



into our politicians.

What we, therefore, see is absolute mayhem in the years to come. What took the West one generation to control could take our already heavily polluted India as much as two to three generations to control, in other words, some 40-50 years. The future is, therefore, nothing less than frightening.

...but there is a glimmer of hope in rural India

But just as I am pessimistic about the urban sector I am increasingly more and more optimistic about the possibility of change in rural India. In the 1980s and 1990s we have seen outstanding work to promote community based natural resource management in many villages and if we can ensure that these efforts are replicated on a large scale then a large part of India's rural poverty can be wiped out in the coming years. Rural Indians live on, what I call, a biomass-based subsistence economy. Food, fuel, fodder and feed for their animals, building materials like thatch and timber, and medicinal herbs, all come from plants and animals found or grown in their immediate environment. Water, too, comes from the immediate environment and plays a key role in determining the productivity of the available lands. Environmental degradation, therefore, takes a very heavy toll on the local subsistence economy and the daily lives of the rural people, resulting in acute poverty, hunger and distress migration, especially of males. This is ecological poverty, different from the cash economy, our economists love to count.

During the last 25 years, land degradation in India has resulted in increased poverty and

drought-prone conditions across large areas of the country. But in these conditions we have seen some outstanding community-based responses to reverse the land degradation and thus revive the local biomass-based economy. Two villages – Sukhomajri, situated in the sub-Himalayan Sivalik hill range, and Ralegan Siddhi, situated in the drought-prone Deccan plateau region of Maharashtra – started their efforts in the 1970s. Tarun Bharat Sangh, a non-governmental organisation, began encouraging village communities living in the Aravalli ranges of Alwar district of Rajasthan in the mid-1980s to revive their traditional water harvesting system called johads and is today working with nearly 500 villages in the area. Inspired by the outstanding transformation of Ralegan Siddhi, Digvijay Singh, the chief minister of Madhya Pradesh, modelled a state-wide community-based watershed development programme which in four years, by 1998, had reached nearly 8000 villages.

In all these transformations, development of transparent and participatory community-based decision-making institutions and establishment of community property rights over the local natural resource base was critical. These institutions decided natural resource management priorities, resolved conflicts within the communities, and determined burden- and benefit-sharing rules. Technologically, the starting point was rainwater harvesting – centuries-old tradition of Indian villages – which slowly led to the regeneration of the entire 'village ecosystem' and the associated rural economy. Indian villages situated in semi-arid to sub-humid environments (500 mm to 1200 mm rainfall) traditionally worked within an agrosylvopastoral

vertical and a lateral structure. This is important for us in order to optimise our resources so that staff can contribute to different activities. Currently, the Centre has a fairly structured organisational structure but one that promotes programme coordination between different programme units.

The organisational framework for programmes is based on distinct cells and units/teams. Cells demarcate the overall programmatic theme and the direction of work. A Team/Unit is a cohesive group of staff working within a cell. This structure allows for a flexible organisational structure that can meet the requirements of the Centre's programme. But the disadvantage of cells is that they can easily become too compartmentalised and inward looking.

There is the danger of overstaffing as each cell will try to get all the skills it needs within itself rather than sharing skills and human resources with others. But we are trying to overcome these problems by instituting various institutional mechanisms:

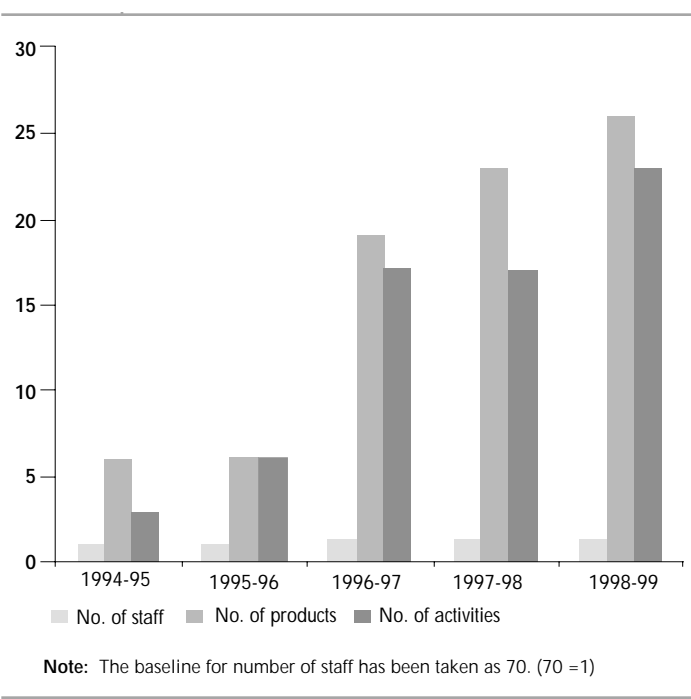
- Interlinking through LAN covers all staff members and enables them to communicate more with other members.
- A system whereby all major campaigns, conferences and other programmes are opportunities for all staff to come together and share responsibilities.
- A formal work commitment in the annual plans whereby each staff member has responsibilities to contribute to the work of other teams. For instance, every staff member has a responsibility to contribute to *Down To Earth*, to the *State of India's Environment Reports*, *State of Global Environmental Negotiations Report* and to the website. The *Gobar Times* and the documentary films teams also use on the research material produced by the programme teams of the Centre.

In 1995, we began to restructure the existing teams to enable the Centre to move into new programme areas — to move away from a single focus on journalism to other foci on policy research, studies, campaigns and education.

We developed teams to do more than journalism. But we did this not so much by adding new staff but by internal restructuring to form specialised research and advocacy teams. The staff who have formed specialised teams are doing far more rigorous research and their advocacy work demands from them more varied skills of communication and networking. As part of their efforts to build a constituency and influence they publish articles.

An important indicator of our reengineering efforts is our staff strength. From 1995 till date it has remained more or less constant – from 85 in 1995 to 94 in 1999. But in these years, the number of activities and publications has risen considerably.

Staff and activities: Increase in the number of activities and products (1995 to 1999)



b. Building a deadline culture

Our past experience in CSE was that research had no deadline. The best of schedules could be modified as there was always something more that was needed to be done. And most reports remained manuscripts in drafts. The deadline was always director-driven. Therefore, we wanted to organise work that was driven by the individual, and was organised in a way that the product was determined and the output assured. This was in fact a key reason why we collaborated on starting the fortnightly *Down To Earth*. The magazine provides us with an inbuilt programme monitoring mechanism – to ensure that the internal research is deadline driven.

c. Annual programme planning

Although the Centre has been doing annual planning exercises for several years now, we have now set up a system that makes it detailed, rigorous and structured. Every programme unit in the Centre participates in this exercise. The exercise provides the Centre's programme staff with an exposure to management issues like budgeting, staff planning, fund raising, project development, commitments to other groups in CSE and time management.

The annual planning exercise ensures that every staff member plans his/her work output in advance and thereafter is responsible for the outputs. The system of clear deadlines and monthly monitoring of those deadlines ensures that programmes are kept on track. The annual reviews also help to identify overall weaknesses — in staff members, in the planning process, in the monitoring process.

branch, organised a national conference on respiratory diseases and air pollution disorders in New Delhi on September 28, 1997. Realising the importance of such a forum, which for the first time was designed to sensitise doctors in the capital to health risks from air pollution, CSE supported the initiative and participated in the meeting. Apart from outlining the problem of vehicular pollution and resultant health risks, it stressed the urgency of generating more information on health effects of air pollution and the need for more active involvement of the medical community with this issue.

November 1, 1997

On November 1, 1997, exactly a year after the release of the report *Slow Murder*, the Centre organised a public meeting titled ‘Slow Murder and Since’ to mark the first anniversary of its launch in 1996. The meeting was organised to draw attention to the perilous deterioration in urban air quality. In a crowded auditorium, Anil Agarwal reviewed what the government had done over the past year to control vehicular pollution, and pointed out how inadequate and cosmetic the official efforts had been. “We don’t have our own method of monitoring pollution levels and the present situation is grim. The future is bleak, and nobody knows what to do,” he regretted.

The panel discussion which followed was co-chaired by Delhi Transport Minister Rajendra Gupta, and CSE chairperson and former director-general of the Indian Council of Medical Research, V Ramalingaswami. Other panelists included eminent scientist and former Union minister M G K Menon, former managing director of Maruti Udyog Limited R C Bhargava, chest specialist at Patel Chest Institute, S K Chhabra, and chairperson of the Central Pollution Control Board (CPCB), D K Biswas. The speakers agreed with Agarwal that very little was being done to control air pollution, and no scientific data was available on

Model minister

A politician with a difference

At the same public meeting on November 1, 1997, CSE had revealed that the death rate due to air pollution had doubled in Calcutta between 1991-92 and 1995. Shocked by this information, Manabendra Mukherjee, West Bengal’s Minister for Environment, Tourism and Youth Services contacted CSE to discuss the air pollution problem in Calcutta. He sought CSE’s help to devise a policy framework for countering the problem in Calcutta.

certain key pollutants.

The same day, a public advertisement — Dead by Breathing — was issued by CSE in *The Times of India*, apprising people about CSE’s alarming findings. The advertisement had one terse and caustic message: “While you are forced to line up to get your vehicle’s tailpipe tested, the real culprits go scot-free.” The advertisement clearly listed the culprits — the regulatory bodies and the automobile industry — who are responsible for transforming our cities into gas chambers.

Queries from all over the country began to pour in following the publication of the advertisement and media reports on the public meeting. Concern, appreciation, alarm, a sense of despair at the sluggishness of the authorities, impatience for action and an eagerness to help and aid the campaign to pressurise the government to act — these were the varying moods of responses that the information provided by CSE on the issue evoked.

Immediately after the release of the CSE finding, Saifuddin Soz, the then Union Minister for Environment and Forests (MoEF) reacted in the press on November 4, 1997, saying that he would soon bring out a white paper on air pollution in Delhi. Agarwal was



CSE campaigner, Anumita Roychowdhury, makes a presentation at the public meeting held on November 1, 1997, New Delhi against air pollution.

Just action

Gujarat High Court took action based on DTE reporter Manish Tiwari's report on the people's plight in Bajwa



Heavy rains in Bajwa, a small town in Vadodara district of Gujarat. Forty lakh tonnes of waste, piled up by the Gujarat State Fertilizer Company (GSFC) in its premises, overflowed into contiguous residential areas on July 6, 1998. Replete with toxic impurities such as lead, cadmium, zinc, cobalt, gypsum and chalk, the refuse clogged the streets and ponds of the small town and trickled into people's houses. It was an environmental disaster.

When *Down To Earth* (DTE) reporter Manish Tiwari, accompanied by CSE photographer Amit Shanker, reached Bajwa they found washed-up waste all around, the water was unfit for drinking, the air was full of toxins, and the farmlands were degraded.

After an indepth investigation, DTE published a special report in its issue dated August 31, 1998, which analysed the extent of damage caused by GSFC in the area. Soon after, the Gujarat High Court issued a *suo moto* notice against GSFC on the basis of the DTE report. The court summoned GSFC officials, representatives of the Gujarat government, the Gujarat Pollution Control Board (GPCB) and the Central Pollution Control Board (CPCB). It also ordered DTE reporter Tiwari and Suren Choksi, a Vadodara-based geologist, who was quoted in the DTE story, to be present for the court's hearing on September 8, 1998.

During the hearing, all involved parties agreed with the DTE report that on July 6, 1998, the mountain of gypsum and chalk waste collapsed due to heavy rains and swamped the adjacent residential areas after breaking through the boundary wall of the compound. GSFC officials pleaded that they had reconstructed the portion of the boundary wall that was washed away by the muck. While the district magistrate, the GPCB lawyer and CPCB officials informed the court about their steps in this regard, GSFC also provided a photograph of the newly constructed portion of the wall to the court.

When asked about his views, the DTE reporter apprised the judges about the extent of the problem which he had already reported in the magazine. Tiwari told the court that GSFC officials should take immediate measures so that the ecology of the region is not disturbed.

The division bench comprising justice S D Dave and justice J R Vora in its verbal order on September 8 directed GSFC to ensure that the boundary wall of the company can withstand heavy rains in future. The court requested Suren Choksi to produce all the materials in his possession and apprise the court about his views on the incident. The court also observed the need to have both long- term and immediate measures to prevent such incidents. The court appreciated CSE's efforts in collecting all particulars and bringing the issue to the forefront.

1997 in 'Catch me a colossus'. While the government is persecuting poor forest-dwelling communities and villages near protected areas, Veerappan, a forest brigand, poacher and sandalwood smuggler who has killed at least 119 people, has made a mockery of the government machinery of the states of Karnataka and Tamil Nadu. CSE's research concluded that Veerappan is a monster created by the State which alienates people from their land and resources and penalises them if they cannot protect government property.



Threatened biodiversity

In Vietnam, an astonishing array of species are being threatened by deforestation and an illegal trade in wildlife. The government has started taking reform measures. The cover story 'on the edge' examines whether the reforms are producing results or are stronger laws and a different approach needed to save the nation's rich legacy of traditional knowledge and biodiversity. The magazine carried a series of articles on the threatened biodiversity of India, looking at a variety of resources such as domestic animals, fruits, pollinators, grasses

and microorganisms, among others. In September 1997, a CSE research pointed out that while a lot of noise was being made about patenting of upmarket products involving plants like neem, India's unique biodiversity of domesticated animals was disappearing for want of attention. The analysis revealed that governments have not encouraged research. That Indian scientists know precious little about the genetic makeup of most domestic animal breeds. That crossbreeding programmes have backfired in India, producing nondescript and useless 'mongrel' breeds, while indigenous breeds, which may not be as productive but have several invaluable traits, are disappearing. It profiled some precious breeds that are being lost to pointless scientific experimentation.

One extremely important aspect — commonly ignored — of the complex web of life is the role of pollinators. In August 1997, in the article entitled 'Who will play Cupid?', CSE researchers drew attention to the plummeting populations of pollinators — small insects like bees and butterflies, animals like bats and birds like the hummingbird — and how their dying out would affect plants that depend on them for reproduction. The reason for this decline was traced to rampant use of pesticides, loss of habitat, rapid urbanisation and introduction of alien species. The conclusions

his slide show on water harvesting systems of Rajasthan. This was followed by a field trip to the traditional water harvesting sites in Mehrauli. The visits to Hauz-e-Shamsi, Jharna, Sukhi Baoli (Rajaon ki Bain) and Gandhok Baoli were, for most students, their first glance at traditional water harvesting sites.

Back to the north campus on February 12, 1998, CSE participated in the history festival – *Itihaas* – of Ramjas College. Mukul Manglik of the department coordinated the programme and helped put up the poster exhibition.

In February 1998, CSE also took part in a three-day event organised by the life sciences department of Jawaharlal Nehru University. The event covered the issues of vehicular pollution, protected areas and water harvesting. CSE campaigner Anumita Roychowdhury spoke on the topic. A discussion with the students ensued with Roychowdhury and Priti Kumar, coordinator of CSE's health team, answering queries on the subject. *Protected areas: whose business?*, a film on conflict between people and forest department over protection of national parks, was screened later. CSE campaigners Supriya Akerkar and Neena Singh answered queries on the issue of conservation, which was focussed upon in the film.

Gobar with a difference

Can one stimulate young minds to question prevailing development patterns, lifestyles and governance systems? Or equip the architects of tomorrow with an awareness that helps them make the right connections, and better choices?

These and other similar questions gave birth to *Gobar Times*, *Down To Earth*'s children's supplement. *Gobar Times* aims to publish news and views on the environment, science and technology; stories from various traditions including environmental movements and inventions; features highlighting the social implications of scientific issues; and, comic strips, cartoons, quizzes, essay competitions and interactive pages, where children can put their views.

Gobar Times was officially launched at a well attended function on May 3, 1998 by actress Dina Pathak and special secretary to the lieutenant governor of Delhi, Kiran Bedi, in New Delhi. The launch was the culmination of an event that had taken place the previous day — the Yamuna yuk-ride (see section on Yamuna yuk-ride).

Why gobar?

Speaking at the function on the unusual choice of the name *Gobar Times*, the Centre's director, Anil Agarwal, said that *gobar* (cow dung) is one of the best examples of wealth from waste. Chief among its myriad uses is its value as a healthy diet for plants, an enormous energy conserver and an insect-repellent.

Besides being sustainable and cheap, *gobar* is inextricably linked with the daily-life

of millions of Indian lives, and is the perfect metaphor of what environment should mean to every individual, Agarwal said.

Dina Pathak reminisced about her childhood and the importance a small river had in her life: "In our day, the environment was very close to us, but now its your concern and you must do something to live in a clean environment". Echoing her concerns, Kiran Bedi raised a few laughs by imitating today's children who waste water when showering or brushing their teeth. Her remark, "selfish children become selfish adults," just about summed up today's attitude. But if the enthusiasm, concern and desperation to 'do something', displayed by the yuk-riders is anything to go by, *Gobar Times* and the Ecological Footprint Project will have more than served their purpose.

Looking back to look ahead

In August 1998, three months after the launch of *Gobar Times*, and having received a positive response from children across the country to the supplement, the environment education team felt that it was the right stage to incorporate changes.

A meeting was organised on August 8, 1998, at the India Habitat Centre, to discuss issues pertaining to the editorial content and format of the supplement. Should *Gobar Times* be theme-based or should it continue in a magazine format dealing with various topics. What do children look for in a magazine and what methods should be used to get the message across. Should *Gobar Times* be targeted directly at children and simultaneously serve as a useful teaching aid in classrooms for teachers. Should one interface with the school curriculum, were questions that needed the advice of persons experienced in teaching and publishing magazines for children.

Anil Agarwal, Sunita Narain, former *Target* editor Vijaya Ghose, Summer Fields School teacher Shalini Dutta, Sardar Patel Vidyalaya principal Vibha Parthasarthy, Eco-Rev director Ashish Shah, Vasant Valley teacher P K Sharma, Eco-friends activist Rakesh Jaiswal, Council for Advancement of



Actress Dina Pathak (left) and special secretary to the lt governor Kiran Bedi (right) at the launch of *Gobar Times* at the India Habitat Centre, New Delhi.



taken by CSE staff have been added to the collection. We now have 40,000 slides and 19,300 negative frames. A total of 58 video home system (VHS) films were also added and now there are around 350 films. A slide package on Traditional Water Harvesting System was shot. The unit distributes films produced by the Television Trust for the Environment (TVE), and TVE helped CSE to produce a video brochure on films being distributed by CSE. The basic aim is to bring together people from all backgrounds to view the collection of 350 videos the Centre possesses on environment, and to encourage them to become members of our video club. The poster database provides details on all available poster in our collection. We have also introduced a digitised photo bank by acquiring images from outside sources.

The unit regularly conducts videoshows for staff and also during environmental education programmes undertaken by CSE. The team provided slides and pictures to several organisations and individuals.

Rajni Tandon, the convenor of The Temple of Understanding, Delhi centre, an NGO showed her film on *Patterns of Understanding for Nurturing*, which was followed by a discussion on the film. Danish filmmaker Dola Bonfils' film *Our Living Word: Part II* was screened for CSE staff.

With support from Television Trust for the Environment (TVE), a UK-based organisation, the team brought out with a video brochure on the films available at the centre. The aim is to bring together people to view the collection of 325 videos that the Centre possesses on environment and to encourage them to become members of our video club.

NEWSPAPERS AND MAGAZINES TEAM

Compiling news

The newsclipping unit has been able to widen its coverage since July 1997 by accessing news from the Internet. The *South Asia Green File* and the *Global Green File* have benefited greatly from this source. The unit now accesses newspapers from South Asia, Thailand, Korea, Latin America and Commonwealth of Independent States. Subscribing to newspapers from these regions before was expensive and the service was unreliable. International

newspapers including *The Daily Star* (Bangladesh), *Dawn*, *The Nation* (both from Pakistan), *St. Petersburg* (Russia), *Korea Herald* (South Korea), *The Bangkok Post* (Thailand), *The Washington Post* (United States), *The Colombian Post* and *Costa Rica Today* are downloaded regularly.

The unit compiles the Daily Bulletin Board that gives highlights of the day's environmental news. This bulletin is available to all staff members and is available on the website.

The team has brought out issue-based compilations of newsclippings on the following issues:

Two volumes of *Renewable Energy Resources of India-1986-95* have been brought out.

Five volumes of *Forest resources of India, 1986-95* have been brought out. Volume one covers forest resource, management, while volume two covers deforestation. Volume three includes afforestation and social forestry and volume four covers wasteland development, forest research and education, forest fires and diseases. The fifth volume includes information on forest-based industries.

Issues on wildlife — An Indian perspective (1986-95). The issues are arranged statewide. Under each state, the issues have been categorised as: policies, sanctuaries, endangered species, wildlife trade, conflicts and zoos.

Scanning industries for a green hue

The team launched the *Corporate Environment Inc*, a monthly compilation of news on industrial and environmental issues. The news items are gleaned from over 70 leading national and international newspapers and it covers domestic, joint sector and multinational companies. The publication is indexed according to the names of individual companies and are further sorted by industrial sectors for reader's convenience. This information is also available as specialised digital/ printed package every six months.

DATABASE TEAM

The database team developed certain important packages:

- **Daily Bulletin package:** A software was developed for the Daily Bulletin Board
- **Down To Earth database:** The new software helped in indexing *Down To Earth* articles, according to authors and subject.
- **Conference package:** This provides information on forthcoming conferences.

Job made easier

The database team came out with two major directories in 1998-99: *The Health Directory* and the *CSE Administration Directory*. Apart from these directories, the team also created various other databases on Indian and international environmental book publishers, people



Mailers for each publication produced to identify and reach the target group efficiently.

the different programme units of the Centre. The participation in these fairs served to increase the visibility of CSE publications and created an awareness about environmental issues as well as about CSE.

An effort was also made to market CSE products through local book shops. Some of the bookshops which stock CSE publications are: Bookworm, Bahri & Sons, Galgotia & Sons,

Paramount Book Store, Empire Book Depot, New Book Depot, English Book Store, Crossword, Teksons, Panama Book Distributors, International Book Distributors, Oasis Books (Chennai), Earthcare Books (Mumbai), Earthworm, C.B.S. Distributors, Jain Book Agency, Green Bookshop. All these efforts resulted in an increase in the visibility of CSE publications considerably.

Amos Tuck

Students from the Amos Tuck Business School, Dartmouth College, at Hanover in New Hampshire worked with DTE for two months in mid-1998 to suggest ideas in developing a strategic approach to marketing DTE. Joanne Hogan, Michael Koester, Jane Ngo and Raul Uranga studied current strategies adopted by DTE, its pricing policies, financial results and also held discussions with DTE staff members, readers and distributors.

At the end of their stay they prepared a report and made a presentation to the staff on September 3, 1999. The team recommended that the magazine needs to focus its resources, build membership and brand *Down to Earth* – by creating a special issue like the World Environment Day or starting some annual project like Time's Person of the year or Fortune's 500 list. The report suggested that in order to make marketing efficient, the marketing team must work in close coordination with the editorial team.



Events

Right to Clean Air



April 2000: Anumita Roy Chowdhury made a presentation on vehicular pollution at the teachers training programme organised by CSE on the occasion of Earth Day.

October 2000: Anumita Roy Chowdhury made a presentation on environmental challenges to fuel quality at a seminar organised by FICCI.

January 2001: Anumita Roy Chowdhury made the presentation on the action plan for vehicular pollution control at the Indian Institute of Petroleum in Dehradun.

March 2001: Anumita Roy Chowdhury made a presentation on Developing Europe-Asia Cooperation Mechanisms in Environmental Technology and Management Systems organised by Asia Ecobest Roundtable in Lisbon.

May 2001: Anumita Roy Chowdhury made a presentation on *fuel quality* in the seminar organised by the Asian Development Bank.

May 2001: Anumita Roy Chowdhury made a presentation on *Environment and Cancer* at Apollo hospital.

May 2001: Anumita Roychowdhury made a presentation *Air pollution crisis in Delhi* in the seminar organised by the Women Welfare Organisation, Delhi University.

June 2001: Anumita Roychowdhury made a presentation on the *Air pollution scenario in Delhi* in the Lal Bahadur Shastri National Academy of Administration in Mussourie.

People's Water Management



April 2000: Indira Khurana made a presentation on rain water harvesting at the annual convention of the Indian Institute of Architects, Noida.

June 2000: Indira Khurana gave a Presentation on rain water harvesting at the Earth Day Function of UNEP and Australian High Commission.

June 2000: Eklavya Prasad made a presentation at the national conference organised by the Rajasthan State Ground Water Board.

September 2000: Indira Khurana gave a presentation at a workshop Green India, organised by Ministry of Urban Affairs, New Delhi.

February 2001: R K Srinivasan delivered a lecture on urban rainwater harvesting systems at the School of Planning and Architecture.

March 2001: R K Srinivasan spoke on rain water harvesting in cities at a workshop on water management held at Nagaur Fort, Jodhpur.

March, 2001: Indira Khurana and R K Srinivasan spoke on traditions in rainwater harvesting at the Indian Institute of Technology, Delhi.

April 2001: Suresh Babu and R K Srinivasan spoke on water harvesting in urban areas at Pani Roko Abhiyan events held in Indore, Gwalior and Rewa.

June 2001: RK Srinivasan & Suresh Babu spoke on rooftop water harvesting at a function organised by the Indian Airforce, Subroto Park in Delhi.

June 2001: Suresh Babu delivered lectures on rain water harvesting for the Resident Welfare Association, Vasant Vihar and at a workshop organised by Katha for slum teachers.

July 2001: Suresh Babu spoke on rainwater harvesting at a workshop on drinking water problems in hill tops, organised by the Government of Tripura, Agartala.

September 2001: Indira Khurana gave the keynote address at Rainwater International, 2001 at Mannheim, Germany.

September 2001: RK Srinivasan and Suresh Babu spoke to the students of GB Pant Polytechnic and the Sprigdales School in Delhi.

September 2001: Suresh Babu spoke at National level training workshop organised by Education Counsellants under the District Primary Education Programme, Jaipur on water harvesting in urban areas.

October 2001: Suresh Babu spoke at a workshop organised by IIT, Roorkee for engineers from South Asia on urban water harvesting.

November 2001 Suresh Babu spoke to students of Sanskriti School, New Delhi on water harvesting.

November 2001: Indira Khurana and Suresh Babu spoke on community-based rainwater harvesting in India at a national level workshop organised by Tamil Nadu Water Supply and Drainage Board, Chennai.

November, 2001: Eklavya Prasad and Suresh Babu spoke on water harvesting at CSE for the students of Hans Raj College, Delhi University.

December, 2001: Indira Khurana spoke at a Rotary club meeting in New Delhi.

December, 2001: Suresh Babu spoke at the Regional Institute of Technology, Kottayam, on urban water harvesting.

December, 2001: Suresh Babu spoke on rainwater harvesting at GVNMM College, Sonipat.

February, 2002: R K Srinivasan spoke at Kamala Nehru College in New Delhi.

organised by UNDP, New York, April 14, 1997: Anil Agarwal delivered the speech. Sunita Narain attended.

Speech on 'It is possible to deal with poverty: A new paradigm for poverty eradication, employment and rural resource management', at the University of California, organised by department of agricultural economics, College of Natural Resources, Berkeley, April 23, 1997: Anil Agarwal delivered the speech.

Programme Policy Meeting, organised by WASTE Consultants, Gouda, the Netherlands, May 13-15, 1997: Sunita Narain attended.

Release of *The Living World Part-II*, a film on CSE, Copenhagen, May 14, 1997.

Speech on 'Have we made much progress since Rio?', at an NGO meeting on Rio5, organised by a coalition of Danish NGOs, Copenhagen, May 15, 1997: Anil Agarwal delivered the speech.

Speech on 'Multilateral Environmental Agreements and the WTO', at the WTO Symposium on Trade Environment and Sustainable Development, organised by World Trade Organization, Geneva, May 20-21, 1997: Sunita Narain delivered the speech.

Speech on 'Sustainable Livelihoods and Poverty Eradication', to the Governing Council of UNDP on Poverty and Environment, organised by UNDP, New York, May 21, 1997: Anil Agarwal delivered the speech.

Meeting of a study group on Public Awareness and Participation, organised by Independent World Commission on Oceans, Lisbon, May 28-31, 1997: Anil Agarwal participated.

Speech on 'Sustainable Development from the Perspective of the South', at the Congress on 'Ways out of the Growth Trap', organised by Heinrich Boll Stiftung e.v., Hamburg, Germany, May 30-31, 1997: Sunita Narain delivered the speech.

Speech on "Issues in Vehicular Pollution in Indian Metros", organised by Nature's Soul 'Freeing Delhi Of Pollution', Indian Institute of Technology, New Delhi, May 31, 1997: Anumita Roychowdhury delivered the speech.

Sub-committee meeting on NGOs, farmers and trade unions, organised by the government of India as part of its efforts to commemorate the 50th anniversary of India's Independence, New Delhi, June 4, 1997: Anil Agarwal chaired the meeting.

Speech on 'Vehicular Pollution and Policy', organised by World Wide Fund For Nature-India and Imperial College of Science and Technology, London, on 'Impact of Air Pollution on Agriculture in India', New Delhi, June 9-10, 1997: Anumita Roychowdhury delivered the speech.

Plenary speech on 'Environmental Security', at the 1997 open meeting of the Human Dimensions of Global Environmental Change Research Community, IIASA, Luxembourg, June 12-14, 1997: Sunita Narain delivered the speech.

Speech on 'Fifty years of India's Environment', organised by East and West Educational Society, Patna, June 21, 1997: Anil Agarwal delivered the speech.

Convention on International Trade in Endangered Species in Flora and Fauna (CITES), Conference of Parties, organised by IUCN, Harare, June 5-28 1997: Anju Sharma attended.

United Nations General Assembly Special Session, Earth Summit-II, New York, June 23-27, 1997: Supriya Akerkar attended.

Ninth Meeting of the National River Conservation Authority, New Delhi, July 12, 1997: Anil Agarwal attended.

Conference on 'Delhi — Control of Pollution', called by Minister for Environment and Forests, Saifuddin Soz, New Delhi, July 15, 1997: Anil Agarwal and Sunita Narain attended.

Meeting with Expert Members, National River Conservation Authority, New Delhi, August 27, 1997: Anil Agarwal attended.

Consultative Meeting on Public Information and Consultation of the Sectoral Assessment of the Hazardous Waste Management, organised by the Ministry of Environment and Forests, New Delhi, September 2, 1997: Pradeep Dutt attended.

Conference on the Implementation of Multilateral Environmental Agreement, Ways and Means, organised by the Netherlands Ministry of Environment, The Hague, September 15-16, 1997: Sunita Narain chaired.

Launch Workshop for Enhanced Malaria Control Project, New Delhi, September 15-17, 1997: Priti Kumar participated.

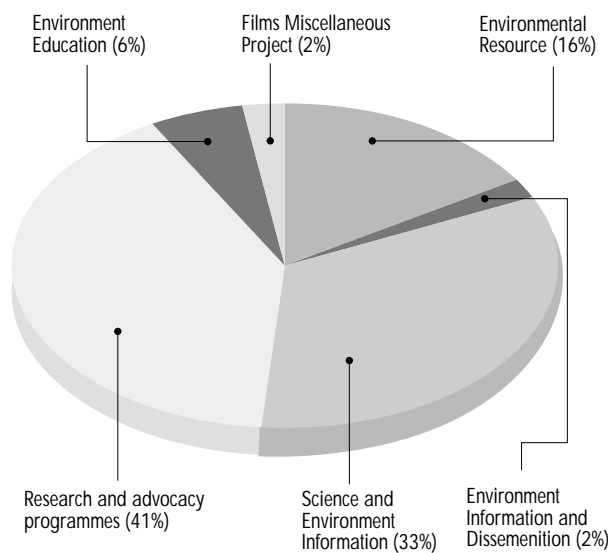
Media Consultation Meeting, organised by the Media Advocacy Group in collaboration with UNICEF, Nutrition and Child Development section, New Delhi, September 13, 1997: Priti Kumar participated.

The first Conference of Parties of the Convention to Combat Desertification, Rome, September 29-October 10, 1997: Supriya Akerkar attended.

Plenary speech on 'Science and Environment: Issues Facing India in the 21st Century', at the Harvard Conference on Hinduism and Ecology, organised by the department of theological studies, Loyola Marymount University, California, at Harvard, Oct 2-5, 1997: Anil Agarwal delivered the speech.

Speech on 'Governance for Sustainable Development', at a lecture series sponsored by the Environmental Studies Programme and the Office of the Provost,

Graph 2: Programmewise distribution of expenditure for 1988-1999



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Eminent medical scientist; former director of the All India Institute of Medical Sciences; former director-general of the Indian Council of Medical Research; currently a National Research Professor



Kamla Chowdhry
Management expert; former chairperson of the National Wastelands Development Board; currently, chairperson of the Society for Promotion of Wastelands Development.



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Environmentalist and journalist, former science correspondent of *The Hindustan Times* and *The Indian Express*, and fellow of the International Institute of Environment and Development, London



G N Gupta
Tax expert, former chairperson of the Central Board of Direct taxes, Government of India



Sunita Narain
Deputy Director
Environmentalist and journalist; author and co-editor of several books on environment



Virendra Kumar
Professor of botany, environmentalist, an expert on Himalayan flora, and former adviser (hill areas) to the Planning Commission.



Ela Bhatt
Noted social worker; founder of SEWA, Ahmedabad; and former Planning Commission member.



B G Verghese
Eminent journalist; former editor of *The Hindustan Times* and *The Indian Express*; currently works with the Centre for Policy Research on South Asian Water Issues.

Obituary

AVANINDER SINGH, member of the executive board of CSE, passed away on December 16, 1997 after suffering from cancer for over a year. During CSE's brief association with him, the Centre benefited enormously from his advice on a variety of issues. He was one of the first industry leaders to have an enlightened outlook about environmental protection and did pioneering work as the chairperson of the Environment Committee of the Confederation of the Indian Industry. Singh took very active interest in the Centre's programmes and helped it enormously by interacting with and advising members of different programme units on diverse issues.

He will be missed acutely by CSE and will always be remembered as a friend, counsellor and mentor.

V K LAROA, who was the Treasurer of the Centre, passed away on May 4 of a heart attack. Mr Laroia involved himself deeply in the affairs of the Centre and went out of his way to help with suggestions, ideas, and contacts for our various programmes — be it the air pollution campaign or the green rating programme. He provided the Centre invaluable support in management issues like finance or marketing and was full of ideas at Board meetings. He also shouldered the responsibility of being the Treasurer of the Centre and lent his expertise on financial management of the Centre.

His passing away was a great blow to the Centre and he will be greatly missed by CSE.



