Rs 100,000 crore by 2010 to reach the World Health Organisation's (WHO's) minimum standard of healthcare for developing countries. Going by the current rate, the government and the private sector combined will be spending just about Rs 40,000 crore. (*The Hindustan Times, New Delhi, 24/02/2002, p.3*). The CII report focuses on therapeutic interventions rather than look at simple methodologies based on traditional knowledge, in the areas of sanitation, pollution control and epidemiology. Most of the interventions to control health outcomes lie beyond the purview of health and in the realm of environment management.

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### **Box: The MoEF write paper on environmental health**

Following the Centre for Science and Environment's first conference of environment and health in 1998, the MoEF decided to constitute an expert committee.

The Committee published a "Report of the Committee on Environment and Health" in May 2000. Its main objectives were to review the status of environmental health, and to develop appropriate policy recommendations, strategies and action plans for work to commence in the improvement of this sector. Their environmental health management plan was projected to "improve the capacity of the MoEF to assess environment-health priorities, monitor health trends, and assess the impact of environmental and development initiatives on the community". Though ready by June 2000, the report has only recently been made available to the public.

The committee report reviewed a range of environmental health information, and the described the kinds of policies and actions needed at the government level to address these problems. It explored some well-known and relatively old state of the environment data. It refers to a number



of government programs that are already in place, and revisits previous programs and commitments made by the ministry and its agencies. Water and air pollution from domestic and industrial waste are the main topics of concern. The effects of contaminants on ecosystems, species numbers, and health impacts are borrowed from studies from Europe and the US ; findings from Indian environmental surveys are lacking. Some biological processes of contamination (e.g. acidic deposition) are described, but again, specific data on India is minimal. In addition, the report fails to acknowledge the obvious need for local research as a vital component of the action plan. There is a loose recognition of the differences in vulnerability between risk groups, and the effect of factors such as age and sex, but no explanations are put forward for these trends. Some of the social consequences of poor environmental health are mentioned, though defined narrowly in terms of economic costs (e.g. losses in productivity, expenditure for medicine, etc.).

The focus of the report is on 'Therapeutic Measures'. It presents a strong case for remedial action to be taken following contamination or exposure to environmental health hazards, rather than preventing pollution and contamination in the first place. A Environmental Health Management Action Plan is proposed, suggesting the development of MoEF institutional capacity to manage environmental health, and to facilitate cross-sectoral and interdepartmental cooperation. The committee proposes one '**super goal**', the promotion of environmental health and environmental protection," is emphasised.

Action plans to counter these environmental assaults described, but no legislative or institutional framework is prescribed to ensure these goals are realised. In fact, while the Committee mentions that Ministry of Health and Ministry of Environment and Forests plans are currently being coordinated, it does not suggest how it will help strengthen the links between Ministries, or facilitate the coordination process. Lack of conclusive evidence and scientific uncertainty are discussed as barriers to action, but little is committed to overcome these barriers in policy decision-making (such as the precautionary principle), which leaves the management plan open-ended on which ministry would implement and monitor such an 'action plan'.

The fundamental flaw with the report lies in its misinterpretation of the term "environmental health". It merely looks at the occupational health and industrial environment and to some extent agricultural spill off like pesticides and their impact on human health. Even the literature survey of Indian case studies is inadequate, and the report relies on popular Western instances. The report is, at best, a statement of good intention and a summary of MoEF's standpoint. However, too much is omitted for any part of this document to initiate quality policy responses or deliver substantial action on environmental health issues. This may be a reflection of the quality of the background material and the reprehensible lack of effort put into researching India's environmental health needs. For example, the chapter on indoor air pollution (IAP) concludes with this ambiguous statement: "There is a need for drawing out a national policy to mitigate the occurrence of these preventable pollution related diseases through measures such as public awareness for the use of safer fuels, use of stoves which decrease pollution and increase fuel efficiency and use of ventilation during cooking". (p.33)

The recommendation is inclusive, but fails to explain how these things can be achieved or how they relate to broader goals. Without detailed, innovative recommendations belonging to a comprehensive policy framework, the report can only serve as a discussion paper or



background note for policy-makers. But the objective of the committee was to formulate policy and strategy, not merely prepare for it.

The report fails to provide a useful framework for institutional and reporting mechanisms that would ensure further action is undertaken. It also omits discussion of some central aspects like the link between infectious diseases and deforestation, fuel choice and indoor air pollution, fuel quality and options and its impact on vehicular air pollution, thermal power plants and large scale industrial pollution and its impact in industrial townships etc.. Other aspects like poverty, gender equality, education and participation, inequity and inequality in access to health services and water and sanitation, to name a few. Collectively, this means the committee has failed to identify the complexity of environmental health or demonstrate why it should be prioritised on the public policy agenda.

While the Committee established the importance of a 'National Environmental Health Profile', it did not go so far as to create a taskforce or set responsibilities for compiling the profile. This is also true for 'including health risks in Environmental Impact Assessment (EIA), and 'evaluating the costs of health decline caused by environmental change'; these notions are certainly sound, but without concrete measures to realise them, they are only ideas.

A more fundamental shortcoming is the fact that the committee is not very holistic in its approach to environmental health. There is an over-emphasis on environmental medicine and curative 'therapeutic' measures, at the expense of broader issues like water and sanitation, and health education and awareness. This is a reflection of how poorly the link has been made between environmental change, ecological degradation and human health. The committee thus fails to fulfil its most important obligation: to strengthen the linkages between environment and health at the government and policy level. Regrettably, the committee's formation and the report's recommendations make a less than meagre contribution to the enormous and enormously complex, interlinked area of environment and health policy. Predictably, the committee consisted only of bureaucrats and scientists from government institutions, totally excluding ordinary citizens, specialists or consultants from the private sector, or representatives of particularly afflicted populations.

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### **Box: Yes, Minister: MoEF meets USEPA**

On January 17, 2002, the Ministry of Environment and Forests (MoEF) organised a roundtable on environment and health in India. The administrator of the US Environment Protection Agency (EPA), Christine T. Whitman, was the keynote speaker. The ministry made a presentation and proudly circulated its report on health and environment. Views of other participants were heard. The MOEF presented its committee report with pride, which most participants (many of them were part of the committee) accepted as the template form where new research must originate. And the meeting ended. Nothing substantial was discussed, or decided.

It is a familiar story – expensive and essentially redundant conferences organised in the name of health; conferences which are no more than exercises in public relations and self-congratulatory, sycophantic networking. Much is said, nothing is done, and the opportunity to learn and share information is reduced to empty rhetoric. India's action plan should consciously focus on an effort to learn more from the emerging knowledge abroad, where research expands



rapidly day by day. India should also focus on policies of other developing nations, identify what is most applicable to Indian conditions and study these findings. Secondly, India must develop its own research protocols, suited to its specific concerns. It is also imperative to design and implement a sustained research programme along with rigorous epidemiological studies. To develop its own research agenda, the ministry must involve health researchers and professionals working in different institutions and at the grassroots. The process of inviting and selecting research proposals must be open and transparent. Health professionals are interested especially in new syndromes and emerging diseases very different from the conventional diseases rooted in a simple cause and effect relation. In the complex environment of this, double burden of disease, even common diseases manifest unfamiliar and intractable symptoms. The ministry can achieve its targets only with the help of committed professionals from various spheres. Otherwise the research agenda will remain stagnant, slowly declining towards its inexorable fate – skins of cobwebs and mounds of files.

The action plan must link research to public policy. However, the reality is that in India there is an ever-widening gap between these two components in the area of public health. It is almost as if decision making systems have become knowledge-proof. For example very little action oriented medical research in this country has taken place and far few researches have actually resulted in an policy change. Even large medical research programmes like the ICMR programme on the effect of the Bhopal gas tragedy. ICMR and its cancer registries (see box : Virus in the system), or .

Most importantly, the action plan for health and environment must be driven by a strong public constituency. The reason why our policy makers can remain complacent about public health concerns is because we have a health-illiterate population. The ministry's officials, medical specialists and bureaucrats are on one side of the chasm of poverty, illiteracy and disease, and most of India's population is on the other.

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## 2.2 The health policy

Governance in terms of environment, health and the environment – health symbiosis is intimately concerned with the texture and machinery of politics, the bureaucracy, the agenda and interests of significant stakeholders, and their influence in all areas of social development. Usually the economic and “development” priorities override health and environment issues.

The environment-health connection is both perceived and expressed very poorly within the existing policy framework. Consequently, there is an astounding lack of effective coordination between ministries and departments. As a result, overall capacities, bound and gagged by red tape, inevitably stutter into a condition of paralysis. Completing routine daily tasks is a monumental endeavour; long term planning and the basic implementation of visionary schemes nothing less than an impossibility.

This draft National Health Policy of 2001, is a statement that determines the shape and style of public health programs and sectors. It recognises the role of cross-sector cooperation in previous health gains, and recognises the continuing problem of water-borne and lifestyle-related diseases. However, it fails to recognise the causes of these continuing problems; neither





does it enlist them as a future priority for the health sector. Environmental factors – as living conditions and components of the context for health – are considered as non-health determinants, covered by other social sectors. In fact, the **NHP** states that they fall *outside* the health domain and therefore health policy “will not explicitly address itself to the initiatives in these areas”. The only mention of “environment” is in the context of the rising accidents in cities!

In “Health for All – An Alternative Strategy”, a policy initiative developed in 1981, an alliance of the Indian Council of Social Science Research (ICSSR) and Indian Council of Medical Research (ICMR) recognised that health is a function of the overall integrated development of a society. They named environmental protection and improvement as important “health-supportive services” and described the necessary goals to be attained. These included safe drinking water, secure housing and settlements, and pollution control.

The current public health agenda is limited to addressing a narrow set of health problems, from a very **narrow conception** of health care. The parameters of health delivery for example are number of cases of illnesses and number of people to whom drugs distributed, rather than being numbers of vulnerable people, measures taken to prevent diseases outbreak and measures taken to prevent recurrence. In its present form, the agenda virtually ignores the environmental factors affecting health. Most health advocates agree that the narrowing of health concerns results in the fragmentation of essential services to badly afflicted populations.

There are three major departments in the Ministry of Health and Family Welfare: the department of Family Welfare, department of Health, and department of Indian Systems of Medicine and Homeopathy. None of their portfolios cover living conditions, environmental sanitation or water supply, though nutrition is a small part of the health department. The ministry’s annual reports show that, at least for the last 10 years, the two dominant issues have been population control and disease control (not prevention). **Analysis reveals that even these programs have not been wholly successful, and have been pursued at the expense of basic health infrastructure and needs-based programs.** The nature of family planning programs has been a serious impediment to women’s health in particular, but here we will focus on the problems with the government handling of disease control.

