

& HEALTH ENVIRONMENT

NEWSLETTER FROM THE CENTRE FOR SCIENCE AND ENVIRONMENT



EDITORIAL ▶ Anil Agarwal



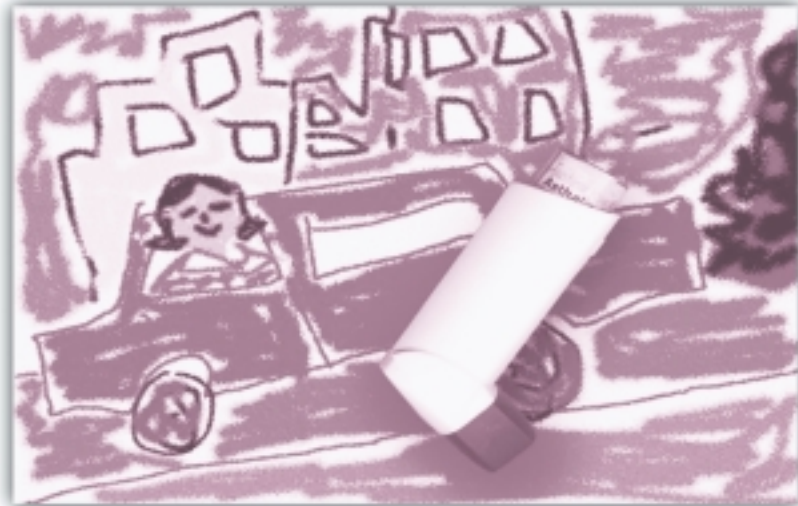
More than any other programme of the Centre for Science and Environment (CSE) our work on health and environment is personally very important to me. Our interest began

with my cancer and the question I think all patients must ask themselves, why me? As I researched the question, I began to see how changes in the environment were affecting our bodies. It was also at this time that I was editing the book on vehicular air pollution between chemotherapy cycles. And when I returned to Delhi in 1996 after my treatment in the US, I was even more shocked at what I had not seen before, deadly air which made me and many around me constantly wheeze and cough.

We began our work. Using a World Bank model to estimate pollution load, we found to our horror, that as India had industrialised and its Gross Domestic Product (GDP) had doubled in about twenty years, its industrial pollution load had gone up 4 times and its vehicular pollution by as much as 8 times. All this was taking a deadly toll on our health. We called it slow murder. Nowhere is pollution recorded as the cause of death. It gets translated into long term diseases like

▶▶ page 2

LEAD STORY ▶



PRADIP SAHA

Have you checked your lungs today?

POVERTY, HEALTH AND ENVIRONMENT

A Poor Paradigm

India still suffers from the burden of diseases like malaria and illnesses like diarrhoea

Modern diseases caused by drastic environmental change like air and water pollution affect both the rich and the poor, in urban and rural areas alike

Our health policy and programmes do not address the issues of environmental health and of the increasing inequality between the rich and the poor

POVERTY and environmental degradation are inextricably linked and cannot be seen in isolation. According to the World Health Organisation (WHO), environmental factors contribute in 90 per cent burden of diseases such as malaria and diarrhoea. Apart from traditional environmental risks, modern

hazards like urban air pollution or exposure to agro-industrial chemicals and waste increasingly influence the health outcome in India. The emerging challenge of modern diseases caused by rapid environmental changes is far reaching and affects the poor and the rich alike. A World

I N S I D E

LEAD STORY	1
Poverty, health and environment	
BRIEFS	5
High IMR in Mumbai	
Lead and behavioural problems	
Time to clear the air	
Biomass and tuberculosis	
DDT causes early puberty	
BOOK REVIEWS	6
CAMPAIGNS	7
Endosulfan: how safe?	
Eco-friendly idol immersion	

asthma, cancer or heart ailments. We are learning how changes in the environment constitute a new and serious threat to our health. One that we do not recognise sufficiently. Or address.

