



Knowledge-based activism: The CSE strategy

Since 1996, there has been a change in the Centre's activities. For the first 16 years of its existence it had largely concentrated on creating awareness about environmental problems and, of course, solutions. But it had waited for this awareness to sink into the nation's consciousness with the hope that one day it will result in action. But, as is common with so many things in India, action takes a long time to come. It was great for Lord Krishna to tell Arjuna, the warrior, in the venerated *Gita*, "*Karmanevadhikaraste ma phalesu kadachana* (your right is only to your actions, not to the results)," but, being common mortals with desires and ambitions, all of us do want to see the results of our actions.

We had been collecting information on the Indian and the global environment for a long time. As an NGO, we have made a sincere and serious effort to document 'grassroot efforts' and popularise them. We have been packaging all this information in a way that it reflected some knowledge about what needs to be done. With the help of the values that the Centre has, we were also converting this knowledge into wisdom. In Hindi, wisdom is best described as *margadarshan* (the philosophy of the way ahead). To get wisdom, we look for the wise people. Wise people invariably are those who are guided by a set of values. Therefore, whenever we look for solutions, we always apply the following values:

Respect for science — take into account the existing scientific knowledge

Respect for nature — promote gentle and sustainable use of and interactions with nature

Respect for poor people, their capacities and their knowledge — empower the poor to take action on their own

Respect for equity — promote actions leading to better prospects for the poor and marginalized

CSE's strengths have been in producing books and other publications. So what could CSE do to change the society? Gunnar Myrdal, the famous Swedish economist, had once said to me, then a raw 24 year old, at the the 1972 Stockholm Conference on the Human Environment, "Books are like time bombs. If the ideas contained in them are of value, they will explode one day. It is hard to predict when that will happen." For some unknown reason, these wonderful words uttered some 25 years ago, remained in my mind. I asked myself, "If what we are producing is time bombs, how can we shorten the fuse?" Great idea! This kind of activism can be called

'knowledge-based activism' but how does one operationalise it?

This was 1996 and we were in the process of producing two books – one on the growing air pollution in Indian cities and another on India's community-based traditions in water management. As both these books had clear messages, I thought to myself, 'How can I actively promote the messages in these books and not wait passively for people to internalise them and then hopefully take some action.'

Our initial response was simple: Over its 15 years of work, CSE had accumulated a considerable amount of 'social capital' — within certain key segments of the Indian society, in particular, the civil society, the political world and the media. These are important opinion-makers and decision-makers in democratic India. Therefore, we asked: How can we bring this 'social capital' and our knowledge together?

When our book on air pollution, provocatively titled, *Slow Murder*, came out in late 1996, I requested Shri K R Narayanan, then vice-president of India, to release the book. Living, as he did, in the highly polluted environment of central India, he understood the scourge of pollution. Also, as I had just returned from a long cancer treatment which included a horrendous bone marrow transplant, and which he had followed with great concern, he was willing to listen to any request from me. I suggested to him that the book be released not in some public hall but at his own residence. The prestigious address for the function would ensure that we could get at least a few ministers and heads of auto companies to come and listen. The function went off like a dream. The vice-president had helped us to set the ball rolling.

In order to get the message to the public, we organised a big public meeting, which attracted over 600 people. Now the message was out. We had a powerful number: 7,500 die every year from air pollution in Delhi alone, some 21 people every day. The media gave us enormous coverage. *India Today*, for instance, did a cover story on air pollution.

Within a few weeks, Justice Kuldeep Singh of the Supreme Court took *suo moto* notice of the press publicity and ordered the Delhi government to file an affidavit on how it intends to control pollution. Our message had gone home to one of the most powerful institutions of democratic India: the Supreme Court. It gave us great faith in Indian democracy. This development swept us off our feet. In 2001, just four years later, people are saying that Delhi's air is indeed cleaner even





Managing change

KEY ACHIEVEMENTS IN INSTITUTIONAL DEVELOPMENT

Five years ago, we took stock of our work and directions at CSE within the context of global and national developments and saw that there is an urgent need for advocating policies of participatory governance. To do this we decided that we should consolidate our skills in information gathering, analysis and presentation and build on these to undertake policy research and actively push for policy changes.

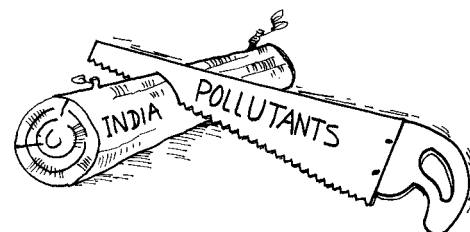
Making the transformation from a single-focus institution (focussing on creating awareness) to a multi-focus institution (focussing on awareness creation, policy research and advocacy) posed a serious management challenge. Over the past five years, we have taken a number of steps to create a durable and responsive infrastructural framework. We have also learnt that it is important to keep innovating and improving on management systems. There is no complete and perfect solution.

During 1999-2000, our main efforts were directed towards ensuring quality while maintaining a decentralised structure. During the year we instituted and improved an annual planning system for all staff at CSE. In 1998, we set up systems to ensure that staff had an incentive to achieve targets laid down in the annual plans while at the same time maintaining disincentives to discourage poor performances.

During the year, we streamlined systems to use volunteers in CSE and thus extended the reach of CSE's constituency. We identified that disseminating CSE's products widely has a key challenge and we put in substantial efforts to improve the sales and marketing of CSE products.

For the year 1999-2000, we had identified the following challenges for ourselves:

- Decentralising management systems with accountability and finding and retaining skilled staff for CSE
- Maintaining quality to maximise output in our activities; and
- Increasing outreach of our publications;



The processes we initiated to meet these challenges are described in detail below:

Challenge 1

Finding and retaining skilled staff for CSE

Plan of action: To build skills and capacity in society

We have found, from our past analysis of how and why staff leave, that young people, often fresh out of college at the threshold of their careers are unsure of what they want and leave CSE quickly. Often these young people are juggling with several options. The NGO sector is an emerging field in India and as yet is not considered a life-long career option by many. Many consider it as a good starting job but no more. There are often pressures on young persons from their peers and their families to opt for more conventional careers like government, academic and media that offer stability and often higher emolument.

The other category which is very fluid is that of the budding journalist who tends to join CSE to wet his or her feet in CSE before moving on to mainstream journalism. Given the paucity of good environmental journalists in the market and with the advent of multiple channels in TV, we find that within just six months of working at CSE, journalists advance almost six years in their career and are hired by the top media organisations in the country. CSE is often used as a training ground in environmental journalism by those who are looking for a niche in the media.

Therefore, the problem has always been that CSE puts in a lot of effort in training young, new recruits only to have them leave after a short stint. In order to deal with this challenge, we came up with the idea of an interns and 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.

In 1999-2000 we worked to set up the interns and volunteers programme to build capacities of environmental understanding coupled with communication skills in young people, so that CSE gets ready material for recruitment. It is a structured programme which combines on-the-job training with



Pushing for solutions

OBJECTIVE

- Policy Research and Advocacy

GROUPS

- Air 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

We have found that campaigns — our work in “knowledge-based activism” — in which we pursue an issue to bring about policy change has been the most rewarding part of our activities. This has demanded focus and consistent work to research, write and to advocate solutions. This persistence has, however, paid off.

Our campaigns during the last year have focussed on: (a) air pollution; (b) community-based water management; and, (c) global environmental governance. The highlight of the community-based water management campaign was the award ceremony of the *Down To Earth*-Joseph C. John award for the most outstanding environmental work given to the twin villages of Bhaonta-Kolyala. The President of India, Shri K R Narayanan visited the villages to give away the award. This spurred the attendance of the Chief Minister and Governor of Rajasthan and ensured wide media coverage.

CSE's air pollution campaign found an effective ally in the Supreme Court of India. The court gave a clear *No Diesel* signal to the industry and the government. It refused permission to the Delhi Transport Corporation (DTC) to continue with diesel buses and reiterated its order that public transport vehicles must switch to CNG. For the first time after three years of campaigning we have seen a decline in the air pollution levels. Now our research must advocate new solutions and fight the disinformation.

The first annual report of Global Environmental Negotiations, *Green Politics* was published in October 1999. It was widely reviewed in *The Indian Express*, *The Hindu*, *The Hindustan Times*, *The Times of India* and *Frontline*. A review was also carried in *Le Monde*. The book has also been released in different cities across the world in India, Thailand, Bangladesh, Belgium, Germany, France, UK and USA.

RIGHT TO CLEAN AIR CAMPAIGN

The Right to Clean Air campaign, launched almost four years ago, has had a considerable impact on the public, the media, the judiciary and the government. The campaigners found an effective ally in the Supreme Court of India and this helped us enormously to come out on top despite the insidious and powerful manoeuvring by the industry. The auto industry pulled out all stops to save its dieselisation programme, but the court has so far been able to resist these pressures. In the next phase of the campaign, CSE would like to take it to other cities, some of which face even more serious air pollution problems than Delhi. This is a challenge for CSE as to how it can help to improve the technical capacities of civil society to deal with the growing pollution problems. CSE took the battle into the enemy's camp when it took part in the Auto Expo in January 2000. Sheila Dikshit, the Chief Minister of Delhi inaugurated the CSE stall.

April 1999: We push for ban on diesel cars and get Supreme Court's hammer on the polluters.

The Supreme Court ordered the automobile industry to adhere to stringent emission norms. In a significant ruling on April 29, 1999, the three-judge bench headed by Chief Justice A S Anand ruled that emission norms be brought forward for new cars. The EURO I norms were brought forward to 1999 from 2000, and EURO II norms to 2000 from 2005.

The defence lawyers representing multi-crore business interests of the automobile industry constituted almost all the who's who in the legal profession — TELCO represented by F S Nariman and Arun Jaitley, FIAT represented by P Chidambaram, Mahindra and Mahindra represented by Anil Divan and Maruti Udyog Ltd (MUL) represented by Kapil Sibal.