The epidemiology of malaria, HIV/AIDS and tuberculosis dominates the current health agenda, followed by cancer, leprosy and, to some extent, kala-azar in rural areas. Policy is administered through ‘vertical disease programs’, whose funding and management is usually centralised. The programs are 50 per cent funded by the central government and 50 per cent by states, except for HIV/AIDS, which, like family planning, is 100 percent funded center. Judging from the continuing prevalence of these diseases, the programmes do not meet their objectives. Some researchers attribute this to the narrow definition of disease burden, which makes disease programs a part of ‘clinical services’ instead of basic services. The emphasis on therapeutic and curative measures, instead of causes and prevention, also makes health programs dependent on equipment, technology and professional services. Add to this the fact that the bulk of clinical and therapeutic services, including pre-natal and natal care and sexually transmitted diseases STDs have been taken out of the public sector, and there is very little infrastructure remaining.



### Should inactive laws be repealed?

On November 17, 2000, C.P. Thakur, union health minister of India proposed the repeal of the long dead Vaccination Act, 1880. The Vaccination Act, 1880 pertains to small-pox vaccination. Small-pox was once a major killer throughout the world. A vast international campaign by the World Health Organisation between the year 1967 and 1979 led to the eradication of small-pox. On July 5, 1975, India was proclaimed to be no longer a small-pox endemic country and in April, 1977—India was declared small-pox free by International Commission for Assessment of Small-pox Eradication. On May 8, 1980 the World Health Organisation declared the global eradication of small-pox. All member States of the World Health Organisation had officially discontinued compulsory vaccination of small-pox with effect from 1982. The Commission on Review of Administrative Laws recommended that the act is no longer relevant and needs to be repealed.

The Vaccination Act could have been advanced for other areas like basic immunisation for cholera and vaccination of emerging diseases like Japanese encephalitis. In absence of any law on these grounds, services provide by public health centres cannot be made mandatory and therefore cannot be enforced under ordinary law. Another archaic law, the Epidemic Diseases Act, 1897 which aims to provide for the better prevention of the spread of dangerous epidemic diseases. It gives to state Governments power to take special measures and prescribe regulations for the prevention of dangerous epidemic diseases. However, public health or medical officers rarely enforce the act. Epidemic here is narrowly described as those of infectious and communicable in nature. Silent epidemics like pollution and contamination that kills and poisons living beings are not included under any act. Recently when the act was enacted in Haryana to prevent the cholera epidemic, the public health officers and the municipality did not have the enforcement authority to effectively move the sources of infections – the small street vendors and illegal eateries. In rural and semi-urban areas, grassroots workers, fearing a larger than expected epidemic, took voluntary leave from work.

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Health programs are, on the whole, not oriented toward prevention measures. Between 1974-5 and 1991-2, curative programs took between 55 and 85 per cent of the health budget, while preventive programs took between seven and 30 per cent. (Reddy, KN Selvaraju, V. "Health Care Expenditure by Government in India 1974/5-1990/1", 1994, p. 48). (Preventive programs include measures like the disease control, minimum needs food adulteration, drug control and maternal health). In this period the proportion of total health expenditure for water supply and sanitation increased by only 5 per cent, and nutrition by less than 5 per cent. Low expenditure on the *causes* of ill-health (i.e. deprivation of basic needs and poor environmental living conditions) can help explain why disease control programs have met with limited success. Diseases are generally not conceptualised in ways that facilitate their prevention, as evidenced by their categorisations (e.g. water-borne) and the arbitrary separation from social factors governing their prevalence (e.g. exposure to hazards due to housing conditions).

Clearly the public health agenda is not holistic enough to cover environmental and social dimensions of diseases. With their over-emphasis on non-communicable diseases and curative measures, control programmes have failed to control resurgence of epidemics or help combat air pollution issues. Often the complexity of institutions and laws makes disease control programmes difficult to implement and weakens incentives for compliance with regulations and



processes. In the absence of explicit or consistent policy objectives successful interventions and answers to India's chronic environmental health problems continue to forever recede over bureaucratic horizons. The investments in disease control programmes also show the priority attached to controlling it.

Throughout the developing world the poor and the marginalized live in degraded environments, with few options and opportunities to change their habitats to cleaner and safer ones. Nor do they have sufficient access to health or civic services. Without social or economic power, these communities endure continual discrimination in terms of public health policy. Neglected, forgotten, overlooked, erased, dismissed, cheated, exploited, systematically brutalised, the poor are quite simply not considered worthy of treatment; their lives have little value; they are looked upon by the privileged as inherently polluted, simply an extension of the polluted material space they occupy, hence disposable. Malaria, kala azar and host of other infectious diseases occur only in the poor and marginalized. The burden of communicable diseases like tuberculosis and leprosy is also more significant in the poorer section. They do not prevail because of lower access to health care services and facilities, but because environmental and local conditions ensure that such diseases persist. These inequities are disproportionately borne by the poor, and the nature of diseases that affect poor compared to rich groups. No single national policy can solve incredibly complex and far reaching problems of sustained poverty. But undeniably, public health issues are rooted in this common matrix, and have to be addressed along with issues of environmental degradation.

### **2.3 The Environment Policy**

Environmental laws were first enacted in the 1970s, and were not generally differentiated from the general body of law. For instance, when parliament enacted the Water Act of 1974, it adhered to the pattern of numerous other Indian statutes and created yet another agency-administered licensing system - this time to control effluent discharges into water. A breach of the act invited judge-imposed penalties. Most of the pre-1980 'environmental cases' were either actions or standard agency prosecutions under an environmental statute.

All this was transformed, in part, by the spate of fresh legislation passed after the Bhopal gas leak disaster of December 1984, when a toxic gas, methyl isocyanate leaked from the tanks from the Union Carbide factory and killed – and has since then affected many more. The new laws and rules are impressive in their range. They cover hitherto unregulated fields, such as noise, vehicular emissions, hazardous waste, hazardous microorganisms, the transportation of toxic chemicals, coastal development and environment impact assessment. The state of Maharashtra has introduced urban heritage regulations and an industry location policy designed to protect river basins after considerable instigation from citizens' rights organisations. Stringent penalties introduced into the older pollution control laws, specifically, the Water and Air Acts, have raised the cost of non-compliance. Through such measures, it was hoped that fines and closures would prove to be more expensive than to pollute. But as economic activity increased, fines were not revised to measure up to be effective deterrents. It therefore made economic sense to pollute and pay fines, than to take pollution controlling measures. With increasing economic activity, states also reduced environmental enforcement, so as to attract investments and made it apparent that industrialised states are "pollution havens" in India.



The judiciary, a passive spectator to drastic environmental ravages for more than two decades, has assumed a proactive role of public educator, policy maker (for instance, issuing directions prohibiting non-traditional aquaculture along the coast and court directions for the introduction of unleaded petrol in vehicles); and super-administrator (relocation of polluting industries from Delhi to Haryana and directions regarding abatement of pollution to industries, tanneries and distilleries dumping waste in the 'sacred' river. The flurry of legislation, corrupt and slipshod enforcement and judicial oversight combined to create a unique control dichotomy: one limb represented by the hamstrung and notoriously inefficient formal regulatory machinery comprising pollution control boards, forest bureaucracies and state agencies; the other consisting of a non-formal, *ad hoc* citizen and court-driven mechanism. India's judiciary has largely responded only to the complaints of its citizens against environmental degradation and administrative sloth.

The Environment Protection Act (1986) is the umbrella act of all environmental legislation. It was brought to prominence after the Bhopal gas tragedy as legal redress to people affected by environmental problems. The Environment Protection Act focuses on the populations' general treatment of the environment in India, whereas the National Conservation Strategy and Policy Statement on Environment and Development (NCSPSED), a policy proposed in 1992 following the Rio Summit, tries to describe how the environment should be considered in the context of growth-oriented policies and programmes. This policy is not obliged to address the health aspects of ecological changes or the environmental conditions that contribute to health problems, though the provisions of the Environment Protection Act are legally binding on the established regulatory agencies and other stakeholders. Within the Environment Protection Act, the Environment Policy Statement discusses the development of a "national environmental security system" to ensure food and ecological security and improve the overall quality of life. However, it fails to define the central concepts of 'environmental security' and 'environmental health'. The statement recognises that human-induced degradation of the environment is causing "pollution and unsanitary conditions" (especially in urban areas), but fails to explicitly identify these as central issues that the policy must focus on.

The NCSPSED focuses on 'population control' and 'conservation of natural resources', in the face of development challenges, as the two central features of ecological sustainability. It conceptualises the environment as an entity needing protection from humans, thereby excluding the human component, or viewing it as separate from the environment it occupies. This schizoid approach is fundamentally flawed for it allows decisions regarding the environment to be taken without considering, or taken independently of, people. Equally, it allows decisions regarding populations to be taken without considering, or taken independently of, the environment. The emphasis is on preservation rather than sustainable use and co-operative management.

In any case the strategy lacks a visionary statement; it is simply a list of ideas for action. It does not refer to the original Environment Policy Statement at all. The statement also fails to acknowledge the diversity of ways humans come into contact with the environment, (from subsistence farming to exposure to hazardous waste, and so fails to address the range of risks and issues involved in environmental management. This could be attributed to the problem of importing the concept of 'environmental protection' in international treaties, instead of modifying it to suit the Indian context.



Lastly, the statement is problematic for environmental health because it says that, above all, economic development cannot be limited by environmental concerns. There is a mild caution to “reduce pressures” on the environment, but otherwise the policy fails to acknowledge how social, environmental *and* economic factors alike determine the impact of ‘development’ for the communities concerned. The National Conservation Strategy and Policy Statement on Environment and Development, 1992, Gol, states, “*We are faced with the need for accelerating the pace of development for alleviation of poverty which is, to a great extent, responsible for many of our environmental problems*”. This paradoxical assertion ingests and assimilates all possible answers to the question of who is to be blamed for environmental degradation, who will take responsibility, who will be held accountable. We have a choice of three abstractions: the government, development and poverty.

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### **Box: Constitutional contempt?**

From an environmental standpoint, the allocation of legislative authority is an important one: some environmental problems such as sanitation and waste disposal are tackled best at the local level. Others, like water pollution and wildlife protection, are better regulated by uniform national law.

The Constituent Assembly that framed India’s constitution did not specifically consider the question of whether the parliament or the state legislatures should regulate environmental matters. Instead, the distribution of environmental subjects within the three lists (central, state and concurrent) was influenced by the Government of India Act 1935 and by the conflict of between those who wished to create a strong centre and others who preferred to secure more powers to the states. Understandably, there was a tussle for control of natural resources such as forests and fisheries, which were more important subjects.