- the American University, Washington DC, Oct 8, 1997: Anil Agarwal delivered the speech.
- Keynote address, on Managing Water Scarcity: Experience and Prospects**, organised by Indo-Dutch Programme on Alternatives in Development, Amersfoort, the Netherlands, Oct 13-17, 1997: Anil Agarwal delivered the speech. Weltwirtschaft, Okologic & Entwicklung e.v.
- Workshop on 'Beyond Rio: Perspective of International Civil Society Five Years After Rio'**, organised by WEED, Bonn, Germany, October 21-23, 1997: Sunita Narain attended.
- Meeting of the Technical Advisory Committee (TAC) of the Global Water Partnership (GWP)**, Denmark, Oct 23-25, 1997: Sunita Narain participated in the meeting.
- Council meeting of the Global Environmental Facility**, Washington, Nov 1-4, 1997: Neena Singh attended.
- The Asia Regional Workshop on North-South Dialogue on Climate Change**, organised by a consortium of environment and development organisations, Dhaka, Nov 8-10, 1997: Nikhat Jamal Qaiyum attended.
- Task force meeting of the Global Environmental Facility**, Nov 10, 1997: Sunita Narain attended.
- Speech on 'The Common Heritage of the Genetic Pool'**, at the Conference on Peace on the Oceans on the theme of Common Heritage and the 21st Century, organised by the International Ocean Institute, Gzira, Malta, Nov 15-18, 1997: Anil Agarwal delivered the speech; Sunita Narain attended.
- Speech on 'Environment, Technology and Lifestyles'**, at the Sixth Indira Gandhi Conference on Post Colonial World-Inter-Defence and Identities', organised by the Indira Gandhi Memorial Trust, New Delhi, Nov 19-22, 1997: Anil Agarwal delivered the speech.
- Forum '97: New Linkages in Conservation and Development**, organised by Conservation Development Forum, University of Florida, Istanbul, Nov 16-21, 1997: Sunita Narain attended.
- The Third Conference of Parties of the United Nations Framework Convention on Climate Change**, Kyoto, Dec 1-10, 1997: Anil Agarwal and Anju Sharma attended.
- Speech on 'Environmental and Ayurvedic Formulations'**, at the seminar on the State of Ayurvedic Formulations in India, organised by the Cancer Research Foundation, Dehradun, India International Centre, New Delhi, Dec 13, 1997: Anil Agarwal delivered the speech.
- Speech on 'Conservation of Environment: Role of Science and Technology'**, organised by the Defence Science Centre, Defence Science Auditorium, New Delhi, Jan 1, 1998: Anil Agarwal delivered the speech.
- Implementation Monitoring Committee Meeting on Various Issues Related to Plastics Waste Management**, organised by Ministry of Environment and Forests, Paryavaran Bhawan, New Delhi, Feb 12, 1998: Anil Agarwal attended.
- International Dialogue Forum on Global Water Politics: Cooperation for Transboundary Water Management**, organised by German Foundation for International Development, Bonn, Germany, Mar 3-5, 1998: Anil Agarwal attended.
- India Water Partnership Steering Committee Meeting**, Bhikaji Cama Place, New Delhi, Mar 7, 1998: Anil Agarwal attended.
- Environment Protection Authority Meeting**, New Delhi, Mar 11, 1998: Anil Agarwal attended.
- First Assembly of the Global Environment Facility**, New Delhi, April 1-3, 1998: Anil Agarwal addressed the plenary session.
- International Symposium on "Financing and Commercialisation of Hydro Power in India,"** New Delhi, April 14: Sunita Narain presented a paper.
- Global Water Contract meeting** organised by Universidad Politecnica de Valencia, Spain, May 27-28, 1998: Sunita Narain attended.
- Global Environmental Management Dialogue** organised by Yale University, School of Forestry and Environmental Studies, New York, USA, June 4-5, 1998: Sunita Narain attended.
- Eighth Stockholm Water Symposium**, sponsored by Global Water Partnership, Sweden, August 10-11, 1998: Anil Agarwal and Sunita Narain attended.
- Workshop on climate change**, organised by the Dutch National Committee for International Cooperation and Sustainable Development (NCDO), The Hague, Netherlands, September 9-15, 1998: CSE campaigner Nikhat Jamal Qaiyum attended.
- Meeting of Waste**, Netherlands, September 28-29, 1998: Sunita Narain attended.
- Fourth Conference of Parties (CoP-4)**, Buenos Aires, November, 1998: Anil Agarwal, Sunita Narain, Anju Sharma and Nikhat Jamal Qaiyum attended.
- Meeting on 'UN Convention to Combat Desertification,'** organised by United Nations Organization, Senegal, November 30-December 11, 1998: CSE campaigner Anju Sharma attended.
- A meeting on 'Global Health Watch,'** organised by The Rockefeller Foundation, Italy, November 9-13, 1998: Anil Agarwal attended.
- Conference on 'Corporate Sustainability Reporting Guideline'**, organised by Global Research Initiative, Geneva, December 10-12, 1998: CSE representative Chandra Bhushan attended.

A lecture on 'Environment, Civil Society and Governance', organised by Norwegian Forum for Environment and Development, Oslo, December 16 1998: Anil Agarwal delivered the lecture.

Lecture on air pollution and child health, organised by Indian Academy of Pediatrics, New Delhi: CSE health unit coordinator Priti Kumar delivered the lecture.

35th Biennial Conference organised by CMAI Hyderabad: CSE health unit coordinator Priti Kumar made a slide presentation on issues of environmental health, December, 1998.

Debate 21 organised by WEED and GERMANWATCH, Hanover, Germany, January 17-19, 1999: Sunita Narain presented a paper on 'the debate on instruments for sustainable development for the climate sector'.

UNDP-EC Poverty and Environment initiative, Brussels, January 19-21, 1999: Anil Agarwal made a presentation.

Workshop on 'Interdisciplinary Dialogue on Climate, Biotechnology and Food and Water Security', Chennai, February 2, 1999: Anil Agarwal attended.

Meeting titled 'Future of Mitigation, South Asian Disasters', organised by Duryog Nivaran and Disaster Mitigation Institute with Ministry of Agriculture, Government of India, February 5-6, 1999: Sunita Narain attended.

Agenda for the Project Partner Meeting, Colombo, Sri Lanka, February 14-20, 1999: Sunita Narain made a presentation on 'What possibilities there are for "green politics" in Asia and what is meant by "green politics" in the Asian context'.

Multi-stakeholder Consultative Meeting to Identify the Key Elements of a Review of Voluntary Initiatives, organised by the Department of Economic and Social Affairs, United Nations, Toronto, Canada, March 10-12, 1999: CSE campaigner Anju Sharma attended.

Meeting with ministers and government officials, Japan, March 11, 1999: Anil Agarwal attended the meeting.

Lecture on 'Water pollution and its impacts on human health' organised by Leadership in Environment and Development (LEED), New Delhi, March 11, 1999: CSE health unit coordinator Priti Kumar delivered the lecture at the symposium.

World Commission for Water in the 21st Century, Cairo, Egypt, March 23, 1999: Anil Agarwal attended the meeting.

A meeting with ministers and senior officials of Rajasthan government, March 11, 1999: Anil Agarwal addressed the gathering.

Workshop on developing a distance education certificate course on health and environment, organised by IGNOU, March 23-24, 1999: CSE health unit coordinator Priti Kumar participated.

A board meeting of The Information Centre for Low External Input and Sustainable Agriculture (ILEIA), organised by ETC Foundation, The Netherlands, September, 1999: Sunita Narain attended.

Government Committee member:
Anil Agarwal

1. Member, **Implementation Committee, to Celebrate the 50th Anniversary of India's Independence**, Government of India, 1997.
2. Member, **Chairman, Advisory Group on Farmers, Trade Unions and NGO's National Committee to Celebrate the 50th Anniversary of India's Independence**. Government of India, 1997.
3. Member, **Visitor's (President of India) nominee on the Selection Committee for the post of professor in Centre for Energy Studies and Centre for Rural Development and Technology**, India Institute of Technology, 1997.
4. Member, **National River Conservation Authority**, Government of India, 1997.
5. Member, **Working Group on the Prospects of Leasing out Degraded Forest Lands to the Private Entrepreneurs/Forest Corporations**, Planning Commission, Government of India, 1997.
6. Member, **Standing Committee, National River Conservation Authority**, Government of India, 1997.
7. Member, **International Working Group on Sustainable Livelihoods**, United Nations Development Programme, New York, 1997.
8. Member, **World Water Commission**, Stockholm, 1998.





Quote, unquote

"*Dying Wisdom*", the fourth in CSE's series of State of India's Environment reports, calculates that rainwater collected by low cost traditional methods in just some five percent of the country's land area can meet most of India's farm and family needs. **Kuensel, Bhutan, May 10, 1997.**

"*Slow Murder* is a powerful investigation of vehicle pollution in Indian cities, From oil refineries to vehicle exhaust pipe and from traffic planner's drawing board to smog monitor's laboratory, no one anywhere in the world has anatomised this global pandemic of noxious fumes and cancerous particles so well." Opined the **New Scientist, England, May 10, 1997.**

On rain water harvesting, " Given the already horrendous and still growing pollution of India's rivers with Industrial contaminants and fertiliser and pesticide run offs from farmlands, Indians may soon have no other option but to capture raindrops", said Anil Agarwal, Director, CSE. **Bangladesh Observer, Dhaka, May 12, 1997.**

"Centre for Science and Environment has been doing yeoman service in making people aware of the problems consequent to ecological degradation and means to save our environment. The CSE's seminal contribution starting with its first status report to the nation on environment in the early 1980s and its high quality journal *Down to Earth* over the last couple of years, is at its best in this report." Opined **The Economic Times, Hyderabad, May 18, 1997.**

Expressing surprise at a recent statement made by Delhi health minister Harsh Vardhan that there is no evidence to link pollution to heart and lung diseases, the Centre for Science and Environment called it "irresponsible, misleading and an attempt to underplay the ill effects of pollution in order to lull the citizens of Delhi into a false sense of complacency." **The Hindustan Times, New Delhi, June 18, 1999.**

On the lower Gangetic plains, " There is an urgent need to evolve an alternative development strategy in the lower Gangetic plains which has the maximum human concentration in India. Despite the prevailing gravity of the situation, the government did not take any steps to restore the old irrigation and drainage systems or construct a new system, opined the noted environmentalist, Mr. Anil Agarwal. **Times of India, Patna, June 23, 1997.**

For the first time in India, a Delhi based non-governmental organization, the Center For Science and Environment has started a project for rating industries for eco friendliness. Significantly, the Green Rating Project has been approved by the Ministry of Environment and Forest and UNDP for inclusion in the country plan (1997-2001) reported the **Sunday Observer, New Delhi, July 13, 1997.**

On the quality of the drinking water supplied to Delhi, Anil Agarwal warned that, "dangerous pesticides and heavy metal residues are contaminating the water in all the three water treatment plants in Delhi and the presence of such pollutants in drinking water could even lead to cancer." **Rashtriya Sahara, New Delhi, August 1, 1997.**

"If wrongs are not righted now," Anil Agarwal warned, "India may become the world's most polluted zone". **Asia week, Hong Kong, September 5, 1997**

Criticising Mr. Gujral's endorsement of the the Commonwealth Economic Declaration on promoting shared responsibility, Mr. Anil Aggarwal and Ms. Sunita Narain said that, "It marked the beginnning of the end of most important principles of global environmental policy of common but differentiated responsibility which was central to negotiations at Rio in 1992." **The Hindu, New Delhi, November 7, 1997.**

The air in our cities and towns is so unfit for breathing that a recent survey by the Centre For Science and Environment (CSE) put all our major cities on the "unfit for breathing" list, opined **India Today, New Delhi, November 17, 1997.**

On sea level rise due to global warming, Anil Agarwal responded by saying that, " It's only the blind who will say that such calamitous impact of climate on a neighbour like Bangladesh won't affect India". **The Outlook, New Delhi, December 8, 1997.**

Playing the inadequate data on pollution parameters, Anil Agarwal of CSE said, "Pollution control is a scientific exercise. There are no proper monitoring systems and there is no data on the exact sources and nature of the pollutants. Such data is essential in massive modelling exercise which have to be done to understand the pollution issue." **Economic Times, New Delhi, December 12, 1997**

Industry and Environment



April 2000: Archak Pattanaik attended the workshop on liquid and solidwaste management in chemical industries organised by the Department of Chemical Engineering, IIT-Delhi, Indian Institute of Chemical Engineering (Northern Regional Centre), and Indian Chemical Manufacturer's Association.

September 2000: Chandra Bhushan attended the workshop on Ethical Investment and Corporate Disclosure, organised by the Global Partnership Working Group at Hanover, Germany.

June 2001: Chandra Bhushan participated in the meeting on Reporting and Performance, Companies & Stakeholders, A common Agenda, organised by Sustainability Ltd in London, United Kingdom.

December 2001: Chandra Bhushan attended the meeting of Measurement Working Group organised by Global Reporting Initiative in Paris as the co-chair of the panel.

February 2002: Chandra Bhushan gave a presentation on CSE's Green Rating Programme at a workshop on Appreciation Programme for Management Representatives/Environmental Managers organised by EQMS Ltd in New Delhi.

March 2002: Monali Zeya made a presentation on the *Experience of Green Rating of Indian Industries* at a workshop organised by Compliance Advisory and International Finance Corporation in Manila, Philippines.

Environment Education



April, 2001: The Environment Education unit was invited to deliver lectures to Delhi University lecturers as a part of their training programme organised by Council of Professional Educational Development.

April, 2001: A lecture on water harvesting was given to children and teachers of the Bharti Vidya Bhawan Eco-club as a part of their annual function.

April, 2001: A talk was given to students of the American School, New Delhi.

July, 2001: A group of 13 teachers from Chicago, USA attended a talk on poverty and environment in CSE.

August, 2001: A talk was given to students of then British School as a part of their community education programme.

August, 2001: Presentations on air pollution were organised for the Cambridge Public School, New Delhi and Salwan Public School, New Delhi.

September, 2001: INTACH-Jaipur organised a workshop for principals on heritage conservation and education. The Environment Education unit was invited to deliver lectures.

September, 2001: Members for the EEU was invited as a part of the panel for a discussion on community participation in development, organised by IFCOD, New Delhi.

February, 2002: A lecture on sustainable development was organised in the National Defence Institute as part of its in-service training programmes.

March, 2002: A presentation was given to a team of people from District Institute of Education and Training (DIET) involved in developing a booklet on water harvesting for middle school students of schools under Delhi Government.

Global environmental governance



May 2000: CSE presented a paper on entitlements in climate change called *Equity and Emissions Trading — Ethical and Theological Dimensions* at a meeting hosted by the World Council of Churches at St. Andrew's College, Saskatoon, Canada.

June 2000: CSE staff participated in a meeting, Highlighting Southern Priorities for Earth Summit 2002, organised by the Heinrich Boell Foundation and the Stockholm Environment Institute, Brussels, Belgium.

June 30 and July 1, 2000: Anju Sharma presented a paper on the role of the European Union in the climate negotiations at the climate negotiations meet organised by the European Environment Bureau (EEB) and France Nature Environment, Arc-et-Senans, France.

September 2001: CSE attended the meeting in Bangladesh on World Summit on Sustainable Development, organised by the Forum of Environmental Journalists (FEJB).

November 2001: The GEG unit participated in an online debate organised by the *Heinrich Boell Foundation*, on the impact of September 11 on WSSD.

November 2001: GEG Unit participated in the meeting for WSSD held in Phnom Penh, Cambodia.



Lending a helping hand

We began to involve volunteers and student interns on a regular basis in late 1996. Although we began this in a rather ad-hoc manner, we found it worked extremely well. For instance, during the period November 1996-February 1998, a period of 332 working days, volunteers and student interns had put in 460 working days with the Centre. Assuming a monthly remuneration of Rs 5000, these volunteers had contributed about Rs. 1,11,000 to CSE through their voluntary labour. Given a staff strength of about 90 (and therefore, an annual labour contribution of 90 person years), volunteers contributed to about 2 per cent of the total person-years contributed by the permanent staff during 1997-98.

A good volunteer base can help the organisation in many ways — (1) firstly, volunteers become a part of CSE network of friends and serve as CSE's ambassadors to carry the environmental message; (2) Secondly, the inflow of a lot of young people helps to energise the institution and CSE events are carried out with commitment and enthusiasm; and (3) Most importantly, volunteers also serve to reduce our staff cost considerably. In fact, if organised properly, this activity, has an enormous potential to cut down expenditures. It should be possible to ensure that volunteers contribute between 15-20% of the total human-day contribution of permanent staff.

We are fortunate that we are in a very good position to access a large number of volunteers — through *Down To Earth* and through our environment education programmes that interacts with schools and colleges. Over the past two years, the Centre has worked to organise the volunteer activity in a systematic manner and is now able to respond well to the numerous requests that it receives constantly from highly qualified young professionals and students. Today, there are about 25 volunteers, on an average, working in CSE at any given time.

These are young people looking for work experience which may be useful in their future career; students wanting to use their vacation time usefully; and, retired government servants looking for opportunities to spend their time in contributing to society.

The Programme Management Unit which now coordinates the activities of volunteers in CSE today has spent time to identify requirements of different programme units in the Centre. Simultaneously, it has also categorised volunteers according to their qualifications, interests and skills. This enables us to match the requirements of the different units to the interests of volunteers.

While the volunteers contribute to the organisation without any expectation of remuneration, they are given a token honorarium of Rs 75 per day to compensate for the travel and lunch expenses. The Centre also gives complimentary copies of CSE publications and keeps in touch with them through regular CSE reports, invitation for CSE conferences and training programmes.

MEERA DHINGRA, a class XII student studying in Florida, USA, worked as a volunteer in the Books and Newsletter Production Unit. Meera collected materials on air pollution and wrote an article on it. Her work has been included in the *Citizens' Fifth Report on the State of India's Environment*.

JYOTIRMOY CHOUDHARY is doing his BA (Hons) in English at Jamia Millia Islamia University, New Delhi. He worked as a volunteer in the Books and Newsletter Production Unit. Jyotirmoy conducted research work on river pollution in India and wrote an article for the *Citizens' Fifth Report on the State of India's Environment*.

ASMITA BHARDWAJ, a student of the School of Planning and Architecture, worked as a volunteer in the Book and Newsletter Publishing Unit. Asmita conducted research work for the *State of India's Environment Report*.

RAJAT BOSE is doing his Bachelor of Planning from the School of Planning and Architecture. He worked as a volunteer in the Book and Newsletter Production Unit and conducted research on the *State of India's Environment Report*.

MRIDUL UPRETI, a final year student of

Bachelor of Planning at the School of Planning and Architecture, also worked as a volunteer in the Book and Newsletter Production Unit Book and Newsletter Production Unit. He also conducted research on the *State of India's Environment Report*.

JUHI SAHAY worked with the Book and Newsletter Production Unit. She assisted in data collection for the *Citizens' Fifth Report on the State of India's Environment Report*.

PRITPAL SINGH worked with the Book and Newsletter Production Unit. He assisted in data collection for the *Citizens' Fifth Report on the State of India's Environment*. He has done his graduation in economics from Ramjas College of Delhi University.

SUNANDA RABINDRANATHAN has done her Masters in Sociology from Annamalai University. She helped the Book and Newsletter Production Unit by collecting data.

ADITI DUTTA is doing her M Phil in Political Science from Jawaharlal Nehru University. She worked with the Book and Newsletter Production Unit of CSE. She was involved in collection of data for *Citizens' Sixth Report on the State of India's Environment*.

DIVYA SHUKLA assisted the Book and



working on sacred groves, media and global environmental negotiations. A resource persons database consisting of persons and organisations, national and international, with a strong presence in areas of environment, be it wildlife, forests, energy, biodiversity etc was also developed. These are available on LAN and can be accessed by an individual on his/her own work station through resource person database. A list of prominent 2000 environmentalists of India has also been put together.

Water links

Traditional water harvesting methods are becoming popular with more and more people understanding how important these structures are. This growing interest in water harvesting has encouraged the Centre to compile and produce a directory of water harvesters. The directory will help like-minded individuals and groups to interact and share information on water harvesting and disseminate technologies in water harvesting. The directory has been prepared from responses to a questionnaire issued by the database team.



WEBSITE TEAM

Surfing in cyber space

The Centre launched its website on January 23, 1998. The site has been designed, created and implemented by the website department with multimedia features and interactive capability. It is colourful and attractive interspread with interesting cartoons. The site with more than 150 pages have comprehensive information on CSE publications and the activities done by the different units. The entire library and images from the audio-visual unit are on the website. All available information can be searched by a keyword, title or the author's

name. The CSE videos can also be searched through it and a small video clip can be seen. The daily bulletin board of environmental news runs across the site as a ticker tape.

The website will be constantly updated with news on CSE publications, activities, bulletins and press releases. The current issue of *Down To Earth* is published on the web simultaneously. A selection of articles is available with eye-catching pictures and graphics. The back issues of DTE and order forms are also available on the web. Each one of the CSE campaigns are featured on the website. This keeps viewers informed on the organisation's position on the various issues, the press releases as well as a response page for interested people to contact us with their views.

All CSE publications along with their brochures and abstracts are available. Viewers can place online orders. The *Notebook*, the quarterly newsletter about CSE's activities is published on the website regularly. The CSE/DTE Feature Service is also available. Information is also available on the environment and health team and the environment and industry team. *Gobar Times*, the children's supplement of *Down To Earth* is also published on the website, complete with articles, images, cartoons, contests, response pages etc.

The CSE website devoted a separate section on the first participatory assembly meeting of GEF held in New Delhi. CSE, in its capacity as the South Asian NGO focal point of the

Best of Asia Pacific

CSE website was awarded the Best of Asia Pacific award in the category of nature and environment for the year 1998.

Eliciting response

CSE website has been eliciting tremendous response from surfers worldwide. Following are some of the response.

I am currently pursuing my environmental engineering degree and I was really interested in the CSE site, which seems to be the only one of its kind paying attention to the environmental hazards facing India. Best of luck.

Indian student, New Zealand

We'd love to have your organisation pursue its agenda in our area. Your site is great. Is there anyway I can subscribe to news by e-mail so that I do not have to spend so long on the web?

Sue Wheat, Journalist, UK

I cover environment and other related issues for the paper. I would be grateful if you could keep me posted with information, updates, etc on issues and events in the field of environment, especially, relating to Mumbai and Maharashtra or send me information on how I can best access such material.

Vaishnavi Sekhar, The Times of India, Mumbai

Visited your web page from Kalmar-Sweden. Keep up the good work.

Frederick Noronha, journalist

Excellent website. Just wanted to convey that the information put out on your site is proving to be a tremendous boon for writers and campaigners like myself.

Bittu Sahgal, editor, Sanctuary Magazine

'Your website, is terrific!'

Dave Trouba, editor, Stockholm Water Front, a quarterly by the Stockholm International Water Institute.

GEF-NGO network, organised and coordinated all NGO-related activities at the assembly. The website also reported on the first National Conference on Health and Environment organised by CSE. It also provided extensive coverage to the CSE Conference on The Potential of Water Harvesting Traditions, Policies and Social Mobilisation Conference which was held in October 1998. Again, the website provided an up-to-date information on activities relating to CSE's campaign on climate change including its participation at SUBSTA meeting at Bonn and the CoP4 Conference at Buenos Aires.

CSE has also started a new mailing list service where an email is sent to everyone on our database highlighting new CSE events, activities and DTE articles. This has been appreciated and quite a few people have sent us their email to be added to this list. This has also provided a feedback on our events, articles etc.

The website has also been registered in search engines like, Yahoo, AltaVista, WebCrawler, HotBot and Lycos. This is an ongoing process and the website team is exploring ways to get listed to new search engines under important keywords.

Tracking Hits

In March 1999, CSE had 20,000 page views on the website. If, on an average a person goes through four to five pages of the site, it translates to approximately 4,500 visitors in a month or 150 visitors in a day. In March 1999, CSE moved to 11th place out of 300 in the sites hosted by Oneworld; from 40th place out of 200 in March 1998. Our reports show that people from 53 different countries from around the world visit the website.

ERU on the internet

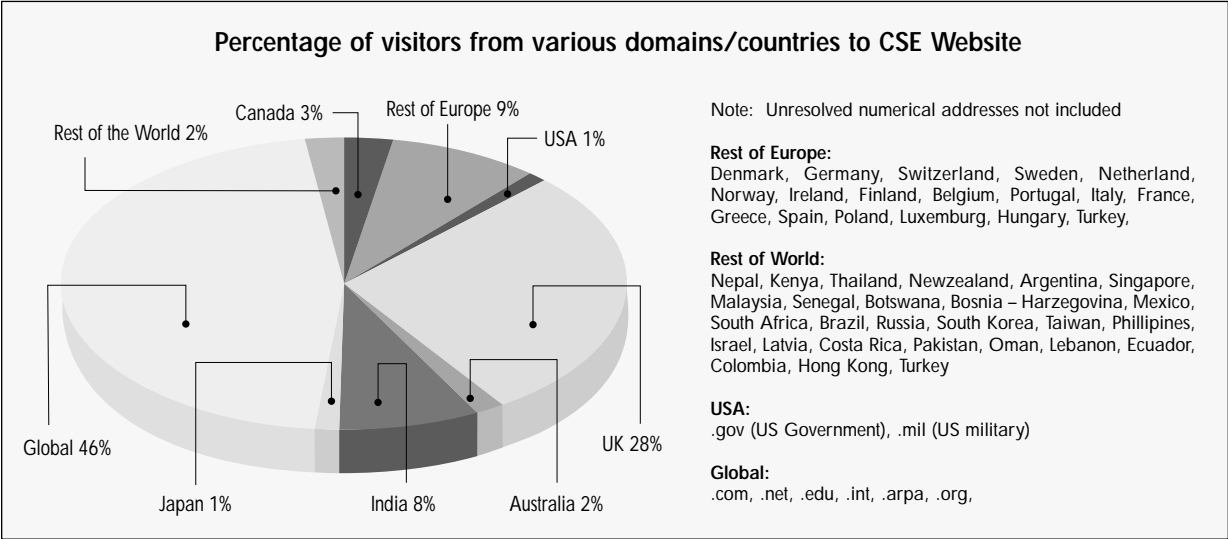
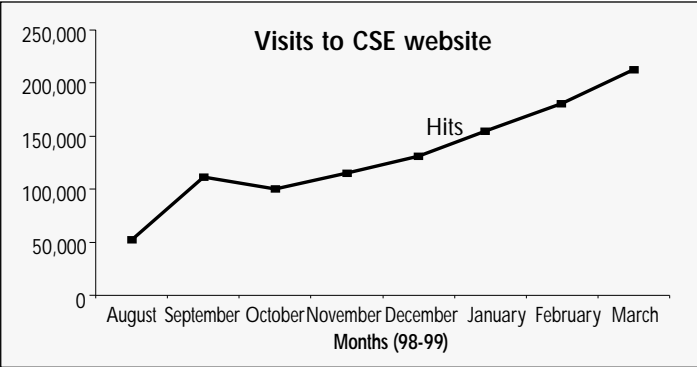
The audio-visual resources of the organisation are available on the site. Images and videos of our audio/visual unit can be searched and thumbnail pictures can be viewed. These images and videos will be available for online

ordering through email. We have also planned to put up specialised directories of people and organisations specialising in water, biodiversity, health.

To achieve all these the website unit have tried to get help from several external vendors. But, cost has been a limiting factor. Finally, a special software which publishes databases on website was acquired and the unit learnt it by hit and trial. This search activity was done from scratch and at a fraction of the cost given by the vendors.

Tracking Hits

Month	No of requests for pages (assuming 4-5 pages per visitor)	No of visitors for the month	No of visitors per day
Mar 98	5266	1000	35
Apr 98	9660	1900	64
May 98	10236	2200	73
June 98	14051	2800	85
July 98	14329	2900	95
Aug 98	23075	4600	153
Sept 98	29883	6000	200
Oct 98	28379	5700	190
Nov 98	22563	5200	175
Dec 98	23472	5300	180
Jan 99	26000	5780	193
Feb 99	31000	6960	232
Mar 99	20017	4500	150





Reaching out

ENVIRONMENT INFORMATION DISSEMINATION UNIT

Producing information is of no value unless there are mechanisms to distribute that information far and wide. Marketing of CSE products has been an area in which we have not been able to do as much as is needed and should be an area of attention in the future. The Centre is keen to develop programmes to take up dissemination of information on a professional footing. But it will take time to establish this work as we are competing in a market which is spread out across the country. The biggest challenge is to develop a crack marketing team within an NGO. Unfortunately, NGOs do not attract innovative marketing professionals. We need innovative professionals because CSE is not really selling products, it is more into selling what marketing professionals would call a 'concept'. Our big achievement already is that we have reached outside the environmental community.

Bulk Sales

*Various organisations have come forward to help CSE disseminate the message of water harvesting by purchasing copies of **Dying Wisdom: Rise, Fall and potential of India's traditional water harvesting systems**.*

The Fourth Citizen's Report on the State of India's Environment, *Dying Wisdom: Rise, fall and potential of India's traditional water harvesting systems*, was released in March 1997 in New Delhi. Simultaneously, the book was also released in several cities across the country with the active involvement of local NGOs.

The report received a very good response at all places, was widely covered in the media and has catalysed widespread interest in the subject. In order to translate this interest into policy initiatives for the sustainable water management, the Centre realised that there was a need to reach the book to policymakers, administrators, NGOs, media, academics and other interested persons.

The Centre sought help from other organisations including donor organisations to help it disseminate the message of water harvesting by purchasing copies of the book on behalf of the target groups. The Centre received a very good response to this request and the book is now being sent to key decision makers, administrators, NGOs, mediapersons and others across the country.

The following organisations have purchased copies for dissemination as follows :

CARITAS, India – 200 copies
Catholic Relief Services, New Delhi -101 copies
Indo-German Social Service Society, New Delhi – 200 copies
Oxfam, India – 200 copies
Foundation for the Progress of Man, Paris – 50 copies
Heinrich Boell Foundation, Pakistan – 250 copies
UNDP, New York – 500 copies
UNICEF, New Delhi – 175 copies

During the period the Centre's dissemination team streamlined its activities and geared itself to outreach the Centre's different products. There were a number of new products — new publications like *Dying Wisdom*, *Challenge of the Balance* and the children's book, *Chilika*; reprint of older publications like the first and second state of India's Environment reports; videofilms, clipping compilations, feature service and other audio-visual products like photographs.

Direct mailing strategy:

During these two years, the direct mailing strategy was strengthened and streamlined-

- As a first step, it was decided to produce separate and attractive mailers for each publication so that the target group for each publication is identified and reached efficiently.
- Secondly, the task of collecting address databases for specific target groups was also systematised. Mailing lists are today compiled on an ongoing basis of educational institutions, libraries, international organisations, central and state government organisations, research organisations and others.
- The third step was to set in motion a system whereby mailings are done on a regular basis. A target of 25,000 mailers for each quarter has been set. Mailers are coded to identify the source and the type of lists from the responses. The response rate is around 2% which is slightly more than the normal rate of return for direct mailers.

The success of this strategy can be gauged from the fact that in the last two years the publication income has increased dramatically. While the income from the sale of publications in 1997 was Rs. 2 lakhs, it had risen to Rs. 13 lakhs in 1998 and Rs. 15 lakhs in 1999. We printed 2000 paperback editions and 1200 hardback editions of *Dying Wisdom*. These were completely sold out in this period and we had to go in for a reprint; We sold 847 copies of the reprinted first and second State of India's Environment reports.

Reaching out

The team took part in several book fairs such as the Delhi Book Fair, Ecofair'97, Calcutta Book Fair, Water Asia'97, Exhibition India 98, Madras Book fair, Ahmedabad Book Fair, World Book Fair'98. The publications were also displayed at public events organised by



Children take to *Gobar Times*

The environment education team of CSE received numerous letters from student readers of Gobar Times. Here are some of the comments received:

Reading ugly facts about our environment is not easy. I feel guilty for everything.

Sonam Kala, Noida, 13 years.

I like *Gobar Times* because of the name *Gobar* and I would like to have some more funny pictures of *Gobar*.

Archit Goyal, Soami Nagar, 11 years.

Gobar times is a magazine which inspires all citizens of India to take part in saving wealth from waste.

Pranav Piyush, Alaknanda, 13 years.

I am a student of class V. On 1st November I saw thick fog and also read about air pollution caused by suspended particulate matter and carbon monoxide in the same day's newspaper. I also felt very sorry about the fact that people were dying due to air pollution in Delhi. My father told me more about air pollution and informed me about CSE. I would like to contribute Rs.100 saved from the gifts received during Diwali for CSE's campaign against air pollution. Please inform me what I can do to control pollution and have a healthy and long life.

Upasna Chadha NOIDA, UP.

I am a student of VIIth standard and read the inaugural issue of *Gobar Times* and I am very happy that at last a practical, useful and educational, ecological magazine for children has been launched. I've enjoyed reading useful facts about *gobar* and the other articles.

Soumya Mukerji, Gorakhpur, U.P

My father gave me the September 98 issue of *Gobar Times* which I found very useful. I shared it with my teachers and friends. I feel very sorry when I see people who do not bother to save trees and love animals. I don't know what to do?

Tanmoy Bhatt, Noida.

I like *Gobar Times* a lot. First I use to hate *gobar* and thought of it as something dirty. But now I know how useful it is.

Tarun Pandae, Hyderabad

People's Action and Rural Technology deputy director Arun Shah, and members of the environment education team of CSE took part in the meeting.

Future of *Gobar Times*: The participants concluded that it was too soon to decide whether the supplement should be theme-based. It was felt that the magazine format suited the attention-span of the target readers. Most of the schoolteachers present wished that the supplement was more frequent. The view that the focus of *Gobar Times* should be to make the reader understand the 'entirety' of environmental and social issues and make connections, was echoed wholeheartedly by all present. It was also felt strongly that children should be actively involved in exercises that helped them internalise the fact that the decisions they and their families take, affect the environment.

Opinion on whether *Gobar Times* should be incorporated into the school curriculum was divided. Some teachers felt that since the Central Board of Secondary Education curriculum did not provide anything on environment, *Gobar Times* could fill the void. Others felt that *Gobar Times* would lose its uniqueness if it was made a part of the curriculum.

However, the demand for *Gobar Times* to include sections as teaching aids was strong, since teachers themselves, who had a much bigger impact on students, were in need of environment education. It was widely felt that *Gobar Times* should provide more opportunities for students' involvement, through projects and articles. It was also suggested that students be used as resource persons for the upcoming Ecological Footprint Project.

Ecological Footprint Project

Building on the success of Yamuna-yuk-ride and the growing popularity of the *Down To Earth* supplement, *Gobar Times*, the environment education team of CSE launched the Ecological Footprint Project. It consists of a package of four eco-tours for Delhi schools, which includes the Yamuna yuk-ride, traditional water harvesting sites, the Delhi ridge, and waste disposal units in Delhi.

Yamuna yuk-ride: The Yamuna yuk-ride was the first of a series of tours planned by the environment education team, as part of their Ecological Footprint Project for Delhi schools.

The Yamuna yuk-ride took 50 school-children from 12 schools on a boat-ride down the river Yamuna on May 2, 1998,



accompanied by experts from the Central Pollution Control Board (CPCB), Development Alternatives and CSE. The students were provided with cameras to photograph their experiences on the ride.