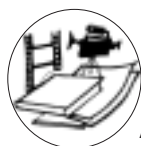
Dismissing Chidambaram's contention that the new norms might hurt the Indian economy and the industry, the Supreme Court asserted, “If we have to choose between economy and public health, we choose public health.” The seriousness of the bench was manifest, when it asked the government why it was asking for more time, despite the worsening pollution scenario. The judges asked for both petrol and diesel cars to comply or get off the road.

Supreme Court one-liners

May 13, 1999 hearing: Judges' comments on air pollution in the verbal duel with the counsel are quite revealing ...

- Counsel: Our submission is to allow us some breathing time to implement these (EURO I and II) emission norms.
Bench: People can't breathe and you are asking for more breathing time?
- Counsel: Please allow us to speak two sentences.
Bench: Whether you speak one or two sentences, we will only pass a sentence.





Green messenger

During the last one or two years CSE has slowly been trying to infuse informational products with a mission and a sense of purpose. Therefore, CSE's publications which have been best known for their range, depth, readability and presentation are also now being geared to pack a special punch and push for policy change. Even in the past we have always used our products not just to create awareness but also to advocate an important concern and push for change. For instance, the fifth *State of India's Environment Report* points to the urgent need for a paradigm of public participation in urban governance. CSE's reports published through the magazine *Down To Earth* also push for sustainable policies in the area of natural resource management. The magazine's recent story on the disappearance of vultures was more than just a report; it was an attempt to focus attention on the impact of pesticides on living species, including humans, and the need to provide more resources for scientific research on these issues so that scientists can provide us with advance warning signals.

CSE products are, therefore, being carefully used more and more as a tool for advocacy, both nationwide and worldwide, and to push for change in national and international policies in order to take concerns of justice, equity and sustainability into account.



STATE OF INDIA'S ENVIRONMENT REPORTS (SOE)

CSE's claim to fame springs from its citizens' reports on the State of India's Environment. But these books have been sporadic — in 1982, 1985, 1991 and 1997 — and the last two were focussing on special themes unlike the first two which provided an overview of changes in all the different resource sectors — air, water, forests, atmosphere and the biosphere. Recognising that CSE can now produce both overviews of the environmental situation as well as sectoral studies, CSE has set up a team to produce a national overview of the state of India's environment with a comprehensive format every year together with a separate volume on environmental statistics as these statistics are highly scattered and not easily accessible.

In 1999, the Fifth State of India's Environment Report was published. The Sixth will be out in 2001.

Forthcoming: The State of India's Environment report (SOE)

The Sixth report slated to be completed before the end of 2000, will now be out in 2001. Some of the main issues covered are described below.

Success stories of rural India

Anil Agarwal studies the transformation of a village Ralegan Sidhi in Maharashtra from economic backwardness and degradation of natural resources to prosperity and abundance. The people of the village, under the leadership of Anna Hazare, rebuilt their economy through watershed management that brought about ecological regeneration. Agarwal is optimistic that if many more Indian villages follow the example, the rural landscape of India will undergo a change. The way to economic prosperity is through ecological restoration and management, is the message of the Land chapter.

What they say...

- *Dr M Sadiq Malik, Rural Development Foundation, Pakistan, "I find your publication, Dying Wisdom extremely useful to add to our knowledge on the subject. It would be extremely useful for our researchers and students of rural development."*
- *Raghunandan A Velankar, "I regard the set of SOE paperbacks as one of the nicest things of my collection. I really appreciate the efforts being taken in making such an information-rich document."*



Catching them young

In 1999, the Environment Education Unit initiated a programme of workshops for teachers in Delhi. CSE hopes to expand this activity to other parts of India. This is an important capacity-building effort as it simultaneously creates a consciousness and awareness amongst teachers and at the same time, enables them to pass on this consciousness to the students. The Education unit works in tandem with the other programme units of the Centre and during the year helped to conduct workshops for teachers on urban water harvesting and also organised a programme for children at CSE's air pollution stall at the Auto Expo.

Educating the educators

A two-day teacher training workshop was organised by CSE in July. About 20 teachers from different schools attended. A Teachers Aid on environment and media which intends to link news on environment and development to curriculum in the class-room was also produced.

The response was mixed. Many teachers were already actively involved in environmental activities and were very receptive to CSE's ideas. But some of the teachers felt that there was no time to accommodate these activities in their daily routine.

A second teachers' training workshop was held in September 18. The main theme of the second workshop was water-harvesting. Teachers were taken on a sample ecotour to Mehrauli and were introduced to how water harvesting as a theme can be introduced and integrated in the school curriculum.



Educating the educators: Teacher training workshop organised by CSE



Ecological Footprints project

The Environment Education unit of CSE continued its ecotours programme and forced children to take a look at their surroundings and see their environment. In addition to the tours, the *Yamuna-Yuk ride*, the *Water Walk*, and *Jungle Jog*, a new tour, *Raising a Stink*, has been introduced on waste management in Delhi.

The Yamuna-Yuk ride: Going down the Yamuna and seeing the yukky things floating on Yamuna was an eye popping experience for the kids. The kids were full of anger and their strident voices floated across the Yamuna:

'I want the beautiful, not the gutterful';

'I don't want the Yamuna to die',

'What is that green stuff floating on the water?'

'I demand a change in the attitude of the government towards the environment'.

Water Walk: Students from Greenfields, Safdarjung Enclave visited the traditional water harvesting sites in Mehrauli. They were full of questions about how this system can be made into a viable system to provide water for drinking. They were totally intrigued as to how in olden times people had made systems to catch and use rainwater and this was their only source of water.

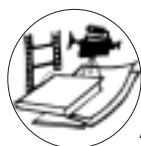
CSE staff were plied with questions:

'Is rainwater safe for drinking?'

'how can we catch rainwater?'

'how can we clean it?'

'doesn't water get dirty in these tanks?'



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Lending a helping hand

CSE started its volunteers programme on a regular basis in 1996. Since then we have consolidated the programme and we now have many requests from people willing to contribute their services and expertise for the cause of environment. Between 1996 and 1998, volunteers contributed to 332 working days. During the last year, volunteer contribution has gone up to around 3,500 days. This is equivalent to almost 14 regular employees.

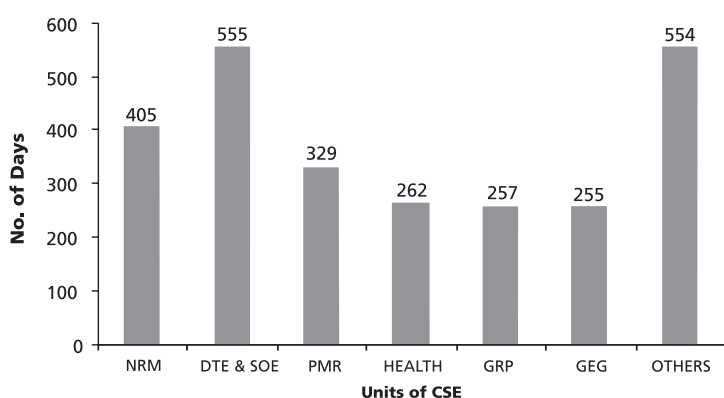
The magazine, *Down To Earth* and the CSE website offer a very effective medium to source volunteers. Volunteers range from students to retired persons, data-entry operators to qualified scientists, and computer professionals to filmmakers. For the volunteers this is an opportunity to

get to use CSE as a means to work for self-fulfilment and to satisfy the urge to serve a cause and the country. For young students, this stint gives them a rich working knowledge in environmental issues and a first hand experience in undertaking research, communications, advocacy and documentation.

For CSE the system serves as a nursery that gives us a chance to spot and train potential recruits and induct them into the CSE culture before they can be recruited. For instance, atleast seven volunteers were absorbed as CSE's regular staff in the year 1999-2000. The system also provides a monetary benefit apart from fulfilling the primary aim of strengthening our constituency. Assuming a monthly expenditure of Rs. 5,000/- per month as salary to a regular employee, CSE was able to save approximately Rs. 8.40 lakh through volunteer involvement.

The programme is monitored and managed by the Programme Monitoring Unit (PMR). They select and categorise these volunteers as per qualification and area of interest and assign specific projects under various programme units.

Graph showing number of person days contributed by volunteers unitwise



Note: The number of working days in CSE during 1999-2000 (11 months) : 257

NRM-Natural Resource Management, DTE & SOE - Down To Earth and State of India's Environment, PMR - Programme Monitoring and Recruitment, Health Unit, GRP- Green Rating Project, GEG- Global Environmental Governance

Volunteers 1999-2000

S.No	Name	Age	Work Done
1.	Aditi Kavarana	16	Helped in organising the workshop on Public Participation in Environmental Decision Making with the GEG unit.
2.	Zulfia Nafees	23	Provided inputs for DTE.
3.	Dilip Singh Bisht	24	Worked in the commissioning team for updating their database.
4.	Richa Kumar	24	Worked on dossiers related to the GEG book.
5.	Nabin Dutta Banik	26	Prepared a chapter on Environmental health and plague & researched material for the NRM Unit.
6.	Subodh C Bhaumik	61	Classified journal articles in the Health and Environment
7.	Nandita Mehra	21	Health & Environment Referenced chapters of the Health book.
8.	Divya Shukla	20	Health & Environment Compiled the Reference list of various chapters of SOEH.
9.	Rashi Rao	23	Prepared dossier on oceans, organised workshop on Public Participation in Environmental Decision Making.
10.	T T Surendran	28	Compiled material on forestry related products in India in the PMR.
11.	Anuja Jayaraman	23	Prepared the daily bulletin file for 1999 on water harvesting in the NRM.
12.	P.N. Bindu	27	Worked for the release function of the GRP ratings.
13.	Himanshu Hooda	20	Worked for the release function of the GRP ratings.
14.	Manjula Nair	24	Helped in re-organising the network and ERU web sites.
15.	Md. Neematullah	25	Raised invoices, send credit notes, reminders etc in EIDU.
16.	Sisel Peter	23	Helped in labelling books and articles in ERU.
17.	Pooja Gupta	24	Prepared briefing papers on hazardous waste in book publishing
18.	Sarika Ahuja	23	Collected material on hazardous wastes in SOE.
19.	Ekta Bhatia	23	Collected material on hazardous wastes in SOE.
20.	Harpreet	22	Collected material on hazardous wastes in SOE.
21.	Narsimha Rao	24	Assisted the air pollution team.
22.	Lopamudra Banerjee	24	Collected information on vehicular certification and excise duty on vehicles in air pollution.
23.	Rama Verma	28	Prepared a list of experts on air pollution.
24.	Anindya Dutta	24	Prepared a report on traffic planning and vehicular pollution control in Delhi in air pollution.
25.	Asmita Bharadwaj	22	Collected data on energy resources for Teachers Training Manual in EEU.