In July 1949, the drafting committee of the Constituent Assembly convened a meeting of the premiers of the Indian states and provinces. A proposal, jointly sponsored by the ministries of health and home affairs, aimed at removing ‘Public Health and sanitation’ from the state list and placing it with ‘vital statistics including registration and births’ in the Concurrent List. It was argued that central legislation would be necessary to prevent the spread of diseases from one province to another. Unconvinced, the premiers of the United Provinces, Assam, Bombay and Bihar successfully resisted the move. Health, sanitation and other important aspects of disease management therefore remain in the domain of the state lists, since that piece of legislation was not contested further.

Article 47 of the Directive Principles of State Policy states that it is the “duty of the State to raise the level of nutrition and the standard of living and to improve public health. The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and, in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs, which are injurious to health.”

(adapted from Shyam Divan and Armin Rosencranz (2001) Environmental Law and Policy in India- Cases, Materials and Statutes, Second Edition, Oxford University Press, New Delhi)

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### **Nature of environment regulation**



Environmental protection largely wrests with the ministry of environment and forests. Pollution specifically is regulated by the Central Pollution Control Board and its state arms (CPCB/SPCB). As a system, the regulators and enforcement agencies have little effectiveness and the law works badly, when it works at all. Laws are adopted quickly with regard to regulating most aspects of industrial and development activity, but legislators are reluctant to sanction enforcement budgets or effective strategies implementation. Agencies are invested with vast powers regulate industry and other polluters but are reluctant to use this power to discipline violators. (examples of this reluctance – analyse why, the key reasons, root causes, behind the lack of enforcement – is it corruption?)

Equally significant, CPCB / SPCB laws have ushered government's effort to supplement the old, well-entrenched licensing regime, based on reciprocity and mutuality, with an array of new, more transparent regulatory techniques. Public hearings under the Environment Impact Assessment Regulations of 1994 provide a forum to non-governmental organisations to voice their concerns to project proponents. *Citizens' initiative* provisions, together with a statutory 'right to information', now enable an aggrieved citizen to directly prosecute a polluter after examining government records and data. The *Technology-forcing deadlines*, issued under the central Motor Vehicles Rules of 1989, compel the manufacturers of petrol and diesel vehicles to upgrade their technologies (perhaps even re-tool their plants) to meet prescribed emission standards by a particular date. Mandatory **workers' participation** in plant safety and stringent **penalties on high-level management** for the breach of factory safety regulations are expected to reduce industrial accidents. The occupational health of workers is also appalling, almost defying description. Few studies are done with respect to these, though workers are supposed to be covered under the employer's insurance schemes.

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#### **Box: Is the Worker really covered?**

The Employee State Insurance Scheme (ESIS) was established in 1948 as an insurance system providing both cash and medical benefits to industrial workers in organised sector. ESIS functions as a form of compulsory health insurance where employers in the factory sector are legally bound to provide health coverage to employees earning below Rs. 6000/- per month (the limit was changed from Rs. 3500/- to Rs. 6000/- from January 1997). The main purpose of ESIS is to protect industrial workers from occupational risks, sickness, gynaecological problems etc. by providing them with comprehensive coverage on a contributory basis. Preventive services include immunisation of the paediatric population, maternal and child health and family welfare services. Promotive services include health education and health check-up camps. Curative services include dispensary care, hospital care, maternity care, supportive services including diagnosis, drugs, dressings, surgical procedures, dental care, and prosthetic and other appliances. Rehabilitative services include physical rehabilitation, economical rehabilitation, and provision of artificial aids as well as social and psychological rehabilitation. This scheme is managed by the Employees State Insurance Corporation (ESIC), a government enterprise.

ESIS provides medical and cash benefits through well-established hospitals and medical staff. As on March 31, 1999, there were 125 ESI hospitals with 23,470 beds, 1,440 dispensaries and 9,212 medical officers/practitioners. The number of factories and establishments covered under the scheme was 190,944 units in 629 centres, covering 66,13,400 employees. Medical care covers outpatient treatment, specialist consultation and hospitalisation for the insured person



and his family members. The medical care is provided by the scheme through its own network or through arrangements with reputed government or private institutions.

The basic problem vis-à-vis ESIS units is that they work like normal hospitals, rarely taking social and environmental factors into account during diagnosis. Symptoms rather than causes are addressed and curative rather than preventive measures are taken. This promotes recurrence of diseases. No research is conducted in these hospitals and centres. Hospital records are seldom used for epidemiological surveillance or environmental advocacy projects.

Occupational health too experiences the same schizoid approach as the NCSPSED, with regard to regulatory mechanisms. Factory inspectorates are responsible for enforcing health standards in factories while the pollution control boards are designated to assess pollution levels in and around factories and industries. Once again, environment and its human component are perceived and treated as separable and independent of each other, instead of being acknowledged as profoundly symbiotic.

**Source: Basic reference material on ESIS from Health Insurance in India - Report of the One-day Workshop, Organised on 30<sup>th</sup> October 1999 at Indian Institute of Management, Ahmedabad (Format as grey box below main text)**

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#### **2.4 The policy for occupational health**

In September 2001, the Planning Commission tabled its reports on occupational health and safety (OHS) regulation in India. It points that safety and health statutes for regulating OHS of labour exists only in mining, factories, ports, and construction and that too in the organised sector. It finds that the number of accidents in mines and industries have decreased considerably. However, these rates are much higher when compared to those of developed countries.

The report reveals the paradox that medical inspectors, certifying surgeons and factories inspectors are least (or absent) in the most industrialised states, and the percentage of industries inspected is highest in states that have the least industries. What is even more shocking is the extremely poor record of reporting occupational diseases. According to the planning commission document, of the 1963 occupational diseases identified in 1998, 1888 were from Orissa (about 96 percent), and only Gujarat (52) and West Bengal (23) have reported other cases.

The Working group was constituted to The report was written with objective to review the existing set up for occupational safety and health in the work place and assess weaknesses of the existing set up and suggest ways to improve it.

The working group after considering the reports submitted by the three sub-groups finalised its report made three broad recommendations. These were: that a National Policy on Occupational Safety and Health of workers employed in all sectors of the economy to be prepared; a umbrella legislation on Occupational Safety and Health be made to cover all laws and policies which currently work in a fragmented manner, resulting in duplication in some areas and gaps in others; and that a apex body at the national level be constituted to deal with matters connected to safety and health of workers employed in all sectors of the economy.



All in all, the report has made little impact since its release. The committees and sub-groups focussed on areas (mining, industry and port and the unorganised sector). What the report fails to do is to identify mechanisms of enforcements using existing legislation and arming inspectors with innovative means to fine and take punitive action against erring industries. By suggesting another umbrella law, the Planning commission has prompted greater legal complications and not attempted to prevent the high prevalence of rent-seeking in the corrupt factories inspectorates and other enforcers. The report on whole will maintain a status quo and occupational health will remain a non- issue in public health domain.

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**Box: Legislations relating to occupational safety and health in India**

13 acts and rules that protect the worker are:

The Factories Act, 1948 and the State Rules, The Dock Workers (Safety, Health & Welfare) Act, 1986 and the Regulations, The Mines Act, 1952 and the Rules, The Plantation Labour Act, 1951, The Shop & Establishments Act, The Explosives Act, 1884 and the Rules, The Petroleum Act, 1934 and the Rules, The Insecticides Act, 1968 and the Rules, The Indian Electricity Act, 1910 and the Indian Electricity Rules, 1956, The Indian Boilers Act, 1923 and the Indian Boilers Regulations, The Dangerous Machines (Regulation) Act, 1983, The Environment (Protection) Act, 1986 and the Manufacture, Storage & Import, of Hazardous Chemicals Rules, 1989 and other Rules, The Indian Atomic Energy Act, 1962 and the Factories Rules .

Working Group Sr.No. 47/2001, Report of the Working Group on Occupational Safety and Health for the Tenth Five Year Plan (2002-2007), Government of India, Planning Commission, September 2001, available at : [www](http://www).

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**2.5 The policy for hazardous substances**

Although hazardous waste management laws (HWML) have been in existence for almost 15 years, it is still difficult to define long-term policy goals and objectives and to assess their efficiency and effectiveness. The Central Pollution Control Board and its state arms have failed in effectively taking punitive action against polluters and collecting cess. One consequence of the unusual evolution of HWML is that the rules and policies for managing wastes defined as hazardous by various pieces of legislation are unusually prescriptive, detailed, and complex that are seldom updated. For example, since the formation of the Environment Protection Agency (EPA) in the USA, almost seven to 15 new hazardous chemicals have been added to its quarterly list. In contrast, the CPCB has updated its list only once. The chairperson of the Uttar Pradesh State Control Board (UPSCB) claims that not only are the laws under the Hazardous Waste (management and handling) Rules 1989 not understood by the industry, they are also not understood by his enforcement personnel. (Kushal Pal Singh Yadav, A system in shambles, DTE July 31 2001 pg 42).

Fifteen states do not have operationalised protocols or sites for disposal of hazardous wastes proves how miserably the policy has failed. Says Madhumita Dutta, an activist with Toxics Link, an anti-toxics campaign group based in New Delhi, "Technically too, the CPCB and its agencies have adopted models and standards from elsewhere. For example, to adopt technical standards for thickness of landfill liner, USEPA protocols were considered, followed by EU





standards and finally German standards were pushed. These rules had not dealt with the complexity of issues like local ecology, or compliance in other regulatory areas.” Such oversight and omission of detail is not unusual in regulatory policy, but in India the lack of clarity and coherence is exceptional. The system seems to be influenced less by fundamental policy concerns than by mistrust, transitory events, media, politics, and the desire by some to preserve an obscure regulatory language and remain even more adamant in its implementation, regardless of contextual, ecological and social change.

## 2.6 The polluters pay principle, does it apply?

"Old" refers to waste generated in the past and now stored at a variety of sites or have deposited themselves in sediments of lakes and rivers. Worse still, such pollutants have permanently contaminated groundwater as in the case of the fertiliser company in Bicchri, Rajasthan or in industrial areas in Gujarat (Vatva, Vapi, Ankleshwar etc., Maharashtra (Lote Parshuram), Andhra Pradesh (Patancheru), UP (industrial belt along the Ganga and other rivers), among others. Remediation of the effects of old waste is largely a matter of applying technically effective remedies at appropriate times during the cleanup process, and doing so in ways that are responsive to the concerns of affected communities. There are programmes to clean up or compensate communities affected by old waste. In contrast, "new" waste is waste whose generation is occurring today or could occur in the future. The fate of many of these is not even known to us. Many whose fate is known have impossibly long wait before they can enter the hazardous waste list. Managing new waste involves a broader set of technological choices than managing old waste. It could ultimately entail reengineering and adapting industrial processes and consumption decisions to better balance economic and environmental costs and benefits. The design of policies for new waste is eventually tied to how highly we prioritise concepts of sustainability and industrial ecology.