Worse, we came to recognise the importance of what late Dr V. Ramalingaswami former head of the Indian Council of Medical Research and my guide said that what India has is a double burden of diseases. On the one hand, we are unable to deal with diarrhoea and malaria, and on the other modern diseases like cancer are increasing rapidly. It is clear that health policy in India will have to deal with these different dimensions. One, it must address itself to the extent and quality of the delivery of health services. Two, it must deal with the emerging 'double burden of disease'. And, three, it has to go beyond the curative aspects of health and also talk about disease prevention programmes. It is in this context, understanding the environment and lifestyle linkage with health becomes all the more imperative.

It is because of this I am very excited about this newsletter. I strongly believe that our greatest, indeed most valued, supporters are in the medical community. My own interactions have shown that doctors, who see the face of death each day, understand best the need for preventive action. But prevention is only possible if we have an informed public opinion.

Our newsletter, of which this is the first edition, aims to do this. Firstly, it will be a networking tool, bringing the medical scientists, doctors and environmentalists together. We will do our best to find the researchers who are working on this interface and will bring their news to you. We will also attempt to take stock of the emerging science so that we understand the different dimensions of the problem. And through this we aim to identify actions and policy measures needed to ensure that this challenge of environment and health does not fall between the various cracks in our straitjacketed bureaucracies.

In short we are not publishing a newsletter, but a tool for building a community of changemakers. We look forward to working with all of you in this new task.

— Anil Agarwal
Chairperson, CSE



The poor are more vulnerable to environmental changes

Bank study found that one person in Delhi dies every hour due to air pollution-related respiratory diseases. The rich may have the resources to protect themselves from pollution, but the poor are left more vulnerable.

The poor suffer disproportionately because of the double burden of traditional diseases as well as modern diseases that are caused by industrialisation and rapid resource depletion. The poor lack adequate access to health-care facilities, possess low education levels and awareness, live in poor environmental conditions and lack the social opportunities to change their current predicament. As a result, social inequalities persist and environmental degradation affects the health of the poor more severely than it does the more affluent groups. According to the WHO, in 1990-1991, 42.6 per cent of India's Gross National Product (GNP) went to the 20 per cent of the population with the highest income levels, compared with only 8.7 per cent shared by 20 per cent of the poorest.

Burden of the poor

The environmental impact on the health of the poor, in both rural and urban areas, is far-reaching.

The poorest people often live in arid and tropical lands with limited soil fertility. Rural areas are more vulnerable to environmental changes because people depend on natural resources and are more likely to be affected from shortages of both food and water, as well as

sources of their income when it is based on land cultivation. Environmental degradation is likely to drive them to more fragile environmental conditions. Further environmental pressure causes erosion, depletion of forests and decline in availability of fresh water. Poor nutrition and lack of clean drinking water threatens the health of the rural residents. Moreover, environmental fragility makes them more vulnerable to natural calamities, like floods, droughts, earthquakes, cyclones and heat waves. It is often the poor people residing in marginal areas with inadequate housing who are worst hit by natural disasters. The 1998 cyclone in Gujarat razed more than 13,000 huts as compared to just over 3,000 durable homes. The super cyclone of Orissa in 1999 was followed by severe droughts, reducing crop yields and pushing the poor to the brink of starvation. In rural areas, the World Bank estimates that only 10 per cent of the poor have access to sanitation, compared to almost 60 per cent of the people in the cities.