Quote, unquote

Right To Clean Air

Ms. Sunita Narain, Deputy Director, Centre for Science and Environment said, "Clean air has a price. Dirty air also has a price and we are paying for it with our lives,"

The Economic Times, New Delhi, 11.05.99.

According to CSE, which has been lobbying for a ban on diesel driven cars, the problem gets worse with cleaner diesel. In a recent issue of its fortnightly magazine, *Down to Earth*, CSE claims that, "the cleaner the diesel, the tinier the particulate matter and higher its cancer causing potential."

The Indian Express, New Delhi, 30.05.99

On air pollution in Delhi, "I have contempt for the people in Delhi, There was such a hoo-ha over onions. It almost brought down the BJP government. Nobody kicked up the same fuss on air pollution. Yet, air is something you breathe every minute of your life."

The Times of India, New Delhi, 5.06.99

At "People for Clean Air" a protest meeting organised by CSE Anil Agarwal the convenor of the meeting declared, "It is a façade to say that it is Atal Bihari who runs the government, its we who run the government. We have the right to demand clean air and let us make it clear to our chosen representatives that if we don't get it they won't be in their seats next year."

Flash 13-19.06.99.

On dieselisation of private vehicles Mr. Anil Agarwal, director of Centre for Science and Environment said, "It will be wrong to allow private vehicles to run on cheap and toxic diesel when public transport in Delhi is being moved to run on clean fuel like CNG."

Asian Age, New Delhi 14.07.99.

"Pollution follows progress like a shadow. One day the shadow will grow bigger and gobble up the whole world," wrote Anil Agarwal, Director of Centre for Science and Environment.

Deccan Herald, 29.12.99

Peoples Water Management

On rooftop water harvesting, Sarvanan of Centre of Science and Environment was quoted as saying, "Chennai and Aizawl have already set up an example by extensively adopting rooftop water harvesting where not only the residents but also town planners and private builders are ensuring that roofs are suitable for trapping rain water."

The Hindu, New Delhi, 26.06.99.

The rulers of independent India continued the policy of patronising multi purpose dam projects

because they are, "politician-friendly, administrator friendly and contractor friendly" in the words of "Dying Wisdom" a study by the Centre for Science and Environment, New Delhi.

Newstime, 8.08.99.

On water harvesting in President's estate by CSE, Srivastava of CPWD said, " Rain water harvesting plans, proposed by CSE and CGWA, will reduce the Bhavan's dependence on NDMC supply and end water crisis."

The Hindustan Times, New Delhi, 18.08.99

India's Centre for Science and Environment says that water gleaned in this traditional way from just 2% of India's land area everyday could yield about 100 litres per person.

Asia Week, 20-27.08.99.

On *Dying Wisdom*, " This monumental work is the fruit of a decade long project by CSE."

ILEIA Newsletter, Dec 99.

President K R Narayanan flew over to Hamirpur, a few kilometers from Bhaonta-Kolyala, to honor the village with the first *Down to Earth-Joseph c John award*. Centre for Science and Environment has instituted this award.

The Times of India, New Delhi, 29.3.00.

Water Pollution

While the Delhi Jal Board maintains that the quality of the treated water is "impeccable", Mr. Anil Agarwal of CSE maintains that pesticides, heavy metals and hazardous chemicals are present in the raw water which the Board does not have the facilities to treat.

The Hindustan Times, New Delhi, 29.04.99

In a study conducted by CSE water samples collected from eight areas around the country have revealed dangerously high levels of mercury.

The Indian Express, New Delhi, 19.08.99.

While speaking at a seminar on "viable options to de-pollute river Yamuna" Sunita Narain, Dy. Director, Centre for Science and Environment, said, "There is no way that the needs of the city can be met if the pricing continues to remain this low,"

The Hindustan Times, New Delhi, 27.02.00.

Global Environment Governance

CSE believes that CDM is an iniquitous mechanism since developing nations will sell their cheap options to industrialised nations at rock-bottom prices and be caught out when it is their turn to reduce emissions."

Outlook, New Delhi, 3.05.99.



CSE'S executive board (31.3.2000)



V Ramalingaswami *Chairperson*
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



William Bissell, *Treasurer*
Director of Fab india Overseas Ltd and the managing Trustee of the Bhadrarjun Artisans Trust which runs schools in Jodhpur district of Rajasthan.



Anil Agarwal *Director*
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



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



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

Kamla Chowdhry

Management expert; former chairperson of the National Wastelands Development Board and of the Society for Promotion of Wastelands Development. Currently with the Vikram Sarabhai Foundation.



Vikram Lal

Industrialist and Chairman of the Eicher Group. Currently with the Vikram Sarabhai Foundation.



G N Gupta

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



Virendra Kumar

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



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.



Awards

Recognising Excellence

Maharana Udai Singh Award

The Maharana Mewar Foundation honoured Anil Agarwal with the Maharana Udai Singh award, for his contribution to society through his work of permanent value in protecting the environment for 1998-99. The Maharana Udai Singh award is a national award. It was instituted in the year 1996 to honour work of permanent value in protecting the environment. The national award consists of a silver "toran" plaque of honour, a ceremonial shawl, and a cash award of Rs 25, 001.

Padma Bhushan

Padma Bhushan has been conferred on Anil Agarwal for his consistent, committed and pro-active role in environment management. He has played a significant role in building and encouraging various grassroot level environmental initiatives. He has been the mouthpiece of the people driven to poverty and dispossession, due to environmental degradation and myopic policies. This award recognises Agarwal's work in raising environment consciousness-which includes his effort to highlight the importance of clean air, water and impending dangers from all sorts of contamination and pollution.

Global Environment Leadership Award

Anil Agarwal has been awarded Year 2000 Global Environment Leadership Award given by Global Environment Facility (GEF), Washington D.C. for his work both in the national and international arena. This award is also a reflection of India's role in the protection of the global environment. Responding to the felicitations, Agarwal said, "changing the environment is a cooperative endeavour".





Who's who at CSE

DIRECTOR

Anil Agarwal

Director's Office

S Sudha

Jainamma George

K Sahasranamam

Anil Kumar

DEPUTY DIRECTOR

Sunita Narain

Deputy Director's Office

V S Rao

BOARD AND FUNDING

Gita Kavarana

Anuradha Chatterji

PROGRAMME MANAGEMENT AND RECRUITMENT TEAM

Jagdeep Gupta

CELL FOR POLICY RESEARCH AND ADVOCACY

Pollution prevention and control

Anumita Roychowdhury

Rajat Banerji

Natural Resource Management

Indira Khurana

V S Saravanan

Global Environmental Governance team

Anju Sharma

Achila Imchen

Nikhata Jamal Qaiyum

CELL FOR SCIENCE AND ENVIRONMENT INFORMATION

Science and Environment Reportage Unit

News Team

Max Martin

Jitendra Verma

Richard Mahapatra

Kazimuddin Ahmed

Manish Tiwari

Lian Chawii

Copy Team

Ajit Chak

Darryl Correya

Sopan Joshi

Mridula Chettri

S S Jeevan

Jamal Kidwai

Commissioning Team

Samyabrata Ray Goswami

D M Nair

Art and Design Team

Pradip Saha

Amit Shanker

Suparna Das

Rajat Baran Chakravarty

Akhilesh Kumar

Books And Newsletters

Production Team

Srabani Sen

Premangshu Ray

Yoga Rangatia

Subir Ghosh

Sanjeev Sharma

Mily Chakrabarty

Environmental Films Team

Pradip Saha

ENVIRONMENTAL EDUCATION TEAM

Rustam Vania

Lena Bose

Ayushman Choudhary

Website

Usha Shekhar

S Shankar Lingam

CELL FOR ENVIRONMENT RESOURCES AND PRODUCTS

Books, Documents and

Journals Team

N Venugopalan

K M Sheeja

D S Thapliyal

Kiran Kumari

Audio-Visuals Team

Sabari Choudhary

Anita Choudhary

Rupa Chatterjee

Indu M G

Newspapers and Newsmagazines Team

Kiran Pandey

Madhumita Pal

Pushpa Thapliyal

Sushan Chacko

Tito Joseph

Database Team

Monika Malhotra

Vikas Khanna

INDUSTRY AND ENVIRONMENT TEAM

Chandra Bhushan

Monali Zeya

Meenakshi Kaul

HEALTH AND ENVIRONMENT TEAM

Priti Kumar

Amit Nair

Nidhi Jamwal

ENVIRONMENT INFORMATION DISSEMINATION TEAM

I Khan

Rajiv Kumar

CELL FOR MANAGEMENT SUPPORT

C Mohan

Accounts and Finance

Safdar Agha

Anupam Verma

Ajay Kumar

K Rajagopalan

B V Balasubramaniam

Sales and Despatch

L Mukunda Pai

K C R Raja

Biju Joseph

Administration and Estate Management

K Sivasankaran

J K Sharma

Suresh Kumar

M A Jose

Sayed Haider Raza

Kesar Singh

Ashish Giri

Production and Printing

B Paul William

R Arokia Raj

Shri Krishan

Anand Singh Rawat

Kirpal Singh

Surender Singh

Systems and Communications

K S L Srinivasan

Rajendra Rawat

GEG-I " The 410 page report brought out by CSE hopes to act as a starting point to promote understanding between Northern and Southern governments on issues related to the government.