Present policies do not distinguish between old and new waste. The two are often linked for a variety of reasons, some purposeful and some not. Some links may have unintended side effects, and some may have outlived their usefulness. Standards and handling requirements for new waste, which are partially intended to raise the cost of new waste generation, are applied to remediation projects, making them more expensive. USEPA developed a Superfund, a national programme to clean up old waste, and used it as a consciousness-raising tool to compel industry to recall the potential liabilities of new waste generation. In contrast, the MoEF and CPCB developed individual incentives and subsidies based on assistance of the World Bank and other lending agencies, and did not develop their own capacities. As a regulator and enforcement agency, the CPCB can raise its own resources through fines and collections. One study estimates that even an effective pollution control board in industrialised state like Maharashtra forsakes about 70 – 120 crore rupees a year, while in weakly regulated industrial states like Gujarat the collections can be as high as 90 – 160 crores per year if effectively collected (Lal and Jha 1998).

So how can communities approach the courts and seek compensations? How do state government assure liability costs that spill over to the public or assure people on the safety of industries that grow around their fields and villages? The public health system and the ministry have no clue on how to address the fallout of such issues – it does not even have a comprehensive programme to assist the Bhopal victims, and many others like those in Bicchri with special medical needs. Health surveillance and epidemiology does not cover



environmental spillovers, specially chemicals. Current policy protects the environment by hitting hard in both right and wrong places. It hits hard for investors who are unjustly burdened by corrupt regulators and who have to watch the real perpetrators go unpunished. It hits at wrong places when it gives mixed signals to investors in a changing regulatory climate. Many states bargain at the cost of environment, by easing implementation or lowering their standards to attract investment. Such bargaining between states only increases future cleanup costs.

The casual attitude to emergency response and the absence of "the polluter pays" principle means that the current framework is not sufficiently broad to consider the implementation of issues that are beginning to dominate the effectiveness of the hazardous waste system. Information systems, priority-setting mechanisms, strategies for technology development, and managerial methods must be developed for solving problems in science, technology, engineering, and risk assessment, under conditions of limited financial resources. **This must be done in a context where the state and central government's growing role as responsible party (as opposed to regulator) for hazardous waste should dramatically change the view of public and private responsibilities.**

Another feature of the new legislation is the vesting of enormous administrative power in the enforcement agencies. For example, a pollution control board may direct a polluter to shut down an offending factory or order the withdrawal of its power supply. Previously, the board had to approach a magistrate to enjoin the polluter. This shift away from judicial to administrative enforcement of environmental laws was intended to improve compliance. Earlier, few agencies had the financial and legal resources to speedily launch prosecutions and battle the cases through multiple appeals. With the change in the enforcement strategy, however, the burden of initiating a court action now rests on an aggrieved polluter, who must challenge the agency's order in court. Consequently, from a lawyer's standpoint, the agency merely has the task of defending its administrative order.

The new legislation has spawned new enforcement agencies and strengthened the older ones. Some of these agencies perform specialised tasks. Consider the authorities constituted under the Environment Impact Assessment (EIA) Regulations of 1994. The Union Ministry of Environment and Forests is responsible for evaluating EIA reports submitted by project proponents. Health, though is important component for EIA, has seldom been incorporated in EIA reports. (see box).

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### **Box: Health Impact Assessment**

Less than 5 per cent of government budget is spent on health, and only 0.6 per cent on environment protection. The combined amount is to be used to repair damage cause by major industries, which continue to pollute arbitrarily and heedlessly, regardless of legislation, litigation, regulation, protocols, controls and penalties. Development spending in the other sectors, representing 95 per cent of the budget, has a major impact on health. This expenditure affects physical, social and economic environment and creates many of the shocking inequities in the public health system.



Environment impact assessments are more commonly conducted by regulatory agencies than health impact assessments, standard procedures required by law, in the West. Both assessments are crucially interdependent.

They enable the design, implementation and operation of particular interventions that (ideally) maximise positive health impacts and minimise negative ones. Health impact assessment seeks to determine the change in health risk that may be reasonably attributed to an intervention, and to use this information to prevent health-threatening developments. Its most important application has been to large infrastructure projects like dams and in the siting options of industries.

Health impact assessments (HIA) have rarely been used in India. Bureaucrats believe that there is no need for separate exercise because health risks and health data covered in the EIA format of the Ministry (Environmental Impact Assessment Regulations, notification no. SO 60 E, dt. 27 Jan.1994, schedule II) covers the important aspects. The EIA format of the MoEF cursorily mentions three points that can measure changes caused by the project: endemic health problems in the area due to waste water, air, soil borne diseases; health care systems existing and proposed (point 9 of schedule II); and a risk assessment report, which may or may not deal with future impact on human health (point 9 of schedule II).

The idea of EIAs was borrowed from Europe and the US, in 1994 when the Environment (Protection) Rules were being drafted. The Treaty of Maastricht obliges European member states to consider the health implications of their policies (Article 129, 1993). In India, this obligation has not yet been fully implemented, with regard either to internal or external policies. There is little or no recognition of the fact that lending and aid to third countries can have major health-related impacts.

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### **Box: Absence of the precautionary principle**

The precautionary principle has provoked a lively debate among environmentalists worldwide, but has not been foregrounded in India. Though essentially a component that accompanies the environment impact assessments of projects, its application has been extended to individual chemicals and products that reach individual consumers. It is equally relevant to public health as in the case of environment, and shares much with primary prevention. Its central components are: (1) taking preventive action in the face of uncertainty; (2) shifting the burden of proof to the proponents of an activity; (3) exploring a wide range of alternatives to possibly harmful actions; and (4) increasing public participation in decision making.

Precaution is extremely relevant to all dimensions of public health, because it can help to prevent unintended consequences of well-intentioned development interventions by ensuring a more thorough assessment of the problems and proposed solutions. It can also be a positive force that calls for the development and adoption of safer technology, encourages greater democracy and openness, and stimulates debate of the means, methods and desired results of the assumptions made in science.

Too frequently, policymakers ask the question "How much risk does this activity pose, and is it significant?" or "What level of risk is acceptable?" These questions, deeply ingrained in the regulatory approaches of many government agencies, tend to focus on quantifying potential



hazards rather than preventing pollution. They often provoke a sharp debate about whether the risk has been characterised accurately. When public health advocates and environmentalists enter into this debate, they may inadvertently be ceding the most powerful position, that of questioning whether the hazardous substance or intervention is needed at all.

A different, and potentially more precautionary, way to think about uncertain risks is to begin from a different set of questions. Is the proposed activity needed, and if so, how much contamination can be avoided while still achieving societal goals? Moreover, are there alternatives to this activity that clearly avoid hazards?

In the United States and certain states of the European Union, the precautionary principle is actively promoted by environmental and public health agencies. To these groups, US environmental policy in general often seems to be more reactionary than precautionary, requiring a high degree of certainty of harm before preventive action is taken; it emphasises management of risks rather than prevention. The precautionary principle is viewed as an opportunity to shift the terms of environmental debates by calling for preventive action even when there is uncertainty (both with credible evidence of potentially significant impacts), by shifting the burden of monitoring and hazard assessment onto those who propose potentially hazardous policies and by emphasizing alternatives and democracy. Civil society too is pressurising adoption of this principle. The American Public Health Association recently passed a resolution reaffirming its support of the principle and urging its application in the protection of children's health from environmental hazards.

Health impact assessments provide a means to detect the negative health implications of non-health-related governmental policies. The precautionary principle requires government authorities to anticipate, prevent and attack the causes of environmental pollution. This principle also imposes the burden of proof on the developer or industry to demonstrate that their actions will be environmentally benign.

Two recent developments provide good examples. In August 2001, the decision to ban the use of certain phthalate plasticizers in toys was taken by the Danish Environment Agency. This action was justified with the following reasoning: there is of toxicity to children and animals; children are particularly susceptible to many toxic substances; alternative materials exist; and the product serves no necessary function. The agency concluded that the plasticizers should not be used in toys. The US Consumer Product Safety Commission reached a similar decision, but only after a costly, time-consuming quantitative risk assessment. The commission concluded that given uncertainties in the size of the risk, manufacturers should voluntarily remove these substances from toys. The final outcomes were the same, but the decision-making approach and the costs to the public were quite different in the two countries.

With regard to hazardous substances, goals could include reducing exposures to such substances, reducing production of hazards (e.g., phasing out the most hazardous chemicals), and reducing the incidence of environmentally related diseases. Another suggested goal is to reduce the overall exposure of broad classes of potentially toxic substances by 5 per cent to 10 per cent per year. Such an effort is likely to have a positive health impact, even though it may never be possible to understand all of the ways in which mixtures of low concentrations of chemicals may affect health.

An example of the same principle but different parameters of application and different outcomes is in the methodology designed to control diarrhoea in the developing world. Diarrhoeal



infectious diseases caused by human consumption of sewage-contaminated surface waters have long been a major public health problem in Bangladesh and the adjacent West Bengal area of India. Tapping into sterile subsurface water supplies would seem to be an obvious solution to this problem. The use of relatively low-technology approaches to drill local tube wells has been advocated by many international agencies, including UNICEF.

Encouragement and assistance by these agencies and local health authorities have led to the drilling of a few million wells, of which perhaps as many as two million are contaminated with arsenic levels above drinking water standards. Arsenic toxicity is now evident in large numbers of individuals in these villages. In a study of 11180 randomly selected individuals from affected areas in Bangladesh and 29035 from affected areas in West Bengal, Chowdhury et al. reported the incidence of arsenic-induced skin lesions as 24 per cent and 15 per cent, respectively. They also found arsenical neuropathy in 37 per cent of 413 arsenicosis patients. Significant increases are anticipated in the incidence of cancer of the skin and internal organs, and in diabetes and vascular disease, now that the latency period for these disorders is approaching.

How could the rationale of improving public health lead to the health of 100 million people being put at risk for arsenic toxicity, including cancer? Arsenic contamination of well water with significant resultant toxicity was not unknown and in fact had been earlier reported, primarily in Asia. Although testing for arsenic is not part of routine practice, high levels of arsenic in water could readily have been detected more than a decade before there were overt and unmistakable signs of arsenic toxicity in the population. The precautionary principle can be defined in terms of not undertaking activities about whose impact there is scientific uncertainty. With a minimum of precaution, arsenic toxicity in Bangladesh and West Bengal could have been averted, or at least minimized.

Environmental scientists study highly complex, poorly understood systems, in which casual links between exposures and disease are difficult to quantify. In this uncertain terrain, what are the appropriate standards of evidence for science to inform public health policy? The answer has to come from the context of the question. Often, scientific research focuses on narrowly defined, quantifiable aspects of a problem while the reality is more complex, requiring systems-level thinking and interdisciplinary research methods.