The urban poor too are not any better off. However, they have limited access to facilities like proper sanitation or drinking water and are more exposed to environmental hazards posed by urban pollution and lack of proper chemical waste disposal. Lack of access to clean drinking water and poor sanitation cause the majority of the diseases. Urban poor are also victims of environmental catastrophes. In cities, the poorest segments of societies live slums in

low-lying areas, along canals, riverbanks and sewage drains without any access to clean water and proper sanitation. Moreover, urban human and industrial wastes flow through these settlements. During heavy rains and floods, such people are overwhelmed by rising waters, which cause rapid outbreak of diseases. The most virulent forms of diseases strike first in these areas, giving enough time for health experts to take cognisance of an impending outbreak before it affects the rich. In Delhi, around 60 per cent of the poor live in areas along the twenty two nalas (sewage drains) and the river Yamuna (which carries the city's untreated sewage and industrial wastes). Many a times these slums also house illegal small-scale, polluting industries, which pose further health hazards to people who work and live there. Workers inhale air saturated with toxic chemicals and dust and work long hours in unventilated rooms. They are not compensated if they suffer from health problems caused by occupational hazards.

Women and children first

Children and women are more susceptible to the effects of environmental

pollution. Women, especially pregnant adolescent women, are the first and most lethally affected by malaria and other mosquito-borne fevers. Malnutrition is one of the major causes of women's ill health and increases their vulnerability to environmental hazards, which has an impact on the entire family, especially the children. Malnourished children, who work or live close to lead smelters or battery dump yards are exposed to toxic contaminants and suffer from lead poisoning as lead readily replaces iron in their blood. Though this condition is reversible, continuous exposure and lack of sufficient nutritional supplements lessen the chances of alleviating the condition. The cumulative impact of a variety of toxic chemicals on vulnerable groups like children, adolescents, young girls and pregnant women has an unknown and unpredictable influence on their growth, development and future health condition.

In urban areas, where there is lack of fuel wood and no other cooking alternatives are available, plastics are used to ignite fires. In Dharavi, the largest slum in Asia situated in Mumbai, plastics are often used to start cooking

fire during the monsoon season. The burning of plastics emits toxic fumes, like dioxins, and causes a range of health problems.

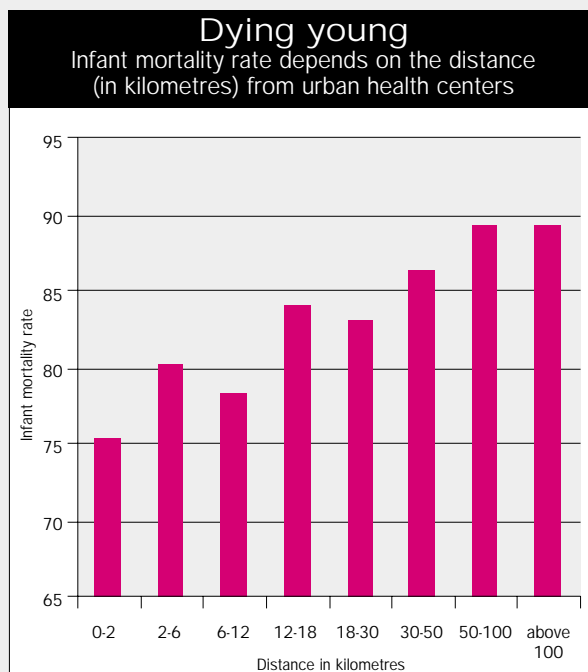
Often women have to compromise on the quality of water which not only lead to gastrointestinal diseases but also to an increase in diseases like cervical cancers (caused by papilloma viruses found in polluted and contaminated water) which are emerging and being reported in rural India (see table: *Poor man's cancer*). Increasing deforestation and extraction of firewood and timber means that women need to travel greater distances and also compromise on the quality of fuel wood resorting to species that produce more smoke and fumes and lead to indoor air pollution. World Health Organisation estimates that 30 to 40 per cent of 760 million cases of respiratory diseases world-wide are caused by particulate air pollution alone. Mostly, these health effects are caused by indoor air pollution due to open stove cooking and heating in developing countries. According to Kirk Smith, Professor of Environmental Health Sciences, University of California, Berkley, recent estimates of premature deaths in India due to indoor air pollution exposures

Deadly Distances

Poverty means not only deprivation of income but also deprivation of social chances of people who live in less favorable conditions such as remote rural areas.