If CSE wanted to jolt the kids out of their apathy, it could not have chosen a better way. Comments like “but it looks like coke, not water!” and “I heard that the Yamuna was in a bad shape, but I never dreamed that it could be like this,” were heard on each of the five boats, but nothing could match their chagrin when they saw children of their own age, bathing and swimming, and drinking the filthy, smelly water. As the sun grew hotter, stinking fumes rose off the black surface silencing the chatter and drawing out of hankies.

Later in the day, some of the children prepared a special edition of *Gobar Times* with the help of CSE staff while others prepared a colourful photograph and painting exhibition based on their experiences. Students trained by the Delhi Environment Action Network (DEAN) demonstrated how to test the water quality of the samples collected on the boat-ride. Besides getting to know about the Yamuna, the exercise aimed to give the student-investigators hands-on experience in these professions.

The paintings and slogans were exhibited and the children talked about their yuk-ride experiences at a later meeting. The photographs and crayoned slogans like ‘Yamuna smells, looks like hell’, ‘I don’t want the Yamuna to die’ and ‘I want a change in the attitude of people’ had great impact on the audience which comprised of teachers and students from various schools. The *Gobar Times* special edition and impressions of the boat-ride were presented to the audience.

Great escape: The Centre has also undertaken three such tours to traditional water harvesting sites in Mehrauli. The first tour was with the students of Naval Public School, the second had participants from Vasant Valley School and the environment club, Green Beans, of Kamla Nehru College. Delhi Public School, Noida, was the participant of the third eco-tour. The tours took the students to Hauz-ai-Shamsi, the water tank, Jharna, a small 18th century garden with now defunct cascades and waterfalls, and the two step wells – Gandhak Baoli and Sukhi Baoli.

The tours were preceded by an interactive session with students, which brought forth their perception about the environment, and their notion of development and progress.

During the interactive sessions it was found that many students associated environment with just trees and wildlife, and their knowledge source was confined to the *Discovery* and *National Geographic* channels on television. Not many associated environment with development, urbanisation and lifestyles. Almost none had ever heard of

Ecological footprints

Name of the school	Trip to Yamuna/Mehrauli Water harvesting sites
Delhi Public School, R K Puram Noida, Mathura Road; Apeejay School, Saket; Summerfields School, DLF; St. Mary’s School Shri Ram School Blue Bells School	May 3, 1998
Naval Public School	November 21, 1998
Vasant Valley School	November 27, 1998
Kamla Nehru College	November 27, 1998
Delhi Public School, NOIDA	December 11, 1998
Amity International School, Saket	January 15, 1999

traditional water harvesting systems, or were aware about their existence in Delhi. A slide show, which showed different water harvesting systems across the country, aroused the student’s interest on the subject. History was used as an intervening point to introduce students to different ways in which people managed their water needs, leading up to contemporary water problems.

The algaed and stagnant water of *Hauz-ai-Shamsi* drew mixed responses from the young visitors. A student from Delhi Public School, Noida, wanted to know why the tank had shrunk from being one of the biggest water tanks of its time, to a dirty waterbody. “Why don’t we clean it up?,” remarked another. Naval Public School students could not understand why garbage dumping in the tank was allowed by the authorities concerned. The dilapidated state of *Jharna*, too, drew similar reactions from the students of Kamala Nehru College. The observations led to questions on water management and governance systems through the ages.



The Yamuna yuk-ride: School kids were shocked to see slum children bathing, swimming and drinking the filthy, smelly water of the river.



Green treasure trove

As we step into a new century, research on environment will be the key towards defining our strategies for a green and clean world. This research will require comprehensive environment-related databases and information systems.

During 1997-99, the library computerised the library resources and developed a number of programmes to make the library resources easily accessible to staff and visitors alike. Although the library resources were already computerised, the software had become obsolete. A new software was installed which combines the tasks of servicing users by providing information as well as performs library administration functions. This new software incorporates all the resources – books, journals, documents, newspaper clippings and indexed articles.

The software has also enabled us to make the library resources available to research staff through the local area network (LAN). This means that programme staff can, sitting at their desks, know what new products have come into the library and what are the key environmental news items of the day.

The Centre also worked hard to upgrade the maintenance of audio-visual resources. A new computer software was developed that enables us to scan the pictures, keyword and classify them. Again, this software has enabled us to prepare a database of slides, black and white photographs, negatives and videofilms. Users can browse through the computer searching on keywords to find specific pictures.

Easy access to information

The following services have been initiated to keep staff members up to date about availability of the latest information in the library:

- **Book Alert:** provides information on new arrivals of books and documents on LAN
- **Periodicals Alert:** provides information on recent arrivals of journals, magazines and newsletters
- **Articles Alert:** provides information on important articles from journals and newsletters
- **Email Alert:** provides updates on information received through e-mails
- **Conference News:** provides updates on upcoming conferences, workshops, trade fairs, seminars;
- **Biblio:** This service gives a bibliography of recent arrivals in the library
- **Earth:** provides a valuable information published in *Down To Earth*;
- **Current Awareness Service:** This bi-monthly bulletin provides information on 100 other journals that are not available in our library and a journal database of 1,500 journals for the libsys was also prepared. The library gleaned information from the internet and other libraries on environment, global environmental governance, pesticides, forests and natural resource management.

ENVIRONMENT RESOURCE UNIT

Bookworms' fodder

The Environment Resource unit (ERU) received a number of valuable journals during this year. Around 603 books were purchased by the library in 1997-99 and it received 1,906 complimentary books/documents during this same period from UN agencies, World Health Organization (WHO), Government of India, publishers and other national and international NGOs. Ravi Srivastava of the Guru Nanak University, Amritsar, has donated books from his personal collection to the library. The collection includes 495 books, 217 documents, 29 journals and 114 newsletters. The library received 116 books from the Saurabh Prakash, the centre's solicitor. The collection included books on democracy, jurisprudence, and government. The section also received about 1,797 different journals and newsletters.

The Internet is the new mantra of our times and the unit did not lag behind. It prepared library data for our web page. Internally, libsys (library system) helped users track the resources from their own workstations. The information is provided through LAN. Other than this enormously useful service, Book Alert, Periodicals Alert, Articles Alert, Email Alert, Conference News, Biblio, Earth and Current Awareness Service are some of the other services that have been initiated to keep staff members up to date about availability of the latest information in the library.

AUDIO-VISUALS TEAM

Image gallery online

During the health conference held in July 1998, the audio-visual unit added more than 600 slides on environmental effect on health. These include pictures and graphical data on malaria, fluorosis, effects of noise pollution, radiation, toxins, etc. The team also acquired pictures on Gujarat cyclone, Florida fires, climate change meet in Bonn. All these are available to external users. A catalogue of pictures and video films produced by the team are available on LAN and will be available on CSE website too.

Snapping them shot

Data on slides called Image Bank as well as a database on video films are available on LAN. Information on photographers and photo agencies is now available for staff members. A video newsletter, *Green Screen* is put up on the website regularly.

A total of 3,500 slides and 1,900 bromides



of the research pointed out the potential boost to agriculture that pollinators can give if their role is understood and encouraged.

With its diverse climatic range, India has much to offer in terms of fruit diversity. For the August 1997 article 'Fabled fruits!', a CSE researcher travelled from the Thar desert to the Himalayan foothills to the tiny state of Mizoram in the Northeast and found out that the country has already lost several fruit varieties and several others are disappearing. It was quite sad to note that genetic erosion was leading some of the most luscious native fruit varieties on their way to extinction. Likewise, grasslands have also been victims of the government's unwillingness to scientifically understand the most important environmental problems facing the country. 'The milk that ate the grass' explored the state of this neglected area of no mean ecological importance, and how the mismanagement of India's vast cattle population was mowing down grasslands.



Energy: False predictions

Energy is also a relatively ignored area. For years, energy experts and foresters have been screaming themselves hoarse, claiming that the poor will eat away the forests of the developing world like locusts in order to meet their ever-growing demand for firewood. In May 31, 'False predictions'

assessed the latest survey of the National Council for Applied and Economic Research,

New Delhi, and found that despite population growth, people were using more firewood in place of cowdung and crop residues and better firewood than before without destroying the forest cover. The study analysed why Indians could be getting their understanding of rural environmental issues all wrong.

Rural India: a watershed

When it comes to environmental management, governments in India seldom have anything to show. So, when the government of the state of Madhya Pradesh made a success of the Rajiv Gandhi Mission for Watershed Development, DTE did an extensive analysis of the environmental, social and economic turnaround in the district of Jhabua through regeneration of wastelands. The state government's watershed development programme had decentralised power straight to the village-level watershed management committees. Once empowered, people had regenerated the ecology of the area through watershed interventions. 'When the old gods died', published in February 1998, chronicled how a political leadership dedicated to rural development could just change the lives of rural folk and the environment. The Jhabua miracle is an example of what wonders can happen when the political leadership, the bureaucracy and the people come together to work on pressing environmental problems.

A stark contrast to the success story of Jhabua came from the village of Sukhomajri in Haryana. After the inspiration and guidance of environmentalist P R Mishra, the village undertook a novel experiment in regeneration and conservation. Prosperity followed. But what followed that prosperity was the intervention of the forest department, which spoiled all the efforts made by the people, recorded the December 1998 cover story 'Sukhomajri at the crossroads', a story timed to remind the Indian civil society of the 25th anniversary of Mishra's experiment.

The power game

In 1998, it had been observed for some time that the government was adopting several measures to stifle the civil societies and NGOs as they were emerging as major threats to vested interests that wanted absolute power. It discussed in an open manner how voluntary organisations were being labelled as corrupt or anti-national. The story reported the violent attacks on social activists and some government moves to channel funds of NGOs, which reeked of political vendetta.

However, for an organisation that tries to create awareness on issues the gravity of which is yet to be appreciated in India, nothing can be more serious than withholding information — something of a habit of the Indian state. In August 1997, DTE published 'Closed systems, open minds', a stinging recount of the struggles that the organisation

Playing Holmes in search of news

DTE reporter Kazimuddin has an adventure while doing a story

It all began with an SOS letter from a school teacher in Peera Garhi village, in north-west Delhi. Failing to find the sender of the letter, *Down To Earth* reporter Kazimuddin Ahmed took a walk inside the village, accompanied by another school teacher. Numerous plastic recycling factories and chemical factories were operating in the by-lanes of the crowded village. The residents hardly spoke and the factory owners pretended indifference.

Trouble started when he went to Peera Garhi once again, acting on another complaint from a resident of an adjoining colony. Ahmed was told by some villagers that the factory owners had the support of local political leaders. Posing as a prospective factory owner, Ahmed was told that it was very easy to open a chemical or plastic-based factory there, as it was a residential area and, therefore, the area had continuous power supply, unlike industrial zones.

Finally, when Ahmed started taking photographs, some people became suspicious of him. Initially, the factory owners thought he was from the pollution control board and, hence, tried to bribe him. However, when they realised that he was not a government official, they tried to browbeat Ahmed and his local contact into revealing his true identity.

DTE editor, Anil Agarwal, took up the matter with the Environment Protection Authority (EPA). The chairperson of EPA ordered immediate action to be taken.

has had to undertake to access simple information which should be readily available to every citizen of the country. It highlighted the appalling lack of transparency and accountability in the Indian governance system. It raised the cry for the ordinary citizen's right to information.

In December 1998, Madhya Pradesh was to have elections to the state legislative assembly. Quite against the predictions of most pollsters and Exit Polls, chief minister Digvijay Singh of the Congress party beat the anti-incumbency factor to retain power. Three reporters travelled through the state to get a sense of the reasons for this. 'In tune with the masses' reported that an unusually high turnout in tribal areas was an important reason for the Congress victory, and the people of these areas were the direct beneficiaries of the watershed development programme. The story noted something that had completely escaped the attention of the Indian media. That environmental management had become a political plank and politicians were being judged on the basis of their record in environmental management.

Death is in the air

The issue of pollution is a matter of survival. Pollution is a major threat to public health, its effects can be immediate even as they go unnoticed. In November 1997, CSE



researchers came out with some startling findings on the state of air pollution in Indian cities. The study used a model prepared by the World Bank and extrapolated air quality data from the Central Pollution Control Board for 1994. It showed that in 1995, 52,000 Indians died prematurely in 36 cities due to extremely high levels of particulate pollution — up from about 40,000 in 1991-92. It revealed that one person dies every hour in Delhi.

The study was one of the first in India to show the role of diesel exhaust emissions in the air pollution, particularly in terms of the smaller particles that are more dangerous and go deeper into the respiratory tract. The CSE study was widely picked up by the media and was the starting point of a very vigorous campaign against vehicular air pollution.

The 1997 study was followed by several articles that looked into air pollution from every angle possible. The science of air

pollution, the state of the existing technology, the magnitude of the threat to public health, the politics of the automobile industry, the measures and policies required to tackle the problem and the need for good air quality monitoring, among other things. An important result of such stories has been the increased awareness of how government sops, such as the indirect subsidy on diesel, is wreaking havoc in Indian cities.

Pests, Pesticides, Poverty

The first issue of DTE in 1999 brought a story that created an uproar in the scientific circles as well as the media. 'What's eating the vulture' was the result of an observation by a noted ornithologist that vultures were disappearing from India. To find out the reason for this decline, CSE sent its toxicologist to collect samples of carcasses that vultures feed on from the Keoladeo National Park. The samples were tested at the Indian Institute of Technology, Kanpur. All the samples revealed high levels of two pesticides common in India: DDT and BHC. The study sent shock waves through the conservationist circles about a very serious aspect that had been ignored: maybe the vulture was falling victim to pesticides. And if the animal at the end of the food chain was being affected by pesticides, just how much chemical pesticides does our environment have? Another alarming factor was that like vultures, humans are also at the end of the food chain.

A story that was widely covered by the Indian media was the plight of cotton farmers of Andhra Pradesh who were committing suicide to in order to get government compensation for their debt-trapped families after the crop failed due to pest attacks in the winter of 1998. While the media largely failed to look beyond the immediate distress of the farmers of the region, a CSE researcher investigated the trap that the farmers were falling into, a trap laid by the powerful pesticides lobby. The DTE story revealed how the situation had been brought about by overuse of pesticides, which created pesticide resistance among insects that destroyed hectares upon hectares of cotton fields. The story also showed how government agencies responsible for creating awareness among the farmers about judicious use of chemical pesticides and the traditional modes of cultivation, all the while pushing farmers to cultivate cash crops like cotton that are terribly vulnerable to pest attacks and require a lot of capital inputs. But for these essential capital inputs, the farmers of the region would never have been trapped in the pesticide treadmill.

Greening the judiciary

In May 1997, the story 'Courting green' assessed a phenomenon that was quite new at the time — judicial activism. The story looked at the effectiveness of the courts stepping into





the environmental arena with reference to four representative cases from Bichhri in Rajasthan, Patancheru in Andhra Pradesh, the Ridge in Delhi and the Span Resorts in Himachal Pradesh. The story analysed the court decisions and arrived at the view that most orders passed by the Supreme Court were to good effect, the decisions taken have left a lot to be desired.

A rather unique story was based on a special study by Anil Agarwal and Sunita Narain on how corruption was affecting the country's natural estate. It showed how good environmental management was impossible when corruption makes it difficult to implement environmental laws that are aimed at controlling polluters. It explained how India's environment was so degraded despite the fact that all the laws and institution to control this were in place.

Planet politics

For 10 days in Kyoto, the world saw highly moral arguments put forth by political leaders to save our planet. But behind all those arguments was murky national self-interest. Anil Agarwal and Anju Sharma gave an eyewitness account of the much-hyped squabbling between the world's nations. The analysis in the *Down To Earth* issue of December 31, 1997, examined the politics of environment management that emerged during the Kyoto meet.

The vision of a 'common future' appears to have been lost somewhere along the way from the Rio Earth Summit in 1992 to the first assembly of the Global Environment Facility (GEF) at New Delhi. The meet highlighted that there is a need for commitment from the North if anything is to be achieved by the GEF. Max Martin analysed the politics of the GEF assembly in the May 15, 1998 issue of *Down To Earth*.

The Kyoto Protocol agreed in December 1997, was the first step to curtail emissions of the industrialised world. It is now being used to set up a trading system to buy and sell carbon emissions. Anil Agarwal and Sunita Narain provided a review of Post-Kyoto movers and shakers, swaps and deals, and antagonists and protagonists in the *Down To Earth* issue of July 31, 1998.

STATE OF INDIA'S ENVIRONMENT

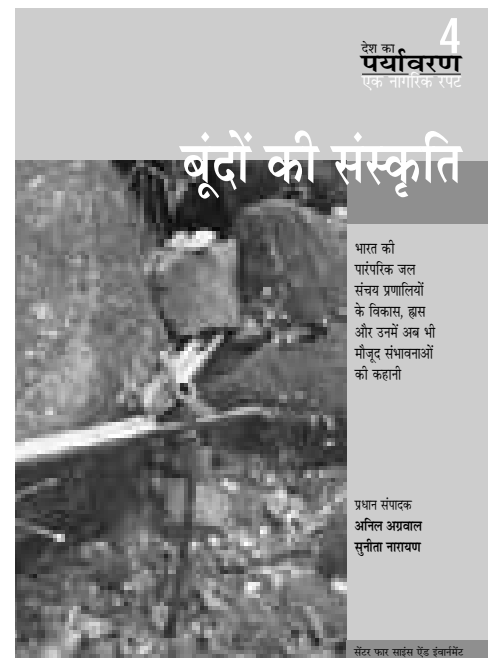
The State of India's Environment Team's main objective is to disseminate information related to science and environment. It draws upon research material generated by the campaign and research teams of the Centre, and then transforms them into books, newsletters, other publications, and the English and Hindi feature services.

During 1997-98 to 98-99, the Centre's dissemination team produced a variety of new publications like the Hindi edition of *Dying Wisdom: Rise, fall and potential of India's traditional water harvesting systems*, *Challenge of*

the Balance, the children's book *Chilika*, and reprints of older publications like the *First and Second State of India's Environment* reports.

Dying Wisdom in Hindi

After the overwhelming response CSE got on the *Citizens Fourth Report on the State of India's Environment* entitled *Dying Wisdom*:



Rise, fall and potential of India's traditional water harvesting systems, the Centre decided to translate the book into Hindi. The book was translated by Arvind Mohan, assistant editor, *Hindustan*. It was reviewed by Anupam Mishra of Gandhi Peace Foundation. The Hindi version was released by Madhya Pradesh Chief Minister, Digvijay Singh on October 5, 1998. The entire translation work was overseen by Sanjay, editor of *Deshkaal*.

Green features

CSE continued to produce its weekly feature service on environmental issues in English. The Hindi feature service was also started in August 1997. Different articles have been published in 20 publications.

The Citizens' Fifth Report

The team worked towards the production of the *Citizens' Fifth Report on the State of India's Environment*. This time the report will consist of two volumes. The first will provide a national overview and the second a statistical database.

An effort is being made to organise the work in a way that *The State of India's Environment Report* is produced every year. These reports have been highly appreciated in the past and have been used extensively as reference publications by those interested in the environment. Like its predecessors, the *Fifth Citizens' Report* will be an indepth



Home work done

A lot of hard work and detailed research went into the making of the Citizens' Fifth Report

CSE researcher Rajat Banerji travelled along the river Ganga, submitted a first hand account of pollution in the Ganges and the government's inaction and efforts made by individuals to clean the holy river. The water chapter of the Report captured the Ganga Action Plan and the problems being faced by it. Subsequently, Banerji also travelled down south to see for himself the pollution in the Noyyal and Bhavani rivers and how the citizens of Tirrupur were living with a river-turned-toxic stream. He also drew attention to pollution in the Betwa and Damodar rivers.

DTE reporter Jitendra Verma investigated sal borer attack in the affected areas of Madhya Pradesh. Yoga Rangatia of CSE studied 'People's movement against large dams in India,' for the dams chapter of the Report.

CSE commissioned a study to look at how small towns are coping with rapid urban and industrial growth. The findings were startling; neither the citizens nor the civic authorities had a clue how to manage the city's burgeoning growth. Ludhiana, Jetpur, Tiruppur, Rourkela, Aligarh, Bhagalpur, Kottayam and Jaisalmer were drowning under its own sewage, solid waste or industrial toxics.

Anil Agarwal's pioneering work on 'Ecological degradation and women's workburden' since the 1980s, and more recently on 'Education of the girl child' was captured in the people chapter. He argued that ecological degradation and heavy work burden of mothers deprive the girl child of education as she takes to helping her mother. CSE conducted a detailed study of a Himalayan village, Syuta, and its ecosystem which only confirmed that heavy workload of the women means that the daughter cannot avail of education even when a school is accessible.

A study on rates of morbidity and mortality due to ambient air quality found its way in the health chapter. Economic costs of illnesses due to air pollution is estimated to be a whopping Rs 4,550 crore annually, even as 52,000 people have been estimated to have succumbed to premature deaths in 1995 as a result of breathing polluted air.

A study on rural firewood consumption pattern laid to rest the myth that firewood shortage would result in a forest crisis. The energy chapter gives an account of how the crisis was averted. CSE researchers trekked to various national parks in India to look at people's point of view in conserving national parks. The people's verdict was unambiguous – anti-people, state-dominated wildlife policy has aggravated the problems in conserving national parks and sanctuaries. Reports from Rajaji, Gir, Nagarhole, Simlipal, Pench and Periyar echoed that people living within the protected areas are fed up with the forest department's high-handed approach, some of them have even taken up arms against the department. The study argues that the policy of keeping reserves free from human intervention has led to erosion of traditional rights of communities dependent on forest resources.

stocktake of the state of natural resources in India, the ways in which natural resources are being managed, and possible alternatives to stem the rot that threatens to corrode the economic growth-environment balance. The report will look at a wide range of issues such as water, land, air, forests, biodiversity etc. It will provide a picture of hope in the rural sector where there have been a number of extraordinary efforts in environmental regeneration solely due to community efforts. But the urban picture is one of despair where there are problems in every area –from water supply, water quality, sanitation, air pollution, housing etc and there are not many examples of civil society efforts.

The *Fifth Citizens' Report* returns to the format of the *First* and *Second Citizens' Reports*. It does not focus on any one particular issue or practice, but provides an overview of the state of India's environment. It will provide information reinforced with statistics.

An advertisement was carried by DTE, informing its readers about the State of India's Environment series, and requesting the readers to share environmental information of their region. The Centre received a positive response from DTE readers. The response to the advertisement was broadly divided in two categories, those who required information to further disseminate the report and, those interested in giving or receiving information potential writers/ contributors fell under the second category.

ENVIRONMENTAL FILMS

The Environmental Films team plans to spread green messages through its films and documentaries. The team made the following four pilot programmes: The Spirit of the forest – A video on sacred groves of India, Life and Wildlife – A video on wildlife management in India, Smog Inc.- A video on vehicular pollution Living Word – A film on North-South dialogue on sustainable development, Waterworks India – Four engineers and a manager – A film on water harvesting engineers of India, and Harvest of Rain. The pilots were used by the environment education and the campaign teams.

These films were submitted to Doordarshan in January 1998 to be aired as a weekly programmes. Doordarshan gave its approval for 26 episodes in the sponsored programmes category to CSE in March 1999.

Catching water on celluloid

A video film on the water harvesters who were felicitated by the President of India was made during 1998. The film featured rural water harvesting engineers Chewang Norphel from Leh in Ladakh, Magga Ram Suthar from Jaisalmer, Ran Singh from Churu in Rajasthan, Kunhikannan Nair from Kasaragod in Kerala, and Ganesan from Madurai in Tamil Nadu.

The film was presented at the inaugural session of the national conference on water harvesting systems and was very well received.



Catching them young

Environment education has, for long, been limited to a narrow focus on nature and wildlife, topics on which a vast amount of literature already exists. CSE launched an environment education team (EET) in June 1997, to equip people to make the right connections, and to help young people make informed choices.

EET targets schoolchildren and college/university students, besides the general public. The team produces quality communication material and literature at one level, and promotes direct interaction between students, teachers, parents and the general public through a variety of programmes, such as a network of 'green educators' or a forum that will have a multiplying effect in bringing about a more ecologically-conscious way of thinking and living.

In May 1998, EET launched a supplement to *Down To Earth* called *Gobar Times (GT)*. By March 1999, EET had published six issues of *GT*. It aims to make students aware of their role as urban consumers and its impact upon their immediate environment, hinterland and beyond.

Campus concern

As part of the Right to Clean Air campaign, the environment education team organised a talk-cum-film show on *Slow Murder: The deadly story of vehicular pollution in India*, at St. Stephen's College, New Delhi. The Centre was invited by the Wildlife Society of the college. A documentary film produced by CSE was screened on the occasion. CSE campaigner Anju Sharma spoke on the issue of vehicular pollution.

On November 24, 1997, the team participated in *Prakriti '97* — the annual wildlife

festival of St Stephen's College. *Prakriti* is a week-long festival featuring debates, quizzes and panel discussions centering on environment and nature-related issues.

Prizes in the form of annual subscriptions, copies of *Down To Earth* and T-shirts were sponsored by CSE.

Talking environment

In January 1998, the Centre embarked on a three-month-long environment education programme under its 'Lecture on Environment' series. The key component of the programme was traditional water harvesting systems of India through which the larger issue of water scarcity was addressed. Other issues highlighted during the series were the problems of nature parks and water and air pollution. The series was initiated to disseminate information on these issues and involve students directly. The programme included talks by experts, film shows, poster exhibitions and sale of CSE publications at various colleges of Delhi.

The series was launched at Hindu College on January 22, 1998, with a talk and poster exhibition on traditional water harvesting systems of India. The talk was presented by Rustam Vania of CSE. The students evinced keen interest in the issue and volunteered to be involved in programmes that CSE might undertake in the future.

The programme at Jesus and Mary College — the second in the series — was organised entirely by the National Service Scheme (NSS) wing of the college. Following a slide show on traditional water harvesting systems, a student commented, "I wish our college had a system of rooftop rainwater harvesting so that it could, at least, take care of the water needs of the plants and bathrooms."

Its festival time: On February 1, 1998, a presentation was made at the Indo-German Social Service Society, jointly with *Pravah*, a non-governmental organisation, working with school and college students towards social sensitisation for its Students Mobilisation Initiative in Learning through Exposure Programme.

At Gargi College, the event was spread over two days. On the first day, Vania gave an informative talk, and Pradip Saha, CSE's art director, presented a film on traditional water harvesting systems of India. Lecturer Madhulika Banerjee and her students of environmental sciences actively supported CSE by mobilising students and teachers from different departments of the college. On the second day, Anupam Mishra of Gandhi Peace Foundation, an expert on the issue, presented


Child power

On February 26, 1998, students of Summer Fields School hosted an awareness programme on the environment called 'Rescue Mission: Planet Earth'. The conference, based on the tenets of Agenda 21, saw student delegates presenting the perceived problems and proposed solutions of various countries in the form of charters for consensus, in true United Nations Summit fashion. Prizes were awarded to three best charters. CSE campaigner Sumita Dasgupta was on the judges panel.

CSE's involvement with the Summer Fields project was sparked off by a visit to the Centre by a handful of students and teachers from the school in search of information for the respective charters.

'Rescue Mission: Planet Earth' was the first step towards making students look at the big picture. Some thoughtful observations were made and solutions proposed at the mock-summit.





51,779 DEAD BY BREATHING

AIR POLLUTION TOLL RISES FROM 40,351 IN 1991-92

30% More Deaths In 1995! In Some Indian Cities Deaths Have Doubled

The Government Is In Control.

So It Thinks.

A DELUSION!

Gas chambers!

Pollution is killing more people in Indian cities

	Delhi	Mumbai	Kanpur	Chennai	Calcutta
1991-92	7,491	4,477	1,894	863	5,726
1995	9,859	7,023	3,639	1,291	10,647

More illness!

Rising pollution-related sicknesses and hospitalisation

	Delhi	Mumbai	Kanpur	Chennai	Calcutta
1991-92	39.5 lakh	25.5 lakh	8.03 lakh	4.5 lakh	29.3 lakh
1995	60.0 lakh	40.0 lakh	15.4 lakh	6.8 lakh	54.5 lakh

1991-92 figures are of World Bank
1995 figures are generated by CSE

All 1995 figures are based on a CSE study. We fed Central Pollution Control Board air pollution data for 1995 — the LATEST AVAILABLE! — to an epidemiological model developed by World Bank staffers to calculate pollution-related health and mortality costs. (The World Bank used 1991-92 pollution data.)

YOU LINE UP FOR A TAILPIPE TEST WHILE REAL CULPRITS GO SCOT-FREE

MINISTRY OF ENVIRONMENT AND FORESTS
No clear air quality reduction targets. No one knows when our air will really become cleaner.

MINISTRY OF PETROLEUM AND NATURAL GAS
Monopoly producer of very, very dirty fuel.

MINISTRY OF SURFACE TRANSPORT
Does not even share with the public the data it collects on the emission of new vehicles. Who knows if the new vehicles have really improved their standards? Not only this. It has no plans to deal with growing urban transport crisis.

MINISTRY OF INDUSTRIES
Soft on polluting industries.

MINISTRY OF FINANCE
Shying away from taxing the polluters.

MINISTRY OF HEALTH
Totally silent on health effects of air pollution.

AUTOMOBILE INDUSTRY
Trading health for mobility and profits.

POLLUTION CONTROL BOARDS
Neither can they control pollution nor do they develop effective control programmes.

POLITICIANS IN GENERAL
No interest in people's health.

ONE MORE YEAR OF SLOW MURDER

Centre for Science and Environment (CSE) is a public interest organisation engaged in research, and lobbying for and communicating the urgency of sustainable development. CSE's campaign against air pollution began on November 1, 1996 with a public meeting, an exhibition and the release of a first-time exposé on smoggy secrets: **Slow Murder: The deadly story of vehicular pollution**. Since then, we have focussed on gathering information to better nail the culprits. We are networking with interested people and institutions to appraise everyone of air pollution's clear and present dangers.

For health's sake, demand your right to clean air!

JOIN OUR CAMPAIGN AGAINST AIR POLLUTION BEFORE YOU BECOME ANOTHER VICTIM

DONATE TO ENABLE RESEARCH AND RAISE A FUSS

Write to: Anil Agarwal, Sumita Narain or Anumita Roychowdhury
CENTRE FOR SCIENCE AND ENVIRONMENT
41, Tughlakabad Institutional Area, New Delhi 110 062
Tel: 698 3394, 698 1110, 698 1124, 698 6399 Fax: 698 5879
Email: anumita@cse@sdafternet.in

YES, I would like to:

- ☐ Join the campaign
- ☐ Donate money for the Campaign Against Air Pollution.
- ☐ My contribution, Rs _____ in a Cheque (No _____)
- ☐ Money Order
- ☐ Demand Draft is enclosed.

All donations are exempted from income tax under Income Tax Act 80G. Please keep me informed.

Name: _____
Occupation: _____
Address: _____
Telephone: _____ Fax: _____
Email: _____

CSE issued a public advertisement — Dead by Breathing — in *The Times of India*, on November 1, 1997, to mark its Right to Clean Air campaign anniversary.

appointed as a member of the Environment Pollution (Prevention and Control) Authority for the national capital region, set up under the orders of the Supreme Court. The gazette notification was issued by the ministry of environment and forests on January 29, 1998.

Overwhelming support came from The Hindustan Times Group, which co-sponsored the public lecture. The event was organised under the joint banner of CSE and the Hindustan Times Group. An exclusive front page story on November 1, 1997 was carried by *The Hindustan Times*.

Prior to the public meeting, CSE had called upon prominent citizens of Delhi to sign a 'Statement of Concern', demanding their right to clean air. Many eminent artists, writers and sportspersons came forward to express their solidarity with the cause.

Who's phoney?

The Delhi government decided to withdraw its proposed ban on old and polluting commercial vehicles a fortnight before the 1998 national elections, to soothe the ruffled feathers of the Federation of Transport Unions Congress (FTUC). The organisation had warned that if the vehicles were banned, the ruling Bharatiya Janata Party (BJP) would lose two million votes.

CSE campaigner Anumita Roychowdhury wrote to M S Gill, the chief election commissioner (CEC), saying that the BJP government's decision violated the guidelines issued by the Election Commission on the model code of conduct for political parties and candidates. "We hope that the Election Commission has taken note of the media reports that the decision to withdraw the ban was issued on February 4, in wake of the agitation by FTUC.



With Delhiites increasingly falling victim to air pollution related diseases, the government should take its pollution-control decisions more seriously, particularly in the interest of public health," she wrote. However, the Election Commission refused to take action against the ruling party. When contacted by CSE, Gill said he did not have time for such "trivial" matters.

Several citizens were outraged that the health of 9 million citizens of Delhi was being termed "trivial". "Is our health being weighed against 20 lakh votes and being found less important?" asked Akhil Kishore, a civil engineer who contacted CSE after reading about the campaign in the newspaper.

Supporting the CSE stand, doctors of the Indian Medical Association (IMA) and the Delhi Medical Association (DMA) expressed their disbelief at Gill's supercilious attitude in a 'Statement of Concern' sent to him on February 13, 1998.

The same day, CSE roped in citizens suffering from respiratory diseases to tell the chief minister that their health could not be bartered for votes. They wrote, "We, who have signed this statement, are among the 60 lakh people in this city, who suffer from respiratory illness because we breathe polluted air that is the creation of dirty politics your party plays. Do you know that while you may have lifted the ban on polluting commercial vehicles to pacify 20 lakh people and to secure their votes, you have at the same time signed our death warrant?" the patients asked chief minister Saheb Singh Verma.

Responding to a call by the Centre on February 12, 1998, just before the elections, chief minister Verma's phone lines were jammed by irate citizens, who told him that he could not barter their health for votes. CSE exhorted Delhi's citizens to participate in a 'Jam their phone lines to be heard' campaign and register their protest by calling up the chief minister's office.

Early in the day, the staff put up their best election behaviour and politely took the calls. Besieged by the unending calls, however, they started banging down the phone on those who rang up later in the day.

CSE's intervention through EPCA

With Anil Agarwal becoming a member of the Environment Pollution (prevention and control) Authority (EPCA), CSE has had a rare opportunity to influence government policies on air pollution control in Delhi.

The Supreme Court had directed MEF to set up an environment pollution control authority for the National Capital Region (NCR) under the Environment Protection Act of 1986, to protect and improve the quality of the environment and prevent, control and abate environmental pollution.

CSE's Right to Clean Air campaign team developed a series of policy options on

The Centre seeks expert advice for its campaign

An advisory committee has been set up to formulate a strategy to carry forward the campaign on vehicular pollution. The advisory committee included H L Anand, retired High Court judge, Iqbal Mallik, director Vatavaran, who organised school children in Delhi to fight against vehicular pollution, Aruna Vasudev, editor *Cinemaya*, A K Maitra, director, School of Planning and Architecture, K C Sivaramakrishnan, former secretary in the government of India, Shreekanth Gupta, associate professor, Delhi School of Economics, Bibek Debroy, fellow, Rajiv Gandhi Foundation, and Veena Kalra, additional professor, department of paediatrics, All India Institute of Medical Sciences.

possible abatement measures for vehicular pollution control to support EPCA in its work.