**(adapted from Precautionary Principles in Public Health by - in APHA (cite and format source fully)**

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Despite legal initiatives, India's urban and rural environment continues to undergo relentless degradation. The root cause of this problem is slack enforcement, aggravated by a low budget. Depriving the enforcement agencies of funds has meant inadequate technical staff and supporting infrastructure for monitoring and control. A 2000 Planning Commission report pointed out the high level of inefficiency, corruption and incompetence in the understaffed and unqualified pollution control boards (PCBs). Even so-called "progressive" states do not ensure that pollution and polluters are checked. For example Andhra Pradesh PCB has just one technical person to monitor every hundred polluting units. In Gujarat, less than 30 per cent of the water polluting units comply to standards. In poorer states the situation is worse: in fifty per cent of the water polluting units that have effluent treatment plants do not comply to standards.



Less than 15 per cent of the highly polluting units in Rajasthan have been identified and interrogated by the SPCB.

The Supreme Court too ironically laments that “ If the mere enactment of laws relating to the protection of environment was to ensure a clean and pollution- free environment, then India would, perhaps, be the least polluted country in the world. But, this is not so. There are said to be over 200 central and state statutes, which have at least some concern with environmental protection, either directly or indirectly. The plethora of such enactments has, however not resulted in preventing environmental degradation on the contrary, this has increased over the years.

Although courts are ill-equipped to take over enforcement functions, the dismal performance of government agencies has compelled the higher judiciary to secure compliance through public interest litigations. Leading by example, the Supreme Court has persuaded the high courts of several states to set apart a greater share of judicial resources to environmental cases and the high courts at Mumbai, Kolkata, Chennai and Gujarat have a designated 'green bench'. The Supreme Court often assumes the roles of an administrator, marshalling resources, cracking down on polluters and slack governments, imposing the implementation of environmental norms and cutting down bureaucratic red tape. As a result of this drive, hundreds of factories have installed effluent treatment plants and there is a heightened environmental awareness among administrators, the subordinate judiciary, police and municipal officials, all of whom are involved in implementing the court's orders. More generally, the Supreme Court has succeeded in building up a sustained pressure on polluters, where the pollution control boards had failed.

This new pattern of court-driven implementation is warily supported by a broad political consensus. When it comes to challenging influential industries, job-creating ventures and municipalities, bureaucrats are eager to let the courts intervene. So far, few politically sensitive and economically important development projects have been delayed due to environment-related judicial intervention. For the most part, the major political parties appear reconciled to the expanded environmental jurisdiction. One of the most encouraging trends during the past decade is the growing numbers of concerned individuals, citizen groups and non-governmental organisations exerting pressure on state agencies through the courts. But it must be recognised that within the context of incremental and reluctant awareness, court-administered implementation can at best supplement, not replace, the formal agency-dependent enforcement mechanism in improving regulation and successfully penalising violators.

## **2.7 Environmental law and public health**

Environmental regulation is largely enacted and enforced with human well being and public health as its focus. Although economic and political interests often over-ride weak environmental laws, there are cases of public health triumphing, in the absence of legal precedents.

For instance, individuals have filed suit over unsanitary conditions that foster diseases. The Ratlam Municipal Corporation was taken to court for not preventing the effluent flow from a distillery. The courts ordered the municipality to take action and also instructed the malaria eradication wing to deal with the mosquitoes breeding in the stagnant run-off. In a similar case in the small town of Mandal in Bhilwara, Rajasthan, a private citizen took local medical and



health officers to court for not draining the water collecting in a particular site, which had become a breeding ground for mosquitoes. The court directed the municipality to remove the water within three months.

Often courts do not require hard evidence to convince them of the obvious. In Vellore, Tamil Nadu, a carbon soot-emitting factory was asked to cease operations when a church sued them for dangerously high emissions, even when “scientific” facts were not available. In another case, a medical practitioner got a restraining order against a brick- grinding machine unit that was polluting his clinic. In both cases, the court decided that health costs outweighed the costs of production losses, relocation and job losses. Similarly in the Ganga pollution case, the courts accepted the fact that the consistently appalling pollution is negatively affecting those who live and work around the river.

Often courts appoint expert committees to confirm the scientific basis of claims. In 1988, soon after the Chernobyl incident in the Soviet Union, a large consignment of Irish butter for public consumption arrived in India. There were concerns about how safe this butter would be, especially after news of the wide-scale impact of the radiation disaster was reported from the rest of Europe. A case was filed in the Bombay High court, and after going through extensive tests the butter was found safe and was released for distribution. Similarly, soon after the Bhopal gas tragedy concerns were expressed over large chemical plants situated in various cities. Shriram Fertiliser’s oleum plant in New Delhi was identified as one such threat. As the court proceedings were initiated, a gas leak incident took place, ensuring that the plant was shut down. This case led to the introduction of the absolute liability clause based on “the polluter pays” principle – a liability in which the polluter (or any offender) is liable to compensate the community and remedy the ills caused.

However, not every decision favours the improvement of environmental conditions. Often poor enforcement, judicial delays, legal incompetence, poor investigation and followup means that the polluters are not prosecuted for their violations. In the Modi Distillery and Mohan Meakin case, the Uttar Pradesh PCB bungled on both legal grounds and poor follow up, letting these two huge polluters continue to contaminate local rivers, causing irreparable damage to public health. Often polluters seek asylum through other legal loopholes. A classic case of this was the 1992 Trans Asia Carpet Ltd. Case. The company apparently applied for classification as a “sick” unit to the Board of Industrial and Financial Reconstruction. The company in the meanwhile released untreated effluent in the river Karve. When the Uttar Pradesh PCB tried to prosecute the company, it claimed immunity under its sick status. The Allahabad high court responded by fining the company under the Water Act, denying the company such protection.

Compensations however are tricky legal territory. Extravagant fines and various other payments have complex results. Often, judgements appear random and illogical. In 1905, an aggrieved party in the Manicktollah Municipality of Calcutta challenged the owner of a foul-smelling and polluting shellac factory. In the absence of any environmental laws, the court ruled in the favour of the plaintiff and asked the defendant to pay a fine of Rs.1000, a large amount at that time. In cases involving catastrophic levels of pollution, like Bichri or Bhopal, victims have been insufficiently compensated. In a similar case, large scale pollution by industrial units in a irrigation canal resulted in contaminating 8000 hectares in Kheda district in Gujarat. The affected villages were offered one percent of the gross turnover of the industries. But who determined the mechanism of the 1 percent levy? Was it a fee, a tax, a penalty, a charge or a compensation by the way of damages? Many industrial perpetrators prefer to pay a fine, rather



than undergo harsher penalties of relocation, closure, or payment of actual damages to the affected population.

By their very nature, environmental laws are meant to be consistent and enduring. Unfortunately, administrative rules, ordinances and policy guidelines are continually distorted and fragmented. Judicial precedence too depends on subjective factors, like the influence and mentality of inspectors, pollution control boards and law enforcement units.

Environmental laws are enforced by weak officers overseen by rigid, corrupt bureaucrats linked with venal, amoral and voracious politicians. Whatever little action is taken often bears no fruit as the rules that have little scientific merit. Pollution control boards have little experience to defend cases in the uncertain legal environment and have little legal competence of their own.

Corruption however does not remain in the domain where laws are un-enforced. Health programmes with poor monitoring mechanisms are good examples of how dependence of dangerous technology coupled with corrupt bureaucrats and grassroots workers can create a monster out of a fly. What is more alarming is that other infectious diseases have been either been made part of this corrupt system or their programmes have been modelled on the malaria strategy (see box : Corruption and malaria).

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### **Box: Corruption and malaria**

The Public Accounts Committee of 1985, a Lok Sabha constituted investigative panel, criticized the performance of the malaria programmes in states. Did these events aid in establishing malaria in India?

- The National Malaria Eradication Programme (NMEP) which was a 100 per cent central assistance in 1969-79, suffered when converted to centre:state cost-sharing on 50:50 basis
- Large sums of money were due from states from 1974 – 1985
- Shortfall in spraying to the extent of 91-98 per cent during 1977-80 despite adequate insecticide supply and carry-over stocks
- Excess consumption of anti-malarial drugs valued at Rs. 111.55 lakhs during 1976-80 by some states and faulty accounting system
- Use of sub-standard insecticides and lack of facilities to test-check their quality. CAG audit reported many cases of sub-standard insecticide use valued at Rs 53 lakhs
- Excessive or deficient use of pesticides. Especially the excessive use of DDT and other pesticides in agriculture and its impact on public health
- Criticises lack of people's participation. Ministry of Health responds by saying that sufficient efforts were being made to involve people in malaria programmes

The recommendations from this report made little difference in the ministry of health and family welfare and even less in the NMEP. For every objection, the ministry and NMEP produced an alibi and pre-empted the objections by stating new committees and new monitoring systems were being put in place. Pesticide testing laboratories that test for fake pesticide have since done little research and even little action is taken. ICMR has not come up with a policy statement or guidelines on the use of DDT and other pesticides in the public health domain. Though application of DDT in farm crop got banned, other pesticides like malathion and dieldrin are openly used both in agricultural areas and for public health purposes, while DDT is still used





in the public health programmes. States still are reluctant to put in their half in malaria control programmes, there is a proposal of reversing the 50:50 contribution to a 100 per cent center sponsored programme – again!.

*Source: The 19<sup>th</sup> Report of the Public Accounts Committee on action taken by the Government on the Committee's recommendations contained in their 161<sup>st</sup> Report (7<sup>th</sup> Lok Sabha) on the National Malaria Eradication Programme (NMEP), Ministry of Health and Family Welfare, Presented in the 8<sup>th</sup> Lok Sabha on 4 December 1985.*

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## 2.8 Linking environment and health

Clearly there is an urgent need for a policy founded on a broad, holistic view and a body to ensure that environment and health remain socially and legislatively connected. Equally, there is an urgent need to create an autonomous agency that, independent of any ministry, could work towards specifically coordinating health and environment projects in different sectors such as transport, agriculture, industrial development and energy production. In May 2000, the government of India made an unconvincing attempt to create such a body. (See BOX: The environment health committee report).

The biggest and perhaps most critical gap in existing policies is their inability to link environment and health problems. To successfully address environmental health, government policies must address the *context* that determines public health. This includes the living and working environment (sanitation, water quality and supply, fresh air, housing conditions), the physical environment (soil, air, water, land conditions) and the social environment (social conditions, levels of equality, cultural norms and values). Unless these factors are taken into consideration together, and their links sustained, no programme, however well intentioned, can even penetrate the error, neglect, omission, corruption, futility and absurdity that comprise the matrix of public health policy.

Two other critical weaknesses in the policy framework affecting health and environment are lack of integration, and under-emphasis on participation. Policies that are holistic, especially for health issues, must incorporate many disciplines (philosophical, cultural, historical, scientific) and many aspects (preventive, curative, therapeutic). They incorporate provisions for collective responsibility - family, community, state, central -and for cross-sector collaboration. In short, policy should illustrate a comprehensive *vision* as part of the larger national vision of societal development, and outline methods and strategies whereby the vision can be actualised.