In a study conducted in 1993-94, it was observed that both income level (average per capita: 4385 Rupees within 2 kilometres (km) in comparison to 3132 Rupees in distance above 100 km) and availability of health care facilities determine the outcome of health condition of population. This study covered 33,230 rural households across 1765 villages in 195 districts of 16 states.

The study found that both infant and child mortality rates increase sharply with increase in distance from urban areas. Areas located far from urban centers are deprived of many health care facilities, including worse access to health care and worse sanitation conditions, which can be the reason for larger number of deaths among infants as well as children below 14 years. Short-term morbidity, often caused by environment-related infections such as diarrhoea, also shows a positive relationship with distance, which, once again, can be explained in terms of a decline in the level of medical facilities. Data in the graph shows the infant mortality rate depending on distance from the urban area.



Reference: Amitabh Kundu et al 2000, *Dichotomy or Continuum: An Analysis of Impact of Urban Centres on their Periphery*, Paper prepared for the Programme of Research on Human Development of the National Council of Applied Economic Research, New Delhi, mimeo



The poor pay more for the same food...

AMITI SHANKER / CSE

Out of reach

A study of three Indian villages by Vijayendra Rao, looked into whether households within the same market pay different prices for identical goods. It found that not only are unit prices for food heterogeneous, but that the poor pay more for the same goods than the rich. This is because liquidity constraints force poorer households to purchase goods in small quantities and consequently subject them to quantity

premiums. However, affluent families are able to purchase larger quantities, and thus are able to take advantage of lower prices. Households that are most remote also pay the highest prices suggesting that search costs do matter in determining the price level. Quantity premiums seem to matter because families with more land and smaller families pay higher prices because they are likely to purchase smaller quantities in the open market. Pulses and legumes the primary source of protein for most households, are the goods most affected by such quantity discounts because they are widely consumed but expensive, and thus more likely to be purchased in small amounts. The qualitative work shows that the public distribution system is ineffective in combating the problem, because it is inefficient, corrupt, and limited in scope. This is also true for the health delivery system and the purchasing pattern of medicines. A person who works on daily wages can only afford to buy medicines on a day to day basis and thus pays a premium for buying in small portions. And the cycle of the poor paying the most continues.

Reference

Vijayendra Rao 2000, *Price Heterogeneity and Real Inequality: A Case Study of Prices and Poverty in Rural South India*, in *Review of Income and Wealth*, Vol. 42, No. 2.

range from 500,000 to 2 million per year. Acute respiratory infections in children and chronic obstructive pulmonary diseases in women, together are responsible for 290-440 thousand premature deaths annually. The cause for another 110-340 thousand premature deaths can be attributed to tuberculosis, ischaemic heart disease and asthma.

Falling between two stools

Until now, our policymakers have not recognised the link between the environment and health. Environmental health issues fall between two stools — the environment ministry does not consider health a part of its jurisdiction and the health ministry does not consider the impacts of environmental change a part of its portfolio. Even when attempts have been made to provide a linkage between the two aspects, issues of inequity have remained largely unaddressed e.g. research in the area of health-environment linkages also is an area that falls woefully short of addressing the real issues. There are no studies done in India on the impact of dioxin on human health. A recent report on environment and health by the Union ministry of environment and forests (MEF) has failed to address the existing inequalities in health. Moreover,

it recommends therapeutic measures to ameliorate the problems of environmental health, rather than mitigating environmental ills like air and water pollution, which cause health problems. in the first place The report fails to com-

Poor man's cancer
Research around the world shows that the poor people are at a greater risk of contracting cancer

The Harvard Centre for Cancer Prevention has listed the cancers with established association with low socioeconomic status		
Lung	Cervix uteri	Stomach
With probable association with low socioeconomic status		
Oral cavity	Oesophagus	Larynx
Liver	Bladder	
Associated with higher socioeconomic status		
Breast	Skin	

Source: Anon 1996, Harvard Report on Cancer Prevention, Rapid Science Publishers, Harvard School of Public Health, Boston, USA, <http://www.hsph.harvard.edu/organsiations/canprevent/socio.html>

prehend that it is cheaper to control pollution than to meet the costs of health interventions.