In this regard CSE did research on the following policy issues: (a) dieselisation of the automobile fleet including private vehicles, (b) benzene emissions, (c) improvement in fuel quality and import of better quality fuel, (d) taxation of vehicles based on emissions (e) emissions warranty from the automobile industry, (f) improvement in air quality monitoring and setting up smog alerts in the city, and, (g) control pollution from two-wheelers. This work became an important feature of the team during 1998 and 1999.

Lt governor's statement draws flak

Lieutenant Governor of Delhi, Vijai Kapoor was, however, not impressed by the level of pollution in Delhi. He told a newspaper in June 1998 that, "pollution in Delhi is a very overstated problem. I have no proof of the fact that Delhi is the fourth-most polluted city in the world. Also, the average pollution levels have marginally fallen from 1989 to 1996." Shocked at Kapoor's statement underplaying the gravity of the air pollution problem in Delhi, CSE sent an open protest letter to him.

The letter was again signed by eminent people of Delhi like Sarod player Ustad Amjad Ali Khan, environmentalist Harsh Jaitley, artist Jatin Das, veteran journalist and writer Khushwant Singh, photographer Raghu Rai, political editor NDTV Rajdeep Sardesai, associate editor of *Outlook* Tarun Tejpal, theatre personality Zohra Sehgal, to name just a few.

In view of the growing scientific evidence available on the declining air quality in Delhi, and the risks that it causes to public health, CSE was convinced that the statement had been made either due to ignorance or with a desire to hide the government's inability to deal with the air pollution problem.



Roll down the window of your bullet-proof car, Mr Prime Minister The security threat is not the gun. It's the air of Delhi



Hon'ble Prime Minister,

Here is something that just may convince you: while India's Gross Domestic Product has increased two-and-half times in two decades (1975-1995), the pollution load from industries has gone up four times and from vehicles a shocking eight times.

A study by the Centre for Science and Environment shows that the number of people dying due to air pollution went up by almost 30 per cent in four years between 1991 and 1995. An estimated 52,000 people are dying due to air pollution every year — about 10,000 of them in Delhi itself.

One person dies every hour due to air pollution in the city ruled by your party.

In Delhi vehicles are responsible for 70 per cent of the pollution load. Because of the high toxicity of fumes from transport fuel, one out of every 10-15 people living in Delhi is likely to get cancer.

Your government has failed to arrest this deterioration of air quality in Indian cities. Worse still, it contributes to the pollution in a big way by producing low quality fuel in state-owned refineries. Improving fuel quality is a short-term measure which will go a long way. Vehicles using clean fuel will pollute less.

Seeing your government's inability to tackle air pollution, we present you with a peoples' charter for clean air. This will help to immediately improve the quality of the air we breathe.

Mr Prime Minister, 50 years into Independence, please give us our right to clean air. We hope you will take our concern seriously.

Yours sincerely

Centre for Science and Environment
November 2, 1998

PEOPLES' CHARTER ON CLEAN AIR FOR IMMEDIATE IMPACT

✓ PRODUCE CLEAN DIESEL, OR IMPORT IT

Diesel emissions contain deadly particulate matter with traces of the strongest carcinogen known till date. Indian diesel is 250 times dirtier than the world's best.

✓ REMOVE BENZENE FROM PETROL

India is moving towards unleaded petrol. But this fuel contains too much benzene. Though we use one hundred times less petrol than USA, the total amount of benzene emissions from Indian vehicles is the same as in the US.

Benzene causes blood cancer and air should have no benzene at all, says WHO. Yet the level of benzene in and around Connaught Place in Delhi is 10 times higher than the European safety limit. If you live in Delhi, your chances of getting blood cancer are twice as high as people living in Bangalore, Chennai and Mumbai.

✓ STOP PRIVATE DIESEL CARS

Registration of all private diesel models should be banned in cities like Delhi. Cheap government diesel means more diesel cars, including luxury models.

✓ TAX TO IMPROVE VEHICLE TECHNOLOGY

Penalise vehicle manufacturers for producing polluting technology. Tax vehicles according to their emission level. Manufacturers will then invest in cleaner technology.

✓ INTRODUCE EMISSION WARRANTY

Make the industry accountable for the life-long emission efficiency of all vehicles they produce.

✓ MAKE EMISSION LEVELS PUBLIC

Manufacturers must inform buyers of the exact emission levels of their vehicles.

✓ MONITOR ALL HARMFUL GASES

Improve air quality assessment. A wide range of poisons are not monitored till date. Alert people about pollution levels in the city. It is done all over the world.



Register your protest to the Prime Minister today

PMO, South Block, New Delhi 110 001
Tel: 301 8939 Fax: 301 6857, 301 9817

Join CSE's Right To Clean Air campaign



Centre for Science and Environment
41, Tughlakabad Institutional Area, New Delhi 110 062
Tel: 698 3394, 698 1124, 698 5879 Fax: 698 5879
Email: cse@sdalt.ernet.in Website: www.cseindia.org

Issued in public interest by Centre for Science and Environment (CSE)

CSE issued a public advertisement — in *The Times of India*, on November 22, 1998, to mark the second anniversary of its Right to Clean Air campaign.

The Central government had already issued a white paper on pollution in Delhi with an action plan admitting that "effective and coordinated measures for controlling pollution need to be put in place without delay". Was all this being done for an "overstated problem"?

Deliberate faux pas

Vijai Kapoor's statement was followed immediately by a statement by the Delhi's then health minister Harsh Vardhan in June 1998. In an attempt to underplay the gravity of air pollution problem in Delhi, Vardhan stated that there is no evidence to link air pollution to heart and lung diseases.

CSE strongly condemned this statement, too, saying that it is highly irresponsible, misleading and an attempt to underplay the ill effects of pollution in order to lull the citizens of Delhi into a false sense of complacency. The minister made the statement while releasing a report by the Centre for Occupational and Environment Medicine at the Maulana Azad Medical College, on the health effects of air pollution.

Both the letters to the Lt governor and the health minister received wide coverage in all leading dailies of Delhi. Following press reports and the growing demand asking for retraction of the statement, the health minister issued a clarification saying that he was misquoted.

CSE argued that rather than misleading the

citizens of Delhi about the gravity of the problem by issuing such statements, it is in the interest of the government to warn them of the ill effects of pollution, and urge them to take precautionary methods.

November 1, 1998

CSE presented the people's charter on clean air at a public meeting on November 1, 1998, to mark the second anniversary of the release of *Slow Murder*.

While delivering his lecture, Agarwal stated, "we have a serious problem here. It is not only of air pollution, but also of inaction." In view of the alarming deterioration in the urban air quality, he dismissed the various action plans drawn up by the state and the central governments, to curb air pollution as useless pieces of paper, as they have failed to prioritise actions, that can make an immediate impact on the air quality. The public meeting drew a lot of media attention.

On November 2, CSE published an open letter to the prime minister in the form of a public ad. The two ads brought CSE a pat on the back even from the president of India, Shri, K.R. Narayanan. He wrote, "The two public notices put out by the Centre for Science and Environment on the subject of air pollution are very effective and I must compliment you on the idea."

Support also came from Deepak Shourie of *Outlook*, a leading news weekly, immediately after seeing the public advertisement in



Navbharat Times, on the eve of the election. It was significant that the new chief minister of Delhi, Sheila Dikshit, was among those who signed the pledge to clean up Delhi's air. The then chief minister, Sushma Swaraj, was, however, fearful of making a green promise.

The Delhi assembly elections presented a rare opportunity to galvanise public opinion to make politicians aware of the electorate's concern for clean air in the capital.

CSE drew up a clean air pledge, which outlined the necessary actions that the politicians would commit themselves to, if voted back to power, to clean up Delhi's air.

Though promises come easy during elections, even these were denied to the citizens of Delhi. Out of 84 candidates from the two major political parties — the Congress and the Bharatiya Janata Party, approached by CSE, 22 candidates responded by signing the pledge. Predictably, the reaction of the candidates varied from scepticism to indifference to even over-eagerness to agree to anything during election time.

The pledge was published in *The Times of India* and *Navbharat Times* on November 22, 1998, as a public interest advertisement. The advertisement was entirely paid for by a number of concerned citizens of Delhi.

Media responded favourably with reports regarding the citizens' initiative. While acknowledging the emergence of air pollution as an important electoral issue, NDTV, in its prime-time news slot of November 23, 1998, flashed the pledge. Several leading dailies also carried the news. In one of the election bulletins conducted by NDTV, former Chief Minister of Delhi, Sahib Singh Verma, admitted that citizens' concern for air pollution was a major election issue.

Technology study

Bad vehicular technology had been identified in its book *Slow Murder* as among the major reasons for poisonous air in urban areas.

When industries are asked to improve their technology they shoot down most suggestions as being economically unfeasible. Since both the government and the industry work in a non-transparent environment, it becomes difficult for environmentalists to call their bluff.

Providing clean technology to consumers does not make good business sense to industrial firms, as investment in cleaner technology increases the cost of production and the firms lose their marketshare. In such a situation, an emissions-based tax on vehicles can help to overcome this problem.

If only emissions standards are applied, manufacturers consider the standard as the maximum effort they have to make to meet environmental objectives. If they make an extra effort individually, their vehicles become more expensive and they begin to lose their marketshare. As a result many countries have introduced tax benefits together with emissions standards which encourages manufacturers to consider the standards as their minimum effort. If they exceed the standards, they can avail of tax benefits.

Therefore, it is important to provide fiscal incentives to encourage industry to meet tighter standards. But to be able to design an appropriate fiscal package it is very important to estimate the cost that a firm would incur to move to cleaner technology.

Therefore, in December 1998, CSE contacted Peter Ahlvik, a consultant from the Ecotrafic, Sweden, to conduct a study for CSE, on the cost of improvement to advanced technology to cut emissions from different categories of vehicles. The team provided information support and also organised field trips in India.

The study analysed emission control options for each category of vehicles (two and three wheelers, both petrol and diesel cars, alternative fuels for cars, trucks and buses) and assessed the environment benefits. It also investigated the problem of particulate

Engines of the devil

A monograph was prepared in March 1999 to sensitise Delhiites about serious threats from toxic diesel fumes



"It is necessary to ban the registration of new diesel-based private vehicles immediately in order to prevent their rapid growth in Delhi. Even if the government initiates measures to set new standards for diesel cars or equalise diesel and petrol prices, these measures will take time during which manufacturers will have increased their investments and many diesel cars would have already been purchased by consumers. It is best to reduce the use of diesel to the minimum extent possible because of increasing evidence of the acute cancer causing potential of diesel-related pollutants and other health effects. A ban on the registration of diesel driven private vehicles fits well with the precautionary principle."

This is the conclusion of the monograph 'Engine of the Devil' prepared by the Centre. The objective of the document is to sensitise people about the serious threat posed by toxic diesel fumes to public health and to pressurise the Delhi government to take immediate action to curb the deadly trend of dieselisation.

A CSE analysis of data on daily air pollution levels in Delhi provided by the Central Pollution Control Board clearly shows that the diesel-related pollutant — suspended particulate matter — reaches alarming levels in the winter and it would be dangerous to allow further rise in diesel consumption.

Diesel pricing policy: Price to kill

The ever widening gap between prices of petrol and diesel will encourage the use of diesel, and result in killing thousands more due to air pollution, says CSE, in a press statement issued on June 6, 1998

The Union budget for 1998-99 was out with a mandate to kill. CSE expresses deep anger at the price hike in petrol without corresponding increase in prices of diesel as this would make dirty diesel even more attractive and aid in dieselisation of the automobile fleet killing thousands more due to air pollution.

Scientific evidence on the carcinogenic effect of toxic particulate emissions from diesel, particularly the poor quality diesel produced in India, has bypassed the planning pundits completely. Diesel fumes are more dangerous than what was previously thought. Recent reports from the USEPA show that diesel engines emit almost 10 to 100 times more particulate matter than gasoline engines.

The myth attached to the government policy to keep diesel prices cheap, ostensibly to help agricultural poor and to avoid adulteration of diesel with subsidised kerosene, has long been exploded. The pricing policy on fuel is only providing fiscal incentive to the private vehicle sector to go for more diesel models for upper class mobility. All automobile majors in India are clamouring to introduce more diesel cars. Maruti Udyog Limited, joint venture of Mitsubishi and Hindustan Motors, Premier Automobile Limited, Mercedes Benz, Ford Escorts are all producing diesel lines. TELCO which is venturing for the first time into personal vehicle segment has already introduced 1400 cc diesel Indica Mint. Several industries argue that use of diesel helps to control global warming.

This dieselisation of cities is poised to take off based on extremely dirty diesel produced in India. Indian diesel is one of the dirtiest in terms of sulphur content which contributes linearly to toxic particulate formation. Sulphur content in Delhi's diesel is 0.5 per cent. CSE has already reported the trend in mortality and morbidity due to very high level of suspended particulate matter in Indian cities.

The new budget seemed even more myopic as it failed to see how such concessions on products like paraxylene meant to pamper big business in synthetic yarn industry is likely to impact upon vehicular emissions. The import duty on paraxylene, a product from petrochemical plants and an important input for synthetic fibres and yarn, was drastically cut from 15 per cent to 5 per cent. This is potentially dangerous because substance such as this can be used to adulterate automotive fuel. This can lead to more toxic aromatics in the air. CSE, therefore, demanded that the government should immediately rationalise its pricing policy on fuel in the interest of public health.

emission from diesel vehicles.

CSE now intends to push for a fiscal incentive package to move towards improved technology fast.

Say 'no' to diesel

...CSE launched a campaign against dieselisation of the private vehicles fleet, with the major automobile companies rolling out more diesel private cars to give their customers a cheap run for their money (as diesel prices are much cheaper than petrol). The Environment Pollution (prevention and control) Authority (EPA) had already taken note of the toxic effects of diesel fumes, and recommended to the Supreme Court that all buses running in Delhi be converted to CNG. The Supreme Court had already accepted this recommendation in July 1998 and had given an order to the Delhi government accordingly. With public buses getting out of diesel, it is a total negation of the spirit of the Supreme Court order to allow private cars to get into diesel.

The automobile industry was furious at the proposed ban, as it hurt their business interests. On October 29, 1998, the Association of Indian Automobile Manufacturers organised a press conference to give diesel a 'green' face.

At a press conference on December 9, 1998, CSE played the automobile industry for misguiding the public about the proposed ban on new diesel cars in the national capital territory (NCT) of Delhi. The Centre also

provided scientific information on the toxicity of diesel fumes.

While addressing the press conference, CSE stressed that its intervention had become necessary to challenge the recent attempts by the automobile industry to make profits, at the cost of citizens' health.

CSE also played the government for its flawed fuel pricing policy of keeping diesel prices cheap as it works as a major incentive for automobile manufacturers to go in for more diesel models.



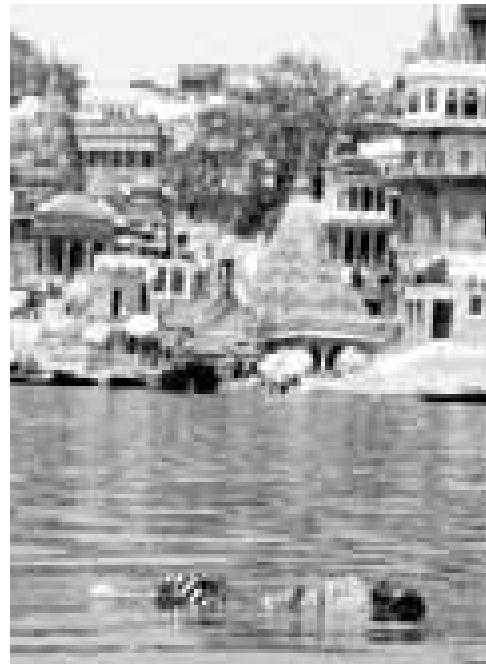


II. RIGHT TO CLEAN RIVERS

In early 1997, the Centre published a book, *Homicide by Pesticides: What pollution does to our bodies* on the pollution of Yamuna by pesticide runoffs from the agricultural fields of Haryana. The book was released at a public function by Atal Behari Vajpayee, the Prime Minister of India. P N Bhagwati, former Chief Justice of India and V Ramalingaswami, former director of Indian Council of Medical Research were the chief guests and spoke on the need for preventive management practices and advocated active involvement of the people.

CSE's associate director was interviewed on this issue by the Australian Broadcasting Corporation and the Canadian Broadcasting Corporation. The book also became the basis of a public interest petition in the High Court on the pollution of the Yamuna.

While hearing the public interest petition on the pollution of the Yamuna on May 28, 1997, the bench asked the Haryana government to file the latest reports on the quality of Yamuna water. Earlier, the Delhi government had tried to show that no pesticides were present in the Yamuna waters, by selectively presenting the results of water samples taken in January 1996. In the affidavit, it wrongly stated that, "the CPCB report on micropollutants in water and sediments of river Yamuna indicate that aldrin, dieldrine and endosulphan were observed to be below detection level." However, the CPCB report attached with the affidavit that "the results of micropollutant analysis in water and sediment indicate that some of the pollutants like dichloro diphenyl trichloroethane (DDT) and hexachloro cyclohexane (HCH) are present in significant amounts."



A half-burnt body floating in the holy Ganges.

The Delhi government made other misleading statements in the affidavit. It stated that the question of agricultural runoff did not arise during nine months of the year as there was no rainfall and during the monsoons, the concentration of pesticides was low. But the CPCB report and *Homicide by Pesticide* showed that during monsoons the level of pesticides was significant.

CPCB, in an affidavit filed in the Delhi High Court on May 7, 1997, accepted that Delhi's water supply was polluted with pesticides. "CPCB has been monitoring the water

Along the Ganga in 22 days

CSE researcher Rajat Banerji takes a close look at the state of the river Ganga and Damodar

Twenty-two days were all he had to coast along nine cities down the Ganga and the Damodar in the sweltering summer heat. The time frame: mid-May to early-June. The task: to observe the implementation of different aspects of the Ganga Action Plan (GAP), and also to see the Damodar which had been included by the government in GAP phase II.

Hit and run. One had to do just that; hit a city, meet and speak to important officials involved in the plan, collect as much data as possible, ascertain for oneself the progress of the schemes, meet the local people involved unofficially in overseeing the implementation of the plan, and run on to the next, and in the bargain take a plunge in the Ganga, in more ways than one.

Despite all he had read about the state of the present day Ganga, CSE researcher Rajat Banerji was just not prepared for what he was exposed to as he drifted downstream in a boat. Grotesquely bloated corpses, massive sewage treatment plants discharging untreated sewage straight into the river, a family offering prayers at the Sangam, their three-year-old screaming protests at being forced to shave his head, hordes of people bathing by the ghats of Varanasi, the 7 km long ghats themselves seeming to pulsate with a life of their own.

Armed with figures provided by the Ministry of Environment and Forests, which indicated that virtually hundreds of crore of rupees had been spent in "cleansing" the river, the enormity of the issue struck one forcefully. Clearly, the cleaning of a river that drained and served an area larger than two or three European countries put together was not an easy affair.

The "sorrow of Bengal" had become the "sorrow of both Bengal and Bihar", as a study on the Damodar had noted. With steel plants, thermal power stations whose flyash turned the river waters greyish-black, moon-scaped countryside mined out and abandoned. The Damodar has been classified unfit for any use by the Central Pollution Control Board. But, this water is being used for drinking and other purposes downstream.

quality of this river at several locations along its course.... The results indicate that some pesticides and heavy metals are present in the riverwater and on some occasions the values are exceeding the World Health Organization guidelines for drinking water," commented S P Chakrabarti, member secretary, CPCB, in the 75-page affidavit.

The affidavit was submitted after a tour by a team comprising members of CPCB, Delhi Water Supply and Sewage Disposal Undertaking (DWSSDU) and Haryana Pollution Control Board officials along the Yamuna river and the Western Yamuna Canal. Both are the sources of 70 per cent of Delhi's water supply.

Preparing for the launch

CSE's river pollution team is busy documenting the state of polluted rivers of India. The book will be released at the national conference on river pollution.

Till March 1999, CSE Clean Rivers campaigner Rajat Banerji had travelled to the Ganga, Yamuna, Damodar, Subarnarekha and the Betwa, Bhavani-Noyyal and the Luni basin. Documentation of these travels has also been completed. Some of the information collected has already been published in the *Citizen's Fifth Report on the State of India's Environment*.

The national conference on water pollution will also mark the launch of the Right to Clean Rivers campaign. The participants of the conference will be invited to become the key members of a national network against river pollution.

CSE is planning to publish a quarterly newsletter to keep the network members fully informed on the progress and activities of the Right to Clean Rivers campaign. CSE is also planning River Parliaments in different river basins.

Miles to go...

CSE has also been participating in several official fora on river conservation. CSE's director, Anil Agarwal, is a member of the National River Conservation Authority and of its standing committee. A committee on the Ganga Action Plan has also been formed which consists of eminent people, NGO representatives, as well as representatives from renowned scientific institutions. Rajat Banerji became a member of the committee. Two meetings of the committee were held in Delhi. The committee members visited various sites under GAP phase I in Hardwar, Kanpur and Varanasi.

NATURAL RESOURCE MANAGEMENT

CSE has continued to work towards a better understanding of sustainable and participatory natural resource management strategies. In order to understand issues that lie at the interface of environment, poverty, economic development, culture and knowledge, democracy, equity and justice, and people's participation,

CSE undertakes programmes on sustainable and participatory natural resource management, which look at issues like wildlife protection, forest management, biodiversity conservation and water management. In the last two years, CSE has focussed attention on the issue of water management, as its campaign to 'Make Water Everybody's Business.' has met with a tremendous response.

III. WATER HARVESTING: MAKE WATER EVERYBODY'S BUSINESS

Water harvesting systems can help to meet domestic requirements of our towns and villages. Since the early 1990s, CSE has been studying small and traditional systems of water harvesting in India. In early 1997, the Centre released the citizens' fourth report on the state of India's Environment which was sub-titled — *Dying Wisdom: rise, fall and potential of India's traditional water harvesting systems*. The book documents the extraordinary diversity of water harvesting systems that have evolved in different parts of the country, and affirmed the relevance of these systems even in modern day water management.

To generate awareness about the message contained in the report and to trigger off a debate in favour of community-based water management systems, public meetings were organised all over India to coincide with its release at different places. At each place, CSE involved an NGO concerned with related issues to help organise the meeting. The Centre invited influential opinion-makers from the area to formally release the book, hoping that such persons will become carriers of ideas on the issue. Select individuals, activists and organisations were also honoured for their significant contribution towards preservation



Mrs Sonia Gandhi releasing "Dying Wisdom" on March 11, 1997 in Delhi



Releasing of *Dying Wisdom* accross the country

No	Place	Date	Partner Organisation	Person releasing the book
1.	Hyderabad	March 10	Society for Promotion of Environment and Quality of Life, Hyderabad	Prabha Shankar Mishra, Chief Justice of Andhra Pradesh High Court
2.	Delhi	March 11	Rajiv Gandhi Foundation, New Delhi	Sonia Gandhi, Chairperson of RGF
3.	Leh	March 12	Ladakh Ecological Development Group, Leh	Thupstan Chhewang, Chairman and Chief Executive Councillor, Ladakh Autonomous Hill Development Council
4.	Pune	March 22	Oikos: Centre for Natural Resources Management, Pune	Anna Hazare, famous social activist
5.	Kochi	March 25	Kerala Shastra Sahitya Parishad, Kochi	K K Usha of Kerala High Court
6.	Ahmedabad	March 29	PRAVAH, Ahmedabad	S K Shelat, Chief Secretary of Gujarat
7.	Indore	March 30	Nai Duniya, a leading Hindi daily of Madhya Pradesh	B R Yadav, Madhya Pradesh Agriculture and Cooperative Minister
8.	Chennai	May 6	M S Swaminathan Research Foundation, Chennai	V C Kulandiaswamy, Chairman of High Level Committee for Wastelands Development and Poverty Alleviation Programmes, Government of Tamil Nadu and former Vice Chancellor of Indira Gandhi National Open University
9.	Mumbai	May 6	Samarthan, Mumbai	Prakash Javdekar, Executive President of Maharashtra State Planning Board
10.	Patna	May 17	East and West Educational Society, Patna	B P Singh of Bihar High Court
11.	Jhabua	August 12	Government of Madhya Pradesh	Harbans Singh, Minister for Panchayat and Rural Development, Madhya Pradesh

and strengthening of such traditional rainwater harvesting systems at these meetings.

The book was released in Hyderabad, Delhi, Leh, Pune, Kochi, Ahmedabad and Indore in March 1997. The book was also released in Chennai, Mumbai and Patna in May 1997.

Jhabua: In August, the book was released in Jhabua, Madhya Pradesh, by the state's Panchayat and Rural Development Minister, Harbans Singh. Madhya Pradesh chief minister Digvijay Singh had chosen Jhabua as the place to release the book because of the

impact of the ongoing Rajiv Gandhi Mission on Watershed Development on that district. Several ministers of the state, legislators and senior district officials were present at the function. Hundreds of village people involved with watershed development attended the release. The function was organised by the district administration. Harbans Singh offered to get the Madhya Pradesh government to give help for the translation of the book in Hindi.

Chennai: "Information is lower than knowledge in the hierarchy of ideas, and knowledge is lower than wisdom. And yet, we in India are

losing something as important as wisdom in this information age, says *Dying Wisdom*. It is time we conserved our wisdom," asserted eminent agricultural scientist M S Swaminathan at the release of the book in Chennai on May 6, 1997. Water conflicts would become inevitable if people are not careful in conserving water, he cautioned. The function was organised by the M S Swaminathan Research Foundation.

The book is an extraordinary documentation of the country's water harvesting systems, felt V C Kulandaiswamy, chairperson of the committee for wastelands development, watershed development and poverty alleviation programmes of Tamil Nadu. "More could have been added on the water harvesting traditions of southern India," he pointed out. "To revitalise traditional water harvesting systems, a strategy for providing property rights to local communities and a system of fiscal incentives to improve the quality and productivity of the country's water resources is needed," contended co-editor of *Dying Wisdom*, Anil Agarwal.

"Apart from traditional technologies, the potential of minor irrigation works should also be tapped," added V S Agarwal, chairperson of the Federation of Indian Chambers of

Commerce and Industry committee on agriculture and rural development, who was presented with a copy of the book.

Mumbai: "If only 20 per cent of rainwater is harvested, it will solve the water scarcity problems in the country," argued Vasant Gangavane, chief guest at a function organised by an NGO, Samarthan, to release *Dying Wisdom*, in Mumbai on May 6, 1997. The harvested water can be used to generate electricity through microhydel generators, he said.

Prakash Javdekar, executive president, Maharashtra State Planning Board, promised he would urge the concerned state government department heads to buy the book.

Former state education minister and president of Samarthan, Sadanand Varde, congratulated CSE on the publication, and requested that the book should be translated into Marathi.

Patna: "Today, the onslaught of human civilisation on environment is skyrocketing, resulting in an imbalance between nature and mankind. To restore this balance, we will have to move away from large projects and implement smaller ones at the grassroot level. The root cause of the drought and flood problems



Appreciating wisdom

CSE publication *Dying Wisdom* has been widely appreciated. Excerpts of some of the letters received by the Centre:

We want to convey to you our appreciation for CSE's new publication *Dying Wisdom* which I think can only be classified as a classic work. I think the work ranks in range, scope and importance with CSE's *First Citizen's Report on the State of India's Environment*. Our congratulations to you and the CSE team for bringing out such a fine work.

We have found the report extremely useful in our work, especially as Narmada Bachao Andolan is now trying to focus more on the "alternative" approaches as the next significant phase of its struggle. We hope to use it extensively in this regard. I have heard that CSE is planning to bring out a Hindi version of the book. It will significantly enlarge the reach and impact of the work. Such a translation will be of great use to us as we can use it at the village-level.

SHRIPAD DHARMADHIKARY,
Narmada Bachao Andolan, Vadodhara, Gujarat

This (*Dying Wisdom*) is another milestone for the entire nation who have for long ignored such critical themes like water conservation. Your dedicated team deserves sincere applause for this great and noble task.

MAHENDRA P LAMA, *associate professor, School of International Studies, Jawaharlal Nehru University, New Delhi*

We got the copy of *Dying Wisdom* in time for our consultation on "water harvesting for mountain households" in Chengdu, China. It reinforced our own ideas that the new technologies as promoted by the Chinese should not overlook indigenous knowledge and age-old practices.

EGBERT PELINCK, *director general, International Centre for Integrated Mountain Development, Kathmandu, Nepal*

I must compliment you on the publication of *Dying Wisdom*, which is indeed of a very high standard. I am sure we shall find it useful for our radio programmes.

O P KEJARIWAL, *director-general, News Services Division, All India Radio, New Delhi*

The book (*Dying Wisdom*) as aptly titled, is really a treasure of our traditional wisdom. I sincerely appreciate the effort made by CSE in making such an extensive survey and congratulate it for its laudable achievement.

K VIJAYAKUMARAN,
Central Marine Fisheries Research Institute, Visakhapatnam



of Bihar is the neglect of traditional water harvesting systems,” said Justice B P Singh of Patna High Court, at the launch function of *Dying Wisdom*. The meeting in Patna on May 17, 1997, was presided over by Harivansh, editor of the Hindi daily *Prabhat Khabar*.

Make water everybody's business

In order to spread the message of community-based water harvesting to other countries, CSE organised a special workshop on decentralised water management, community control and rainwater harvesting during the Stockholm Water Symposium on August 12, 1998. Environmentalists, social activists and traditional water harvesters from China, Japan, Kenya and India shared their experiences of rainwater harvesting through community involvement.

The workshop was held as the second half of a seminar on ‘Meeting hydroclimatic variability in the tropics and sub-tropics: Strategies for drought effect migration’. It dealt with the potential role of and technique for rainwater harvesting as a way of smallscale protective irrigation during temporary dry-spells.

Several papers were presented at the workshop. CSE's Anil Agarwal presented a paper on ‘Rainwater harvesting in a new age: Where modern groundwater and river exploitation has reached its limits’. CSE deputy director Sunita Narain spoke on ‘Regenerating village natural resources in a semi-arid region in India based on rainwater harvesting coupled with land-use management’. Social activist Anna Hazare made a presentation on “rainwater harvesting, watershed development

and people's mobilisation”.

Among others who presented papers at the workshop were Zhu Quang of China, who spoke on ‘Rainwater harvesting as sustainable development of water resources in China’. In China, 300 out of 600 cities lack adequate water supply and 114 have serious water shortage. The conventional way to solve the problem of water crisis was through river valley projects or inter-river basin diversions. These are increasingly running into trouble” Quang added.

Dunglena of Mizoram made a presentation on rooftop water catchment systems of Aizawl. “Today Aizawl meets most of its water needs from roof-top rainwater harvesting...and this entire effort was undertaken by the people themselves with no government support,” said Dunglena. Makoto Murase of Japan spoke on ‘Rainwater harvesting in the urban context’. “Rain is an incredibly important resource. It is essential to city planning and to mitigate water shortages, control flood and disasters,” said Murase.

John Mbugua of Kenya presented a paper on Rainwater harvesting and poverty alleviation: the Laikipia experience. Mbugua said, “The Kenya rainwater association has been set up to coordinate individuals and institutions interested in utilising rainwater,” Mbugua added.

Participants agreed that rainfall was the only potential source of water and community control of water management was the key to solving the global problem of availability of water. The workshop was rated as one of the best of the entire symposium. In 1997,

Anna has the last laugh

CSE galvanised into action and joined the campaign against Anna Hazare's arrest

Anna Hazare's arrest on September 9, 1998 was bad news for CSE. The man behind Ralegan Siddhi, the unique model of self-sustained villages, had been put behind bars. His crime: defamation. Hazare had made an allegation of corruption against a minister of Maharashtra, which he could not prove on technical grounds.

CSE responded by holding a meeting on September 11 at the India Habitat Centre. A statement signed by NGOs and individuals, insisted that the turn of events would have “serious implications” for civil society, people's movements and the media. Among the first to express solidarity in Delhi were the Indian Social Institute, National Alliance of People's Movements, Centre for Education and Communication, Srishti and individuals like Kamala Chowdhry, Rajni Kothari and Anupam Mishra. Meanwhile, CSE also explored possibilities of moving a higher court.

The same day DTE reporter Manish Tiwari reached Pune and interviewed Hazare in jail. Tiwari also spoke to the people of Ralegan Siddhi, the village which Hazare has turned into a model for people's watershed management. Activists in Pune told another DTE reporter Max Martin over the telephone that they were very delighted to see people expressing concern over the incident in Delhi. Hazare also appreciated CSE's move, but objected to legal recourse. CSE received many support letters from NGOs and individuals all over the country.

Protest demonstrations were held in Pune. People gathered outside the Yerwada jail where Hazare was kept, and held hunger strikes. In response to widespread protests, Anna Hazare was released. On September 23, Hazare walked out of jail.



Anil Agarwal was also invited to become a member of the World Water Commission which has been set up to develop a vision for water management in the 21st century.

Catch water where it falls

Having created this interest in water harvesting, CSE decided to bring together all those people interested in water harvesting in Asia to form a water harvester's network. CSE, therefore organised the National Conference on Potential of Water Harvesting: Traditions, Policies, and Social Mobilisation from October 3-5, 1998, in New Delhi. The purpose of the conference was not just to review the traditional water harvesting systems, but to see the potential, and to build a network of people working in the field.

The three-day conference attracted experts in the field of water management from India, as well as abroad. Around 250 eminent people working in the area of water harvesting made presentations at eight sessions.

"I have been asked by Anil Agarwal if Rashtrapati Bhavan would use rainwater harvesting techniques. I would welcome CSE to do so., " said the President of India, K R Narayanan, while inaugurating the



A memoir being presented to the President of India, K R Narayanan, while the Minister of State for Rural Areas and Employment, Babagouda Patil, looks on (extreme left).

national conference. The President congratulated CSE for the imaginative and creative manner in which the conference had been organised. Felicitating five outstanding rural engineers and water managers, the President said they were "the heroes of rainwater harvesting in the country. Even the sophisticated scientists have a lot to learn from their excellent work," he remarked. CSE presented a film on the life and work of these rural engineers

Rural engineers receive recognition

The President of India hailed rural artisans as 'heroes' of the nation

The President of India, K R Narayanan, was pleased to present certificates of appreciation to five outstanding and creative artisans for their significant contribution in promotion and preservation of rainwater harvesting systems. These 'rural engineers and managers' ranged from Leh, Jaisalmer and Churu to Kasaragod and Madurai district. What made their physical presence larger than life was a video film on each of their works, preceding the presentation of certificates. The President hailed them as 'heroes'.

Chewang Norphel, a retired government officer, devised innovative methods of making artificial glaciers in Leh to recharge waterbodies. Magga Ram Suthar, a carpenter from Jaisalmer, digs *bedis* (also called *kuis*), which are narrow, deep wells in sand, lined with gypsum, to draw sweet water in the harsh environs of the Thar desert. Ran Singh, a farmer in Churu village, is famed for his great engineering skills in making reliable *kundis*, which are small dome-shaped, covered tanks.