An example of what India lacks in terms of such holistic vision, is the number of 'vertical disease programs' implemented by MoHFW reflect a drastic lack of integration in departmental policies. The under-emphasis on community participation is a manifestation of the bureaucratic mentality that wants to retain power and control by preventing the free flow of information, specially on important policy developments. Inflexible, top-heavy policies are imposed on the population without taking any community opinion into account. External influences and elite community voices will subvert local needs for their own particular interests. Non-participatory policies also tend to create dependency, instead of encouraging autonomy and innovation.

Some factors that influence environment and health issues are:



- Under emphasis on participation and consultation with local communities, which impinges on accountability;
- Lack of institutional mechanisms to support cooperation between sectors and collaboration between ministries. The absence of a body to coordinate environment and health issues in policy contributes to this problem
- Limited research capacities, database and information-gathering systems, and a tendency to rely on Western scientific knowledge systems. Lack of programmes linking health data to social data
- Lack of mechanisms for program monitoring and evaluation or policy feedback
- Prevalence of top-heavy or 'vertical' programs, which allocate resources to administration instead of local capacity-building and devolution
- Weakness in mechanisms for enforcement and compliance, in turn reducing the incentives for advancing policy goals
- Lack of provisions to assist authorities in the administration of laws, to avoid excessive use of discretionary powers. Pollution boards especially require these kinds of provisions

Even the Ministry of Water Resources, responsible for the most important asset to environment and health, fails to connect the two sectors as the basis for policy. The National Water Policy drafted in 1987 and again in 1998, recognises water as a "basic human need" but prioritises industrial and agricultural supply over domestic consumption. Critics have noted that the failure to conceptualise water holistically as a fundamental need of all living beings and not just a natural resource, prevents the ministry from meeting its objectives. Water should have been recognised as a public good and a fundamental right, to encourage policy that emphasises local management and self-reliance in water harvesting. Instead, the policy advocates a dependency on groundwater systems, the inevitable deterioration of which has had very serious health implications.

Consider the case for drinking water supply in cities. The water is provided by the municipality, which in turn may have a small board that deals with strategies for making the water potable. The water is tapped from differently-managed sources: the Central Ground Water Board (for ground water), the National Rivers Authority within the ministry of Environment and Forests (for river water) or any other government body that has the privilege of owing or protecting the water body. The contamination of the water body is monitored by the pollution control boards who not only have to check pollution by industries who accidentally or deliberately introduce pollutants into the water, but also monitors the usage of water, under the Water (Cess) Act. The municipal board itself monitors drinking water quality prior and after treatment while the onus of maintaining natural groundwater remains with the pollution control boards.

The overarching problem is that environmental health is not targeted specifically in any area, or co-ordinated effectively within the broader public policy agenda. While the Ministry of Rural Development administers drinking water programs, the Ministry of Water Supply and Rural Management administers sanitation programs and the Ministry of Human Resource Development deals with nutrition. There are separate departments for water supply and for water management, making it difficult to link the state of national water resources to the problems with meeting demand. None of these sectors are effectively linked to the health or environment units in the policy framework.



**Box: Lessons from the ‘Environmental Improvement of Urban Slums Program’**

One of the few government programmes to actually incorporate both health and environment in its design has demonstrated the importance and benefits of an integrated approach. The ‘Environmental Improvement of Urban Slums Program’ began in the 4<sup>th</sup> ten-year plan period and has continued since then, showing considerable progress toward in its efforts to reach about 35 million people. The objective of the programme was to provide civic amenities in slums, with a focus on basic water and sanitation services (including latrines, water taps, storm-water drains and community baths). It was an environment-oriented program with direct health benefits.

Levels of success varied considerably, and were always better in areas with high community participation. In some areas, up to 85 per cent of the targeted population obtained a drinking water source, and up to 65 per cent obtained access to toilet facilities. It was observed that as pride in the cleaner environment increase, there was a corresponding increase in positive self-image among the residents; this brought about greater community efforts. No empirical evaluation was carried out to quantify health improvements, but the environmental improvements were obvious, commonly observed and visible. For instance, functional drains radically improved sanitation levels, thereby generally enhancing the living environment, quality of life and overall well-being. The programme’s main achievement was, through improving the habitat, to expand the residents’ social consciousness and assist the development of local leadership skills. Limited involvement and consultation were often the biggest obstacles, creating community dependence in some instances.(Clarify with examples)\_ There were other problems as well, such as a lack of evaluation data and long-term strategy to maintain slum improvements. In terms of administration, there were problems created by an over-centralised public delivery system and an inadequate resource base at the municipal level.

On the whole, though, the effectiveness of the programme clarifies at least three dimensions: multi-faceted programs can be very successful and their objectives need to be coordinated in policy; community participation and self-reliance must be built into the design and support infrastructure of a community-based program; and the limitations of a narrow agenda can be avoided if issues are linked and addressed simultaneously. Environment and health agendas are two that should be very easily, and very effectively, combined. In the 4<sup>th</sup> five year plan, when this programme was introduced, the ministry of environment and forests and other regulatory agencies had not been created. The municipalities were solely responsible for programme implementation and technical guidance came through a coordinated group of health experts, urban planners and social activists. Most decisions were made at the local level and local participation was high.

Source : <http://planningcommission.nic.in/fiveyr/4th/4thplanch19.html>

Like the intertwined strands of a double helix, policy must lead us to maintain a physical environment that is promotive of health, and a state of health and well-being that is promotive of a resilient, nourishing environment. If either was achieved, it would be an indicator of a robust, capable governance framework.



## 2.9 Linking traditional and modern

The real challenge for India and other developing nations is to address the complexity of the double burden of disease. Though the concept has been promoted by **multilateral** organisations with much vehemence, they have not addressed the core issues on the basis of any scientific rationale. Clearly, India cannot adopt a solution for its health problems from outside – it is imperative to create one's own culture specific, contextual paradigm.

Traditional diseases like malnutrition and infectious and communicable diseases are on the rise, and scientific options to control many of them seem to be limited. India's over-dependence on western science and little application of basic epidemiological research has taken the country two steps back in its frenzied rush towards economic development. Virtually no cohesive policy exists for malaria and other infectious diseases. Donors and multilateral agencies who supported India's programmes till the mid 1960s have withdrawn and have now either changed their focus of attention for providing assistance or have found new countries to assist. Clearly, Africa is the focus for control of malaria and other numerous infectious diseases. With respect to nutrition programmes, large state-wide projects offer some success stories but past experience shows that on withdrawal of donor support, most of the state and grassroots initiatives fail to sustain themselves.

Modern diseases have arisen largely as a fallout of the accelerated industrial and agricultural development. Rapid change in land use patterns, and massive pollution from industries, agriculture and vehicles in cities, have created frightening phenomenon that has not even been considered in our health policy. New combinations of traditional and modern diseases are forming, with unpredictable, chronic and bizarre symptoms. Hospitals and specialised units have reported many new syndromes and strange new conditions in younger and wider sets of population. The rate of cancers, respiratory illnesses, metabolic diseases (especially mental retardation and congenital deformities), and systemic disorders has grown rapidly. Yet there is no authoritative data available, therefore environmental health remains enigmatic, ambiguous, paradoxical and perverse.

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### **Box: India's Callous Medical Research: cancer registries**

With the cancer registries making cold entries of cancer patients into thick registers, since 1982, Indian medical bureaucracy's understanding of the disease has almost come to an end. Way back in 1975 a National Cancer Control Programme (NCCP) was set up recognising the emergence of the deadly killer. It is frightening to note that 27 years later the programme remains baffled and static as it fails to generate a comprehensive data bank of the disease, which can give vital clues to understand cancer. The National Cancer Registry Programme (NCRP), coordinated by the Indian Council of Medical Research (ICMR), New Delhi, has brought out just seven registry reports though it was established more than two decades ago. The last report was published in 1992 for the year 1988-89. And even these are very rudimentary, revealing just the tip of the iceberg. ICMR plans to publish the next set of data only in January 2002 — after an entire decade.



In a sadistic display of insensitivity, information of cancer registries are never shared, crippling future research. Even sister agencies find it difficult to access this information. Like cancer, the system remains stubborn.

### Data quest

Most doctors say that information collected by NCRP is vital to check the rising incidence of cancer. “We need information to find out the reasons of its occurrence and ways of controlling it,” says Vinod Kochupillai, chief of Institute Rotary Cancer Hospital (IRCH) at AIIMS. It helps me find out ‘why’ I get these patients, says Praful Desai, former director of Tata Memorial Centre (TMC), Mumbai. Providing the best treatment largely depends on information on ‘what’ works best and in ‘which’ conditions, says Arun Goel, consultant surgical oncologist, Dharamshila Cancer Hospital and Research Centre, Delhi. “Had curing one patient been our aim, we wouldn’t have needed data,” he says. “It is believed that breast cancer is on the rise in Delhi, but there is no data to support this fear,” he adds. “The data would help to determine the infrastructure needed to cater to the number of patients,” says D N Rao, head, department of epidemiology, biostatistics and medical records, TMC.

There are estimates by the NCCP though (callously advertised in the media) saying that some 700,000 new cases are detected each year and 300,000 suffering perish. By 2026, every year more than 1.4 million people will be falling in the grip of this killer, says NCCP. There are a number of reasons for this increase, says P Gangadharan, co-principal investigator, Natural Background Radiation Cancer Registry, Karunagappally. This might range from increase in awareness to a change in lifestyle. Environmental factors are also acting as cancer triggers. A report by the Karolinska Institute in Stockholm found that 60-80 per cent of cancers are due to environment and lifestyle, not genes. Some experts give higher credence to environmental factors. “Rapid changes in the environment and lifestyle control nearly 95 per cent of the cancers,” says Cherian Varghese, national professional officer with the World Health Organisation (WHO).

### Belated realization

The government realised the importance of collecting information on the incidence of cancer as early as 1965 when the then director-general of health services, K N Rao’s Cancer Assessment Committee, did a cancer assessment and suggested the setting up of a National Cancer Registry Programme (NCRP). Along with providing morbidity and mortality figures, the cancer registries were supposed to study the distribution of cancer in different parts of the country. But the government sat on the Rao committee recommendations. In 1972, the then director-general, ICMR, P N Wahi’s Cancer Assessment Committee once again recommended a nationwide registry. Finally, in 1982, the NCRP was established — 17 years after it was first recommended.

Two types of registries were started in the country. The Population Based Cancer Registry (PBCR), which would provide information about the trends in the disease in an area and the Hospital-based Cancer Registry (HBCR), which would provide information about the stage at which the patient came to the hospital and the treatment administered. While ICMR funds six PBCRS and five HBCRS, the others are managed privately.