The Financial Express, New Delhi, 13.02.00.

" In the name of global environmental negotiations, new kind of governance of world resources was emerging, controlled and manipulated by Northern countries, Anil Agarwal warned while submitting a report "Green Politics" to the President Mr. K R Narayanan at Rahtapati Bhawan.

The Economic Times, New Delhi, 5.03.00.

CSE criticised the Indo-US pact on clean energy and environment signed in Agra by saying that it would give the US the scope to take credit, under the Kyoto Protocol, for greenhouse gas reduction by merely selling its technology.

Asian Age, 24.03.00.

Health and Environment

CSE's toxicologist Amit Nair detected traces of both DDT and HCH in vulture tissue samples in 1990. In his report, Mr. Nair suggested that the pesticides were possible the cause of deaths of these birds,

Asian Age, 9.04.99.

A CSE study on buffalo carcasses in Delhi and Uttar Pradesh revealed high incidence of chemicals-DDT, aldrin, dieldrin and BHC.

The Hindustan Times, New Delhi, 29.08.99.

Centre for Science and Environment found presence of high levels of harmful pesticides in cattle and pig carcasses collected from areas surrounding the Kaladeo National Park. The pesticide residue in buffalo carcasses from around Delhi and Uttar Pradesh has also been found to be quite high.

New York Times 23.10.99

A national conference on health and environment organised by the Centre for Science and Environment has recommended immediate setting up of an environmental health protection authority under the Environment (Protection) Act of 1986 to check health related pollution hazards.

Business Standard, New Delhi, 17.11.99

CSE undertook a study of the eating habits of vultures around Delhi and Uttar Pradesh. The study revealed high incidence of chemicals like DDT, aldrin and BHC in the stomach of these birds.

Newstime, 9.01.00.

In the course of its work on the relationship between environment and health, CSE identified a need for a database of national and international experts in environmental health. In response, CSE compiled and recently published Health Links-a Directory of Experts on Environmental Health.

Health Action, New Delhi, January 2000.

Industry and Environment

The Centre for Science and Environment's study of the pulp and paper industry reconfirms that environmentally sound practices also make good business sense.

Business Standard, New Delhi, 19.07.99

For the first time in this country, 28 pulp and paper industries spread across 13 states were rated according to their greenness by the Centre for Science and Environment.

The Indian Express, New Delhi, 19.07.99

"Those companies whose activities have an impact on environment have to come clean on record. Developed countries like the US and Britain have shown that pollution rises rapidly with economic growth" said Anil Agarwal, director of CSE.

The Week, New Delhi, 15.08.99

Environment Education

Most of us seem to think of environment in terms of wildlife, though it includes other issues like sustainable consumption of resources, waste management," argues Rustam Vania of the Delhi based NGO Centre for Science and Environment, which publishes *Gobar Times*, a bi-monthly eco magazine targeted at middle school kids.

The Hindustan Times, New Delhi, 24.04.99

State of India's Environment

"If the size of this CSE publication, is any indication environmental concerns in the country have only multiplied manyfold since the earliest in the series.

Frontline, Chennai, 29.09.99

"The macro picture it presented was frightening and depressing. But the examples of grassroots level initiatives at "making a difference" were heartening," expressed Anu Aga, CEO, Thermax.

Business Today, 7.01.00

CSE/DTE Feature service

"According to a recent issue of *Down To Earth*, no continent has been spared. During the last five years 20 frog and toad species have vanished from Costa Rica and in the US one-third of the 230 native species are on the decline".

The Hindustan Times, New Delhi, 19.08.99

Recently it is reported in DTE in India, the people have gathered to protest against the state government's decision to reserve water from the nearby Kankauti dam for Jamnagar town, a decision favouring urban people at the cost of rural folk.

Kathmandu Post, Nepal, 12.02.00.

Award

Noted environmentalist Anil Agarwal born at Kanpur on 23rd November 1947 was also honoured with Padma Bhushan award by the President K R Narayanan.

Amar Ujala, 31.03.00

S.No	Name	Age	Work Done
26.	Geeta Kulshreshtra	27	Worked on the public transit systems (MRTS) with the Air Pollution team.
27.	Meenakshi Rautela	21	Worked on the air pollution directory and fact sheets .
28.	S N Pukayastha	27	Collected papers, which relates to traditionalAgriculture for NRM team.
29.	Brian Kelly	30	Written a report on Hazardous wastes in India.
30.	Jijo Peter	25	Helped in labelling books and articles in ERU.
31.	Chaitali Das Gupta	22	Collected articles from journals/magazine on River Pollution.
32.	Subhas Chand	28	Assisted the commissioning team in DTE.
33.	Omar Mark	21	Written a report on flouride & nitrate contamination in ground water in Delhi for SOE.
34.	Alice Mathers	23	Helped in editing and proof reading GEG-1.
35.	Harjodh Babra	23	Prepared notes for sewage disposal in India in River Pollution unit.
36.	Shakeelur Rehman	26	Worked on classification and data entry in Audio/Visual.
37.	Binayak Das	25	Helped with inputs on overall health and disease trends for SOEH.
38.	Meetu Gupta	22	Helped in preparing EPCA Report for PMR unit.
39.	Daniel Teklemariam	25	Helped in keying in suggestions from public on air pollution problems for PMR.
40.	Naisy George	26	Helped in the performance appraisal exercise for PMR unit.
41.	Kanta Kumari	27	Keyed in EPCA Suggestions for PMR unit.
42.	Ermias Zerit	26	Compiled suggestion on traffic congestion for Delhi for PMR unit.
43.	Bani Kharbanda	35	Helped in Data entry in PMR unit.
44.	Mamta Kakaan	24	Compiled suggestion on traffic congestion for Delhi in PMR unit.
45.	Chandni Khanduja	21	Helped with referencing chapters, conference and workshop activities for GEG team.
46.	B Bhattacharjee	27	Helped in Mailing covers in Marketing.
47.	Preeti Harkauli	49	Worked on the Web Directory.
48.	Ilori Pal	26	Helped in gathering News clippings and articles in Air Pollution.
49.	Vaswati Raychaudhuri	43	Helped in marketing the book for GEG unit.
50.	Reiaz-UI-Rehman	25	Helped in the GEG Unit.
51.	Jyothi V	28	Helped in data entry and filing in DTE.
52.	Parul Jain	24	Collected material for disaster chapter of SOE 6.
53.	Naresh Kumar C K	25	Documented checking and printing systems in library
54.	Vandana Gupta	23	Interacted with various corporates for GRP.
55.	Amit James	24	Helped in filing , indexing books and photocopying in GRP.
56.	Richa Shukla	25	Filed about eight stories for I&T section in DTE.
57.	Amita	20	Helped in water-testing during Yamuna ride in EEU.
58.	Kalyani	19	Helped in water-testing during Yamuna ride in EEU.
59.	K rithika Subramaniam	21	Helped in transcriptions in the director's office.
60.	Bjorn Borg	26	Collected information from the library for SOE.
61.	Umesh Kathpalia	21	Collected information from the library for SOE.
62.	Vikas Gupta	21	Helped in filing, photocopying, typing and data entry in DTE.
63.	Tulika Verma	22	Compiled suggestion on traffic congestion for Delhi for PMR unit.
64.	Mitu	22	Compiled suggestion on traffic congestion for Delhi for PMR unit.
65.	Ajay Singh	24	Compiled suggestion on traffic congestion for Delhi for PMR unit.
66.	Vikas Kumar	24	Compiled suggestion on traffic congestion for Delhi for PMR unit.
67.	Prabhat Singh	25	Compiled suggestion on traffic congestion for Delhi forPMR unit.
68.	Zubin Kavarana	20	Compiled suggestion on traffic congestion for Delhi for PMR unit.
69.	Suresh Jain		Compiled suggestion on traffic congestion for Delhi for PMR unit.
70.	Ajay Kaushik	17	Assisted the Air Pollution Unit.
71.	Ali Raza	26	Helped in Auto expo and Water Harvesting programme.
72.	Alok Pathak	25	Assisted in the Air Pollution Unit.
73.	Alpana Taneja	22	Collected information for SOE 6.
74.	Amit Kumar Jina	22	Collected information for GRP.
75.	Animesh Singh	24	Assisted in the Air Pollution Unit.
76.	Aparna Kher	19	Collected Information For SOE 6.
77.	Atanu de	20	Assisted in copy editing and reporting in DTE.
78.	Bart van der Mark	22	Helped in the chapter on Hazardous waste for SOE.
79.	Bjorn Rahm	26	Collected references from external libraries for SOE.
80.	Dr R V Singh	33	Prepared database of people on Sustainable Development in NRM unit.
81.	Gauri Bahuguna	20	Helped in data entry in DTE.
82.	Madhavan	26	Helped in data entry, filing for River Pollution and NRM and EEU unit.
83.	Pooja Sharma	22	Assisted the Air Pollution Unit.
84.	Prakash Kumar	32	Helped in the Internship Programme in PMR and River pollution.
85.	Pravin Kumar Kushwa	23	Helped in auto expo and TWHS.
86.	Priya G Nair	23	Collected data for Current Science awareness bulletin in Books and Journals.
87.	Priya Singh	20	Helped with editing and proof reading GEG-1 in GEG.
88.	Rakhi Sahay	23	Helped in auto expo and TWHS.
89.	Ritu Raj	22	Interacted with various corporates of GRP.
90.	Seetha	21	Helped in referencing for Web Directory in Books & Journals.
91.	Shantanu Kumar	27	Researched on traditional agriculture in NRM unit.
92.	Shariqua Badar Khan	20	Assisted the commissioning team in DTE.
93.	Soni pawar	19	Researched material for the NRM unit.
94.	Vivek	24	Prepared an HRD report on Himanchal Pradesh the Air pollution manual in PMR.
95.	Vivek Sharma	21	Helped in water-testing during Yamuna ride in EEU.