Kunhikannan Nair, also a farmer of Kasaragod in Kerala, has carved out a *surangam*, a 300-metre-long and intricate tunnel in rock, which collects rainwater from the *ghats* and unlike other canals retains water throughout the year.

Ganesan, a *neerkatti* or water manager from Madurai, is known for his acumen in dealing with the intricate sluice valves of the irrigation canals. One mistake in the calculation in water flows and timing of the valves could ruin a farmer's crop. Yet, it never happens. If the Cauvery water dispute was left to Ganesan, it would be resolved, was a comment made in the video film, in lighter vein.

Later, the President remarked, "these artisans are the best teachers of water literacy. Even sophisticated scientists have a lot to learn from them."

Describing CSE director Anil Agarwal as a "pioneer crusader", the President said that he would be delighted to use water harvesting technology at Rashtrapati Bhavan, provided he succeeded in getting around bureaucratic hurdles.



The President of India lauded the efforts of rural water harvesters and presented them certificates in recognition for their work.



Chief Minister of Madhya Pradesh Digvijay Singh, social activist Anna Hazare and CSE director Anil Agarwal at the book release function of the Hindi version of *The Citizens' Fourth Report: Dying Wisdom: Rise, fall and potential of India's traditional water harvesting systems*, on October 5, 1998 at the India Habitat Centre in New Delhi.

who today even face problems of daily survival the president was deeply moved.

Earlier, A Vaidyanathan, professor, Madras Institute of Development Study, who was the chairperson of the conference, said the conference was not a result of a romantic nostalgia for the past, but had its roots in the urgent need of the hour to manage dwindling water resources.

This was followed by a keynote address by Anil Agarwal. "In the last 150 years, the state has emerged as the primary water supplier, and reliance on surfacewater and groundwater has increased, compared to the earlier reliance on rainwater," he pointed out.

Union Minister of State for Rural Areas and Employment, Babagouda Patil, who was the special guest at the function, said that everybody should make efforts to conserve it.

The conference is the second one to be organised by CSE on water harvesting, the first being held in 1990 on traditional water harvesting systems whose outcome was the book: *Dying Wisdom: The Rise, Fall and potential of*

India's Traditional Water Harvesting Systems.

The conference aimed to address the issues of (a) tapping the various traditions and technologies related to water harvesting; (b) working out of national policies to encourage these systems; and, (c) social mobilisation by creating awareness in relevant sectors and among people.

The conference, in addition to the regular paper presentation, had four working groups to deliberate on issues for action and policy advocacy. The conference called for a new water management paradigm, whereby state and international development agencies could work together with civil society institutions to promote a nationwide 'water literacy' programme.

At the conference, suggestions were made for promoting research on scientific and technological aspects and, the economic and social dimensions of water harvesting. Finally, the conference called for building a national movement through water harvester's network at regional and international level, for people to

Anna says...

Hazare delivered a powerful speech at a fully-packed auditorium

A public lecture was organised as a special event by CSE, on the final day of the conference, where the well-known social activist Anna Hazare, delivered a speech.

Anna said: "Had the development model adopted by our government not been so city-centred, the country would not have been facing the problems it faces today. Due to development in cities, people migrated to urban centres, bringing with them the problem of over-crowding."

Having said this, Anna Hazare made a strong case for changing the economic policy of the country. Criticising the present policy of liberalisation, he opined, "this is being realised in the form of multinational companies setting up factories on Indian soil. The kind of factories that are coming up are chemical factories, which are banned elsewhere. This is yet another example of the short-sightedness of our planners, who never look beyond immediate benefits while framing policies. Neither does the government take into confidence the people in the decision-making process."

Anna's emphasis was on village as the centre for development, as advocated by Mahatma Gandhi; the development approach should be from top to bottom; and, the need to involve people at all levels.

Post-conference

Impact of the conference

- The conference resulted in the formulation of a Statement of Shared Concern. The statement took note of the conclusions drawn by the participants from a wide cross-section of the society and the recommendations forwarded by them towards making water harvesting a mass movement.
- The conference helped in developing a network of people and organisations working in a sustained way on issues of water management. This network would result in a better flow of information and exchange of ideas between them.
- **Water Links:** A comprehensive directory of waterharvesters from India and abroad was prepared. The directory includes names and addresses of individuals and institutions (including water management experts, NGOs and academics) actually involved in or associated with water harvesting work, the kind of work and the area of their activity.
- As a major outcome of the conference Rashtrapati Bhavan expressed an interest in constructing a rooftop water harvesting system. Water harvesting experts, Rajendra Singh, R N Athavale, R Jeyakumar and Anil Agarwal visited the Rashtrapati Bhavan in November 1998 and advised the staff of the President's Estate on this issue.

work together in raising awareness, advocate policy changes and research programmes that support community-based water harvesting.

At the concluding session, the government was criticised for not having a clear-cut policy to conserve water and protect the local engineering systems developed by the communities over the years to conserve every drop of rainwater.

Delivering the valedictory address, the chief minister of Madhya Pradesh, Digvijay Singh, cited the example of Jhabua district in Madhya Pradesh, where the people, with help from administration, have been able to turn the tide and make an almost barren area green. The chief minister admitted that they had made Anna Hazare's Ralegan Siddhi village in Maharashtra a 'model.' He also released the Hindi version of the CSE publication – *Dying Wisdom: Rise, fall and potential of India's traditional water harvesting systems* — *Boondon ki Sanskriti* translated by Arvind Mohan and coordinated by Sanjay Kumar.

Earlier, former Lok Sabha speaker, P A Sangma, regretted that water was not an issue of interest to politicians. Former Member of Parliament Mani Shankar Aiyar suggested that if 80 per cent of funds for watershed development were routed directly from the centre to the *panchayats*, then by sheer availability of finances there would be consciousness about the programme.

The participants were unanimous that it is important to protect and revive the full potential of existing water harvesting structures in both rural and urban areas. They suggested fiscal incentive and regulatory mechanism for promotion of water harvesting in the urban areas.

As a special feature of the conference CSE published three daily newspapers on three different days of the conference, which were distributed to the participants early in the morning. The newspapers reported the proceedings of the conference in details. Special posters were distributed among the participants.

Poster exhibition

In order to spread the message to schools, CSE produced a 20-poster exhibition on India's traditions in water harvesting. CSE organised an exhibition of these posters at the United Nations General Assembly Special Session (UNGASS) in New York, from June 23-27, 1997. The theme of the exhibition was 'Technology for sustainable development'. NGOs from various parts of the world participated, and displayed exhibits on subjects like renewable energy resources and improved crop varieties. The CSE exhibit highlighted traditional water harvesting systems in India. The colourful posters depicted the diverse and traditional ways through which communities have been using and managing water in a sustainable manner by evolving water harvesting structures that are both scientific and location-specific.

Among dignitaries who attended the exhibition were UNGASS president Razali Ismail of Malaysia and the then Indian Minister of Environment and Forests, Saifuddin Soz. Several other delegations and NGO



UN Secretary General Kofi Annan reviewing displays for the Sustainable Development in Action exhibition put up during the United Nations General Assembly Special Session, New York, June 23-27, 1997. The CSE exhibition was one of 12 selected for display.



representatives also attended the exhibition. On an average, 250-300 people visited the exhibition every day.

NGOs from Israel took particular interest in the book *Dying Wisdom* on which the Centre's exhibition was based.

The CSE publication *Dying Wisdom*, along with a set of 20 posters on traditional water harvesting systems, was also displayed by the Swedish Environment Institute (SEI) at the Stockholm Water Symposium and Global Water Partnership meeting in August 1997. SEI also put up information on the book, the posters and CSE on its website.

Charity begins at home

Following the president's invitation to undertake water harvesting in his estate, a team from CSE, on November 27, 1998 visited the President's estate to identify the potential for water harvesting. The team met several officials involved with the management of the estate led by Gopal Gandhi, secretary to the President.

The CSE team included the Centre's director Anil Agarwal, CSE campaigner V S Saravanan, R N Athavale, scientist at the National Geophysical Research Institute in Hyderabad, Rajendra Singh of Tarun Bharat Sangh, Alwar, R Jeyakumar of Rajparis civil construction limited, Chennai, who has been involved with rooftop water harvesting, and Ujjwal Pradhan, a water resources expert from Nepal and currently working with the Ford Foundation in New Delhi.

The discussion focussed on identifying the potential of water harvesting and the availability of information needed to develop specific proposals. After the discussion, the team visited select spots in the estate to gain first-hand information of the area and also about the people living there.

If the President's estate were to arrest all its 'rainwater endowment' it would also help to reduce the annual floods in the Yamuna, said

the team. The rainwater can also be used to recharge the groundwater below the president's estate, which the CSE team was told, is depleting.

The team found considerable use of untreated raw water on the president's estate for gardening purposes, which was full of contaminants and heavy load of nitrogen. Use of the untreated water would slowly contaminate the groundwater making it unfit for drinking.

CSE team members also noted, after holding discussions with the residents in the estate, that they were using different sources of water. For instance, drinking water is supplied by the New Delhi Municipal Corporation, Yamuna water is used for gardening, and groundwater from borewells and handpumps is used to meet contingencies, including drinking water. It raised a concern whether a new source of water like rainwater would be easily accepted by the residents.

A report of the initial survey was submitted to the President, which he read "with great interest and happiness". "This is a good beginning," remarked the President.

Catching water for the President

A two-day workshop was conducted at the CSE office on March 4-5, 1999. The workshop aimed at utilising all the rainwater that falls in the estate. Participants deliberated on the latest information available and drafted a working plan for water harvesting at Rashtrapati Bhavan and the remaining area of the President's estate. The purpose of the project is to demonstrate to the country how important water harvesting is.

Gopal Singh, a villager working with Rajendra Singh also joined the team. Gopal has been assisting Tarun Bharat Sangh in selecting sites for the numerous johads, (traditional water harvesting structures), that have been constructed in Alwar. A simple villager without an impressive degree, Singh depends on traditional knowledge to select his site.

The working plan for harvesting water in the estate included the construction of a johad, to impress upon the visitors of Rashtrapati Bhavan, the need and the effectiveness of these structures. While the committee members went around the estate to select a suitable site for the johad, Singh identified one site and predicted the slope to be 2.5 feet. He had no instruments to back his claim. His evaluation was based on experience. A senior engineer present at the site disagreed. Gopal stuck to his guns. The impasse was resolved by bringing the dumpy level and checking out the slope. Gopal was found to be the wiser.

To raise awareness on the importance of the project, CSE would publish two pamphlets, one describing the technical measures undertaken, and the other illustrating the impact of the intervention. These pamphlets will be distributed to the public who visit Rashtrapati Bhavan and the Mughal Garden.



Water harvesters' directory

The Centre is also working on a directory of people and organisations involved in water-related issues with emphasis on local water harvesting issues. This directory includes government organisations, international agencies, NGOs, individuals and community groups who are interested in the issue. It will be published by April 1999.

IV. POVERTY AND ENVIRONMENT

Though CSE does not have a structured team to deal with the issue of poverty and environment, but CSE has had a long standing interest in the way the poor relate to their environment. CSE's studies and reportage have focussed on how the poor can be mobilised to manage their environment and natural resource base and have helped to focus the country's attention on the potential that a participatory natural resource management paradigm offers. CSE's director and deputy director have tried to work on this issue, amongst other things. In 1989, CSE had published *Towards Green Villages*, a study which presented a macro-strategy for natural resource management built on the micro-successes in this field for the then Prime Minister, Rajiv Gandhi, who was advocating changes in the Indian Constitution to promote village level governance.

In 1997, the chief minister of Madhya Pradesh, Digvijay Singh had invited CSE's director and deputy director to release *Dying Wisdom: Rise, fall and potential of India's traditional water harvesting systems* in Jhabua district. CSE was deeply impressed by the turnaround in the land-water-forest situation in the district through a pioneering, people-oriented watershed management programme. In 1998, CSE's directors wrote several articles on the outstanding work undertaken by the Madhya Pradesh government as the urban-oriented media had totally forgotten to cover this exemplary development.

Simultaneously, for a study commissioned by the United Nations, CSE worked with experts from the Institute of Economic Growth, Delhi, to survey the ecological, economic and demographic changes that have taken place in India's two pioneering villages, Ralegan Siddhi and Sukhomajri, where rural communities have undertaken natural resource management.

After the surprising electoral victory of the incumbent Digvijay Singh in November 1998 state elections, which CSE's research showed had been influenced to some extent by the ruling party's work in participatory watershed and education programmes, CSE approached the president of the Congress party, Sonia Gandhi, who had released *Dying Wisdom* in New Delhi in 1997, to encourage the chief minister of Rajasthan, where her party had also won in November 1998 elections, to undertake a similar programme in southern

Rajasthan, which is ecologically similar to Madhya Pradesh. Thereafter, Agarwal addressed a meeting of senior politicians and officials of Rajasthan on the same subject. The chief minister, Ashok Gehlot, promised to take a personal interest on this matter.

CSE has since prepared a paper which shows that dramatic economic transformation can be achieved at the grassroots level by poor people themselves, if efforts are made to address their 'ecological poverty'. CSE's study develops this argument using four case studies – Sukhomajri and Ralegan Siddhi villages, the work of Tarun Bharat Sangh (an NGO) in Alwar, and one government case study: the Rajiv Gandhi Watershed Development Mission of the Madhya Pradesh government. All the case studies show that the starting point of addressing 'ecological poverty' is good community based water management.

Agarwal was invited to Brussels to present this paper at a joint European Union (EU)-United Nations Development Programme (UNDP) meeting and was subsequently invited to present these findings at a luncheon meeting of environment ministers attending the Commission on Sustainable Development in New York in April 1999. The Chinese minister took keen interest in CSE's presentation and requested UNDP to take up similar experiments in his country. The meeting was held to seek the views of the ministers present on a proposed EU-UNDP ministerial-level meeting on poverty and environment in September 1998 to focus on a forgotten aspect of the Rio





A decade later

Following a last minute change of plans, Madhya Pradesh Chief Minister, Digvijay Singh, deputed the state's Panchayat and Rural Development Minister, Harbans Singh, to release the CSE publication, *Dying Wisdom: Rise, fall and potential of India's traditional water harvesting systems*, in Jhabua. The chief minister chose Jhabua himself as he felt that it was most appropriate to release the book there because of the impact of the ongoing Rajiv Gandhi Mission on Watershed Development.

The report was released on July 31, 1997, in the presence of over 500 villagers involved with watershed development in the district. Harbans Singh presented a copy of the report to a tribal woman from the district and insisted that CSE produce a Hindi edition of the book so that the Madhya Pradesh government could purchase them and distribute among all village leaders of the watershed development programme in the state.

The Madhya Pradesh government organised the meeting and invited several activists working on water harvesting issues in the state and journalists from leading newspapers, including Prabhash Joshi, the editorial consultant of *Jansatta*, who knows the region extremely well. Some ministers of the state, several legislators and senior district officials were present at the function.

CSE director Anil Agarwal and deputy director Sunita Narain attended the release function of *Dying Wisdom* in Jhabua on behalf of the organisation, along with officials from the United Nations Development Programme and the Swedish International Development Agency, who wanted to see the watershed development work in Jhabua.

"For me personally, it was a moving occasion. In 1986, when the then Prime Minister Rajiv Gandhi asked CSE to make a presentation to the Union Council

of Ministers on the state of India's environment, I showed pictures of a moon-like landscape of Jhabua. Later, I showed these pictures to the members of Parliament. I told them this is what the rest of India would be like if its leaders did not wake up in time. To me, Jhabua was about the worst that a place could reach," said Agarwal.

"Today, 12 years after I had visited Jhabua in 1985, it was truly great to see thousands of villagers and district officials involved in the regeneration of the land. R Gopalakrishnan, the state coordinator of the Rajiv Gandhi Mission, who reports directly to the chief minister, said that nearly a fifth of the district's land is being treated under water development programmes, and nearly 2.8 million hectares are being treated in the entire state — about 1 per cent of the total land area of the country," added Agarwal.

The district forest officer claimed that when joint forest management (JFM) — management of forests undertaken jointly with the people — was initiated together with watershed development works, the growth of plants and grasses — local biomass productivity — was far more rapid than when only JFM was taken up. Water and forest conservation, when they go together, bring greatly enhanced economic and ecological returns, and because the work was being handled by the people, the total cost was also extremely low — less than Rs 3,000 per hectare. In just three years, villagers were getting enormous quantities of grass, for which they earlier had to pay in lakhs. Then the grass used to be brought from neighbouring Gujarat. But Jhabua villagers now often have so much grass that it not just meets the needs of the village animals, but there is also some left over to sell in the local market.

Over the years, Jhabua could well become a model programme that shows how drought-prone tribal areas can literally pull themselves out of their poverty, and all done sustainably and cheaply.



Before: It was a moonscape with no sign of life around.



Now: There is life coming back.

Agenda, poverty, which also covers an important part of the Copenhagen agenda.

Agarwal has had a long relationship with UNDP on the subject of poverty and environment. In April 1997, he was invited by UNDP to give a talk on this subject at a side event organised during the Commission on Sustainable Development meeting. Soon after, in June 1997, he was invited again to address

UNDP's Executive Board on the importance of the same subject.

CSE intends to develop a structured programme in this field now. At a lecture delivered in Oslo at a meeting organised by NORAD in December 1998, Agarwal identified two key environment issues of concern to the South which the global civil society would have to confront in the 21st century —

the 'ecological poverty' of the poor living in the world's degraded lands and the growing air and water pollution that the South will face with its economic growth. Both issues can get neglected unless the global civil society takes them up in a concerted way.

V. COMMUNITY WILDLIFE MANAGEMENT

CSE has been focusing on the need to reconcile the priorities of biodiversity conservation with meeting the livelihood requirements and habitat rights of local communities. CSE is campaigning for appropriate changes in the wildlife policy that will propagate a central role of people in the management of parks and making them the biggest beneficiaries of these parks.

CSE researchers travelled to Rajaji National Park (Uttar Pradesh), Gir National Park (Gujarat), and Balaram-Ambaji Sanctuary (Gujarat) and Pench National Park (Madhya Pradesh). The visits revealed that while on the one hand, species like the elephants, lions and tigers are facing imminent danger of poaching and reducing habitats, people living in and around are also fast losing support for conservation. Reports on these field visits have been prepared and they were incorporated into the status report on nature park management, an edited version of which was published in the Citizen's Fifth Report on the State of India's Environment.

VI. PEOPLE'S FOREST MANAGEMENT

Currently, about one-fourth of the entire land of India is with the forest department. To reach the target of bringing one-third of the country's lands under forest cover, at least 10 percent of the private lands needs to be afforested. CSE advocates a dual strategy of rejuvenating degraded land through community forest management and raising tree cover on private degraded lands. The long term goal of the campaign is to bring about policy change in the management of India's forests and to bring in community control over state forest resources.

No, Prime Minister

In October 1997, Prime Minister I K Gujral assured representatives of the paper and pulp industry that the National Forest Policy would be revised to make it industry-friendly. Fearing that the proposal for captive plantation had reared its ugly head again. C H Hanumantha Rao, former Chief Justice P N Bhagwati, and some NGOs sent a joint letter to the prime minister cautioning him against such a move.

CSE campaigner Supriya Akerkar, met environment minister Saifuddin Soz and explained why CSE was opposed to the proposal. Assuring the Centre that he was not in favour of such a proposal, Soz briefed the prime minister about his ministry's opposition to the proposal.

'World Bank ignoring issues'

CSE campaigner pushed the government and the World Bank to reconsider the Ecodevelopment Project consultation meeting in New Delhi

CSE campaigner Neena Singh told an NGO-World Bank consultation held in New Delhi, and made a statement on its experience of trying to discuss the eco-development project with the bank.

The statement clearly brought out the fact that the World Bank, though professing greater openness and sensitivity to NGO opinions, rarely pays any heed to issues being raised. The statement elaborated on the number of times CSE made attempts to get the bank to respond to concerns about eco-development. The bank responded with platitudes but little action. The statement said, "at its level, CSE would continue to mobilise opinion against such projects and keep a hawk's eye on the progress of the project".

The statement was received with interest by other NGOs present at the meeting. If the bank had looked at the NGO-World Bank meeting as an exercise in public relations and image building, written proof of negative NGO opinions would have made it unhappy.

The eco-development project closely monitored by CSE through NGOs in the project site areas, and through visits to the areas by CSE campaigners, showed that the project was facing serious problems. This was because the Global Environmental Facility and the World Bank, co-sponsors of the project, did not bother to understand environmental and policy realities.

Wildlife populations would be better served if Indian officials applied their minds to the growing people-park conflicts before rushing to international donors for money to solve these problems.





Letter of protest

Excerpts of the letter sent to the Prime Minister by CSE and various leading experts reiterating their stand against the proposal for captive plantations:

"We have several reasons to oppose captive plantations on state forest lands but we list only a few key ones. If industry is permitted captive plantations, small and marginal farmers will stop growing trees on their lands: With their raw material requirements being met from captive plantations, industry will not buy pulpwood grown by farmers or would force prices down to levels that would not be remunerative to farmers. This would destroy any wood market from emerging in the country as no farmer would find farm forestry an attractive economic proposition.

■ *Captive plantations will adversely affect the ongoing programmes of joint forest management involving many poor, rural communities:* Over the years, the government has involved rural communities in regenerating degraded forests through joint forest management. Many tribal communities are now seeing the fruits of their efforts spread over 2.5-3 million hectares. If industry is given the soft option of having its own captive plantations on government lands, the market for this wood will also crash.

■ *Captive plantations will not create enough rural employment:* Captive plantations owned by industry will use relatively sophisticated technology and create much less labour than farm forestry.

■ *Industry's innovativeness will suffer:* Studies conducted by the Centre for Science and Environment show

that the paper and pulp industry over the last five to seven years has been steadily learning how to deal with farmers.

■ *Captive plantations will have adverse social and ecological impact:* Apart from mollycoddling industry and reducing incentives to innovate, captive plantations will also be very bad from a social and ecological viewpoint. The land that will be given for captive plantations is used as common land by millions of poor people to meet their basic needs of fuel, fodder and small timber. Not only would these people be further impoverished, they would be forced to increase their pressure on, and degrade, other nearby forests.

■ *The genetic diversity of India's forests will suffer because of captive plantations.*

Following the guidelines laid down in the National Forest Policy, we suggest a two-fold proactive strategy to achieve this:

Rejuvenating our state-owned forests through afforestation or regeneration with the help of community participation with the wood coming out of these efforts being sold to industry.

Raising tree cover on degraded private and revenue lands through farm forestry by encouraging the poor farmers to grow trees on their degraded lands and selling it to industry."

CSE campaigner also met the then Congress president Sitaram Kesri, Bharatiya Janata Party general secretary Govindacharya, and the then union minister for agriculture, Chaturanan Mishra, to brief them on the issue.

After the Prime Minister's announcement, two working groups were set up in MoEF to look into the captive plantation proposal covertly. The first under the chairpersonship of A K Mukherjee, retired inspector-general (forest), was to "review afforestation policies and rehabilitation of wastelands". The other under the chairpersonship of S K Pandey, deputy inspector-general (forest) was to review forest policy.

The recommendations by the Mukherjee committee included a paragraph which called for the controversial strategy of "promoting reforestation through State Forest Development Corporation (SFDC) or some combination of SFDC and industry and farmer-industry-SFDC cooperation on degraded lands", which included private and forest lands.

It also suggested that "forest development corporations should take the lead to identify local entrepreneurs and act as facilitators for developing afforestation projects." CSE opposed these measures as they gave precedence to the needs of the industry over the needs of local people and tribal communities living in and around these areas.

A CSE statement on the pro-industry bias of

the A K Mukherjee committee was given wide coverage by the media. The statement said implementation of the recommendations would violate the National Forest Policy. CSE sent a letter to Suresh Prabhu, the new environment and forest minister, signed by several people appealing to him to reject the proposal. The recommendations of the report were brought to the notice of other NGOs working on the issue.

VII. PEOPLE'S RIGHT TO BIODIVERSITY

The Indian government ratified the Convention on Biological Diversity (CBD) in February 1994. The then minister for environment and forests, Kamal Nath, promised to introduce a legislation to ensure that the benefits of conserving biodiversity would percolate down to the local communities. But as of date, the legislation on biodiversity has not become a reality. The ratification of CBD can only be meaningful if it is followed up with national legislation. The Centre has been campaigning for a speedy legislation on this issue. It is also reviewing the status globally, in a bid to gauge its impact on India's biore-sources and traditional knowledge systems.

CSE organised a workshop on Global Environmental Facility (GEF) in April 1997, during the GEF Assembly session. The

objective of the workshop was to gauge the impact that GEF approved projects on biodiversity have had till now.

Objections raised

In January 1998, MoEF came out with a third circular formulating rules and norms on how biological materials (plants, animals and microorganisms) and the knowledge pertaining to their various uses would be shared among Indian and foreign universities and technical institutions.

CSE argued that the circular would effectively make scientists the owners by giving them the rights to negotiate. CSE issued a press release pointing out weaknesses in the circular. The Centre's stand was widely covered by the media.

Special meeting

CSE took part in a meeting organised by MoEF to discuss the Indian government's stand vis-a-vis Article 8 (which recognises the role played by traditional communities in conservation and sustainable use of biodiversity) at the fourth conference of parties (CoP-4) in

Bratislava. CSE took part in the discussion and defined its stand.

CSE reacts

The MoEF circulated yet another draft outline of the proposed Biodiversity Act in June 1998. CSE reacted to it in an article in *Down To Earth*, which pointed out that the draft was essentially a repetition of the report that was prepared by the expert committee set up by the erstwhile ministry in October 1997, and contained all the shortfalls of the first draft. It does not offer a single provision to define the role of the local and indigenous communities in the process of conservation and management of biological resources and knowledge systems. It makes no attempt to include them in the decision-making process, too.

All powers have been conferred upon the National Biodiversity Authority, a body which would be monitored and controlled by the Central government, with half of its members hailing from various government departments. In other words, its sole purpose seemed to be to strengthen the Centre's stranglehold over bioresources.

GEF workshop

CSE organised a workshop on 'Global Environmental Facility and Biotechnology' in New Delhi

The Centre organised a workshop on Global Environment Facility and Biotechnology in New Delhi. CSE made a presentation which pointed out that GEF money allocated for biodiversity conservation was being largely allocated to prepare lists of medicinal and food plants. Such 'inventories' make the information easily available to transnational pharmaceutical and seed companies, who use it for their own commercial benefit. The CSE presentation questioned the interests of such investments on part of GEF, since the transnational companies are the ultimate benefactors. Whereas GEF was providing little support to developing countries to come up with biodiversity access and benefit-sharing legislation.

The workshop was attended by eminent persons such as M S Swaminathan, director of M S Swaminathan Foundation, P Pushpangadan, director of the Tropical Botanical Garden and Research Institute, Mano Ramos from GEF secretariat, Desmond Mohan from Convention on Biological Diversity (CBD) secretariat, representatives from the ministry of environment and forests, department of science and technology, and department of biotechnology among others.



CSE director Anil Agarwal and campaigner Sumita Dasgupta at the GEF workshop, at Vigyan Bhavan, New Delhi.



GLOBAL ENVIRONMENTAL GOVERNANCE

Attempts to manage global environmental problems are being made within a variety of intergovernmental fora, ranging from the Conferences of Parties (CoP) dealing with treaties relating to climate change, biodiversity, ozone layer depletion, trade in toxic wastes and endangered species and trade and intellectual property rights, to name a few, to the governing councils of institutions like the United Nations Environment Programme (UNEP), Commission on Sustainable Development (CSD), World Bank, United Nations Development Programme (UNDP), Global Environment Facility (GEF), etc. Very few NGOs, diplomats and government officials have an overview of the negotiations that are ongoing, the perspectives of different countries, the decisions reached, and the issues that have been pushed aside. Few people know how governments are reducing these negotiations to business transactions instead of developing governance systems built on principles of justice, equality and democracy. The lack of continuous public and media attention means that governments get away with as little as they can do.



VIII. ANNUAL REPORT ON GLOBAL ENVIRONMENT NEGOTIATIONS

CSE has decided to prepare an annual report on global environmental negotiations to reduce the distance between the civil society actors in the South and the negotiating capitals of the world, and to provide relevant information for the protection of the world.

The report will analyse important environment-related conventions in the light of their origin, decisions taken so far and the political influences that have resulted in those decisions. It will particularly examine the politics between rich and poor nations in these conventions, and how the stand of one country influences the other. It will be a useful source of information for governments and NGOs around the world. No such document exists, particularly from a Southern perspective.

The report, which is being compiled, will also review the changes taking place in international institutions such as the United Nations and the World Bank in their effort to move towards sustainable development.

Though the analysis will be written by in-house and commissioned writers, the Centre will also involve individuals and groups from around the world in contributing additional information and reviewing the chapters. CSE has started building an information network among NGOs around the world, and building a list of three kinds of contacts for the reports — partner institutions, partner individuals and resource persons. The resource persons will be the experts on particular treaties or institutions to be covered, while the partner individuals and institutions will help the CSE team to access all relevant information useful for the report.

CSE is also sending out an electronic newsletter on Global Environmental Governance (GEG) to collaborating individuals and institutions to keep them informed of the progress on the *Global Environmental Governance Report*. Initial letters describing the purpose of the report were sent to everyone on the GEG newsletter mailing list. Expressing their willingness to collaborate, many of them responded with names of other people working in different fields of global environmental governance.

To help partially fund the publication of the report, the GEG team sent out advance order forms to select institutions and individuals. Those institutions and individuals are being requested to purchase the report at a special price of fs US \$100.

Interventions and reports on global negotiations

In order to collect information on the ongoing negotiations, CSE staff members attend various conferences of parties and also try to influence the deliberations.

GEG partners worldwide

Africa Resources Trust (ART), Zimbabwe

Besides being a collaborator for the Global Environmental Governance Report, ART invited CSE to attend the 10th Conference of Parties of the Convention on International Trade in Endangered Species at Harare, Zimbabwe. ART also collaborated on the workshop on protected area management.

Association for North South Campaigns (INZET), Amsterdam, Netherlands

Collaborating with CSE on its the Annual Report on its Global Environmental Governance.

Both Ends, Amsterdam, Netherlands

Collaborating with the Centre For Science And Environment for the Annual Report on Global Environmental Governance.

Centre for Environment, Technology. and Development (CETDEM), Petaling, Malaysia

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Climate Action Network (CAN),

CSE is an active member of CAN and participated in CAN strategy meetings in Bonn during the eighth meeting of the subsidiary bodies to the United Nations Framework Convention on Climate Change (UNFCCC).

Climate Network Africa (CNA), Nairobi

CNA invited CSE to participate in a Regional Workshop for Eastern and Southern Africa on Clean Development Mechanism of the Kyoto Protocol to the UNFCCC to be held in Nairobi.

CODEFF - Friends of the Earth, Santiago, Chile

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Economie et Humanisme, France

Collaborating with CSE for the Annual Report on Global Environmental Governance.

ENDA- Tiers Monde, Dakar, Senegal

Collaborating with CSE for the Annual Report on Global Environmental Governance.

European Environmental Bureau, Brussels, Belgium

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Focus on the Global South, Bangkok, Thailand

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Forum on Environment and Development, Germany

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Friends of the Earth- International (FOE-I), Amsterdam

FOE-I and CSE have an agreement to consult each other on global environmental issues.

Friends of the Earth- Canada, Ontario, Canada

Collaborating with CSE for the Annual Report on Global Environmental Governance. They also have a joint project to monitor the Montreal Protocol to phase out ozone depleting substances. FOE-C has also facilitated CSE's participation in the Conference of Parties meetings.

Global Biodiversity Forum, Switzerland

Provides information on global biodiversity information. Invited CSE to give a presentation on the role of water in biodiversity management in arid regions

Global Environment Facility-NGO Network, Washington, DC

CSE is a member of this international NGO network.

Heinrich Boell Foundation (HBF), Berlin, Germany

HBF collaborates with CSE to promote awareness about environmental

issues worldwide.

International Centre for Trade and Sustainable Development (ICTSD), Chemin Des Anmones Geneva, Switzerland

Collaborating with CSE for the Annual Report on Global Environmental Governance. CSE is a member of its programme advisory board.

Indonesian Forum for Environment - WALHI, Jakarta, Indonesia

Collaborating with CSE for the Annual Report on Global Environmental Governance.

International Institute for Environment and Development, London, UK

Collaborating with the Centre For Science And Environment for the Annual Report on Global Environmental Governance. IIED also collaborates with CSE on joint analytical projects.

International Union for Conservation of Nature (IUCN), Karachi, Pakistan

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Kiko Network, Kyoto, Japan

A Japanese network of NGOs that has collaborated with CSE in its campaign on climate issues. The Network facilitated participation of CSE at the Third Conference of Parties (CoP-3) to the UNFCCC and has extended similar support for COP-4.

Mellemfolkeligt Samvirke (MS), Denmark

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Metropolitan Planning, Universidad Autonoma Metropolitana, Azcapotzalco, Mexico City

Provides information on smog alert and pollution emergency system in Mexico City.

Norwegian Forum for Environment. and Development , Norway

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Oroverde Foundation, Frankfurt, Germany

Collaborating with CSE for the Annual Report on Global Environmental Governance.

People's Forum 2001, Tokyo, Japan

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Project for Ecological Recovery, Bangkok, Thailand

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Socio-Ecological Union, Russia

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Sustainable Development Policy Institute (SDPI), Islamabad, Pakistan

Collaborating with CSE for the Annual Report on Global Environmental Governance.

Swedish Society for Conservation of Nature (SSCN), Stockholm, Sweden

Collaborates with CSE to generate reports on environmental events worldwide and for the Annual Report on Global Environmental Governance.

Swiss Coalition of Developmental Organizations, Berne, Switzerland

Collaborating CSE for the Annual Report on Global Environmental Governance.

World Economy, Ecology and Development (WEED), Bonn, Germany

Collaborating with the Centre For Science And Environment for the Annual Report on Global Environmental Governance.

Wuppertal Institute for Climate, Energy and Environment, Germany

Collaborating with CSE for the production of Annual Report on Global Environmental Governance.



Survival strategies

In June 1997, CSE researcher Anju Sharma attended the Harare Conference of Parties of the Convention on International Trade in Endangered Species. Sharma found that it was time for India to evaluate its own strategies to save some of its endangered species.

India has been supporting trade bans on species in every CITES Conference of Parties. In Harare, India voted against some developing countries regarding the opening of trade in species. These countries have been insisting that conservation is expensive. They want to be allowed to trade in species which are abundant in their country. The money generated would be pooled in partly for conservation and partly for the development of local communities badly hit by conservation. By voting against these proposals, Indian officials revealed their apathy towards the concerns of poor people affected by conservation. They also ignored some basic environmental issues in developing countries.

Sharma also participated in the activities of a group of community representatives brought together by the Africa Resources Trust. The group addressed several press conferences to counter claims of wildlife NGOs present at the meeting, who spoke against the use of wildlife as a resource. Sharma visited Mahenye, a village in south-east Zimbabwe, where a programme called 'communal areas management programme for indigenous resources' is proving that community management of wildlife can indeed work. The wildlife in these

community areas is managed by villagers, who sell the right to kill some animals to trophy hunters from the West. The money generated from trophy hunting is used for development of the area, including the building of schools and grinding mills. The people of the village have a say in how the money will be spent, besides having a share in tourism revenue.