This is how a PBCR supposedly works: it identifies hospitals, private practitioners and pathology labs where cancer cases are diagnosed. Its field workers then gather information from the



patients' records and also meet the patients. PBCR then codes the data according to international standards, analyses it and at the end of the year sends it to ICMR.

The system looks too good to be true. But obviously something is amiss in the system — ICMR's last report was published in 1992 containing 13-year-old data. In between the idea and the reality falls the grim shadow of neglect. The process also has built in loopholes. For example, what happens if a patient of Kolkata comes to Mumbai for treatment and gives his local guardian's address? His record could end up in the Mumbai data and inflate figures. It could also not reflect the status of cancer in Kolkata.

Such errors can be minimised if the methodology in USA is followed. When a cancer patient goes to a doctor, it is the responsibility of the doctor to report the case to the National Program of Cancer Registries, USA. A legislation for the doctor and social security for the patient ensures the methodology is followed religiously. But of course, it happens only in the US.

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### 2.10 The data challenges: case of cancer

It is impossible to get data on cancer. ICMR and most of its registries seem like impenetrable fortresses of 'knowledge'. The chief of Delhi Cancer Registry believed sharing of information was a waste of time. Exasperated, *Down To Earth's* correspondent travelled to Mumbai and was able to lay her hands on limited data for Maharashtra — some official and the rest generated by non-governmental organisations. A similar journey to Thiruvananthapuram gave a little more data. The dozens of doctors she met, the numerous hospitals and institutions she did the rounds makes one shudder at how helpless an individual trying to ferret out information on cancer in India could be.

But why is data on cancer important? Preventive strategies require a knowledge base of trends in incidence rates. To generate such trends a series of data collected over time and spatial distribution is a basic prerequisite. Unfortunately, the data that the National Cancer Registry Programme (NCRP) provides is too patchy. Arun Goel, consultant surgical oncologist at Dharmshila Cancer Hospital and Research Centre, Delhi helped *Down To Earth* to make sense out of the latest information available.

The most conclusive inference one can draw is that consumption of tobacco is linked to five of the top ten cancers among men in Mumbai, Nagpur, Delhi, Kolkata and Thiruvananthapuram. In Pune and Chennai, six of the top ten are tobacco-related. This is in conformity with the global trends.

A closer look at the tobacco-related cancers reveals another significant pattern: oesophageal cancer incidence is significantly influenced by factors besides tobacco consumption. This is revealed by the fact that incidence rates of cancers of larynx in men vary by nearly 200 per cent over various cities while the variation in the rate of incidence in case of oesophageal cancer is nearly 400 per cent.

Stomach cancer also shows big difference across the country: it is common in Chennai. Mumbai, Pune and Nagpur are also seen to have higher incidence than Thiruvananthapuram. It



is believed that stomach cancer is common in southern India due to its spicy food. But further research needs to be done to identify the causal factors.

The cancers affecting men and women too show a varying trend. In women, cancer of the uterine cervix, which can be easily prevented by awareness, is the most common. Breast cancer too is on the rise. This trend is likely to be seen in other urban areas and, to a lesser extent, afflict the rural population as well.

Cancer of the gall bladder is common in women in the North. It is the third-most common cancer in the Delhi cancer registry. One risk factor for gall bladder cancers is gall stone disease, which too is recorded higher in the northern parts of the country. However, other factors that are likely to contribute to occurrence of gall bladder cancer have not been identified yet.

Sadly the focus of cancer prevention is only on the top cancers, which have remained constant over the years. There has not been much attention paid to cancers that may not be on the top ten, but are steadily rising.

### Reliability

The epidemiological studies on cancer in India have a number of shortcomings. One of the biggest shortcoming of the NCRP is the small population it covers. "India is a vast country — people in different areas are exposed to different types of environmental conditions and have totally different lifestyles," says G K ath, head of department of radiation oncology, IRCH. Shastri has an interesting example of how an independent survey can reveal the inadequacies of ICMR's data collection. "During the preliminary survey on cervix cancer carried out by TMC in the slums of Mumbai, we found that the number of cases reported by the Mumbai Cancer Registry was nearly 20 per cent higher than what we found out," says Shastri.

Another study which reveals why ICMR needs to go in for far more thorough data collection was conducted by the department of preventive oncology of TMC on cancer incidence in slum areas of Mumbai. The incidence of cancer was found to be shockingly high. In 14 screening camps, 1,207 women were screened for cancer and 22 of them tested positive. There are hundreds of slum areas in the country and the cancer incidence is unimaginable. "Only 5 per cent of the population is covered by the programme," adds Rath. In the US, the population covered is 95 per cent.

"The data is required only on sample basis for assessing the various parameters in different geographical locations," refutes C P Thakur, Union minister for health and family welfare (MOHFW). "It is not necessary to have registries for this purpose alone in all the locations while we have other priorities," he insists. When quizzed why ICMR does not publish data regularly, Thakur says, "ICMR is anyway not supposed to publish the data."

Another weakness is that the data is never analysed as to why the cancers are occurring. Farooq Ahmad Matta, physician at the Jawaharlal Nehru Medical Hospital, Srinagar, cites an example: Data suggests that cancer of the gall bladder is increasing in the northern India. Generally a diet rich in cholesterol is said to be the culprit. Though the diet in Jammu and Kashmir is also rich in fats, there are not too many gall bladder cancers cases. This suggests that factors other than the diet could be responsible for the cancer of the gall bladder.



“The reports are also poorly analysed,” says Shastri. For example, it is said that the incidence of cancer is much higher among the Parsi community. But the fact that the average lifespan of a Parsi is many times higher than others is not taken into consideration. The data may be overestimation or an underestimation.

The research is absent, the data is locked out of sight. Meanwhile, cancer wards across the country are getting noisier. If only the ICMR could listen.

The registries would have helped formulate a control programme. But in absence of the data, the NCCP has been forced to source information from other places. “We use World Health Organisation’s projections,” says Sudhir Gupta, chief medical officer, directorate general of health services at the MOHFW. Ironically, the NCRP was supposed to generate data for the NCCP. Now NCCP is creating its own database to make up for NCRP’s incompetence and justify its existence. It recently launched the modified district cancer control programme in four states: Bihar, Uttar Pradesh, West Bengal and Tamil Nadu. The problem is that without data, it is difficult to assess the performance of NCCP.

What started off as a exercise to provide treatment is today thought of as just a trading house for radiotherapy machines. “Maximum focus was on these machines as most of the members of the advisory committee were radiologists,” feels Shastri. The programme has emphasised so much on the machines that doctors opine that that most members of the medical fraternity remember the NCCP only when funds are needed for equipment.

“Though there are around 280 machines in around 174 hospitals in India, there is a lack of infrastructure to cater to the growing cancer patients,” accepts Gupta. The situation is pitiable that between Delhi and Lucknow, only Bareilly has a radiotherapy machine, says Agarwal. Realising its failure to treat cancer, the focus has now shifted to cancer prevention through awareness.

### Too late!

As most patients in India are diagnosed only at the late stages, curing the disease becomes difficult, feel most experts And this increases the mortality rate. This is largely to do with lack of awareness. According to the Centers for Disease Control and Prevention, USA, surveillance is an effective way of identifying disease-prone areas. For example, in the case of breast cancer, a TMC study showed that if the woman is diagnosed at stage I, the survival rate is around 97.3 per cent. But if the case is diagnosed in stage IV, the survival rate is only 37.6 per cent.

In Barsi, Maharashtra, for example, increased awareness resulted in more cervical cancers being identified in early stages and resulting in increased survival rates — 32.6 per cent in 1987-1988 to 48 per cent in 1991. “Such success stories are rarely heard as government programmes are few. NGOs do their best but the government does not help them,” says Piyush Gupta, principal executive officer, Cancer Aid Society, an NGO working towards increasing awareness in different parts of the country. Early detection is possible only if information about trends is available, which would help in identifying the susceptible populations.





It is not easy to identify the reasons for the increase in the number of cancer cases, says Gangadharan. A comprehensive registry programme can give direction to cancer research. Since research is expensive, it becomes imperative that it is focused on specific problems — like finding cheap ways of diagnosis. For example, the department of preventive oncology at TMC is using a solution of vinegar and a hand-held lens to identify cancer of the cervix. This proves much cheaper compared to the conventional pap smear test, says Shastri. Developing cheap indigenous drugs is another priority, feels Goel. The most effective combinations of treatment can also be validated through research. Experts feel that predictive tests, based on cancer data, can be used to assess risk of cancers that are hereditary. In the absence of country specific data, western models are being used to predict the risk. Western data, however, cannot be used in Indian context as cancer behaves differently in two different environments, says Agarwal.

ICMR, which is supposed to monitor the research being carried out in the country, has provided monetary assistance to 284 projects on cancer so far. The majority of projects focus on what happens after the disease has occurred.

Very few projects question why the cancer is occurring. And that too vaguely. To find the cause researchers would have to explore the environment and lifestyle links from food to air pollutants of why the cancers are happening. Focus is on the known risks such as effect of tobacco on incidence of oral cancer. Only a couple of projects tried to investigate the effect of environmental factors on the incidence of cancer, those too were abandoned midway. One of these projects, was attempting to assess the linkages of cancer with tobacco, adulterants in food and pollution. “ICMR projects are perfunctory and just basic research,” says Agarwal.

### Remission or relapse?

“Improvement in cancer treatment and control can be achieved only if the registry data is used extensively by the doctors and the administrators, says Gangadharan. One way of doing this would be to increase the centres where the registries are operating. “All existing 17 RCC should start a cancer registry,” says Varghese. While this would provide information about the urban areas, the RCC should also identify a rural area in their state so that comparative data is available, he suggests. Gangadharan laments that the expected increase in the registry activities has not taken place. Institutions like medical colleges do not recognise the need for data collection. The cancer profile of the country can be appreciated only if variation in lifestyle and socio-cultural background in the country is taken into account, he says.

“It is important that cancer becomes a notifiable disease,” says Desai. A regional seminar on cancer control held way back in 1986 in Chennai had also suggested that data collection would be more effective if the doctors themselves reported the cases that come to them. The Union health minister disagrees. Notifiable diseases are usually contagious ones and it would create unnecessary paperwork if cancer were included in this group, he says. Instead, strengthening the morbidity and mortality data collection system would be sufficient, says Thakur. But the functioning of the present system does not give much hope. A lack of will seems to be the reason behind the inability of the registry to function productively. “Collection of data by the registry should be carried in the same way a business organisation carries out its market research where information collected is used to decide on the strategies,” says Shastri. The country has miserably failed to do so.