In print

- *The Pioneer*, 23 July, 99: National parks versus people. Excerpts from Kaziranga, Living Resources chapter.
- *The Pioneer*, 27 Aug, 99: Excerpts of Tirupur story in Habitat chapter.
- *India Today*, 2 August, 99: "The fifth report is a systematic compilation of the state of our natural resources, aspects of pollution, biodiversity and their link to livelihood.
- *Frontline*, 24 September, 99: "the return to the original conception is a welcome one because it gives the document an identity of its own and makes it valuable source of reference of updated qualitative information on environment in the country."
- *The Pioneer*, 3 December, 99: Reproduced excerpts of the Veerappan and sandalwood smuggling story that appeared in the Forests chapter of SOE.
- *Business Standard*, 15 December, 99: "It is an incredibly pretty offering, The report is comprehensive in its coverage of all the big issues of the day."

And failures in urban India

While there is hope for rural India, urban environmental management is simply getting out of hand. SOE-6 introduces two new chapters – Waste and Disasters – to focus on urban solid waste management and industrial accidents. Nidhi Jamwal finds that poor solid waste management in the country has more to do with inefficiency and corruption of the municipalities than with the lack of resources.

Despite the Bhopal tragedy, industrial accidents are the order of the day in industrialised India where laws are flouted and the community is hardly made aware of the dangers in its vicinity. Kazimuddin Ahmed and Manish Tiwari, along with stringers Darshan Desai and Shiv Kumar, travel to Chennai, Mumbai, Pune, Delhi, Vadodara, Vapi and Surat to find that where the government fails, NGOs have mobilised groups to fight the filth and toxic wastes dumped in the cities. Citizens of the Civil society, Almitra Patel (Bangalore) and Bharati Chaturvedi (Delhi) encouraged the team by providing information and reviewing the numerous drafts of the Waste chapter.

Milking the earth dry

Groundwater is recklessly exploited and pollution over land is wrecking havoc with the aquifers. Groundwater overexploitation is due to apathy and faulty water management policies, of both the centre and state governments. The water chapter calls for exercising restraint with the precious resource and recharge aquifers through traditional water harvesting methods.

Cash registers: Marketing the SOEs

The fourth report, *Dying Wisdom*, published in 1997, had a print run of 2,000 copies and has been sold out. In 1999, a total of 1,512 books were sold in paperback and in hardback. It is now going for a second print run.

The Hindi edition of the book had a print run of 5,000 copies and was purchased by the Madhya Pradesh government. Some books were also bought by Tarun Bharat Sangh, an NGO in Alwar, Rajasthan.

Fouling the atmosphere

The atmosphere chapter points out the vulnerability of India in case of global warming even as the Kyoto Protocol is dithering to meet the objectives of protecting the planet by reducing the greenhouse gas emissions. The book hits out at the industrialised countries for forcing upon the world an unjust and ecologically ineffective global treaty.

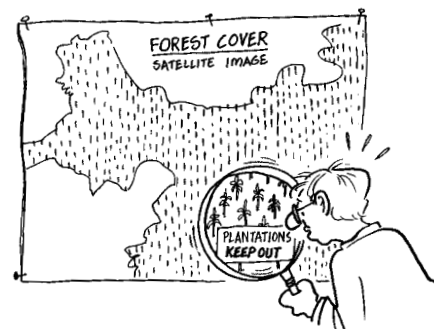
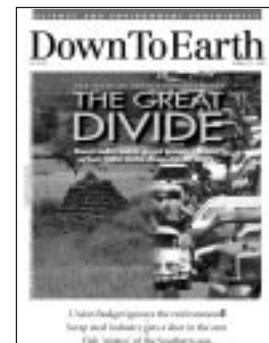
Mending ways

Pollution by industries is of overriding concern to environmentalists and the issue has been discussed a number of times in many courts across India. But is there a change in the attitude of the industry to make its products and process environmentally less harmful?

CSE conducted a survey and finds that the industries have mended their ways, but only due to pressure created by judicial activism and public outcry.

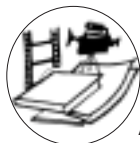
The statistical database companion

Beginning with the Fifth SOE report, we have begun to produce a companion volume of statistical databases on India's natural resources. The idea for putting together a database came to us a long time ago while we worked on the early SOE's and had harrowing experiences of sourcing data on natural resources. Thus was born a project of collecting data on every fact of natural resource management. We began the task of collecting district-wise information, some of them dating back to the 1950's, by sending out reporters to all corners of India. Last year, we published the first volume of the SOE database with the fifth report. During the year we worked on putting together the statistical volume for the Sixth SOE report.



The Fifth SOE was first brought out only as a hardback edition priced at Rs 1,590. All the 1,100 copies printed were sold during the year. The paperback editions were then released and 620 copies had been sold as of March, 2000.

In addition to these recent releases, the earlier SOE reports are still in demand. The combined sale of the first, second and third reports touched almost 2,000 copies.



Behind the scene

The grit behind the enviroscape

The year saw the transformation of the book unit into the SOE unit. The SOE-5 report which was out last year turned out to be a major success and a money-spinner as well. SOE took centre stage and here we were, 'the SOE experts'. We are told that SOE-6 is scheduled a mere 12 months away. So forget about boating in Nainital and trekking to Dalhousie. Back to the familiar territory of government department basements digging for buried data; to frantic trips from the CSE library to the plastic recycling unit of Narela to the CPCB office before it closes; to bribing Jose to keep the telephone free to conduct a telephonic interview.

Chitra is burning midnight oil to complete her forest chapter. She has not seen a single tree, she is neck-deep in a forest of files and books. Yoga decides to skip the Yamuna waters in summer and goes in search of dug-wells in Saurashtra. Having had her fill of never-heard-of-before diseases, Nidhi gets Kazu to go round the country and look at how cities (mis) manage their waste.

Then comes the time for using the power of the pen, sorry, the computer. The team begins to put

together the information collected and makes an attempt to get some order into the chapters. This is the critical period, the period when the phone never stops ringing at 231, Srini's Helpline. There is no dearth of variety in the complaints — a brand new virus has gobbled up the health chapter; dust has incapacitated the floppy drive; someone has sent a Trojan horse into Yoga's computer trying to snuff out her hot information; Chitra's hard disk crashed due to information overload.

We can almost hear the roar, WHERE ARE THE REFERENCES? All of us quickly make a beeline to Jagdeep's office and put in our requisitions for volunteers to do the referencing and verifying. Each piece of information has to be checked a minimum of 25 times. Blessed are the meek, the humble and the SOE volunteers. Volunteers are also given the task of chasing up the reviewers — by phone, post, fax and email.

We have not yet seen the light at the end of the tunnel. We still have miles to go before each chapter is finalised, referenced, indexed, glossaried, boxed, proofread and finally laid out.

SCIENCE AND ENVIRONMENT REPORTAGE

Continuing its task to keep people informed of the latest in the field of sustainable development, CSE produces detailed reports on every aspect. These reports are disseminated through *Down to Earth*, the fortnightly science and environment magazine and the feature service.

Air Pollution

CSE produced several reports on the problem of urban air pollution, in an attempt to focus attention on the twin problems of the health impacts of diesel and the privatisation of the diesel fleet. *Fatal Attraction* and *Licence to Kill* were two reports that discussed the increasing dieselisation of India and the deleterious impact of diesel on health. What was supposed to be cheap fuel for the poor is now driving the cars of the rich. The reports also highlighted the indifferent attitude of the national and multinational auto companies who are pursuing profits at the expense of the health of millions of people.

In another report, *Polluted and Ignored*, CSE analysed the problem of air pollution in the smaller cities and towns in India. These cities are far more polluted than say, cities like Delhi. But unlike Delhi, they are not in the public eye and are therefore neglected by the government.

Although data about rising levels of pollution in the ambient air of these cities is

available there are no programmes in any of these cities to counter the emerging public threats to health.

Water Pollution

CSE undertook a detailed investigation of groundwater pollution by collecting samples from several sites near industrial estates across India. *What Goes Down Must Come Up* was the result of this survey which documented the absolutely shocking state of affairs of countrywide groundwater pollution by industry. The really shocking part of the story was that factories across India are deliberately injecting untreated effluent directly into the ground water, contaminating aquifers. All samples of water collected had high levels



of heavy metals — one sample had levels of mercury 268 times higher than is considered safe by the WHO.

Going off the beaten track, CSE examined the social linkages between environment and culture and religion. The report *Pollution of Hinduism*, pointed out that while the environment is sacred to the Hindu, it is today bearing the brunt of pollution that is being brought about by religious practices. The present day Hindu has forgotten the emphasis that is laid on nature, the environment and the ecology by Hinduism. Witness the state of the sacred rivers, Ganga and Yamuna where the devout still take a dip to wash away their sins despite the polluted water.

Water Management

Looking at a broader issue of governance, CSE took up the case study of embankments in Bihar. The report, *Breach of Trust*, traced the entrenchment of embankment-building policies to control floods and the growth of corruption arising from this policy. Even as hundreds of kilometres of embankments have been built floods continue to ravage the population year after year and the common person's suffering increases manifold. Flood-prone areas and flood-related damages have increased enormously since independence.

The drought in Rajasthan and Gujarat in the summer of 2000, made headlines across the country. CSE staff brought back news of the impending drought as early as September 1999 from their travels. To find out more, CSE sent its researchers to Gujarat and Rajasthan to document the problem in detail. They found proof that small water harvesting systems are a good and sure way to protect against drought. Villages that had constructed small check dams and harvested water were able to withstand the drought and sometimes even have water for irrigation. Less than 15 km from such villages, those villages which had not

conserved water were witnessing mass migration and food scarcity.