Since the 1990s, the poverty level in India has not come down as fast as in the previous decade. Due to a general tightening in welfare policies, seri-

ous budgetary cuts have also been observed in the public healthcare sector. At this stage, the public healthcare system doesn't reach poor people adequately while affluent groups are able to access the private health sector. MEF insists on focussing on pollution abatement and control, at the cost of investment in clean technologies. A former minister for health of the Delhi government once commented on the appalling air pollution problem that: "Since fat accumulates more environmental toxins, people should take it upon themselves that pollution should not affect them". This speaks volumes about the governments understanding of health-environment links and its attitude in addressing it.

The myopic policies of our politicians and narrow-mindedness of our bureaucrats should not allow the error of omission in environment or health policy. The healthcare system needs to be substantially modified so that it reaches the poor. Developing a policy framework, which links between environment and health, will help to initiate the necessary reforms. Failing that, this sorry scenario is unlikely to change.

Reference

Sarala Gopalan, Mira Shiva 2000, *National Profile on Women, Health and Development*, VHAH-WHO, New Delhi, April p 41.

High IMR in Mumbai

Mumbai's Infant Mortality Rate (IMR), an important health indicator, reflects poorly of the city's living conditions. Its high IMR has been directly attributed to the metropolitan environment: over 50 per cent of the city's population lives in slums.

Mumbai's IMR is 38 per 1000 births. This is higher than urban Maharashtra's average of 30. Considering the extent of Mumbai's health infrastructure and the availability of health services, it is also surprising that the IMR is so close to the state's average of 48.

The IMR is a reflection of the environmental living conditions. IMR depends on the combination of social, economic and ecological factors, affecting nutrition and public hygiene. The main causes of the high IMR in Mumbai are believed to be pre-term delivery and low birth weights, both the result of poor maternal health. In fact, women are generally the worst affected due to lack of drinking water and sanitation and poor access to medical facilities, combined with poor nutritional status and high workloads.

The problem of low birth weight is exacerbated by the city's unhealthy environment. According to Armeida Fernandes, neo-natalogist and former dean of Sion Hospital, Mumbai, sixty per cent of the infant deaths in the first year, are due to environmentally-related infections like pneumonia, bronchitis and gastroenteritis, making this a cause for concern.

Lead linked to behavioural problems

Lead poisoning may be linked to childhood behavioural and development problems, according to a research paper produced by a *Health Authority in Devon*, England. Researchers from South and West Devon Health Authority, U.K., have subsequently called for routine blood screening of children with behavioural and learning problems.

Children can ingest up to 3 times as

much lead as adults, by chewing on objects and toys. Lead is known to impair thought processes and damage development, but the suggestion of a direct link to behavioural problems is new.

In their study, the Devon doctors compared the blood samples of 2 groups of children: the first were in hospital for behavioural and/or development problems, and the second were admitted for other reasons. They found that children in the first group had consistently higher and sometimes toxic lead levels in their blood. The findings are not conclusive, but it has stimulated the call for children with behavioural and developmental problems to be given routine blood screenings. At the least, this could help prevent further damage to a child's developing nervous system.

The pollution caused by leaded petrol is pinpointed as a source of poisoning. Children are also at risk when they come into contact with lead-based paints and pipes, eat food wrapped in newspaper or chew on pencils. In India, says T Venkatesh, professor and head of department of biochemistry and biophysics at St John's Medical College, Bangalore, it is estimated that 53.5 per cent of children below 12 years of age have lead levels above the World Health Organisation's recommended level (10 microgrammes per decilitre).