While trophy hunting may not be a viable option for India, which does not face the problem of wildlife overpopulation, community access to tourism revenue would make them view wildlife as a desirable resource rather than as competition for scarce resources.

Participation in GEF

As a member of the Global Environment Facility (GEF) NGO network, CSE has been the NGO focal point for South Asia. CSE staff members have been attending the council meetings of GEF in Washington DC. CSE was also invited by the Ministry of Environment and Forests to be a part of a working group that will coordinate the preparation for the GEF Assembly to be held in Delhi, specially on NGO-related activities.

CSE was actively involved in the run-up to the first participant assembly. The Centre was requested by the NGO network to become the local host for the NGOs, organise workshops and panel discussions, coordinate with the network, and initiate local consultations, briefing sessions and networking. The NGO network prepared a paper on GEF and its evaluation before the GEF Assembly.





At UNGASS

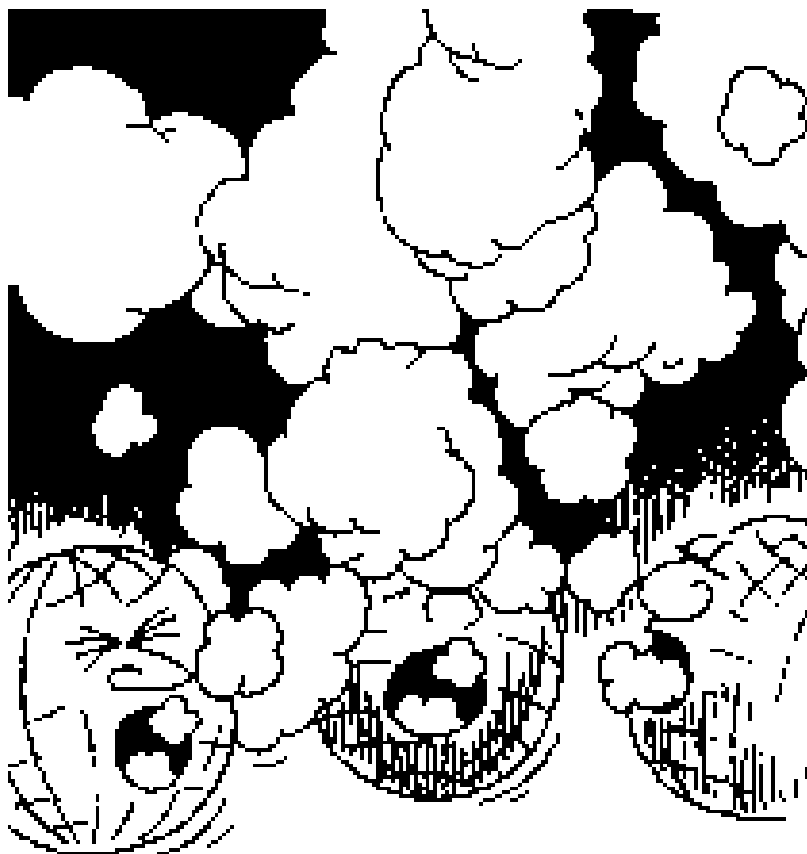
The Global Environment Facility held its first Participant Assembly in New Delhi on April 1-3, 1998. The Assembly was attended by representatives of over 150 governments, UN agencies and NGOs from all over the world. The Centre, in its capacity as the South Asian NGO Focal Point of the GEF-NGO network, organised and coordinated all NGO related activities at the Assembly. This was the first major meeting that provided an opportunity to participant governments and NGOs to interact with GEF and evaluate the programme.

The Centre organised a meeting on February 9, 1998 in New Delhi to provide an opportunity for GEF Secretariat staff and NGOs to meet and discuss issues of concern. The Centre also organised a preparatory meeting on March 28 to bring together NGOs from across the world participating in the GEF. The meeting was to discuss issues of concern and to articulate the NGO position. The Centre also briefed participants about the various GEF programmes that are open for NGO participation such as the small and the medium term grants which are funded by the GEF.

Mr. Anil Agarwal of the Centre was invited to present a statement on behalf of the GEF-NGO network on the opening day of the Assembly, April 1, 1998. The statement, entitled, *The GEF in the 21st Century: A vision for strengthening the Global Environmental Facility*. The statement called on the GEF to look beyond the current narrow environmental mandate and play a greater role in bringing about sustainable development. It said that there is also a need to interact with the sections of the society other than the government — the NGOs, the private sector and the scientific community.

The Centre also organised a series of meetings and panel discussions at the NGO forum during the Assembly to inform, catalyse and build capacities of NGOs. The Centre invited

eminent citizens of Delhi to an informal meeting to meet Mr. Klaus Topfer, the executive director, UNEP on April 2, 1998. The purpose of this meeting was to begin a dialogue between the Indian environmental and scientific community and UNEP on issues of critical and emerging issues of interest to India. Although, Mr. Topfer could not attend this meeting, it was attended by several eminent persons such as Mostafa Tolba, former executive director of the UNEP; M S Swaminathan, agricultural scientist; Vibha Parthsarthy, principal of Sardar Patel Vidyalaya; Kiran Bedi,





member of a special group set up to deal with Delhi's environmental problems and others.

The Centre organised a meeting between people from Nagarhole, the Indian government, the World Bank to discuss the Ecodevelopment Project being funded by the World Bank and the GEF. NGOs spoke out sharply against this programme that is moving out people from park areas against their consent. However, despite severe opposition from tribes living inside Nagarhole and other national parks in India where the project is to be implemented in its pilot phase, the World Bank refused to discuss the issue at this meeting.

CSE campaigner Supriya Akerkar attended the Earth Summit-II in New York (June 23-27, 1997), and lobbied against the forest convention proposed by the European Union and other Northern nations. A CSE statement opposing the forest convention was distributed at the UN General Assembly. The statement appealed to the Southern governments to oppose the convention saying "opportunities for sustainable forest management must be built upon and created through community control and participation. We firmly believe that without community control there can be no sustainability in forest use, management and conservation. We, therefore, strongly oppose the effort to globalise the management of forests". Among those who backed CSE's stand was the official representative of Gabon.

Akerkar, with the Indian delegation also met the then Union environment minister, Saifuddin Soz. The minister took a forthright stand in the negotiations on forest convention and said, "we do not need a forest convention".

Akerkar also closely monitored the negoti-

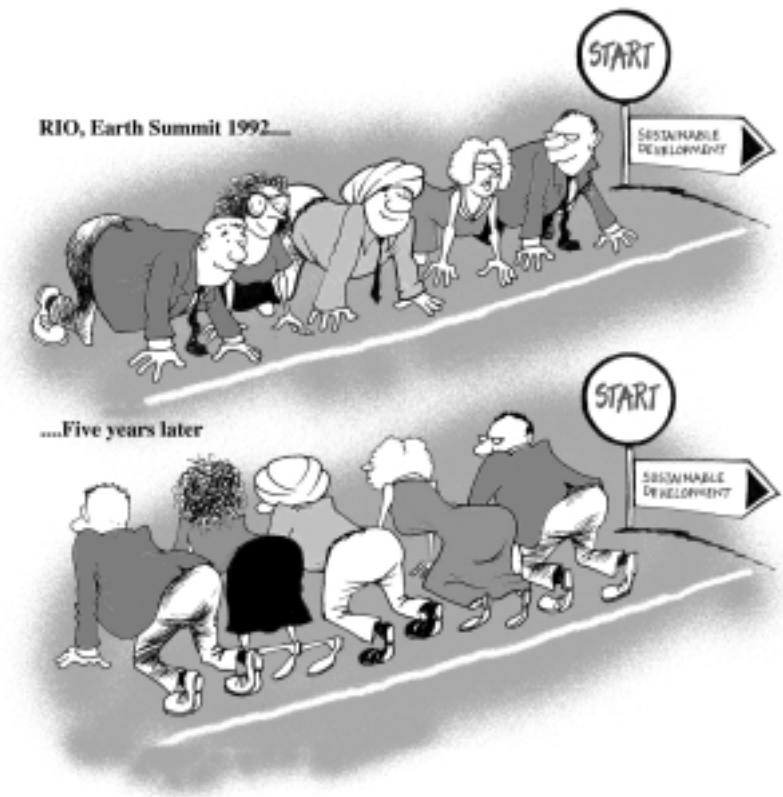
ations on other contentious issues such as climate change, energy, transport, finance, trade, technology transfer, desertification and poverty, and also worked with the NGO Caucus on Energy and Climate Change, which monitored and strategised the ways to influence various governments on the issue.

Hazardous trade

CSE has lobbied at home and abroad for banning trade in hazardous wastes. Even though CSE has not concentrated in this field before, the Centre is in the process of documenting information on hazardous wastes for *Citizen's Sixth Report on the State of India's Environment*.

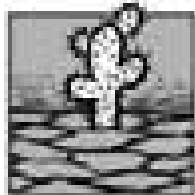
CSE correspondent Rajat Banerji travelled to Kuching in Malaysia as an NGO representative, to the fourth Conference of Parties (CoP-4) to the Basel Convention. This convention deals with transboundary movement of hazardous wastes. Prior to leaving for Kuching, CSE became part of the Basel Action Network (BAN), a group of NGOs from across the globe closely monitoring the Basel Convention.

CoP-4 has since been hailed a historic conference, as it was here that a contentious issue, the list of hazardous wastes banned from international trade, was agreed upon, with some countries expressing their reservations on the list. Our another contentious issue which was left unresolved, was that of annexe VII countries. This sub-note had been introduced at CoP-3 to differentiate those countries which are a part of the European Union, though not of the Organisation for Economic Cooperation and Development



(OECD). Countries keen to see trade in hazardous wastes were quick to identify the loophole, as the language of annexe VII is such that there is no way, at this present moment to prevent annexe VII countries from trading with each other.

Surviving desert storms



CSE campaigner Supriya Akerkar attended the first Conference of Parties (CoP) of the Convention to Combat Desertification, which met in Rome from September 29 to October 10, 1997.

At CoP, the Centre issued a statement on the strategy to tackle desertification. The statement called upon delegates and NGO representatives to adopt a proactive stance by generating a global survival fund through an international income tax on the world's rich to ensure a sustainable livelihood for the world's poor. It urged the conference to follow the village ecosystems management approach by promoting appropriate community-based technologies and empowering local communities to handle their own funds.

The CSE statement received a mixed reaction from NGOs. Several African NGOs agreed with the statement. Enoch Okpara of the Nigerian Environmental Study/Action Team (NEST) said, "the statement raises several important points. Community-based ecosystems approach will help combat desertification in various parts of the world." However, there was a clear divide on the issue of "community empowerment" among those present. Michael Brown, an NGO representative from the United States, felt such an approach was bound to fail.

CSE also circulated another statement highlighting traditional water harvesting systems. It was welcomed by Bo Kjellen, the chairperson of the intergovernmental negotiating committee, the panel which had negotiated the convention. Kjellen said, "the convention places a lot of importance on the traditional knowledge systems. This text is a useful contribution to the convention."

Countries party to the United Nations Convention to Combat Desertification (UNCCD) met again in Dakar, Senegal, from November 30, to December 11, 1998. CSE was also invited to make a presentation on traditional water harvesting systems in India, at the plenary session, on behalf of *Reseau International D'ong sur la desertification* (RIOD), the NGO network attached to the desertification convention.

CSE campaigner Anju Sharma participated as an NGO observer during the second week of negotiations. CSE criticised UNCCD's inability to move out of aid-politics and address the problem of desertification, which affects 41 per cent of the total land area on

earth, and 900 million people in 100 countries, most of them in the least developed parts of the world.

There are several causes to which desertification is attributed — population, poverty, national debts, international trade in cash crops and poor governance — all of which put direct and indirect pressure on land. The desertification convention was meant to deal with almost every aspect that affect the poor — governance, land and water management, livestock management and good agricultural practices.

Taking a look

CSE campaigner Anju Sharma went to Toronto, Canada, to attend the Toronto multi-stakeholder meeting for business voluntary initiatives. The purpose of the meeting was to look at voluntary initiatives taken by industries around the world, as part of the Commission for Sustainable Development (CSD) process.

A voluntary initiative was taken up by British Petroleum for trading in carbon emissions, but CSE pointed out that such voluntary initiatives, could work against Southern interests, especially if they are to serve as a trial run for future trading of emissions between developed and industrialised countries.

Commission on Sustainable Development

CSE's director Anil Agarwal attended the 1997 meeting of the Conference on Sustainable Development at the invitation of UNDP to talk on sustainable livelihoods, poverty and environment at a UNDP sponsored event. In 1998, Agarwal was invited by the Norwegian Forum for Environment and Development to participate in CSD's deliberations on sustainable industrialisation.

CSE correspondent Rajat Banerji attended the sixth session of the Commission on Sustainable Development (CSD 6) convened for two weeks in New York from April-May 1998. Freshwater and industry were the sectoral themes at CSD 6. It was a significant meeting as CSD adopted a decision to use management tools and the corporate sector for sustainable development. It represented a paradigm shift from the earlier concept that sustainable development would be driven by aid and overseas assistance. CSD 6 also adopted a growing notion that the environment was not merely a user of water, but it also played a fundamental role in maintaining the quality and supply of water resources.

As is the case in most international negotiations, perspectives of the developed North and the developing South differed all the way. For instance, while the North was keen to see water used as an economic good by all users, the South had a large number of subsistence users who would not be in a position to see water in the same light. Same with the emerging knowledge that sustainable development



was directly linked with private investment.

UNEP and the World Business Council for Sustainable Development (WBCSD) released a report at the session titled, 'Industry, freshwater and sustainable development'. Dubbed the 'wake up call to business and to the other sectors of society', the report documented the number of companies which manage freshwater resources more sustainably.

Highlighting the state of the world's freshwater, the report noted that a number of regions in the world were suffering from freshwater shortages. While assuring the participants that the world was not running out of freshwater, the report added that it was not distributed equally. "Industry could be at risk when freshwater shortages occur. Water for industry is often given relatively low priority. Water would then become a limiting factor for sustainable development and future industrialisation in water scarce regions."

IX. RIGHT TO THE ATMOSPHERE

Educating Gujral

CSE has had a long interest in global warming, especially in the equity dimensions of sharing the climate change abatement burden. During the 1997-98, the Centre sent a briefing letter to the then prime minister Inder Kumar Gujral on what position India should take at the Third Conference of Parties (CoP) to the United Nations Framework Convention on Climate Change (UNFCCC), at Kyoto in December, 1997. The letter was released at a well attended press conference on November 6, 1997. Copies of the letter were also sent to President K R Narayanan, Commonwealth heads of State and ambassadors of various countries.

Since the 1992 Earth Summit at Rio, the Centre's stand has been that the atmosphere is a common global resource, and therefore, its benefits must be shared equitably.

However, the environment section of the statement endorsed by Gujral at the

Commonwealth Heads of State Meeting (CHOGM) at Edinburgh stated that, "after Kyoto, all the countries will need to play their part by pursuing policies which would result in significant reductions of greenhouse gas emissions, if we are to solve a global problem that affects us all." Describing the CHOGM statement as one that would "damage the position of the entire South and force it to mortgage its present and future," the Centre sent a 10-page letter to Gujral, explaining what India's position should be at Kyoto.

Cautioning the then prime minister against succumbing to the diplomatic designs of a few countries, CSE urged him that, "India must take a firm, imaginative and bold stand at the Kyoto conference". CSE's position on equitable entitlements was strongly appreciated by environment minister Saifuddin Soz who requested CSE director Anil Agarwal to accompany him for the ministerial segment of the Kyoto Conference to give him support during the negotiations.

Anju Sharma also attended the conference in Kyoto. Sharma spoke at NGO fora to raise support for the CSE position and also helped the Indian delegation in articulating India's position.

The stand taken by the Indian delegation at the Kyoto meeting on climate change ensured that CSE's work in the run up to the meeting did not go in vain. The US strongly advocated the inclusion of emissions trading, which would permit them to buy emission rights from developed countries. The Indian delegation, pointed out that such trading cannot be permitted till countries have emission entitlements which are their's to buy and sell. This position was supported by G-77 members and China, as a result of which the sorting out of details of emissions trading was postponed to the next Conference of Parties (CoP).

Where's the equity?

The Centre's director Anil Agarwal, deputy director Sunita Narain and campaigner Nikhat Jamal Qaiyum attended the eighth session of the subsidiary bodies to the United Nations Convention on Climate Change in Bonn in June 1998.

Why is the question of 'emissions rights' important? What do we mean by 'meaningful participation' of developing countries? Global warming prevention means putting a cap on greenhouse gas emissions. How will the cap be distributed in a world that is marked with enormous inequality? And in a situation when emissions control has economic costs? How does one deal with global warming in a way that is ecologically effective, equitable and socially just?

These were some of the critical questions raised by CSE at its workshop co-sponsored by the German NGO, FORUM. The workshop held on June 6, 1998, at Stadthalle, Bonn, was called to discuss the per capita entitlements



Centre's director Anil Agarwal and deputy director Sunita Narain at the workshop on entitlements with NGOs at Stadthalle, Germany.

principle for allotment of equal rights to atmosphere. Key presentations were made at the workshop by Anil Agarwal and Sunita Narain, Jurgen Maeir on behalf of the German NGO, FORUM, and Nick Mabey from the World Wide Fund for Nature (WWF).

What emerged as a key concern at the end of the session was the need to recognise per capita entitlements principle as the starting point for defining the rules and modalities for any trading mechanism under the Climate Convention and its protocol. It was interesting that two government delegates attended the above CSE workshop for NGOs. They came from Pakistan and China – a few weeks after India had exploded the atomic bomb and these countries were strongly offended by the development. But the two delegates strongly appreciated CSE's stand on climate change.

Special event with negotiators: A few days later, on June 9, 1998, CSE invited negotiators from both developed and developing countries to a workshop on the climate change and per capita entitlements. The two-hour workshop was scheduled as a special event of the then on-going eighth session of the subsidiary bodies to the United Nations Convention on Climate Change in Bonn.

CSE strongly believes that there is a need to advocate a strategy that would lead to "long term changes in climate trends", and would also lead to 'meaningful participation' of all. CSE said the strategy must reiterate the following:

- Emission trading proposed under the Kyoto Protocol must be built upon the principle of equal per capita entitlements of all people.
- Within the framework of entitlements, the

principal of contraction and convergence must be accepted which would provide incentives to developing countries to trade their unused entitlements and to move towards a low-emissions development path. We cannot have a world in which some countries have to freeze their carbon dioxide emissions at one level and other countries at another level.

- The emissions trading price should be pegged to a cost that would encourage developing countries to move away from fossil fuels to solar energy pathways.

Seeking an insight

The Dutch National Committee for International Cooperation and Sustainable Development (NCDO) organised a series of workshops and presentations from September 9-15, 1998 in the Hague, the Netherlands. The purpose of the discussions and presentations on the climate issue was to seek an insight into the 'developing countries' position and perspectives on critical issues in the post-Kyoto climate negotiations, and to assist the Dutch NGOs and climate negotiators in formalising a national position for the Fourth Conference of Parties (COP-4) meeting to be held in Buenos Aires in November 1998.

CSE was invited as one of the key developing country NGOs, actively engaged in climate negotiations and the debate on the Kyoto Protocol. CSE campaigner Nikhat Jamal Qaiyum attended the workshop sessions on behalf of the Centre. Three other NGO representatives invited by NCDO were from Uruguay, Cameroon, and, Ukraine. The activities of the group were facilitated by the Dutch NGO, Both ENDS. Qaiyum made a presentation on 'The Kyoto Protocol flexible



Briefing facts

CSE distributed factsheets and statements to the NGOs and negotiators

As part of the activity to brief delegates at the South Asian workshop, CSE prepared a dossier containing factsheets and a CSE statement. The dossier is a follow-up of the two briefing papers and statement which the Centre had prepared in June 1998, analysing politics and science behind the climate negotiations post-Kyoto. The statement of the South Asian Atmospheric Equity Group was also included in the dossier and circulated at the Fourth Conference of Parties (CoP-4) meeting in Buenos Aires. Both the NGO community, as well as the negotiators, from both North and South, received the dossier at the November climate meetings very well.

mechanisms and equity considerations – concerns of developing countries'. NCDO and Both ENDS also requested the four participants to submit a briefing paper, based on their respective NGO positions. The briefing paper, titled 'Reversing Climate Change-Developing Co-operation between North and South', would be used as a developing countries' position paper at the Dutch national parliamentary debate on what should be the Dutch position at the November fourth conference of parties (CoP-4) in Buenos Aires.

The 'equity' perspective

In an effort to facilitate regional consultation for preparation of the CoP-4, in Buenos Aires in November 1998, CSE brought together representatives from the South Asian NGOs to participate in a workshop on climate change in New Delhi on October 24, 1998. CSE took forward the mandate of the South Asia Atmospheric Equity Group, and organised two events during the CoP-4 to brief negotiators and NGOs on the Southern position.

At the South Asian workshop titled "A fair share: Demanding Entitlements in an Equitable and Sustainable Climate Regime", CSE organised three events — a strategy meeting with the NGOs in the morning session, followed by a press conference in the

afternoon and, a public lecture in the evening by Anil Agarwal.

The South Asian NGO participants, who attended the workshop included Dipak Gyawali, Nepal Water Conservation Foundation, Kathmandu, Nalin Ladduwahetty, Mihikatha Institute, Colombo, Nalaka Gunawardene, Television Trust for the Environment, Colombo, Farooque Chowdhury, Unnayan Shamannay, Dhaka, Shaheen Rafi Khan, Sustainable Development Policy Institute, Islamabad.

The participants from Pakistan, Sri Lanka, Nepal and Bangladesh expressed 'full support' to CSE's position of ensuring equity and ecological effectiveness in an equitable and sustainable regime negotiated, to implement the objectives of the climate convention.

CSE proposed that the principles of equitable entitlements and contraction convergence, are critical for developing a just framework for global cooperation on climate change. The entire objective of the cooperation would be to move as fast as possible to a non-carbon, renewable energy economy and, thus, avoid economic and political damage.

At the end of the day's deliberations, the NGO participants adopted a statement of shared concern on behalf of the South Asia Atmospheric Equity Group. The statement was



Members of the South Asia Atmospheric Equity Group Dipak Gyawali of Nepal, Farooque Chowdhury of Bangladesh, Shaheen Rafi Khan of Pakistan, Nalin Ladduwahetty and Nalaka Gunawardene of Sri Lanka, CSE director Anil Agarwal and deputy director Sunita Narain (L to R), addressing the press at India Habitat Centre on October 24, 1998.

endorsed by Khawar Mumtaz, Shirkat Gah, Lahore, Aban Marker Kabraji, IUCN- World Conservation Union, Karachi, Anil Agarwal, Sunita Narain, and, Nikhat Jamal Qaiyum.

The message was clear: The industrialised countries cannot be allowed the political expediency of not taking action, by claiming either that there is uncertainty in scientific evidence on global warming, or that developing countries are not acting responsibly. The regional workshop presented a strong case for developing countries, even if there is need to work harder in this direction. Industrialised and developing countries must act for saving the planet from the threat of climatic destabilisation by green house gas emission, but industrialised countries must commit first for their significant reduction. Any responsibility must commensurate with the rights. Global responsibility will result only when the atmosphere is treated as a global common.

Heat in Buenos Aires

On November 7, 1998, CSE organised a workshop titled, "Clean Development Mechanism: A perspective from the South," which was registered as a special event at CoP-4. The workshop was well attended, and there was a great deal of interest expressed in CSE's views.

The CoP-4 meeting was attended by Anil Agarwal, Sunita Narain, Anju Sharma and Nikhat Jamal Qaiyum.

On November 8, 1998, CSE co-organised another workshop "Towards Equity and Sustainability in the Kyoto Protocol", with the Stockholm Environment Institute.

In Buenos Aires, CSE proposed a rights-based approach in regulating climate change – treating the atmosphere as a limited common resource to be managed under an equity regime, based on per capita entitlements. Such a system could take into account the historical emissions of the developed countries – their 'natural debt'.

CSE exerted a considerable influence on the Indian government's position. In Buenos Aires, the Indian delegation took a strong position based on the principles of equity and entitlements. In his statement to the CoP-4 plenary session on November 13, 1998, erstwhile Minister for Environment and Forests, Suresh Prabhu, categorically said, "the debate on sustainability cannot be complete unless it recognises that the South has not had its fair share of the environmental space." He stressed, "the convention recognises that the emissions of the developing countries will continue to grow from the current, as yet relatively low, energy consumption levels."

Along with its interactions with the delegations from G-77 and China, CSE also held discussions with key European environment ministers, such as Dominique Voynet, the French Minister of Environmental Affairs, who made a very strong statement in favour of equity during the CoP-4 plenary meeting. The

Look before you leap

CSE urged the Prime Minister to do his homework

In October 1998, CSE wrote to the Prime Minister, Atal Behari Vajpayee, emphasising why it was vital that India went to Buenos Aires well prepared and with a clear brief from the Cabinet, to protect the current and future economic rights of its people, and to present a strategy that protects the global ecology. CSE advocates that the South cannot forsake the right of its current and future generations to grow economically, by accepting undue constraints on the use of energy. If the South has to accept certain constraints to save the world from global warming, then it is obvious that all nations and people on earth would equitably share those constraints. CSE also briefed the environment minister, Suresh Prabhu, on the issues involved.

Danish Minister for Environment and Energy, Svend Auken, and the Dutch Minister of Housing, Spatial Planning and Environment, Jan Pronk, also supported CSE's position. CSE representatives also discussed these issues with Yolanda Kakabadse, environment minister of Ecuador, and Julia Carabia, environment minister of Mexico.

Surplus entitlements with less polluting countries can give way to an international emissions-trading regime. Further, an international tax can be levied on countries exceeding the limits imposed by their permissible entitlement allocation. Such a levy of tax can be based on the precedent of the 'polluter pays' principle. Resources generated by the tax system and the market-based solution of emissions-trading will aid the process of resource transfer in real terms.

Negotiating atmosphere

Following Buenos Aires, the German non-governmental organisations, World Economy, Ecology and Development (WEED) and the North-South Initiative, GERMANWATCH organised the Debate 21- an international dialogue-process of social movements and NGOs for a global framework towards a democratic, equitable and environmentally sound development- on January 17-18, 1999, at Hannover, Germany. CSE deputy director Sunita Narain presented a paper on instruments for sustainable development for the climate sector.

"It is clear that we are talking about sharing a global common, which is the atmosphere. Therefore, the world is negotiating, not global warming or cheap emission reduction, but the principles on which the atmospheric space will be allocated and the modalities that will govern the global commons. In sum, the ownership of the atmosphere is being negotiated," Narain said.

The world, therefore, needs an "ecologically effective" international mechanism that provides incentives to all nations to put this plan into action. Every effort to delay puts the world especially its poor people, at greater risk," Narain explained.



IX. INDUSTRY AND ENVIRONMENT

When green begins to mean 'stop, look and then proceed', corporate bigwigs and chief executives had better take note. The green watch on industry in India has begun.

On May 2, 1997, CSE launched its Green Rating Project (GRP) and Corporate Environment Responsibility Programme at the United Nations Development Programme (UNDP) conference hall in New Delhi. For the first time, industrial firms in India will be rated on the basis of its eco-friendliness.

The failure of State measures to curb pollution and over-exploitation of resources by industry has prompted the birth of GRP. The last 50 years have shown that bureaucratic measures to control pollution have failed miserably, resulting in an unsustainable and environmentally dangerous growth pattern. Government controls permit industry to produce waste on condition that it is treated before being discharged into the environment. Some industrial firms invent ingenious ways to circumvent their responsibilities. Therefore, in practice, the entire process has been reduced to a farce of obtaining clearances from ministries and pollution control boards, giving rise to new forms of corruption that have permitted polluters to go scot-free.

The launch of the project: Speaking at the project's inauguration in New Delhi, Manmohan Singh, former finance minister and the architect of industrial liberalisation in India, pointed out that for Indian industry, "being environment-friendly is not only a moral obligation, but also makes good economic sense".

Stressing that while economic growth was a must for India, Anil Agarwal stated that it was also imperative not to forget environmental concerns, and the launching of the project was a small step in that direction.

The response to the project so far has been good. GRP has been approved by the Ministry of Environment and Forests (MoEF) and accepted by UNDP for inclusion in its country plan 1997-2001. Telco, Essar, Eicher, the Taj hospitality group and Hero Motors Limited are

some of the corporate giants which have evinced interest in the project.

Speaking on the occasion of the project's launch, Arvind Pande, chairperson of Steel Authority of India Limited (SAIL), said the initial efforts made by his organisation in pollution control have been paying rich dividends in terms of higher productivity among workers, and increased profitability for the past 10 to 12 years. According to him, SAIL has been regularly making huge investments in pollution control and prevention for the last 15 years and would now like to take full advantage of it, in terms of getting national and international recognition for efforts in favour of environment protection. "We would now like to take a leadership position in environment protection and disclose our achievements regularly in our annual reports and other documents," Pande said. "Others should do the same," he added.

Expansion in industry means a corresponding rise in pollution generated by industry. This is why it has become imperative to educate — through GRP — the consumer, the financier and the producer about the hazards of unsustainable growth.

History of GRP: The preparations for the project began in early 1995 with initial feasibility studies, brainstorming sessions, field visits and a pilot study to assess Indian industry's response, which was positive. In October 1996, Paul Hilton, who had experience in corporate environmental rating working with a public interest research organisation in New York (US), joined CSE's GRP team. Following this, the government of India recommended to the UNDP to include GRP in its country plan for 1997-2001.

The project builds on company data, but also looks at feedback from other sources like state pollution control boards, the media, public opinion and NGOs to cross-check whether the information provided by the companies is true and fair. If companies refuse to cooperate, GRP undertakes independent research about the environmental performance of that company and furnishes its report to the company for comments before making the assessment public.

The procedure for assessment followed by the project as follows is quite simple. It

- focusses on a company's future environmental commitments together with its past track record;
- gives high weightage to voluntary disclosure of information;
- provides the company the first opportunity to inspect the report; and,
- operates on a transparent rating methodology.

All companies in a sector chosen for rating are approached for information on the ways they take care of the environmental problems arising out of their operations.

How GRP will help: Providing Reputational Incentives

The benefits of green rating are:

- Increased voluntary improvement and disclosure by industry
- Increased public awareness
- Empowerment of investors and consumers
- Competitive advantage
- Move towards sustainable industrial growth

Questionnaires are distributed to firms for their responses. This information is then used to produce the company environment profile which is publicly disclosed and disseminated.

Before making the assessment public, however, each company gets the opportunity to view the interim report and give its clarifications and further inputs which can then be incorporated in the final report. A business advisory panel and a technical advisory panel comprising leading industry figures, environmentalists, policy-makers and research and development experts are involved in defining the evaluation criteria for GRP's assessment procedures.

Evaluation of pulp and paper sector: CSE is evaluating the paper and pulp sector in the first phase of the project. The assessment will then be extended to more sectors. Given the importance of paper, the demand for it is expected to grow over the long term, particularly as the Indian economy and industry expands. The paper industry is one of the world's worst polluters. It not only eats up forests, but also pollutes the atmosphere, land and water by producing toxic by-products such as dioxins and other organochlorines as products of the bleaching process. The industry is a major consumer of energy and water, too. As a result, it has been the subject of study internationally, in terms of resource productivity and environmental management. CSE has also been involved with issues of forestry and fibre supply for the pulp and paper industry and, therefore, has developed considerable experience in various issues involved in the sector.

A total of 32 paper and pulp mills in the states of Andhra Pradesh, Assam, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Nagaland, Orissa, Punjab, Tamil Nadu, Uttar Pradesh and West Bengal have been chosen for the project.

The criteria and weightages for rating the pulp and paper industry of India has been divided into two broad categories. While one set deals with corporate policy, organisational structure, management systems, etc, the other set is based on hard data about company's resource consumption, pollution generation, its future commitments, etc.

Networking to complete a gigantic task

Undertaking a primary survey and data collection exercise for all sample companies was not possible given the time constraints and resource limitations. It was extremely difficult for the GRP team to do this exercise on all 31 industrial plants on its own.

To manage this huge assignment, CSE decided to involve the civil society. CSE also formulated its survey and data collection exercise in such a way that irrespective of the company's willingness to participate in the project, it would be able to undertake the



CSE director Anil Agarwal and former Union Finance Minister Manmohan Singh at the launch of the Green Rating Project in New Delhi, in May 1997.

rating exercise on the pulp and paper sector.

By October 1997, CSE had established its Green Rating Network (GRN) – a network of around 200 well qualified volunteers from all over the country to undertake an industry-monitoring exercise on behalf of CSE. GRN was activated in March 1998 and around 20 volunteers were selected based on their qualifications and proximity to the sample industrial units. A detailed guideline document was sent to them to undertake this survey and data collection exercise.

CSE adopted a two-fold strategy for data collection-primary data from companies themselves and secondary data from pollution control boards, local community, local NGO's, local media, etc. An extensive photo-documentation exercise was also included as a part of this exercise.



The green inspectors sent back voluminous details and damaging pictures.



CSE’s green inspectors

CSE’s green inspectors	Background
Anand Bishey	Mediaperson with experience and expertise in industrial and economic journalism, Nagpur
P N Udaya Chandra	Reader, environment and ecology, S D M college, Karnataka
Ravinder Dhani	Sub-divisional officer, Punjab electricity board
Vandana Gupta	Former CSE volunteer
Priya Shah	Mediaperson with expertise in scientific journalism, Maharashtra
N P Mahammad,	Coordinator, Centre for Voluntary Actions and Rural Development, Kerala
Ranjit Prakash	M Phil student, environment and ecology, Jawaharlal Nehru University
Rachna Yadav	Environmental activist and eco-journalist, Assam
Dileep Chandan	Editor, Assam Bani, Assam,
J V Dash	Environmental activist and journalist, Orissa,
R V Singh	Ph D, Biodiversity, New Delhi,
Paramjeet Singh	Environmental planner, Gujarat,
B D Gowda	Urban and regional planner and president, Centre for Rural Development, Karnataka

Eminent people join hands to guide the rating of industries

Green Rating of Indian Industry Project (GRP) aims at assessing the environmental performance of Indian corporations or firms in India. Considering the technical and political nature of GRP’s work, CSE decided to form two advisory panels to advice and guide the project. A Technical Advisory Panel (TAP) advises and guides the project in carrying out research and setting the rating criteria and a Project Advisory Panel (PAP) oversees the project and lends credibility to it.

At the onset of the Green Rating Project, CSE set up a project advisory panel (PAP) comprising industry leaders, judges, research and development experts, policymakers, academicians, environmentalists, journalists and other eminent members of the civil society.

PAP was formed to advise, guide and steer the project and give the entire rating process a holistic and credible outlook. It was assumed that the huge and seemingly powerful industry would easily be able to dismiss an NGO’s attempt to assess their environmental performance. Therefore, to give weightage to the entire rating process, eminent people from various walks of life were involved. Their presence gave the project the much-needed credibility.