CSE's report, *Harvest of Hope* documented this in detail and recorded the success stories of Hardevsinh B Jadeja, the *sarpanch* of Raj Samadhiyala village, Gujarat and Harnath Jagawat, director, of N M Sadguru Water and Development Foundation. CSE also organised a public meeting on the topic and invited them to present their experiences.

Forest Management

CSE has consistently been advocating a participatory way of managing natural resources. To highlight the need for participatory forest management, CSE sent out its staff to travel across Orissa, Nepal and Andhra Pradesh to examine the successes or failures of participatory forest management.

Although there is a large programme of Joint Forest Management in Orissa, the people of Kesharpur village have broken away from this half-baked scheme and have taken their destiny into their hands. They have been protecting their forests for the past three decades and as a result there is verdant forest in the midst of barren lands. *On the War Path*, a report documents the efforts of the villagers who have protected nearly 400,000 hectare of forest.

CSE staff also went to Nepal to look at the Nepal experience. In 1993 the Nepal government, in a break from the past, gave some of the forest lands to rural communities. While government-managed forest lands are getting degraded day by day, those managed by the communities are getting better. *The Nepal Experience* reports on the efforts of rural communities in Nepal that are working to regenerate the depleted forest cover.

Biodiversity and Wildlife Management

CSE's position has been that the flawed wildlife management policies being followed



A model village

Richard Mahapatra tells the tale of Kesharpur villagers and their dedication towards the forest

Kesharpur in Orissa's Nayagad district is a tiny village, difficult to point out on a map. However, the people of this village have established an identity of their own by protecting a forest for the last three decades.

During the 1970's, timber smugglers stripped the village of its green cover. Natural streams dried up leading to recurrent droughts. The agricultural economy of the village collapsed. A university professor came to the village with the aim of saving the depleting forest. Villagers took up the cause of guarding the forest from timber smugglers and stopping stray grazing. They formed an organisation called *Brikshya-o-Jibara Bandhu* (friends of trees and living beings).

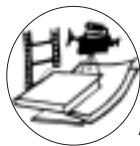
Even today villagers take turns at protecting the forest. They go out in pairs to keep watch over their resources and when they come back they hand over the batons to a different

pair, who go out the next morning. Protecting the forest by rotation is known as *thengapalli* in their native language.

DTE reporter Richard Mahapatra found that the forest had regenerated since people took the matter into their hands. Villagers have absolute control over it — they protect, manage and share it. The district became famous for its community forestry. But the government refused to recognise it and termed it illegal.

The villagers feel proud when they welcome visitors from as far off as Australia. And an overnight guest has the privilege of planting a tree in the school compound.

The dedication of the villagers in managing their natural resources for the last three decades inspired the education department of Hampshire County in United Kingdom (UK) to publish a book on Kesharpur — *Thengapalli*.



by the Government of India, have resulted in a state where most of the major species are well on the way to extinction. The policy of creating protected parks has only resulted in alienating the people. *Blues for the Big Cats* exposes the attitude of government *babus* who are unwilling to take any concrete action, despite the tiger's endangered status.

Examining an issue that has been little reported on, CSE produced a report, *The Milk that Ate the Grass*, that showed how the country's vast cattle population and development projects like the colossal Indira Gandhi canal in Rajasthan have adversely affected the grasslands of India. Of the 400 grass varieties found in India, some very valuable native ones may soon be lost due to mismanagement.

Corals often are the first indicators of environmental degradation. The report, *Neptune's Sorrow*, highlights the steady depletion of corals and the fact that human activity is gobbling them up. Corals are to the oceans what tropical rainforests are to land. And yet, little is being done to protect this precious resource.

Health and Environment

CSE prepared a detailed report on the silent but deadly killer disease, Kala-Azar, the black fever. Entitled, *The Black Fever*, the article points out that the state of Bihar accounted for 96 per cent of all cases of *Kala Azar* reported in the country in 1994. The numerous embankments in the state have resulted in waterlogging and marshy areas, providing

ideal spawning ground for the disease carrying sandfly. *A Deformed Existence* reports on the health impact of the nuclear establishment in Jaduguda and Rawatbhata where physical deformities are a way of life.

Looking at the impact of the deteriorating civic facilities in cities and towns across the country, *Garbage: Your Problem*, is a detailed report on solid waste management in India. The silver lining in the cloud is that several NGOs are showing the way to handle the problem by garbage as a resource.

Pointing the way: Policy reports

CSE was the first to report on the possible impacts of the fast receding of Himalayan glaciers — increase in incidents of landslides, changes in river regimes and floods. The report *Beating Retreat* won us kudos from other scientific magazines.

Gone with the Wind analyses why the programme on harnessing wind energy has not progressed in India and states that this is an important area of the future.

On celluloid...

The Centre produced three video films on water management. These films were screened at the CSE exhibition at the Second World Water Forum, The Hague in March 2000.

- *Arvari*: The film talks about the unique work undertaken by the villagers in Alwar district under the guidance of Tarun Bharat Sangh in reviving the traditional



Doing the right thing: Feedback

- Charu Uppal, student, Pennsylvania State University, "I am amazed at how much information you put in one issue of DTE, I have cited CSE's documents in my thesis. Other than being informational, I think DTE is doing a great service by informing us of our cultural heritage that relates to the environment. I am especially impressed by Gobar Times, since it is directed towards the young and shapes their attitudes towards the environment."
- Shantu@jsr.tatasteel, "I have been an avid reader of our mag for the last three years. It is no doubt the best readable and relevant magazine that I have come across, not only in terms of environment but also in matters of socially relevant issues. Gobar Times has also proved to be a source of joy for all youngsters that I am in contact with. Wishing you many more years of quality service to Indian society through your unparalleled magazine."
- Vipin Bhatnagar, "Do you think it is possible for anyone to do away with a magazine like Down To Earth? I think, "NOT". In fact, I first saw this magazine in the house of one of my friends. He had borrowed it, from one of his friends to prepare for an interview. I fell in love with this magazine the moment I laid eyes on it. This magazine satiates the hunger of the human mind about environmental issues."
- Shekar K Niraj, "I wish to say that despite working with the government, I am a staunch admirer of your magazine and the great cause it is serving. This magazine must continue even if the readership may be small."
- K V Ramana Murthy, AP Pollution Control Board, "I came to know from "Down To Earth" about chemical contamination of food carried in polybags. I have since stopped using plastic and buying anything packed in plastic sachets. I am propagating disuse of plastic bags and containers among my friends by educating them about the health hazards and environmental degradation caused by polybags."
- Shanshank Harshita, Ponda, Goa, "By now I think have become a member of the CSE family. DTE has changed my way of thinking about the environment and science. I went through the recent article in Down To Earth "Dirty River Blues" and was delighted to read about children getting involved in environment related issues. It shows that children can effectively be involved to save the environment."
- V K Uniyal, Conservator of Forests, "I enjoy reading DTE not merely because it keeps me updated on all relevant issues concerning our environment, but also because its imaginative layout, designing, photo-section, and graphics are superb. My daughters find Gobar Times fascinating and informative."
- K S Raman, Secretary, Tirunelveli Wildlife Association, "I would like to congratulate your editor for bringing out such an informative magazine, which is a necessity in the present modern times where pollution is taking over the country."

technology of harvesting rainwater. The river Arvari which was once just a seasonal stream has been dramatically made perennial.

- *Jhabua*: This is a film on the innovative effort undertaken by a state government that illustrates the powerful role that the state can play in bringing prosperity to the country if they limited their role to being a facilitator.
- *Downstream*: A film that illustrates through case studies the interaction between upstream and downstream users of a river. Upstream users have to be mindful of the fact that the river is also the property of people downstream while using or misusing the river.

Kudos

The fortnightly *Down To Earth* published a cover story on Himalayan glaciers. *New Scientist* reporter Fred Pearce picked up the article and termed it as "an excellent article on Himalayan glaciology".

A unique honour for an unparalleled feat: The Down To Earth-Joseph C John award

The President of India, Shri K R Narayanan, visited the twin villages of Bhaonta-Kolyala to reward them for giving life to the Arvari river. CSE organised a function for the presentation of an award for the most outstanding effort in environmental regeneration, given to the villages of Bhaonta-Kolyala. For the first time, the President of India had visited a village to honour people, as against the time-honoured custom of people going to the Rashtrapati Bhawan to receive an award. The visit of the President, ensured that the Rajasthan Governor, Anshuman Singh, and Chief Minister, Ashok Gehlot, also visited the village to honour its work. The President praised the outstanding efforts of the villagers and said that this would be an inspiration for the rest of India.

The award has been instituted by Dr Madhu John, in the name of his father, Joseph C John, an avid environmentalist. The award carries a cash prize of Rs 1 lakh which was given to the gram sabha of Bhaonta-Kolyala. Dr Madhu John had flown down from the US especially for the event. Mingling with a number of state government officials were hundreds of villagers who had thronged to see the President arriving in his helicopter.

Bhaonta-Kolyala and the neighbouring villages in Alwar, through their work in rainwater harvesting, have shown that it is possible to revive water sources and this is a source of hope for the whole of rural India. The *johads* built by the people of Bhaonta-Kolyala are an effort to capture the meagre 500-600 millime-

Excellence recognised



• It was another milestone for *Down To Earth*. When the Mayaram Surjan Foundation decided to set up awards to recognise the work of the alternative media in India and on the 25th of June 1999, former Prime Minister of India I K Gujral gave away the Mayaram Surjan Foundation Award in the third All India Journal Competition 1999 to *Down To Earth*.

• Richard Mahapatra, Senior Correspondent *Down To Earth*, received the Press Institute of India's best feature in rural reporting in November 1999 for *Down To Earth's* cover story on community-based forest management. The former Prime Minister I K Gujral presented the award in May 2000. The award carried a cash prize of Rs 5,000 and a citation.

tres of rain that falls in this region. These structures allow water to slowly seep into the ground, raising the watertable steadily and replenishing the wells.