Time to clear the air

Recent studies in India have yielded results similar to corresponding studies in the US: Pollution problems and respiratory ailments are simultaneously on the rise, leaving little doubt about the links between the two.

H Pramesh, at Lakeside Medical Centre in Bangalore, says one quarter of childhood deaths in India can be



GLENN EDWARDS / PANOS

PRODUCT WATCH



PREETI SINGH / CSE

Wrong Wraps

Multi-layered plastic laminates used as wrappings for packaging cheese, sweets, sliced meat and other foodstuff may leach dangerous substances into food and cause cancer. Several layers of thin film make a thick plastic laminate. And the glue used to fuse together these layers contains aromatic amines, which has been recognised by the World Health Organisation as carcinogenic. Aromatic amines may migrate from the plastic packaging to the foods they contain. A recent study conducted by Steins Laboratory, Denmark found that eight out of 10 of the tested foodstuffs contained cancer-causing glue residues in quantities that exceeded the recommended safe limits by as much as 30 to 40 times.

Reality Bites



AMIT SHANKER / CSE

Recent studies conducted by the Malaria Research Centre New Delhi, point out towards the growing health hazards of mosquito repellents. About 11.8 per cent of the users of mosquito repellents complained of ill-health effects. Prolonged exposure to allethrin, a synthetic pyrethroid, is known to cause breathing problems, headache and eye irritation. Cough, cold, running nose and skin irritation were the other problems noticed. Almost all types of mosquito repellents - coils, mats, lotions and vaporizers, contain allethrin.

A cost-effective safe alternative could be "neem cream" made up of 5 parts neem oil and 95 parts coconut or mustard oil. Mosquito nets however remain the best and safest alternative to repellents.

attributed to environmental pollution. The Centres studies indicate that the growing number of asthma sufferers (especially children) is correlated to the increasing number of industries and automobiles. In addition, the results of an interesting study comparing the respiratory problems of traffic and non-traffic police confirms the link between exposure to vehicle pollution and experience of respiratory ailments.

Recent US studies conducted by Douglas Dockery, professor of environmental epidemiology at the Harvard School of Public Health, have also shown that particulate air pollution, from combustion processes, may be exacerbating cardiovascular disorders. Research done by Bostons Beth Israel Deaconess Medical Centre, US, suggests that tiny particulates provoke an inflammatory response in the lungs, thus increasing susceptibility to cardiovascular diseases.

Biomass: a smoky problem

When biomass materials such as wood and dung are utilised as cooking fuels in the home, the smoke they produce contributes to indoor air pollution (IAP). The World Health



AMIT SHANKER / CSE

Organisation says IAP due to biomass smoke is one of the largest environmental risk factors for ill-health. A number of health problems have been associated with it, especially for women and children, such as respiratory infections, lung diseases and pregnancy-related problems. Biomass smoke contains toxic pollutants such as aldehydes, dioxin and nitrous oxides.

Recent studies show that the use of biomass fuels increases the incidence of the dreaded tuberculosis disease. Data from Indias National Family Health Survey conducted in 1992-93, found the incidence of tuberculosis correlated strongly with use of biomass cooking fuels. In fact, the prevalence of active tuberculosis is 3.6 times higher among adults in households using biomass fuels than among adults in other households.

Analysis revealed that the use of biomass, compared to cleaner fuels, increased the risk of tuberculosis for women more than it increased the risk for men. Similarly, biomass increased the risk for adults in rural households more than it increased the risk for adults in urban households. Addressing this health challenge will be an enormous task, as biomass fuels account for over 50 per cent of Indias total energy supply, and over 80 per cent of household energy supply.

DDT linked to early puberty

In India dichloro diphenyl trichloroethane (DDT) is used as an inexpensive method for controlling malaria. However various studies have shown that its breakdown constituents like dichloro diphenyl ethylene (DDE) pose a serious risk to children and young

women.