“We know that tobacco related cancers are on the rise which indicates that we need to ban tobacco,” says B B Yeole, deputy director, Mumbai cancer registry. But Shastri points out lacunae even in the bans put in place: “While toothpastes containing tobacco have been banned, they are still easily available in the market,” says Shastri. While Thakur assures that smoking would be banned, he expresses his inability to do anything about chewed tobacco. It is just too bad that cancers related to chewed tobacco are more common in the country.

What is needed is a political will to address a problem that has been ignored for long. Comprehensive, up to date epidemiological data. A control programme that identifies susceptible populations and devises strategies to check the spread of the killer. And most importantly, an acceptance of the fact that cancer is a killer and is here to stay. But given the malignant ways of the medicine mandarins, there is little that one can expect of them. Just more cases of Gauri Prasad. And the oft repeated admission: “We don’t know”. n

### **2.11 Researching the environmental basis**

Current disease control paradigms are unable to address the intensifying complexities of local, national, cross-border, regional and global needs. Infectious diseases are no longer contained by geographical or cultural boundaries. Increased mobility, technology and modes of communication and contact between populations are expanding daily. There is an urgent need to develop common surveillance and monitoring protocols in a sustained programme of international / national disease

Nowhere in our health policy of 1963 and (draft) policy of 2001, have new infectious diseases been a focused. Apart from malaria, other diseases receive scant attention. Self-obsessed, self-congratulatory and incorrigible, the system ingests what comes its way, without discrimination. There is a myopic concentration on therapeutic interventions rather than on prevention strategies. Seldom have different committees, agencies and ministries collaborated on crucial projects. Water and sanitation departments, weather bureaus, strategic health units, malaria campaigns, housing boards etc. have no link to each other’s work. Even during an outbreak, more deaths occur because the local government agencies are overwhelmed and without direction.

With respect to gastro-intestinal diseases, political indifference, corruption and callousness of responsible agencies are the main reason for their persistence. Sewage systems are built to protect public health but badly managed sewers can become a serious health hazard. There can be serious outbreaks of waterborne diseases from;

River pollution because of sewage outfalls; groundwater contamination because of leaky sewer lines; contamination of piped water supply systems because of leaky sewer lines leading to infiltration of pathogens into drinking water pipelines, especially when they do not have water, which is the case in many cities in developing countries as they cannot provide water round the clock; and, sewage backflows because of increasing use of non- biodegradable materials like plastic bags.



In the Indian city of Aligarh, sewer lines overflow all the time. A study conducted by the Aligarh Muslim University for the Centre for Science and Environment found that 49-70 per cent of the households, depending on different localities, complained of seasonal or permanent water logging due to overflowing sewage drains. As a result, people have raised the plinth of their houses to keep the sewage from flowing into their houses. This has resulted in a huge market for earth - as much as 1,000 cubic metres per day - supplied today by numerous villages around the city, which is destroying precious agricultural land.

All this makes water-borne sewerage a waste disposal paradigm that is extremely expensive because of its high economic, environmental and public health costs. And as a result, it has very high political costs.

As the Planning Commission pointed out in the Ninth Plan, "While the provision of drinking water to urban areas in the country has improved over the years, the provision of sewerage and drainage facilities has not received adequate attention".

Providing water and sanitation facilities may seem expensive, but the costs of not providing are much higher. In Karachi, Pakistan, for example, a study found that poor people living in areas without any sanitation or hygiene education spent six times more on medical care than people who lived in areas with access to sanitation and who had a basic knowledge of household hygiene. In India, rural people spend at least Rs 100 each year for the treatment of water/sanitation-related diseases. According to the government of India, this adds up to Rs 6.700 crore annually, which is just Rs 52 crore less than the annual budget of the Union health ministry's and more than the allocation for education.

It is not as if these diseases appear out of nowhere. People contaminate the environment and they are in turn infected through the "pathogen cycle". Breaking this cycle is the function of sanitation. In simplest terms, sanitation acts as a barrier between humans and disease causing agents. The barriers are generally physical, chemical or spatial. The flush toilets and sewage systems are supposed to provide all three: flushing physically carries pathogen-bearing faeces away from contact with us, the sewage system creates some space between the two, while chemical and other processes in treatment plants are used to destroy them. At another end, sewage plants treat only sewage that comes out from organised colonies (which accounts for roughly 12 percent of the faecal matter of city, at best, according to NIUA). This means that the real public health challenge of treating sewage in vulnerable areas like slums and shanties remains unaddressed. Basically all the international assistance that cities receive to address their morning ablution address on the problem of disposing of the faeces of the rich who live in organised colonies. The world bank alone has invested 2000 crores in seven cities!

Standard toilets and sewage systems are taken for granted in middle and upper class homes in urban India. The attitude is: flush and forget - out of sight and out of mind. However, what happens to the waste after the flush is pulled? After some treatment, it flows in our taps. Possibly, for middle and upper classes living urban environments with artificially low water charges, there is nothing wrong with it, especially in the short term. But when the whole picture is taken into account, the benign nature of sewage changes dramatically. The concepts of eco-sanitation has not taken off in India largely because we have a abhorrence for the subject and the feudal arrogance for any household to actually implement it.



The political economy of sewer systems is simply atrocious for developing countries. Despite large amount of investments in toilet schemes and sewage treatment plant, there is hardly any change in the way people defecate. Hardly any poor city is able to recover its investments in sewer systems. As a result, the users of these sewer systems get a subsidy. But almost all users in poor cities are the rich. Thus, sewers only lead to a subsidy for the rich to excrete in convenience. The poor always remain the 'unserved' in this waste disposal paradigm. In addition, the government has to invest in sewage treatment plants whose costs are again rarely recovered from the rich users of flush toilets.

## 2.12 The Way Ahead

### Shared vision

A shared health and environmental agenda is vital if India is to successfully address the massive 'double burden' of disease. If the two sectors are dealt with separately, the health agenda is likely to over-emphasise curative measures, while the development / environment agenda is likely to over-emphasise long-term sustainability, at the expense of addressing the needs of susceptible populations. Stakeholders in the two sectors prioritise their own agendas accordingly, keeping their own profits and other gains always in mind. Many factors that have a critical and permanent impact on both public health and the environment are outside the control of professionals in these two fields. This is precisely why activities need to be put into the larger context of national socioeconomic goals, and integrated into related development initiatives. The parameters are clear; health and environmental objectives overlap, but actions taken towards realising these objectives must be scrupulously synthesised. **Box 7.1** points to some of the benefits of the 'combined agenda'. In some countries special committees have been created to address these issues and vested with regulatory powers. In others, environment and health issues have been merged into one ministry. Still in their infancy, these ministries often lack the resources and political power to achieve environmental goals. In some nations, health and agriculture ministries are a joint body. They tend to have longer histories, and are comparatively well represented at regional or even district levels. But this was done more for convenience rather than far-sightedness of combining the health and food security agenda. Rather, it was propelled by the ease of disseminating programme information and meeting concrete targets of the two programmes. For some governments to have environmental issues dealt with by both health and agricultural extension workers, would, therefore, probably mean a more efficient use of existing personnel, and could also improve coordination.

Better coordination can, in the long run, both reduce costs and increase health benefits, though this is not always apparent when a narrow sector perspective is taken, since the rewards and responsibilities are often divided. These divisions occur in urban as well as rural areas. In Port Elizabeth, South Africa, for example, numerous players, ranging from households to city departments, are involved in combating pests. Households spend on average close to 13 Rand per month on insecticides. The municipality's Environmental Health Sub-Directorate has also been implementing a vermin eradication programme, focusing on cockroaches, fleas, rodents and mosquitoes, carrying out disinfections and removal operations (Thomas et al., 1999). But the combined expenditure of private households on insect control amounts to far more than the municipality spends, and indeed is roughly equal to the municipality's overall monthly health budget. All of these players are, moreover, working in the areas where they have some degree of control, regardless of whether their actions are the most effective. A more 'integrated pest



management strategy' would extend to hygiene, food storage and, in particular, waste disposal, rather than relying on toxins for killing pests. A prevention initiative, rather than control, would thus involve many more players, education and awareness raising, as well as the sharing of funds and responsibility.

Other serious environmental and health issues fall into what has been labelled the 'conventional development cluster' - environmental problems which environmentally insensitive development tends to bring about and perpetuate. Some, such as most vector-borne diseases, are long-standing health threats whose overall incidence is declining. Many vector-borne diseases still represent a major burden, however, and their decline has been uneven. Most have shown a strong resurgence and dispersal patterns into new areas. Certain developmental phenomena such as dams and other water-related interventions, can increase a number of water-related diseases, such as malaria. More dispersed toxic environmental hazards, such as heavy metals and toxic exposure, also deserve attention, although more research is required both to identify the scale of the problems and the most appropriate interventions. Unlike Western models based on exposure studies, an additional factor affects developing nations is the combination of traditional diseases like malnutrition and modern ills like pollution and the damage it causes to both public health and the environment. Such threats tend to be less immediate, but are likely to increase in importance over time. Research protocols have to specifically address local conditions and have a culture-specific orientation that respects and utilises traditional knowledge and indigenous, simple technologies wherever possible.

The draft health policy (2001) has set ambitious goals for itself (see table below). It is set to repeat the same mistakes of that in malaria and tuberculosis without actually having a vision. In 1960, the then health minister proudly proclaimed that it was at the verge of eradicating malaria only for to re-emerge with a vengeance two years later. Similarly, the previous targets for TB (reduce case level to 5 per thousand according to National TB Control Policy, 1988), kala azar (eradicate by 2000), Lymphatic filariasis, blindness



**Box-IV: Goals to be achieved by 2000-2015: India's health policy**

- |  |              |
|--|--------------|
| • Eradicate polio and yaws   | 2005         |
| • Eliminate leprosy  | 2005         |
| • Eliminate kala azar  | 2010         |
| • Eliminate lymphatic filariasis   | 2015         |
| • Achieve zero level growth of HIV/AIDS  | 2007         |
| • Reduce mortality by 50 per cent on account of TB, malaria and other vector and water borne diseases                | 2010         |
| • Reduce prevalence of blindness to 0.5 per cent   | 2010         |
| • Reduce infant mortality rate (IMR) to 30/1000 and maternal mortality rate (MMR) to 100/lakh                        | 2010         |
| • Improve nutrition and reduce proportion of low birth weight (LBW) Babies from 30 per cent to 10 per cent           | 2010         |
| • Increase utilisation of public health facilities from current level of <20 to >75 per cent                         | 2010         |
| • Establish an integrated system of surveillance, national health accounts and health statistics.                    | 2005         |
| • Increase health expenditure by government as a per cent of GDP from the existing 0.9 per cent to 2.0 per cent      | 2010         |
| • Increase share of central grants to constitute at least 25 per cent of total health spending                       | 2010         |
| • Increase state sector health spending from 5.5 per cent to 7 per cent of the budget Further increase to 8 per cent | 2005<br>2010 |