The award and the process

To choose the most outstanding environmental effort was by all means a daunting task. There were several worthy candidates.

To begin with, the award focussed on individuals. Realising that there were several awards in India to honour individual efforts, *Down To Earth* decided to highlight community efforts. Such initiatives are often hidden from media attention because it is a collective effort and it is difficult to isolate one single heroic personality who stands out.

More than 1,000 missives were sent to environmentalists across the country, soliciting



JOSEPH C JOHN

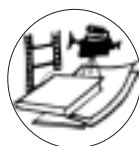
Man with a mission

Joseph C John founded Friends of The Trees, India's first environmental society, in 1957. He had the foresight to anticipate the kind of pollution problems India faces today. John was at the forefront of the Save Silent Valley campaign, the first environmental movement to succeed in India. In 1976, John made the first legal move against the

Silent Valley hydroelectric project in the Kerala High Court.

He aspired to see a rejuvenation of the greens in the concrete jungle of Bombay, now called Mumbai. He pressurised the Bombay Municipal Corporation to incorporate in its development rules a proviso for the compulsory planting of at least six trees at every new construction site. His efforts met with resounding success. An important contribution of his was to get the Maharashtra government to enact the Preservation of Trees Act and to appoint a Tree Authority.

As editor of *Vanashobha*, a journal published by the Mumbai-based organisation Friends of the Trees, from 1957 to 1976 and of *Tree India* from 1976 to 1998, John has worked towards propagating a love for plant life and the need to protect the environment among senior citizens and the younger generation. The award has been instituted by *Down To Earth* through the funds provided by the trust formed in his name.



President K R Narayanan presenting the *Down To Earth*-Joseph C John award to the village community of Bhaonta-Kolyala

their nominations. There were 149 entries in all, 106 of which were for individuals. Reporters and stringers attached with *Down To Earth* then visited the nominated candidates that made through the first shortlisting. The shortlisted ones — 35 in all — were for efforts spread out across the country, from Kashmir to Kerala and Nagaland to Rajasthan.

The elaborate reports were put before a jury broadly representative of the Indian civil society. The panel comprised of N C Saxena, secretary to the Planning Commission; Kamla Chowdhry, Vikram Sarabhai Foundation Anupam Mishra, head of the environmental

What they said...

"The people of Bhaonta-Kolyala have shown how development is possible without harming the environment. The extraordinary effort of this village in Rajasthan can be compared with the achievement of King Bhagirath, who, according to Hindu legend, brought the Ganga to Earth. The most significant aspect of their effort is that they remembered the water needs of villages downstream. I would like to congratulate the people of this village. Their initiative and self-reliance is an example and an inspiration to the rest of rural India. This work will provide direction to the entire country." K R Narayanan, the President of India

"The effort of the villagers of Bhaonta-Kolyala in reviving the traditional water harvesting system is especially noteworthy given the fact that in Rajasthan, there are still 26,000 *gram sabhas* facing drought." Justice Anshuman Singh, Governor of Rajasthan

"The President's visit will provide great encouragement to environmentalists in the state. If all the villages of the country worked on rainwater harvesting, the state of the entire country can be changed." Ashok Gehlot, Chief Minister of Rajasthan

cell of the Gandhi Peace Foundation; Rahul Dev, eminent media personality; and Vikram Lal, trustee of the Vikram Sarabhai Foundation. The panel debated and discussed the merit of each and every nomination.

After a series of consultations, the community of Bhaonta-Kolyala village emerged the winner.

A pilgrim's progress : Anil Agarwal reports...

It was a sight from the air that nobody could miss. The barrenness of the Aravalli hills stretching out from Delhi to Alwar is something President K R Narayanan could not help remark about, as his helicopter made its way to Hamirpura village.

I also showed him the dry agricultural fields that lay between the hills, obviously short of water because of the serious drought the state has been suffering for two years in a row. Otherwise, March-end is a time when the *rabi* (winter) crop should have been swaying in the fields.

Suddenly, after some time, we saw green fields stretching across the landscape. There must be groundwater here, I said to the President. And then I realised we were there, at our destination: we were seeing the lush green and yellow fields of Hamirpura and other villages of the Arvari watershed which had undertaken water harvesting. None of the eight people on the helicopter needed any convincing about the value of rainwater harvesting after that and the remarkable achievement of the villagers. A happy Chitra Narayanan, the President's daughter, a serving diplomat, said, "It was like seeing an oasis," as soon as she got off the aircraft.

The President, too, was thrilled. "You know," he said to me while returning, "you have convinced me for a long time of the importance of rainwater harvesting. But I must say there is nothing like actually seeing it on the ground. It has been a

memorable day for me." He thanked me so many times for inviting him to come to the village that he would not even let me thank him for coming to the village — possibly a presidential first because we are not aware of any President having gone to a village to honour it for its work. Everybody comes to Rashtrapati Bhawan to get awards from the President. Only someone like President Narayanan could have done something like this.

If there were any regrets he had, there were only two. One, he could not go by car, which, in fact, we would have dissuaded him against because of the pressure that a full day journey would have put on him, and two, that the local security did not allow him a chance to sit and spend some time with the villagers. It was, as Rajendra Singh of Tarun Bharat Sangh said in his vote of thanks, "It was a *tirtha-yatra*." And, most of all, the President, too, felt that way.

And what did the villages of Bhaonta-Kolyala and Hamirpura tell all of us: that there is no single village, I repeat, no single village in the country which cannot quench its own thirst and that of its fields through rainwater harvesting. Villagers can do it themselves. They just need some education and catalytic support. Nothing more. It is a very inspiring thought, one which generates enormous hope in what is otherwise becoming a water-starved country.

A big thank you: Extensive media coverage

The media coverage of the event was extensive and major newspapers like The Hindustan Times, The Times of India, The Statesman, The Hindu, The Economic Times, Business Standard and TV channels NDTV News, Doordarshan and Jain TV covered the event.

- Water Harvesting Community led Natural resource management in *Ilea* Vol 16, No 1, March 2000
- Narayanan to felicitate Rajasthan villagers in *The Hindu*, March 28, 2000
- President to visit miracle river in *The Hindu*, March 16, 2000
- World to face water crisis Narayanan, in *The Times Of India*, New Delhi, March 29, 2000
- Not President but copters excite villagers, in *Asian Age*, New Delhi, March 31, 2000
- A village revives a dying river, in *Business Standard*, New Delhi, March 31, 2000
- A miracle called 'johads', in *The Hindu*, New Delhi, March 30, 2000
- President calls for adopting of water conservation steps, in *The Indian Express*, New Delhi, March 29, 2000
- Villagers turn arid lands of Rajasthan green, in *The Hindustan Times*, New Delhi, March 29, 2000
- Our Prez also goes to a village, in *The Economic Times*, New Delhi, March 29, 2000
- Environment Award, in *The Tribune*, March 29, 2000
- President presents village award for saving a river, in *Business Standard*, March 29, 2000
- A small miracle in the desert state, in *The Statesman*, New Delhi, March 29, 2000
- A manmade oasis in arid country, in *The Times of India*, New Delhi, March 29, 2000
- Village gets environment work award, in *Asian Age*, New Delhi, March 29, 2000
- Environment award, in *The Statesman*, New Delhi, March 29, 2000
- President praises villagers' initiative, in *The Hindu*, New Delhi, March 29, 2000
- Old technique rescues villagers, in *The Pioneer*, New Delhi, March 29, 2000
- Check out these dams, in *The Financial Express*, New Delhi, April 2, 2000.

Behind the scenes

A human look at Down To Earth...

You don't need to kill time in the Science and Environment Reportage (SER) unit of CSE; it flies past your head, hits the wall, rolls over and dies. Even time becomes a casualty. It falls victim



L-R : Chawii, Kazu, Richard, Kumkum

to the confusion that reigns over the second floor. But there is a method behind the madness here. Even the confusion and the chaos have to be scheduled. A morning meeting ensures that reporters know what they are supposed to do finish off by the end of the day. Copyeditors promise to deliver pages by the evening and suddenly realise they have other obligations, like sourcing information from the net, fishing stories out from the bulletin board and seeking story and edit ideas from their lateral and senior colleagues. A lot of hard work and a lot of research goes into every report.

The SER is sandwiched between the library and the research sections, getting information from both sides to prepare and tellingly package the environmental message. The various library sections have taken it as their sacred duty to dish out environmental information in large and regular doses to feed our gargantuan appetites. Kazu decides that the canteen is a better place to feed. He has had one too many of the library alerts — the email alert, the article alert, the journal alert, the book alert and what not. Kumkum and Chawii hotfoot it to the Ministry of Environment to try and get an interview.

We are just beginning to recover from this information overload when Anumita comes rushing in with yet another hot news-break. She says its too hot to keep, you have to recall the pages from the press and put this story in. Sopan runs for cover. He does

not want to be smothered by the tiny killers. In the corner, Anju is conspiring with Rustam for her latest expose' on the skullduggery of the US negotiators. Indira is busy convincing Richard that he must drop all other assignments to go to Rajasthan to write about yet another miracle river revived by Tarun Bharat Sangh. Richard tells Indira, "I have already written about five new rivers. Now I am off to Gujarat to write about the check dams." Not to be left behind, Nair comes in shouting, "Boss, another external contribution of 10,000 words. We have to schedule it in the next issue." Ajit decides that the best way to restore order is to call a meeting. Everyone scurries to their desks to meet their deadlines.

The SER staff are regular tightrope artists trying to put 200 pages worth of information in 56 pages without losing the punch and keeping the gist in place. AND, they do this every 7th and 22nd of the month. But at what cost? Copyeditors go berserk; reporters drive their sources crazy forcing them to answer queries for the desk and the phone goes dead. Mr. Nair adds spice to life by telling everyone that Admin has decided to disconnect the DTE phone.