DDE, a derivative of DDT, mimics the effects of hormonal oestrogen in blood. This leads to the onset of early puberty. J P Bourguignon, at the Belgium-based University of Liege, conducted a nine-year study while treating patients for precocious puberty. The study showed that children who had immigrated from developing countries such as India were 80 times more likely to start puberty at an unusually young age.

The effects of DDT in their blood showed up after migration to European countries. The chemicals in the patients' native DDT-environments



AMIT SHANKER / CSE

caused both stimulatory and inhibitory effects, but after migration only the stimulatory effects remained, as evidenced by the symptoms of precocious puberty. The girls in the study were menstruating before the age of 10. They also started developing breasts before the age of 8.

The study indicates a causative link between sexual precocity and exposure to DDT.

B O O K R E V I E W S



Mosquito: A Natural History of Our Most Persistent and Deadly Foe by Andrew Spielman Michael D'Antonio
1st.Ed. 2001· Hyperion· 247pp

Mosquito Man (Spielman) and science writer (D'Antonio) team up to give a concise and definitive history of how human negligence has transformed this pesky insect into a triumph of evolution.



Infections and Inequalities: The Modern Plagues· Updated Edition With a New Preface: by Paul Farmer· 2001· University of California Press· 389pp

Infectious diseases expert and anthropologist, Farmer analyzes the biological and social realities of persistent infectious disease. Fascinating read.



Disinvesting in Health—The World Banks' Prescription for Health· ed. Mohan Rao
Sage Publication· 232pp

Critical assessment of the World Banks structural programmes (SAP), on why withdrawal of state involvement will widen inequity and increase the burden of disease.

Endosulfan: how safe?



SHREE PADRE

The Plantation Corporation of Kerala (PCK) has been spraying endosulfan close to the village of Padre, in the Kasaragod district, for over 25 years. Several unusual diseases affect the residents of the village, and aerial spraying of the pesticide endosulfan has been found to be related to the cause of the disorders. In the last 12 months, following strategic campaigning, public awareness with regards to the damage caused by endosulfan has heightened and the involvement of interest groups has intensified. Responses to the issue include newspaper reports, medical journal clippings, a National Human Rights Commission (NHRC) inquiry, a new doctors committee for research, plus a press response from the Pesticide Manufacturers' Association of India, deliberative action by the PCK and prohibitory orders against spraying passed by the district magistrate of Kasaragod village.

The Endosulfan Spray Protest Action Committee set up in December 2000 started to build awareness through the media about the health impacts of the pesticide. On invitation of Padre village, Centre for Science and Environment conducted laboratory tests on samples collected from the villages. All samples contained high

levels of endosulfan. In July, NHRC issued notices to ICMR and to the chief secretaries of Kerala and Karnataka. Acting on the notices issued by the NHRC, the Indian Council of Medical Research (ICMR) set up a team to conduct a detailed study of the area. In addition to the Padre village area, residents of Belthangady taluka were also showing symptoms of diseases caused by the chemical, and they reported that the symptoms accentuated immediately after spraying. A significant number of villagers complained of skin diseases, mental retardation and asthma, while several cases of cattle infertility and fish death were also observed.

The issue has been pushed into the public realm and provoked responses from a range of interest groups. The second achievement, probably an outcome of the first, is the Kerala governments ban on the use of endosulfan, pending further research. Clearly the use of the precautionary principle is now considered legitimate in regard to endosulfan use.

More about the endosulfan poisonings in Kerala can be obtained from: <http://www.poptel.org.uk/panap/kerala>

If you wish to pledge your support for this cause, please contact:

— S Padre, Journalist
Kasaragod District, Kerala
spadre@vsnl.com

JOIN OUR NETWORK!

**Are you in the medical profession?
Do you have news to share with us?
A campaign to talk about?**

CSEs Health and Environment Newsletter invites comments, suggestions and views.

If you are interested in receiving the copy of the newsletter, do write to us. Join our network.