A competent technical panel is vital for the Green Rating Project. Keeping this in mind, CSE selected three leading technologists in the pulp and paper sector to form the Technical Consultants Panel (TCP) to help in rating the industry. The TCP members are: N J Rao, P K Bhattacharya and T N Chaturvedi.

The TCP became a stakeholder in the entire exercise of rating the pulp and paper sector. Besides, by getting involved in GRP, they gave the project enormous technical credibility. The basic role of the TCP was to:

- Guide the GRP team in preparing questionnaires;
- Review the information supplied by companies and the company profiles prepared by CSE and identify the possible lacunae and technical drawbacks;
- Review the work done by CSE on overall rating format, criteria and weightages; and
- Guide CSE in finalising the ratings.

Despite the fact that the TCP members were consultants to paper companies, they did not fear any reprisals from the companies and went through the data with a fine-tooth comb. They were excited by the project and kept telling the GRP team that it will really give the industry a new perspective.

Going step by step

By the end of 1996, the mood of Indian industry was upbeat due to the opening of the Indian economy but its thoughts were nowhere near environmental protection. Industry was multiplying its production capacity but environment was its lowest priority. Except for some bold actions of the Supreme Court and various High Courts, the issue of industrial pollution was not even being discussed in various public fora. It was in this scenario that GRP team started its interaction with industry for the first time to understand the existing ground realities pertaining to corporate environmental responsibility. Here is how its work went:

Phase-1: (October-November 1996) — The GRP team carried out a detailed survey and researched issues involved in assessing



Volunteers learn new things while tracking down mills.

Technical consultants panel



N J Rao, professor, Institute of Paper Technology, Saharanpur, Uttar Pradesh



T N Chaturvedi, consultant, pulp and paper sector and expert on agrowaste-based small-scale paper industry



P K Bhattacharya, professor, chemical engineering, Indian Institute of Technology, Kanpur

The response to the second phase of interactions with industry convinced CSE that there was a basis to start this project and that whatever be the case, good companies will come forward to join an environmental initiative.

Phase - 3: (June-July, 1997) — Pulp and Paper was selected as the pilot sector by CSE to test the validity of its rating methodology.

corporate environmental responsibility and the major initiatives made in the developed world.

Overall the study clearly identified that there is a demand for an initiative which will give due recognition to environmentally proactive companies and, thus, force poor performers to improve their environmental performance to survive in the market.

Phase - 2: (February-March 1997) — After formulating the basic framework of GRP, CSE decided to invite all major Indian companies to voluntarily join the project. Letters were sent to around 1,250 companies. By the end of April 1997 around 50 companies had replied affirmatively.

Thirty one production units spread over 12 states were selected for rating. The first letter sent to them contained a brief introduction of the project and requested them to send their annual reports and brief profile.

However, a subjective analysis of this phase clearly indicated that except for one company all the others had sent their annual reports without understanding the aim of this project. This was proved by the fact that all these reports were sent by the accountants of the companies. Only in case of ITC-Bhadrachalam, it was sent by its vice-president (plantations).

Phase - 4: (November – December 1997) — After the completion of the issues paper and

The Sounding Board

The project advisory panel is to serve as a sounding board for the GRP and the ultimate group to clear the ratings. It consists of:

Chairperson

Dr. Manmohan Singh, Former union finance minister

Deputy Chairperson

Justice P N Bhagwati, Former chief justice of India

Dr. M S Swaminathan, Chairperson, M S Swaminathan Research Foundation

Members

Prof. Saifuddin Soz, Former union minister of environment and forests

Prof. M K Prasad, Kerala Sastra Sahitya Parishad, Kochi

Father C J Saldanha, Director, Centre for Taxonomic Studies, Bangalore

T N Ninan, Editor-in-chief, Business Standard

Ashok Parthasarathi, Secretary, National Commission on Scheduled Castes and Scheduled Tribes, GOI

Aloke Mookherjee, Director, (corporate affairs), Asea Brown Boveri Limited

Arun Duggal, Chief executive officer, Bank of America, India

R Rajamani, Former secretary, government of India

A S Dhillon, General manager, Tata Iron and Steel Company

Rajiv Dubey, Managing director, Tata Metaliks Limited

M L Gulrajani, Dean, Industrial research and development, Indian Institute of Technology, Delhi

A N Jha, Senior vice-president, Essar Investments

Sreekant Gupta, Associate professor, Delhi School of Economics

Bibek Debroy, Economist, Rajiv Gandhi Foundation

V N Das, Director, (safety, health and environment) Ranbaxy



GRP coordinator, Chandra Bhushan giving a presentation to Dr Manmohan Singh and other members of the project advisory panel.

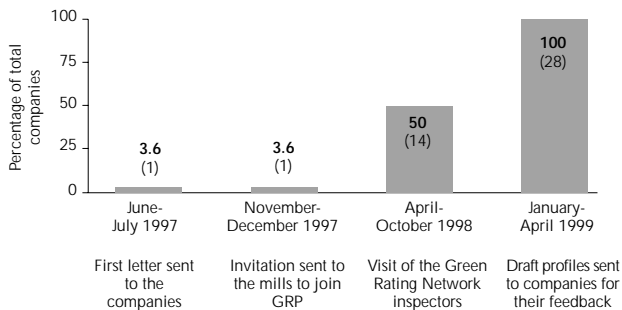
the basic format for rating the pulp and paper sector, CSE sent a formal invitation along with a corporate and policy-level questionnaire to all the companies requesting them to disclose their environment performance-related information.

Phase - 5: (April – October 1998) — In this phase CSE decided to involve the nationwide civil society for primary survey and data collection. CSE also formulated/designed its survey and data collection exercise in a way that irrespective of the company's willingness to participate in the project, CSE would still be able to undertake the rating exercise on the pulp and paper sector.

During this period a strong communication link was established with a majority of the sample companies and by the end of October 1998, a substantial amount of data was collected. It is to be noted here that only fourteen 14 out of the 31 sample units had disclosed their information to CSE during this phase.

Step by Step

How the industry gradually started disclosing information



NOTE: Figures in the parenthesis indicate the number of companies who disclosed their data to CSE

Phase – 6: (January – April 1999) — By mid-January 1999 a draft company environmental profile was completed and sent to all the sample units for their feedback. The response CSE received during the feedback phase was amazing. It seems that most of the companies were not aware of the level of information CSE had collected on them and immediately after receiving their draft profiles, all sample companies (31 out of 31) got back to CSE with their response. During the feedback phase, profiles were sent to the companies, for their comments. It was here that they understood that the project is not being done with some witch-hunting intention by CSE, that they too are a stakeholder in this whole exercise, and thus, all of them voluntarily disclosed information to the project.

The level of seriousness shown by the companies during the feedback phase can be gauged by looking at the number of people in top management that started interacting with CSE at this stage. Several of them visited CSE individually to interact with the GRP team and several CEOs kept in touch with the unit through long distance communication.

One of its kind

GRP is similar to 15 other environmental rating programmes in other parts of the world. But they depend on government data, and are all from developed countries. CSE's data is self-generated and that is what makes GRP unique in the world.

The key challenge in developing GRP has been the fact that government data on environmental performance of Indian companies is not readily available and when available, not credible. GRP's challenge lay in creating an altogether new and credible database on corporate environment performance outside the official system. To keep the project manageable, the projects' scope was limited to companies on the stock market.

The early response of the industry was quite positive. Fifty leading companies such as Telco, Tisco, Bajaj and Titan expressed a desire to participate in the project. GRP has proved that the companies are open to participating in environment performance rating projects. Companies value public reputation. It has also proved that people across the country are prepared to give their time to help improve the environment at the level of serious members of India's middle class, at the level of technical professionals and at the top level of India's civil society and the political world. Monetary compensation is not the only motivation for people to get involved. It is, therefore, possible to develop a credible regulatory system through public participation — that regulation need not rely only on government inspectors.

Making its presence felt

The recent trend, particularly in developed

countries, is that finance and fund managers are increasingly providing information on environmental and social responsibilities of companies to investors. This is because investors have become more socially aware and responsible and want to invest their money in companies that are environment friendly. This trend has ushered a new dimension in industrial pollution control/prevention all over the world. Now instead of giving more importance to control-and-command mechanisms, market mechanisms are being used to improve the environmental performance of companies.

However, there is one big problem in differentiating a good company from a bad one. Companies publish their reports but there is no uniformity in these reports. This makes it very difficult for investors, consumers and regulators to compare results. The Global Reporting Initiative (GRI) has been formed to promote international harmonisation in the reporting of relevant and credible corporate environmental, social and economic performance information to enhance responsible decision-making. The GRI is convened by CERES (Coalition for Environmentally Responsible Economies) and incorporates the active participation of corporations, non-governmental organisations (NGOs), international organisations/UN agencies, consultants, accountancy organisations, business associations, universities, and other stakeholders from around the world. CSE's director Anil Agarwal has been involved in this project as a steering committee member, the committee which will clear the final disclosure format.

Sole crusader

CSE was the sole NGO representing the South at a meeting organised by the United Nations Conference on Trade and Development (UNCTAD) in Geneva which included participants from the International Labour Organization (ILO), International Standards Organization (ISO) and a number of NGOs involved in assessing corporate environmental responsibility.

The meeting discussed the need for collaboration between NGOs and other stakeholders in the developed and the developing world, so as to develop methods for assessing the environmental and social performance of transnational companies, using a set of common indicators.

The Greening of Industry network was set up in 1991 with nodes in University of Twente, The Netherlands and Clark University in USA. The network organises the annual conference on Greening of Industries conference to provide a platform for sharing research results, practical experiences and visions of the greening of the industry. Pradeep Dutt from CSE participated in the Greening of Industry Conference from November 16 to 19, 1997 at the University of California at the invitation of United States-Asia Environmental Partnership Programme (USAEP). Nearly 200 participants took part in the conference.

Making industries eco-friendly

The ratings of pulp and paper industry were finalised

A Project Advisory Panel meeting of GRP was held on March 27, 1999. The meeting was attended by Manmohan Singh, V N Das, Arun Duggal, Rajiv Dubey, Ashok Parthasarthy, Cecil Saldanha, R Rajamani, M L Gulrajani, M K Prasad and others. The purpose of GRP is to rate the environmental performance of Indian companies.

CSE director Anil Agarwal presented a brief overview of GRP. It included the purpose of the project, key impacts, methodology adopted for assessing the environmental performance of the companies, challenges and strategy. The discussions in the meeting ended with the following action points :

- GRP should take two sectors in a year and supplement this with corporate environment policy and management ratings. Each of the sectors should be reviewed once in three years. It was decided that the automobile and the chemicals would be the next two sectors to be taken by GRP.
- As suggested by Mr. Arun Duggal, it was decided that rather than visiting the top three mills, CSE could consider visiting one each from the top, middle and bottom ratings.
- Mr. Rajamani said that before any new project, or any expansion activity in some old mill, the company gets a Environmental Impact Assessment (EIA) done. Mr. Agarwal agreed that GRP should write to ministry asking for EIA reports.
- It was also decided that CSE would give its feedback to the industries on a uniform style disclosure in the annual reports or in other published documents. The publications should be priced and the best practices adopted by the paper mills worldwide should be published and highlighted.

In his concluding remarks, Manmohan Singh said, "I think ultimately a country like India cannot be governed by accepted regulations which rely more and more on self-performance and self improvement rather than mere regulations. And ratings can help in inducing that change of mindset.



X. HEALTH AND ENVIRONMENT

CSE had set up its Environmental Health Unit in 1996 to focus attention on the impact of environmental change on public health. With the aim of understanding how pollution is affecting health, the Health and Environment Unit of the Centre set up in October 1996 decided to identify and bring together environmental health experts from across the country and organised a National Conference on Health and Environment in July 1998. In addition, it undertook studies and activities in the field of air pollution, changing vector ecology and pesticides to make environmental health problems known to policy-makers and the general public.

Death by inhalation

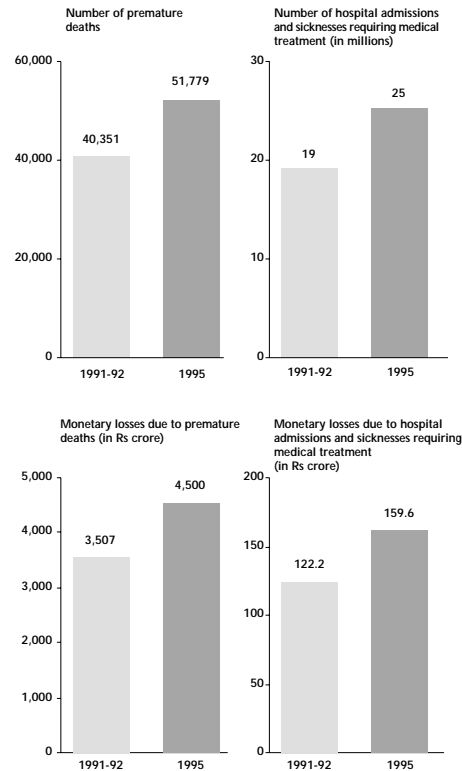
The Health and Environment team and the Right to Clean Air team organised a public meeting called “Slow Murder And Since” on November 1, 1997, exactly a year after the release of the report *Slow Murder: The deadly story of vehicular pollution in India*. The meeting was organised to draw attention to the alarming deterioration in urban air quality by releasing shocking findings that premature deaths in 36 Indian cities have increased by about 28 per cent due to air pollution between 1991-92 and 1994-95. The meeting coincided with the publication of a report on air pollution and health entitled *Death by Breathing*. The story documents the results of a study to predict the levels of respiratory mortality and morbidity in 36 cities of India



GREAT! NOW BEFORE ONE CAN SAY
'CHOKED TO DEATH' WE'LL REACH THE HOSPITAL.

For whom the bells do not toll

There has been a clear rise in premature deaths and sicknesses and corresponding monetary losses in 36 Indian cities due to air pollution



due to air pollution.

During a literature survey of scientific studies on air pollution and health, CSE researchers found that there were no epidemiological studies conducted in India to establish the link between air pollution and health. The only relevant data was from a World Bank study, *Valuing Environmental Costs in India: The Economy Wide Impact of Environmental Degradation* by Carter Brandon and Kirsten Homman. The World Bank formulated a model to establish a relationship between air pollution and human mortality and morbidity. The model was subsequently used to assess the environmental and health conditions in a sample of air pollution data provided by the Central Pollution Control Board pertaining to 36 Indian cities. The report said air pollution killed 40,351 human beings in 1991-92.

The Health and Environment team decided to feed the latest available data into the World Bank model and estimate the health impacts. The researchers finally got the latest data which was for the year 1995. The results were alarming. A 30 per cent increase in deaths due to respiratory problems was estimated from 1991-92 to 1995, adding up to 51,800 deaths in Indian cities. A city-wise analysis of the health status based on the model revealed that

deaths and illnesses increased in major cities such as New Delhi, Mumbai, Calcutta and Chennai. For some cities such as Pune, Agra and Bhopal, where CPCB reported a decrease in air pollution, health problems were estimated to have declined. The figures were released to the public at a meeting held on November 1, 1997.

At the panel discussion that was held as part of the meeting, co-chaired by Delhi transport minister, Rajendra Gupta, and CSE chairperson and former director general of the Indian Council of Medical Research, V Ramalingaswami, speakers drew attention to the lack of data, lack of political will on the part of the government and the outdated technology being used by the industry. Panelists included eminent scientist and former union minister, M G K Menon, former managing director of Maruti Udyog Limited, R C Bhargava, chest specialist at Patel Chest Institute, S K Chabra, and chairperson of the Central Pollution Control Board, D K Biswas. Dr. Chabra said that studies being undertaken by the Patel Chest Institute pointed to the health impacts of air pollution.

On the same day, a public advertisement — Dead by Breathing was issued by CSE in The Times Of India, informing people about CSE's alarming findings. The advertisement clearly listed the culprits — the regulatory bodies and the automobile industry — who are responsible for turning our cities into gas chambers.

Queries came from all over India following the publication of the advertisement and media reports on the public meeting. Concern, appreciation, alarm, a sense of despair at the total inaction of the authorities, impatience for action and an eagerness to help and support the campaign — these were the varying moods of responses that the information provided by CSE on the issue evoked. Besides, there were queries from hundreds of other people asking what they could do to help strengthen the campaign against vehicular pollution, particularly in the capital.

As part of this campaign, the Centre placed pamphlets on the health effects of air pollution and donation boxes at 20 prominent places at Delhi.

Alternative vector control

The growth of mosquito-borne diseases, malaria, is directly related to the creation of unfavourable conditions through neglected inland water bodies, irrigation and construction projects. Unfortunately, pesticides used to kill mosquitoes are no longer effective in controlling malaria, since the indiscriminate use of pesticides have rendered mosquitoes resistant to chemicals. Malarial parasites have also become resistant to medicines.

Therefore, in order to check the incidence of malaria, mosquito breeding would have to be stopped. This is the essence of the bio-

environmental method of controlling such big disease carriers. But the administration never rose up to the task. The problem is not one of strategy but of implementation and management. Environmental management of vectors is a major solution to tackling the vector problem. Therefore, raising public consciousness on the issue was the first step that CSE took towards reaching the goal.

The Centre conducted a study on India's experiences in bioenvironmental management of vectors. CSE researchers and reporters were sent to seven places — Goa, Hardwar, Kolar, Hassan, Chennai, Pondicherry and Kheda where the Malaria Research Centre (MRC) and Vector Control Research Centre (VCRC), both organisations under the Indian Council of Medical Research (ICMR), had conducted pilot projects to implement bioenvironmental control of malaria and filaria, respectively.

In the short run, bioenvironmental management effectively controlled malaria. However, an inability to set up community-based institutions to carry forward the pioneering work caused its failure in the long run in Goa, Kolar, Hassan, Pondicherry and Kheda. Policy-makers were clueless on how to institutionalise the bioenvironmental approach.

In Hardwar, efforts to keep up with environmental sanitation did not fail completely in the long run, only because the infrastructural facilities of a huge public sector company were available after the MRC phased out its project.

Without people's participation, no amount of government effort or science and technology will produce the desired result. Environmental management is essential to the containment of the disease, and people's participation is necessary for environmental management.

CSE researcher made a field visit to Kheda where the Malaria Research Centre had started a demonstration and feasibility project on non-chemical method of controlling malaria in 1983, which ended in 1989. He found that the commencement of alternative methods of malaria control had reduced the incidence of malaria considerably compared to the non-project areas under chemical control. It was environment- friendly and also cost-effective. However, neither the state health services nor





the Central government did anything to promote the alternative method. As a consequence, the areas under the project had fallen back to the old pesticide regimes.

Priti Kumar and Raj Kishore Khaware of the health unit of the Centre wrote an article titled 'Bioenvironmental Malaria Control in Kheda District, Gujarat, India' which was published in a WWF- USA publication called 'Disease Vector Management for Public Health and Conservation'.

National Conference on Health and Environment

The conference on health and environment was organised from July 7-9, 1998, at the India International Centre, New Delhi. The purpose of the meet was not just to review the state-of-the-art in this field, but also to build a network of people working in the area of environmental health.

In order to organise the conference on health and environment, CSE set up an advisory committee which held two meetings on January 31 and February 14, 1998. The committee consisted of: Dr V Ramalingaswami, Dr P K Ray, Dr N Kochupillai, C K Varshney, Dr V P Sharma and Dr Mira Shiva.

The three-day conference attracted some of the finest medical scientists, public health specialists, environmentalists and educationists from India, and even some from abroad. The Vice-President of India, Krishan Kant, inaugurated the conference.

Inaugurating the conference, Krishan Kant

Advisory Committee

CHAIRPERSON:

Dr V Ramalingaswami, Former Director General, Indian Council of Medical Research

MEMBERS:

P K Ray, Director, Bose Institute

Dr N Kochupillai, Professor and Head, Department of Endocrinology and Metabolism, All India Institute of Medical Sciences

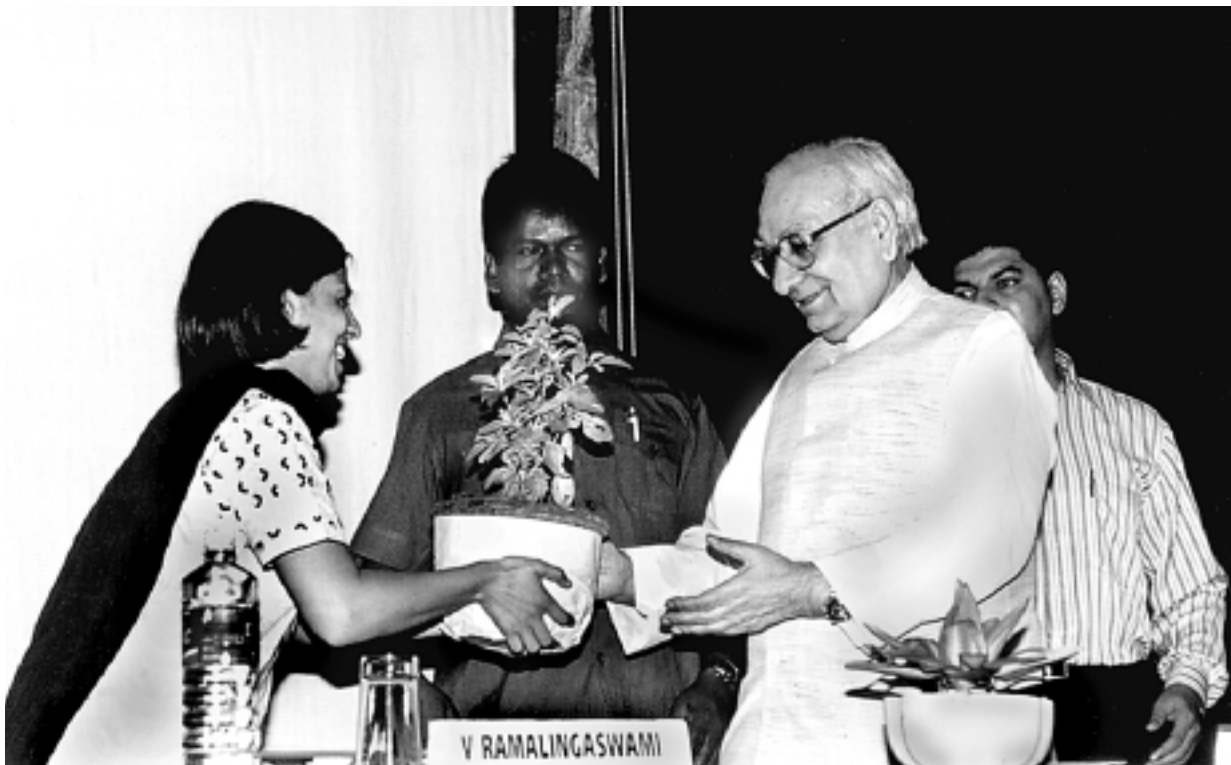
Prof C K Varshney, School of Environmental Sciences, Jawaharlal Nehru University

Dr V P Sharma, Former Director, Malaria Research Centre

Dr Mira Shiva, Head - Public Policy Division, Voluntary Health Association of India

said, "our unrestrained faith and reliance on technology and the consequent material uplift has resulted in creating monstrous cities, gasping for breath, virtually collapsing under their own weight". He stressed the need for a change in people's habits, attitudes and behavioural patterns and referred to them as basic factors, which affect the relationship between environment and health.

In his keynote address, 'Health and environment - An Environmentalist's perspective,' Anil Agarwal pointed out that the number of scientists and environmentalists working in the area of health and environment are few. "But



CSE deputy director Sunita Narain presenting a Tulsi plant to Vice-President Krishan Kant at the inauguration of the National Conference on Health and Environment, in New Delhi on July 7, 1998.

their numbers must grow and their science must keep us on our toes. Environmental health is an issue of life and death," he said. "Environmentalists love to paint gloom and doom. But this is a conference to avert that doom and generate hope and action," asserted Agarwal.

V Ramalingaswami, CSE executive board chairperson, said, "this conference aims to usher in a new era of environmentalism, firmly based on science and with a focus on community participation and municipal governance".

Addressing the valedictory session at the end of the three-day meet, the then union minister for environment and forests, Suresh Prabhu, announced the formation of an expert committee on health and environment.

Altogether 11 sessions were held in which 82 participants presented papers on issues like water pollution and health; environmental management of disease vectors; environmental toxins and health; ambient air pollution; impact of environmental changes and health with special reference to deforestation, women's work burden and aerobiology; indoor air pollution and health; health effects of lack of sanitary and waste disposal facilities; industrial accidents and health; environmental changes on nutrition; radiological pollution and health; and, noise pollution and health.

Apart from scientific issues, the conference laid emphasis on policy issues in environmental health. Chairpersons of each of the sessions were requested to document the key policy recommendations that emerged in their sessions. Subsequently, a discussion including the chairpersons, CSE chairperson V Ramalingaswami and Anil Agarwal was organised on July 8, 1998, at the India Habitat Centre to finalise the recommendations. A draft policy statement on how to improve the environmental health situation in India was prepared on recommendations of 84 eminent scientists and health managers present at CSE's conference on Health and Environment in July 1998. The statement has been sent to participants for their comments. The final document will be sent to relevant ministries for further consideration.

A public lecture on 'Implications of climate change on health' was also organised on the same day at the India Habitat Centre. Deputy director of Health, Environment and Development, World Resources Institute, A Karim Ahmed, spoke on the issue.

Pollution way ahead of GDP

Priti Kumar of CSE, along with Sujata Bhattacharya of Jawaharlal Nehru University, conducted a study to estimate the rise in pollution load, from the industrial and transport sectors in the entire country. The study was the first of its kind to be carried out in the country, and it supported the Centre's campaign against air pollution.

The results revealed that the rate of pollution growth far overshoot economic growth. The country's gross domestic product doubled between 1975 and 1995, but vehicular and industrial pollution went up eight and four times respectively.

The findings of the study were revealed on November 1, 1998, at a public meeting held on the occasion of the third anniversary of CSE's right to clean air campaign, which focussed on the environmental price the country paid, for its development in the past two decades. The findings were extensively covered by the media.

According to the Centre's study in 1995, the pollution load from vehicles in India was 5.789 million metric tonnes, compared to industries' share of 1.996 mmt. Of the country's vehicular pollution load, Delhi alone accounted for almost 10 per cent.

Results of the study showed that vehicles were releasing an estimated 15,862 metric tonnes of pollutants everyday in 1995 compared to 2,114 mt in 1975. Carbon monoxide topped the list, followed by nitrogen oxide, hydrocarbon, suspended particulate matter (SPM) and sulphur dioxide. Hydrocarbon levels were 10 times higher in 1995 compared to the 1975 level.

The study covered only two aspects of pollution: vehicular and industrial. It did not take into account pollution from thermal power plants and agriculture, or that from households, especially urban. If it did, the Centre's

Making news

The conference on health and environment received wide press coverage:

CSE organised press briefings on all three days of the conference. The aim was to inform the media about the importance of issues being covered in the conference.

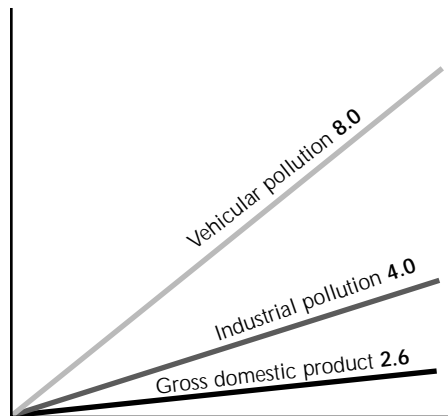
Eminent scientists like Veena Kalra from the All India Institute of Medical Sciences, New Delhi; S R Kamat from KEM Hospital, Mumbai; Kseniya Lvovsky, from World Bank, USA; Kamala Gopalakrishna from the Institute for Research in Reproduction, Mumbai; Devika Nag from King George Medical College, Lucknow; Kirk Smith of University of California, Berkeley, USA; and, A Gopalakrishna, formerly with Atomic Energy Regulatory Board participated in the press briefings.

The conference was widely covered in all leading newspapers including *The Times of India*, *The Hindustan Times*, *The Indian Express* and *The Financial Express*.



Price to kill

Between 1975 and 1995 India's GDP doubled, but industrial and vehicular pollution went up four to eight times



estimates would have been higher. CSE's study to estimate industrial pollution was based on a model called the industrial pollution projection system (IPPS), developed by the World Bank. The study concluded that among the six pollutants, heavy metal pollution registered a four-fold increase, followed closely by sulphur dioxide and SPM. Chemicals, rubber, textiles, iron and steel, non-metallic products, food products, pulp and paper, printing and publishing make up some of the top polluting industries.

As no systematic database exists on pollution from industrial activities in India, CSE study assumed technology in India, to be the

same as the 1988 United States technology of production. Moreover, the Centre's model only took into account pollution at the production stage. But industries pollute at every stage of the life-cycle of their product — from raw materials extraction — to their conversion into a product and to the use of the product and its disposal.

Vanishing vultures

On October 3, 1998, CSE received a letter from Asad R Rahmani, director, Bombay Natural History Society (BNHS), Mumbai, mentioning a drastic decline in the vulture population of the Keoladeo National Park in Bharatpur. Rahmani wrote, how, within a short span, the number of vultures in the region dropped drastically from 2,000 to just four pairs.

Samples of decaying flesh collected by CSE indicated that vultures were probably dying because of their food. The tests showed that the samples contain high levels of DDT, hexachlorocyclohexane (HCH) and dieldrin. CSE conducted the special study in collaboration with the Indian Institute of Technology (IIT) in Kanpur.

The results of the investigation were presented by CSE toxicologist Amit Nair at a public meeting 'Science for ecological security', organised by CSE on the January 14, 1999, in New Delhi.

According to Nair, the pesticides, DDT and HCH, were present in all samples. The levels of HCH were more than those of DDT. He said, "the mere presence of pesticides like DDT and BHC are of great concern." The results indicated that pesticides were transferred from carcasses into vultures. Vultures



CSE director Anil Agarwal delivering his speech at the public meeting on 'Science for Ecological Security' at India Habitat Centre, New Delhi. Also seen are director of Bombay Natural History Society, Asad Rahmani, Union Minister of State for Agriculture Sompal, CSE deputy director Sunita Narain, CSE toxicologist Amit Nair.

Fatal food

Indians consume dangerous amounts of pesticides through their food everyday

The average daily diet of an Indian contains 0.27mg of DDT, reported *The Hindu* in 1991. Since then, researchers and scientists believe this amount has gone up much further. But systematic, all-India studies are lacking. Despite these hurdles, The Pesticide Trust's book *The Pesticide Hazard: A Global Health and Environment Audit*, published in 1993, has managed to cull information that is sure to frighten every Indian citizen. In India, where infant milk formula in Punjab, Gujarat and Mumbai had DDT in all four samples tested, can anyone be safe?

- The United Nations-sponsored Global Monitoring Programme chose India as part of a 10-nation survey for studying pesticide residues in human breast milk. The results are frightening: studies of 50 women showed DDT and BHC residues at least four times higher than those in other countries.
- A similar study of breast milk and maternal blood serum of 25 women from Delhi, tested three days after delivery, revealed high levels of aldrin and dieldrin.
- A government study detected pesticide residues in vegetables. Seven out of eight chillies studied contained 100 to 160 times the permissible levels of malathion and other pesticides.
- Out of 104 samples of cereals, pulses, milk, eggs, meat and vegetables analysed, 108 contained pesticides, 88 had traces of more than one pesticide and 69 had residues more than the permissible limits.
- Cereal and cereal produce in Punjab, Haryana, Uttar Pradesh (UP), Delhi, Mumbai and Andhra Pradesh (AP) showed DDT in 53 per cent of 1,651 samples.
- Pulses in Punjab and AP had DDT in 25 per cent of 171 samples, vegetables had DDT in 27 per cent of 2,154 samples and fruits had DDT in 14 per cent of 90 samples.
- Meat in Delhi Punjab, AP and UP had DDT in 96 per cent of 134 samples and HCH in 90 per cent.
- Milk in Delhi and AP had DDT in 95 per cent of 980 samples, HCH in 90 per cent and dieldrin in one per cent.

were being slowly poisoned because of contaminants. The threshold for these contaminants in vultures were exceeding their body burdens. This led to the decline in vulture population.

Asad Rahmani gave an overview of the major birds' found in India. He said, "it is very likely that these birds are suffering from pesticide poisoning. They feed on insects like grasshoppers, which in turn feed on agricultural produce, which is liberally sprayed with pesticides."

CSE director Anil Agarwal said, "economic growth brings with it an enormous burden of poisons." He said that the issue of vanishing vultures not only affected the animal kingdom, but also human beings. He demanded greater expenditure on environmental health research.

Union minister of state for agriculture, Sompal said that reviving the traditional system was the only alternative to check chemical pollution. He requested those present to make a people's agenda, whereby, politicians would be required to react to it.

There was a tremendous public response to the meeting. The event was covered extensively by the media. The work done by CSE appeared in almost all leading dailies in Delhi. The study was also covered by *New York Times*.

Developing a knowledge base

The Health and Environment team is working on the State of India's Environmental Health. This book would be of use to medical professionals, urban and rural development managers, policy-makers and educationists in

India. Health and environment is still a largely untouched area and the scientific information contained in the report will also be of great use to people in other developing countries, too. Although, the report would focus on the environmental changes that are specific to India, health implications of those changes would be based not only on Indian literature, but also on worldwide literature and experiences.

The book will cover issues like changing vector ecology, ambient and indoor air pollution, impact of pesticides, natural resource degradation, effects of deforestation on health, industrial hazards, climate change, noise pollution, hospital waste and dioxins and policy issues in environmental health. It will also contain research papers presented at the national conference on health and environment organised by CSE in July 1998.

Special studies were commissioned for the report for which information was collected by undertaking several field trips. For the chapter on hospital waste and dioxins, Max Martin visited Mandala in Andhra Pradesh, S Vishwanath from Chennai and Ranjita Biswas from Calcutta also gave inputs for the chapter. Nidhi Jamwal collected data from in and around Delhi and Manish Tiwari from Vadodara and Vapi in Gujarat for the industrial accidents chapter. Inputs for the chapter on women's work burden was obtained from Ranjita Biswas in Calcutta, S Vishwanargin in Chennai and Monisha Behal from Assam and Nagaland. For the chapter on noise pollution, inputs were obtained from Ranjita Biswas in Calcutta. Divya Shukla, did extensive field work to collect statistical data for the book.



Green messenger

Any organisation or group working to improve social and environmental conditions cannot undermine the pivotal role of accurate and comprehensible information. In the past year, CSE's activities related to dissemination of information registered hearty progress. *Down To Earth* (DTE), one of the centre's main associates in this field, has created a space in the Indian media that is quite unique and widely appreciated. At a time when the mass media is paying little attention to issues relating to the environment and science, DTE has become a magazine that provides leadership to the Indian media on crucial issues of human survival.