Health and Environment Unit
Centre for Science and Environment
41, Tughlakabad Institutional Area,
New Delhi -110 062, INDIA
Tel: 91-11-608-1124/3394/6399
Fax: 91-11-608 5879
e-mail: health@cseindia.org

Holy solution to polluted water

Today changing priorities and increasing commercialisation find our Holy rivers desecrated with half-burnt corpses and idols laced with toxic chemicals.

Idols were earlier made of plain clay and colours that caused minimal pollution. Now, a variety of synthetic substances are used to make idols, like the insoluble Plaster of Paris, plastic paints, dyes, adhesives and varnish. Lead and mercury are also commonly used for quick drying. When immersed in lakes, wells, rivers and the sea these idols cause dangerous water and land pollution.

A campaign was initiated by the



Maharashtra Primary School Teachers Association and the Andhashradha Nirmulan Samiti (ANS), to moderate the practice of idol immersion. Their work began with critical interpretation of rituals and creating awareness about sensitive issues like the pollution linked to idol immersion.

ANS started enhancing awareness among children, educating them about the problems with idol immersion. Later they involved parents and promoted an alternative scheme of ritualistic immersion. ANS collected over 20,000 idols in 60 villages in Maharashtra and saved 500 tonnes of waste of puja items from being dumped in city lakes. They also collected flowers and other items used in pooja and turned them into natural fertilizer. The ANS encourages installation of small idols made of natural materials .

To know more about the work being done by ANS, please contact:

— Narendra Dabholkar, President
Andhashradha Nirmulan Samiti, Mumbai
info@antisupersition.com

SCIENCE AND ENVIRONMENT FORTNIGHTLY

Down To Earth, the science and environment fortnightly publication of Centre for Science and Environment looks at issues that concern us all.

While journalism normally focuses only on specific events, the high points of human endeavour and existence, **Down To Earth** also adds analy-

ses of the underlying trends and processes to its reportage-the slow erosion that ultimately produces a vast, barren landscape.

The magazine presents an international spectrum of current events, but its global outlook is juxtaposed with a concern born out of Indian reality.



PRADIP SAHA / CSE

Endorse change!
Subscribe to Down To Earth,
our science and environment fortnightly

Contact:

Society for Environmental Communications
 41, Tughlakabad Institutional Area
 New Delhi 110 062
 Email: sales@cseindia.org website: www.cseindia.org

SUPPORT US!



CSE's Health and Environment Newsletter is a bi-monthly bulletin, with the objective of bringing into focus the various issues of environmental health. A free publication, the newsletter is targeted at doctors, environmentalists, NGO's and policy makers concerned with the state of our environment.

To enable us to forge closer ties with our readers and to enrich our association, we look forward to your support. Cheques or Demand drafts may be remitted in favour of:

"Centre for Science and Environment" and sent along with the form duly filled in with the following details.

Name _____
 Address _____
 Phone _____ e-mail _____ Profession _____

Payment of Rs _____ enclosed vide Cheque No ...
 Bank draft No .dated ...
 Please charge Rs/US\$.....to my Credit Card Number ...
 Visa Master card Amex
 Card valid till.....Signature.....Date ...
 Payment of US\$.....has been made by Bank transfer to Account No: 320143055
 Centre for Science and Environment at American Express Bank Ltd, Hamilton House, Block A,
 Connaught Place, New Delhi-110 001 INDIA

CSE's Health and Environment Newsletter is a bi-monthly publication and is available online. Visit the Health and Environment website at:

<http://www.cseindia.org>

This newsletter is funded by the Delegation of the Commission of the European Communities, New Delhi, as part of its support for the Centres programme on environmental health. Institutional support comes from the Swedish International Development Agency (SIDA) and the Evangelischer Entwicklungsdienst (EED), Germany.

Compiled by: Pranay Lal, Sarita, D B Manisha Designed by: Pradip Saha