But to say that DTE's sphere of influence is limited to India would be doing injustice to the numerous readers across the world who rely on the magazine for a comprehensive view from the South on the most critical issues of human existence.

By no means is it an easy task to scientifically explain — in a layperson's terminology — the complex maze of issues that intermingle and influence every sphere of the natural world. Not only does the research have to be authoritative and comprehensive but the presentation of the findings have to be so lucid and simple that any literate person can make sense of it. So, whether it is the politics of the automobile industry and the science of air pollution that is killing urban Indians or the hidden economic and sociological beauty of a success story of ecological regeneration from rural India, CSE's research has brought it all to the reader.

Titanic Junkyard

Scrapped ships from across the world arriving at Alang, Gujarat are bringing disaster to the region

After DTE carried the Alang story in its issue dated March 15, 1998, the Gujarat government formed a committee to look into the safety and pollution problems. Even, union ministry of environment and forests (MoEF) officials visited the area and took stock of the situation. The committee recommended several changes in the earlier policies and ordered the Gujarat Maritime Board, responsible for shipbreaking works at Alang, to take appropriate safety and pollution control measures in the area.

Today, Alang has a totally new look. Two new hospitals have been started in the area, and five fire-fighting vehicles have been placed in Alang. Since its inception about 17 years ago, the area did not have a proper road facility. The 11-km coastal stretch has now a very good road facility. The GMB has provided helmets and other basic safety kits to workers.

After the story appeared in DTE, countries like Denmark decided not to send their ships to Alang. Moreover, several news papers and magazines worldwide followed the DTE story that aroused mass-consciousness about the inhumane attitude of authorities in Alang and created furore among officials related to the shipbreaking industry.

SCIENCE AND ENVIRONMENT REPORTAGE TEAM

CSE's research on natural resources has been centred around two aspects: their degradation and their conservation and consolidation. While much has been said about the pollution and depletion of air, water and land — even in the sad excuse that India has in the name of scientific community — the Indian civil society has been late in waking up to the plethora of solutions in managing natural resources. In this, CSE's research and advocacy has ushered in a fresh perspective. And nowhere more so than in the seminal issue of water.

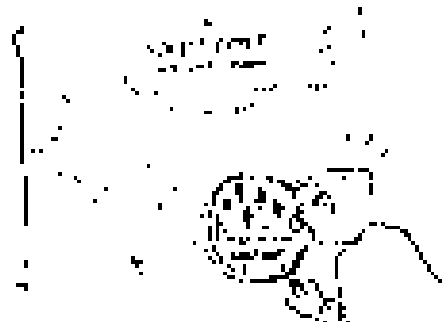
Every drop counts

Rainwater harvesting, an area that has been neglected by Indian governments and the media alike, has become one of the most important issues that are regularly covered in DTE. However, when it comes to rainwater harvesting, people tend to think only of rural areas. In October 1998, the cover story entitled 'A social force called water' featured some outstanding examples from around the world of catching rainwater in urban areas. There were reports from Japan, Germany, the Philippines, the Caribbean, Thailand, Denmark, China and Kenya, and from two places in India, namely Chennai and Mizoram.

Jungles in jeopardy

India's poor people rely on the forests for their livelihood, so the health of forests has been a crucial issue of CSE. In June 1997, the story entitled 'Dark truths and lost woods' showed how pristine forests covered less than 3.5 per cent of the country's area and how plantation forests are growing at the cost of natural forests. It showed how the government's forest policy is not being implemented properly and brought forth the contradictions in government figures on India's forests.

Another aspect of forest mismanagement in India was put in perspective in October





d. External review of staff performance

Beginning 1998-99, we have instituted a system of involving outsiders in the review process to make it more objective and ensure high standards of quality. Each programme unit is required to make a presentation to a peer group of experts in that particular area. The expert group assesses the quality and quantity of work done over the last year and provides directions for the next year's programmes.

This process will serve as a mechanism to open up the institution to skills and expertise available in civil society and strengthen the organisation and be an integral part of

External review panel-1999

Unit	Resource persons
Natural resource management	Dr.N.C. Saxena, Secretary, Planning Commission; Dr. Ujwal Pradhan, Program Officer, Ford Foundation; Jes Boye Moller, Minister Counsellor, DANIDA; Philippe Jacques, Advisor, EU Delegation
Air & water pollution	Kamal Meattle, CEO, Paharpur Business Centre; Dr. Padma Vankar, Head, Environment Testing Laboratory IIT, Kanpur; Prof. H.B. Mathur, Professor, Regional Engineering College; Prof. C. K. Varshney, Professor, School of Environmental Sciences, JNU.
Global Environmental Governance	A.K. Damodaran, former diplomat; C.V. Raghunathan, former diplomat; Prof. M. Lal, professor of Atmospheric Sciences, IIT, Delhi
Health & Environment	Dr. V. Ramalingaswami, former Director-General of ICMR; Dr. N. Kochupillai, Head, Dept. of Endocrinology and Metabolism, AIIMS
Down to Earth	Raj Chengappa, Deputy Editor, India Today; Ashok Parthasarathy, Secretary, Government of India, V. Siddharta, Director, DRDO; Iqbal Mallik, Director, Vatavaran
State of India's Environment Reports	Prem Shankar Jha, Columnist; Suman Dubey, CEO Dow Jones Newswire
Environment Education	Neeru Nanda, Secretary, Education, National Capital Region; Vikram Lal, Vikram Sarabhai Foundation; Chitra Narayanan, Officer, Indian Foreign Service; Shobhit Mahajan, Lecturer, St. Stephen's College
Films and Television	Anita Pratap, Columnist, Time magazine; Kiran Karnik, Managing Director, Discovery Communication India

the Centre's institutional development in future. We hope to improve this process in future.

e. Performance rewards

A system of performance rewards has been started which provides rewards on a monthly basis as part of a total emolument package. This provides a more immediate incentive for staff members to turn out good performances and maintain quality consistently.

2. Management Support Systems

Between 1995 and 1996, we also organised the management support structure. It consists of the following units: Accounts and Finance; Administration; Sales and Despatch; Production; Computer and System support. Each of these units is headed by a senior manager and with the exception of Accounts and Marketing, the other units report to a General Manager, Management Support Services. Each unit head is assisted by executives and administrative support staff have been kept at a minimum to keep the structure as flat as possible.

Systems have been developed to enable the manager of each unit to function in a decentralised manner. The function of every staff member of the units has been defined and a management information system for each support unit has been developed and implemented. The managers report on a monthly basis on the progress of these activities through a MIS system of routine reports, priority reports and exception reports. These reports enable the top management to monitor the functioning of these units with regard to the stated objectives and targets as well as assist the managers to solve exceptional problems.

The top management is more and more able to operate on the principle of Management by Exception as these reports bring to the attention of the top managers only the priority and critical issues that need intervention or decision making at the highest level.

3. Future Challenges

For any organisation to keep performing, it is important for it to keep innovating. We have identified the following key areas for us to develop in the coming years:

a. Building a strong, skilled team

CSE's problem is that its programmes are not moulded along the skills in society. It demands a combination of skills from its staff:

- Ability to do rigorous but fast and deadline-oriented research;
- Ability to communicate to the public;
- Ability to lobby, advocate ideas;
- Ability to manage information.

In addition, we need people who are highly motivated, are able to take high pressure work and are committed to change. Also, we demand from our coordinators, managerial skills and fund-raising abilities.

Therefore, in order to contribute productively to CSE's work, programme staff need the following qualities: good writing skills, an understanding of environmental issues, an ability to look at issues in depth

CSE, a knowledge institution

Sir Ratan Tata Trust while considering the Centre for an endowment grant retained Professor Tushaar Shah currently with International Irrigation Management Institute, Colombo for an appraisal of the Centre. He says: "I found it interesting that the CSE does use best practices in several areas. For example, CSE has done outstandingly well in evolving a truly excellent and enviable core portfolio of products; similarly, CSE has excellent infrastructure that is appropriate to its needs and is used intensively and maintained very well. It has evolved a matrix-type organisation with multiple and parallel reporting and accountability relationships. It is striving to evolve a culture of self regulation, creativity, accountability and performance orientation. It has so far been able to generate all the resources it has needed to survive without in any way compromising its mission and character. An area where CSE probably needs and wants- to do more work is in talent hunt and retention."

In order to evaluate CSE as a knowledge – institution, he assessed CSE in respect of best operative practices in seven areas that High Performing Knowledge Institutions (HPKI) follow. These are:

1. *Obtaining and retaining appropriate professional talent :* HPKI strive and tend to acquire and retain high quality professional talent by using appropriate search processes, by investing in competency-building and by creating suitable pecuniary and non-pecuniary rewards.
 2. *Create a core portfolio of products and services :* HPKI's are known by their publics and customers by a core portfolio of products and services that are valued highly; these drive the internal dynamic of the institution, define the institution's core competence and determine the influence it wields in its domain vis- a vis its commensals; HPKI give their best to this core portfolio, guard its quality standards assiduously, and tend to be exceptionally careful and risk-averse in tinkering with it;
 3. *Organisation Design :* HPKI tend towards non-hierarchical, matrix type organisation designs, vest functional authority in professionals, maintain a balance between professional and support staff, and adapt their designs to performance needs;
 4. *Infrastructure :* HPKI acquire adequate infrastructure which they utilise intensively and are able to maintain and adapt to their changing needs;
 5. *Resource generation :* HPKI tend to generate the resources they need for survival and growth without compromising their autonomy, mission and character;
 6. *Organisational Culture :* HPKI are distinguished from other knowledge organisations sharply by their internal culture that emphasises self-regulation and yet promotes accountability and performance orientation, that encourages openness and democracy, and stimulates creativity and innovation;
 7. *Management and Operations:* HPKI deploy management systems and operating policies designed to reinforce their culture and promote creativity and excellence; and ensure a high pitch activity in a strategically managed portfolio of work.
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and in a multidisciplinary perspective, an ability to network and skills in advocacy. The two major indicators of work in CSE are today publications and advocacy.

This brings us to the question of how do we ensure that all staff acquire expertise in all these areas. That is, skill, knowledge and drive. We have made some headway in institutionalising the methods to help staff acquire writing skills, understand environmental issues, and an ability to look at issues objectively, analytically, holistically and in-depth. The system is so inter-woven that it ensures that programme staff get to research issues in-depth and also write about them as popular articles in *Down To Earth*. This helps to build a combination of environmental knowledge and communications skills.

But what we need to work on now is how to enable staff members to become good at advocacy. This is not an easy task. Good advocacy requires not just skills and knowledge but even more a drive – even an anger, a sense of idealism and a high order of commitment to bring change. This combination of skill, knowledge and commitment is difficult to find.

We cannot find people with all these qualities in the market. Therefore, we need to create systems and a culture whereby we can instill these qualities in our staff members. This is a very slow process and we are still learning how to do this successfully. We need to continually adapt and modify these systems to changes and needs and work constantly to improve them so as to ensure that the organisational culture gets embedded in all staff members.

b. Retention: The problem of staff turnover

This is an area of concern that we have identified for ourselves. We need to find appropriate policies which help us to retain our best professional talent. It has been our experience that we have to put in a lot of effort to build the combination of skill and qualities that are needed to contribute successfully to CSE's work are not readily available in the market.

For instance, when we hire journalists, they require training to understand the complexity of environmental issues, deal with their technical and scientific concerns and, in



particular, appreciate the need to do in-depth research. On the other hand, academics and specialists often lack good writing and communications skills. In addition, all our staff needs training in policy research and advocacy that demands both skill building but also an attitude development.

To understand the problem of staff turnover we analysed the pattern of turnover for the last three years.

We found:

- The turnover of the staff who have been with us less than 2 years is very high. These staff members are very young and are highly unstable. As much as 73 per cent of the staff who left CSE comprised of those who left before completing two years.
- That as staff progress in the organisation, they settle down. The group of people in the 4-6 year category is a critical group, as they are in the middle management category, often guiding new entrants. We have spent considerable time and effort training them. Therefore, retention of this group is most critical to us.
- That the period of 6-8 years is again a critical period, where staff may have plateaued and are unable to drive themselves to progress further and therefore, look for new opportunities.

The turn-over on the less than two year category is partly because we have started a rigorous assessment procedure at the end of the probation period of one year. Therefore, the end of the first year is an important marker for us – staff who make it through the first two years tend to stay with us. We have to be tough because of the special skills and qualities we require. We cannot make further investments into young people who do not show an inclination to grow.

A recent article in *Fortune* magazine showed a similar pattern. The article talks about three critical periods — less than a year, after 3 years and after 5 years. According to their analysis, new employees in the range of 0-3 years, are very vulnerable, frustrated at tackling a new job on their own; but, more worrying, and similar to our experience, is the 5-8 year group staff with a "boredom or stagnation crisis". It is evident that this is a serious problem across the board for all kinds of organisations and we have to learn from the efforts of other people as well as innovate our own solutions.

How do we meet this challenge?

We find that CSE must respond to this challenge by working to build capacity in society. We are starting an internship programme as well as a short-term training programme to build skills and knowledge. These programmes will help us find committed and skilled individuals for CSE's programmes in the future.

We are setting up a volunteers programme to engage young people to work with us on a non-employment basis. It gives them the opportunity to decide on their careers and where they want to go. And it gives us an opportunity to assess their work potential and priorities before we take them on for a job. Since 1997, we have had a volunteers programme which has been very effective. *Down To Earth* gives us a great outreach mechanism. In 1998-99 we had a total of 49 volunteers. Today, there are atleast 20-25 volunteers/ interns working with us at any given time. A large majority of these are graduates/post-graduates from a variety of disciplines such as economics, political science, management, social work, journalism, literature and environmental science.

We are also planning to start a formal training programme in the field of environmental journalism and maybe even environmental policy research and advocacy. If we can take 10-15 people each year for such a training programme we will be able to substantially deal with the problem of non-availability of skilled manpower.

We need to think through a lot more to find the right and innovative answers to retain our senior staff. We need to look at a wide variety of mechanisms ranging from monetary incentives to job satisfaction to opportunities for growth. These are far more complex and intangible and we are still looking for satisfactory solutions. But most importantly we need to have internal systems to ensure that our senior staff find the work rewarding and challenging. And, increasingly, develop a long term stake in the organisation. We clearly need to keep learning and getting better at this.

4. Financial sustainability

The Centre started nearly 18 years ago as a five-person operation without any corpus. Today, it is well established as a leading public interest organisation working in the area of environment and sustainable development. From its early beginnings with an annual turnover of about Rs. 3 lakh, the Centre has grown to an organisation that has an annual turnover of over Rs. 3 crore. Today, CSE is at an important threshold — on the one hand, it is growing and expanding and would like to take on a greater role in providing the country with intellectual leadership in the area of sustainable development; and, on the other, traditional sources of funding are fast drying up. Therefore, there is a need to innovate and experiment in order to be financially self-reliant and at the same time retain the independent character of the organisation.

We are clear that financial sustainability is a key requisite for programme sustainability. In order to chalk out a clear programme

that will help us to move towards financial sustainability, we recently undertook a study on the Centre's long-term financial sustainability. During the course of the study, we met several eminent institutional leaders to try and understand how other institutions worked towards financial sustainability. At the same time we also made an analysis of the experiences that CSE has had in fund-raising in the past. This examination of living experiences and grounded perspectives was the best way for us to learn. The experience was very rewarding and we also found that we have a lot of work ahead of us to move towards financial sustainability.

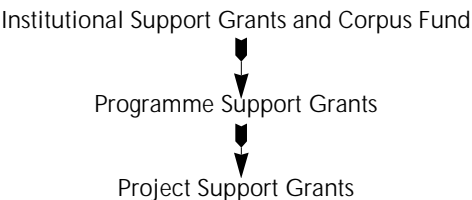
Some of the points we considered while developing the long term financial strategy are: (1) What does financial sustainability mean in the context of the Centre? (2) Does the Centre continue to depend on foreign grants or should it move to Indian governmental support? What would it do to CSE's editorial independence? (3) What can the Centre do to diversify its income base? Should we go into consultancy business? or will this divert its attention and dilute its role as a public research institution? (4) How does the Centre raise a corpus?

Endowment from Sir Ratan Tata Trust

The Sir Ratan Tata Trust approved CSE's application for an endowment grant in March 1999. The Trust will provide CSE with a grant of Rs 2.50 crore. The grant is being given on the condition that CSE will contribute Rs 1.50 crore to its corpus fund from its publication income.

The study concluded that the Centre's financial sustainability strategy will have to be geared to provide financial independence to the Centre so that CSE can maintain its role as an independent watchdog of the country's sustainable development policies. Without this independence, either the organisation would have to give up its current role or else lose its public credibility.

The financial support structure of the Centre that we are developing is as follows:



Our strategy involves a three-pronged fund raising effort. At the top is the effort to secure corpus donations and institutional

Raising funds for programme support

An instance of just how well this strategy works can be seen from the support we were able to raise for the multifarious activities in the water management programme. The Centre gets a programme support for three years from Ford Foundation (1998- 2001) of US \$ 125,000. Assured of this stability, we were able to set up the unit and carry out the basic research activities. Thereafter, we were able to raise a total of Rs. 40 lakhs from the following donors: UNDP-New York, Heinrich Boell Foundation, Oxfam, Catholic Relief Service, Indo-German Social Service Society, Madhya Pradesh Government, Danida, Action Aid, DFID and UN-IAWG-WES. This helped us to fund several activities in the area of water management: to produce a Hindi edition of *Dying Wisdom*; to organise a national conference of water harvesting, to distribute copies of *Dying Wisdom*; to organise a journalists' fellowship on the MP watershed management programme; and, to conduct a study on watershed policies and programmes in the Indian Himalaya.

grants. Then comes securing support for individual programmes. Programme support aims to cover some of the basic operational costs such as salaries and costs of core activities and lastly, the programme teams will raise funds for all projects under the programme such as seminars, conferences etc. While the institutional support is the most important for us, programme support plays a very key role particularly in enabling us to leverage a larger amount of support for the various activities under the programme. The Centre's entire programme staff is being involved in raising support at the programme and project level while the Centre's top management focusses on raising institutional support and support for new programme areas.

Institutional Development Group

In order to help us move towards financial sustainability we decided to pick the brains of people who have skills and expertise in the area of financial management and institution building.

The following persons are part of this group: Vijay Mahajan, founder-director of Pradan and now with BASIX; R Sudarshan, Programme Officer, UNDP; O P Jain, Director of Sanskriti Foundation, William Bissell, Director of Fab-India, Arun Duggal, Chief Executive Officer, Bank of America and Rohit Arora, of A R Credit Information Services. Our challenge to find answers and ways of functioning will continue.



Pushing for solutions

OBJECTIVE

- Policy Research and Advocacy

GROUPS

- Air Pollution
- River Pollution
- Natural Resource Management
(Water harvesting, biodiversity, and poverty and environment)
- Health and Environment
- Industry and Environment
- Global Environment Governance

CAMPAIGNS

- Right to Clean Air
- Make Water Everybody's Business
- Equal Rights to the Atmosphere

MAJOR PROJECT

- Rating of the Environmental Performance of Indian Industry

The Centre's Policy Research and Advocacy work entered its third year. The teams endeavoured to understand the linkages between global, national and local environmental issues. As a result, the idea of a report on global environmental governance (GEG) was born. CSE researchers followed up global environmental negotiations such as biodiversity, forests, desertification, ozone and climate change, among others. As the NGO focal point for the Global Environment Facility (GEF) assembly held in New Delhi, CSE played an important role in providing an alternative vision for the functioning of GEF.

The global environment governance group maintains up-to-date information on global and national environmental issues by monitoring debates, negotiations, grassroots campaigns and reporting on them through news reports and position papers. It also continues to influence these debates not only through reporting, but also by participating in the high-level meetings with the government and intergovernmental fora, and networking with other NGOs to bring about a consensus opinion on the required policy change. CSE organised workshops in New Delhi, Bonn (Germany) and Buenos Aires (Argentina). CSE helped to form a South Asia Atmospheric Equity Group along with other members of South Asian countries, prior to the fourth Conference of Parties to the Framework Convention on climate change held in Buenos Aires in November 1998, to take forward a Southern mandate.

At the national level, studies on decentralised management and conservation of natural resources such as forests, water, wildlife, biodiversity and air continued. As a result of sustained campaign against air pollution, a high power environment pollution control authority was set up by the Supreme Court to oversee pollution control in the national capital region. CSE director, Anil Agarwal, was nominated to this panel. The campaign against attempts to give forest lands to the industry continued. As a result of an intensive campaign against captive plantations, the Union government had to retract its stand on the proposal to give forest lands to industry.

More in-depth understanding on the country's wildlife management was developed through detailed case studies of some key national parks. CSE researchers travelled widely across the country to understand the key conflicts and management issues around these national parks. The team found that the present management strategy was not based on a scientific understanding of people-wildlife interface, but was based largely on anti-people biases, played up by the non-governmental conservationist lobby. The river pollution team continued to deepen its understanding of the complex factors that lead to river pollution, by studying several polluted rivers.

In the last one year, CSE has focused attention on the issue of water management, as its campaign on reviving traditional water harvesting systems has met with tremendous response. Anil Agarwal was invited to become a member of the World Water Commission in 1998.

I. AIR POLLUTION

The objective of the Right to Clean Air campaign is to develop a policy framework to stop the growing pollution in India's metropolitan centres.

The campaign was launched after the release of an indepth study on vehicular pollution in 1996 to improve decision-making processes related to air quality planning, to build up pressure on the government for a more transparent policy mechanism, and raise public awareness about poor urban air quality and risks to public health.

The campaign team propagates awareness and works towards changes in policies that would result in better air quality. During 1997-1999, the campaign made a good impact on the public, professional groups, media, courts, as well as the government.

Public support

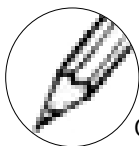
Since its launch, CSE has interacted with

professionals, including the medical community, technologists and economists, to suggest means to solve the problem. The campaign has met with considerable success, with people from various sections of the society coming forward to bolster the campaign.

A meeting on 'Technology to improve vehicle and fuel standards in India' was organised on April 4, 1997. Representatives from leading automobile firms and officials from the ministry of petroleum and natural gas attended the meeting, which deliberated on systems for setting emission norms. R K Malhotra, chief regional manager, Indian Oil Corporation (IOC), admitted that inferior quality crude oil was being imported by the country because it was cheap, and that this resulted in poor quality fuel.

Hippocratic awakening

The medical community woke up to the problem of health risks owing to air pollution. The Indian Medical Association, East Delhi



system with interacting land components of croplands, grasslands and tree and forest lands which supported a rural economy consisting of agriculture, animal husbandry and artisanal crafts. This mixed economy helped the villagers to withstand both intra-annual and inter-annual deviations in rainfall conditions. Rainwater harvesting was usually a key activity for maintaining the sustainability of the transformed ecology.

In all cases, as the local carrying capacity increased, there was not just an increased capacity to withstand droughts. But also reverse rural-urban migration, which indicates that if ecological regeneration of this kind is carried out on a regional scale, it could even affect the current pattern of 'distress urbanisation' seen in most cities of the country.

But the key obstacle to these efforts remains the current bureaucratic administration of natural resources inherited from the colonial days which prohibits community management of natural resources like forests, grasslands and water channels. In all the three cases, where non-state actors took the lead, communities had to struggle against government agencies to secure their right to manage the local resource base.

Challenges for CSE

In these circumstances, institutions of the civil society like CSE have to play a vital role in bringing change. CSE today is what I would call a knowledge-based activist institution. We believe in generating knowledge and then building networks to be able to spread that

knowledge so that there is an understanding within the government and within non-state actors.

In the last 3 years our work has grown from environmental awareness creation to policy research and advocacy. Our way of doing things has also changed. I am describing two efforts we have made, one to deal with air pollution and the other to deal with water shortages and particularly groundwater recharge issues in the last 2-3 years to describe the challenges we face.

When we began working on the problem and pollution, and we found that the government had absolutely no clue what to do about it. This is not surprising. The incompetence of our government to deal with the problem is enormous because even in a country like India, which has otherwise invested a lot in scientific research has not invested in environmental sciences.

Therefore, we are essentially facing a scenario in which there is almost total lack of knowledge. In such a situation, whenever we launch a campaign, our first strategy is to understand that issue and in that process produce a scientific, rigorous, prescriptive publication that helps us to consolidate our own thinking on that subject. The publication also helps us to get in touch with experts in India and abroad.

Once such a publication is available, we extend this network to activists who are interested in the issue to create a public debate. And one of the simplest ways in a large country like India is to initiate dialogues and get discussions going in different states. We try



and organise 25-30 meetings across different parts of the country – one in each state or region. We request a local NGO to take on the responsibility to organise the meeting and get that particular publication released by somebody very eminent in that area. It could be a chief justice of the local high court, a politician, a chief minister or whatever but one who will attract the media. So the result is that within a few months of the publication, we not only get dialogue, involvement of the civil society and media coverage.

This exercise helps us involve people who are interested in dealing with the problem. The next step is to try and build up capacity to deal with the issue. This is particularly important in the case of air pollution as it is both locale-specific and highly scientific. Therefore, capacity building becomes a very important issue.

In this case we have found that it is vital to build international networks — to gather information and to influence. To do this effectively, modern communication and information technology plays an important role. We have been in touch with a number of environmental NGOs across the world for years, who in turn very quickly put us in touch with leading experts looking at air pollution issues — engine design, fuel quality, traffic management, environmental health experts. So within a few months, we are able to create a network of over 50-60 experts across the world, ranging from people in the World Health Organization to the USEPA, to Swedish EPA, and so on and so forth. And, therefore, if there is ever any query that is raised during our campaign against air pollution — and there is no dearth of queries, every single company is trying to sell us some line or the other – we can quickly mobilise our own community of experts to respond. This has meant that we can take on the giants with confidence. For instance, we have been able to respond quickly and authoritatively to the “disinformation” of companies like Ford or Mercedes-Benz or anyone else. But, most importantly we have found that we have to keep ahead – in terms of information and research – of all our ‘opponents’. Campaigning has been a constant exercise in policy research and information dissemination.

On the water issue, we have followed the same strategy but with some key innovations. As in the case of air pollution, we published *Dying Wisdom*, which looked at India’s traditions in water management. We know 150 years ago, India’s management of water was one of the best in the world. We were known as the ‘hydraulic society’. This book gave us the perspective on the solution. But as this is primarily a rural issue, information technology is marginal in our networking. In this case the complexity of the network and the cost of the network becomes



much higher. Our strategy has been to use the book to build a network.

In October 1998 we organised a state of the art conference on the theme of “catching water where it falls”. The conference that brought together over 300 activists, practitioners, academics and policy planners was inaugurated by the President of India, Shri K.R. Narayanan as we wanted to make a strong statement. The President committed himself to implementing rainwater harvesting in Rashtrapati Bhawan. It brought media coverage. It raised the profile of the issue. And with the conference began our network. Now our efforts are to work at regional and state levels and to promote networks that brings together professionals and activists to implement water harvesting solutions.

Therefore, when we deal with critical issues that concern the marginalisation of poor people, where poverty, water management and land management are very central issues, networking is going to be far more complex. Networking demands interpersonal communications and printed publications, which makes it slower and much more expensive. But in all cases we find the most critical input to advocacy and indeed to bring about change is policy research and documentation. Only in this case the research is targeted and is used deliberately to push for change. It is for this reason that we say today that CSE is involved in “knowledge based activism”.



Managing change

KEY ACHIEVEMENTS IN INSTITUTIONAL DEVELOPMENT

CSE has been responding to the environmental challenges in Indian society for nearly 18 years now. In its early years, when there was an urgent need to create environmental consciousness in the Indian society, CSE produced the Citizens' Reports on the State of India's Environment. The first report appeared in 1982 and four in all have been published since then. These reports helped to kick-start a nationwide environmental movement.

India faces a major challenge in the years ahead in moving towards sustainable development. On one hand, population growth and high levels of poverty demand rapid economic growth and, on the other, urbanisation, industrialisation and agricultural modernisation are exerting an enormous and adverse impact on the country's environment and natural resource base. Having played an important role in putting environment on the national agenda, CSE now wants to channelise its efforts to help the Indian society find solutions to meet that challenge. This can only be achieved through detailed and consistent policy research and networking with diverse groups within the civil society.

Therefore, CSE is slowly making the transition from being an awareness creation organisation to one that uses its strengths in information gathering, analysis and presentation to undertake policy research and push for policy change. This poses a serious management challenge for us. CSE is already growing from a single-focus institution like

the World Watch Institute in USA to a multi-focus institution which is a cross between the World Watch Institute, World Resources Institute (which has a focus on policy research), and Greenpeace (which has a focus on campaigns). Given below is a chart that shows how the Centre's programmes are organised.

But growth in programmes – particularly highly responsive and academically rigorous activities – is not possible without a backup of management systems. Therefore, during the last three years, CSE has been working hard to develop management and programme support systems that will help it take up these challenges.

1. Programme Management Systems

The key elements of the programme management system that we have developed over the last three years are as follows:

a. Building a culture of working together

The organisation design of the Centre has been evolving and changing in response to the needs and changing character of the institution. In the early years, when the staff consisted of a few committed professionals, the organisation design was very informal and very flat. As the Centre grew, it was necessary to bring in a degree of hierarchy. Some years later we found that while we needed organisational hierarchy we also needed coordination and flexibility between units. We needed people to work both within a

Organisation of the Centre's programmes

Objectives	Awareness raising	Policy research and advocacy	Documentation	Education and training
Programmes	<i>Down To Earth</i>	Health and Environment	Books and documents	School education
	State of India's Environment Reports	Industry and Environment	Journals	Training for decision-makers (proposed)
	Films	Pollution management (air, water and waste)	Newsclippings	
	Website	Natural resource management (water, forests, biodiversity, wildlife and poverty and environment)	Audio-visual resources	
	Information dissemination	Global environmental governance	Database	



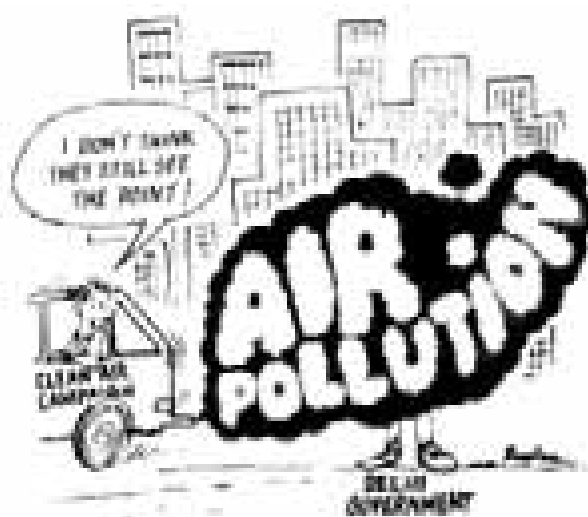
"WHO FUNDS THEM?"

CENTRAL RIVER ACTION PLANS



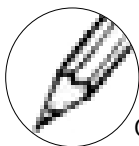
TEST ENVIRONMENT STUDIES

- Q. Can you think of any ideas on how to save energy?
A. Yes. By 'recycling' my neighbour's idea.



TO GIVE MORE TEETH TO OUR IPR LAWS, YOU ALL ARE ORDERED TO HENCEFORTH BRUSH YOUR TEETH WITH NEEM TWIGS!



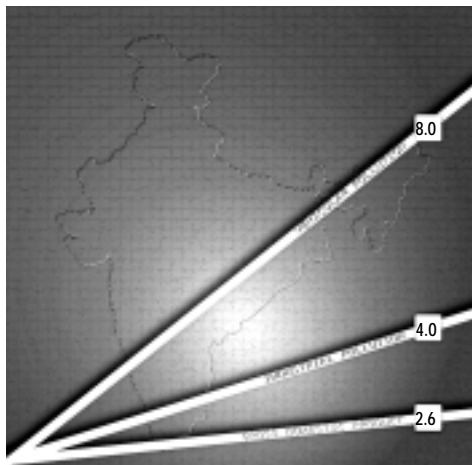


Miles to go...

This surely cannot be the India of our dreams. Dirty, filthy and deadly. And insane.....

All over the world, experience has shown pollution rises extremely rapidly with industrial growth. A study carried out by the World Bank showed that when the Thai economy doubled during the 1980s, the total quantity of poisonous pollutants released went up ten times. The Centre for Science and Environment found that during the period 1975-1995 during which the Indian economy grew by about 2.5 times, the total quantity of pollutants increased by eight times. Not surprisingly, almost every Indian town and city is choking because of vehicular pollution today.

Most people tend to think that Delhi is one



of the most polluted cities in the world. The high levels of deadly particles in Delhi's air probably make it the worst in the world. Mexico City looks clean in front of Delhi. All this is relatively well known because the World Health Organization (WHO) monitors air pollution in some 20 metropolises of the world and Delhi indeed comes out pretty bad in this sample of cities.

But what is not well known is that when Delhi's air pollution is compared with the air pollution in other Indian cities, this capitol polluted city appears quite clean. The Central Pollution Control Board has just released data on air pollution levels recorded in 90 cities in 1997. This data shows that Shillong is the only town that has clean air round the year.

Should all this be surprising? Not at all. Within just 15 years of what economists call the post-Second World War economic boom (1945-1960), a period during which the Western world created unprecedented

material wealth, literally every Western city from Tokyo to London and Los Angeles began to gasp for clean air and every Western river from the Rhine to the Thames had become a sewer, much like our Yamuna. And Japan was reeling under unknown and crippling neurological disorders like the frightening Minamata disease. The same is happening in India today and, in fact, all across Asia.

This growing pollution led to a powerful environmental movement that then forced Western politicians to take the matter seriously. They did two things. During the 1970s and 1980s, these countries poured in enormous sums of money to control pollution. According to one estimate, nearly 25 per cent of the industrial investment in Japan in the post-70s period went towards pollution control. And the governments strictly enforced their pollution control laws. As a result, the air and water had become a lot cleaner by the late 1980s and early 1990s, that is, in a period of about 20 years or one generation. The battle is, however, still not won. The West still has to find ways to deal with carbon dioxide pollution of the atmosphere, disposal of hazardous industrial waste (which often gets shipped to developing countries), growing groundwater pollution and disruption of the nitrogen cycle because of largescale use of fertilisers and manure, among a number of other vexing problems.

The question that we need to ask ourselves is whether we will be able to see a turnaround in India in the next 20 years? It is extremely doubtful that this will be the case. India's economy is just beginning to grow. Industrial development, agricultural modernisation and urbanisation — all of which pump poison into the environment — are still at a nascent stage. We still have a long way to go. Therefore, we can see enormous quantities of poisons being produced in the decades to come. And on top of all this, at the turn of the century, India does not have the wherewithal to emulate the West of the 1970s. Firstly, India's current per capita income is still not even a fraction of Western per capita incomes of the 1970s. As a result, India will remain heavily constrained in investing in high quality, environmentally-sound technology. India will continue to use low quality, highly-polluting technologies for a long time.

Secondly, India's regulatory system is highly corrupt and incompetent in dealing with the new challenges arising out of pollution. And, finally, there is as yet no powerful popular movement against pollution, which can translate into votes and put the fear of god