L-R : Sopan, Mridula, Jeevan, Ajit

It is 11.00 pm. There is a lot to happen still. Amit Shanker the photographer walks in. "Boss I have new pictures for all the sections," he says. And he proceeds to replace all of them. Mridula runs in to give new captions. Her fingers fly across the keyboard. Dodging mosquitoes Jeevan grabs the analysis pages and signs them off with a flourish. By now it is 2.00 am. The cover is yet to go. The leader has been cleared. But the deadline has expired and the team wish they were dead.

Name of ecotour	Schools that participated
The Yamuna-Yuk ride	Deepayan Vidya Niketan, Pitampura; Delhi Public School, Dwarka and British School, Chanakyapuri
Water Walk	Delhi Public School, NOIDA; Amity Int. School, Saket; Meera Model School, Janakpuri; Ramjas School, Anand Parbat; Deepayan Vidya Niketan, Pitampura; Delhi Public School, R.K. Puram; St Mary's School, Safdarjung Enclave; Butterflies; Greenfields School, Safdarjang Enclave
Jungle Jog	Delhi Public School, R.K. Puram
Raising a Stink	Deepayan Vidya Niketan, Pitampura; Delhi Public School, R.K. Puram; St. Mary's School, Safdarjung Enclave; Pratibha Vikas Vidyalaya, Rohini; Guru Harkrishen Public School, Fateh Nagar

'how much rainwater can we store?'
'how did people carry water from here?'

In a break from the usual, the education unit worked with Butterflies, an NGO that works with street children to give a day's outing and also teach them about ecology as part of the treat.

Raising a Stink: The new tour that has been recently initiated teaches children about waste management. Students are taken to the Bhalswa landfill site and the plastic recycling factory at Mongolpuri. They were forced to think about these issues for the first time and see for themselves what happens to the monumental waste that all of us are responsible for. Here is a sample of their reactions:

'what can we learn in this trash?'
'don't these workers fall ill?'
'how can they bear to work here?'
'can we contract infection from this filth?'

Several tours were conducted to see the Bhalswa landfill site and plastic recycling factory at Mongolpuri. Some of the schools, which participated, were the Deepayan Vidya Niketan and DPS, R K Puram, Pratibha Vikas Vidyalaya, Rohini and the Presentation Convent. An AV presentation on waste management was given before the start of the tour and each student was also given an info-kit on waste. Another ecotour on waste was conducted to see the Sulabh International Museum. Students of St Mary's school and Guru Harkrishen Public School, Fateh Nagar, participated.

As a result of CSE activities with schools, students of the Shri Ram School, Vasant Vihar organised a programme where the students had put up posters and presentations on the need to harvest rainwater. The Deepayan Vidya Niketan students organised a play showing the past, present and the future of Delhi.

CSE staff visited the Bal Bharti Public School, Pitampura and Guru Harkrishen Public School, Fateh Nagar and India Gate to give lectures on environmental issues to the children.

The unit is now preparing for the ecotour on the Delhi Ridge.

Gobar Times

The children's' magazine, *Gobar Times* was produced regularly. A special edition of the magazine was also published entirely by students on the issue of air pollution during the Auto Expo, in January 2000.

Streetfighters: Children at the CSE stall at the Auto Expo

The Environment Education Unit organised events for children to participate in the CSE campaign against diesel at the Auto Expo.

A child's imprint

More than 300 children participated in a painting competition organised at the CSE stall at the Auto Expo on January 15, 2000. Their innovative drawings centred around three themes: 1. *Design your own green, clean 'futuristic' vehicle*, 2. *Scene at a major road crossing in Delhi in the year 2025*, and



Looking outward: Lectures and presentations

- July 1999: Presentation at National Foundation of India and at Salwan Public School
- August 1999: Presentation at DPS Mathura Road on Water Harvesting
- September 1999: Students of DPS, R.K. Puram visited CSE to see its water harvesting system on two days.
- October 1999: Presentation to children at a meeting organised by Butterflies, an NGO working with street Children. The unit also conducted a poster competition at Kamla Nehru College.
- November 1999: Presentation at a meeting organised at WWF;
- January 2000: Presentation at Bal Bharti Public School, Pitampura and at Guru Harkrishen Public School, Fateh Nagar
- February 2000: Presentation at Guru Harkrishen Public School, India Gate; Guru Harkrishen Public School, Punjabi Bagh; Amity Institute of Education, Saket and at YMCA.
- March 2000: Presentation at Sanskriti Pratishthan, Mehrauli



Starting young: Children participating in a painting competition at the Auto Expo 2000

3. Sketch a funny, whimsical cartoon on the current status of traffic on our roads. Vikram Lal, and Kamla Chowdhury, both from the Vikram Sarabhai Foundation judged the following as the three best entries: Rajit Kadian, Delhi Public School, Maruti Kunj; Priyanka Rastogi, Ramjas School; Lokesh, Mount Carmel School. The best entry was made into a poster to be distributed subsequently on Earth Day, 2000.

Children from different schools of Delhi reported, wrote and edited a special edition of *Gobar Times* which focussed on air pollution. The cub reporters interviewed Sheila Dikshit, the Chief Minister of Delhi and collared her to tell the public about the measures the Delhi government is taking to curb air pollution. One student asked, "The Delhi government talks a lot but doesn't do anything." Sheila Dikshit replied, "You have to nag, you have to push the government to do something. You be the leaders, we shall follow you."

Cubs bag a prize catch

The special edition of *Gobar Times* was reported, edited and designed by:

Aditi Zutshi, Delhi Public School, R K Puram, Shuba Lal, Delhi Public School, R K Puram, Namrata Kilpady, Delhi Public School, R K Puram, Adeep Cheema, Fr Agnel School, Lopa Mudra Sanyal, Fr Agnel School, Suruchi Jain, Deepayan Vidya Niketan, Anubhuti Panda, Deepayan Vidya Niketan.

The young reporters also presented a copy of the special edition of *Gobar Times* to Venu Srinivasan, President, Society of Indian Automobile Manufacturers (SIAM) on January 17, 2000. On the same day, he announced the acceptance of the principle of emission warranty for the catalytic converters of two-wheelers. The student reporters published an open letter to the Prime Minister in this special edition of *Gobar Times*.

Doing the right thing: Feedback

- *Tanmay, Noida, "I always eagerly await for each and every issue of Gobar Times. I am too young but I get upset when I see people who are very educated and well to do in their jobs/business, but they do not understand the importance of conserving animals and plants. They have action plans for earning money but no concern about the importance of environment."*
- *N Ram Gopal, Lecturer in Economics, Annamalai University, "I am interested in using a compost toilet in my house. The May 15, 1999 issue of Gobar Times, which dealt with this issue, converted me to the cause of ecological sanitation."*
- *Soumya Mukerji, Gorakhpur, "I especially appreciate Gobar Times which would surely help us to be better, ecofriendly citizens of India."*
- *P Navneeth, Student, Bangalore, "I am also in hands with you to save this planet. I hope such eco-mags replace magazines like x and y, which contain only gossip."*
- *Shyamala Sanyal, Lonavala, "I am a mother trying to raise eco-sensitive children. I think your Gobar Times is doing a great job in creating awareness about ecology and environment issues."*
- *Richard Wilk, Cultural Anthropologist, "It is by far the finest publication of the kind I have seen. Keep up the good work!"*
- *Harneeta Sandhu, Chandigarh, "Your publication is helping me save the environment in many ways. I've stopped littering around; I've stopped wasting electricity; I've started growing trees and little plants."*
- *Jaideep Singh Jethra, Pune, "I think that Gobar Times must be made a compulsory subject for children from standard 3 to 10 so that from childhood onwards they would be alerted about the causes and consequences of pollution."*
- *Tara Sriram, Bangalore, "I am a regular reader of Gobar Times and I share it with all my friends in school and now they look forward to my taking them to school."*
- *Varun, Pantancheru, "The fact that all you guys are able to do so much, so effectively in a few leaflets is appreciable. Is Gobar Times available on the net?"*

An open letter to the Prime Minister

Dear Prime Minister,

We went along to the fifth Auto-Expo to observe the car manufacturers, the consumers, and the people from the Petroleum Conservation Research Association (PCRA) and the Society for Indian Automobile Manufacturers (SIAM). Here are our views on air pollution and cars.

- Delhi's government has been forced by the Supreme Court and given orders to convert all bus engines to run on compressed natural gas (CNG). Today there are only 10 of them on Delhi's roads whereas there should be 10,000 by April 2001. And the rest of the country is choking to death too. Let's save our lungs and turn the whole of India to CNG.
- The car manufacturers we interviewed just passed the blame and their responsibility on to the consumer. They said that if the consumers are to keep their cars neat and clean and serviced then their cars would create no pollution at all. They were always saying that their car was the best.
- PCRA and SIAM said that they have set some standards which the car manufacturers have to reach and any company who doesn't meet the standards had their cars banned. When asked how many

cars they had banned, they had no answer. They also said that it was the duty of the oil companies whether the fuel is adulterated or not. They even said that it was the consumers who are really to be blamed.

- We also interviewed the consumers. Their only reply was that if they buy bad cars, then what can their maintenance measures do? Then they are also not made aware.
- The government's policy did disappoint us. Have any of your ministers or candidates got votes on the principle that they are keeping the environment pollution free? Government doesn't do anything, but only wait and see'.

I hope that after reading this letter, your government gives important thought to our concerns and takes effective measures. We hope to see ourselves in the future not wearing oxygen masks.

Thanking you,

Student Reporters,
Gobar Times



Behind the scenes

"Why have you brought us to these ruins?"...

"Why have you brought us to these ruins?" asks a puzzled schoolteacher who is accompanying 30 school kids while on an ecotour of *baolis* or stepwells, a traditional water harvesting structure, in Mehrauli. The members of the CSE Environment Education team are stumped. Now how do you explain *that!*? If you can face such seemingly challenging questions and make sense of your reply to a puzzled teacher and 30 sweaty little faces with shining, curious eyes staring at you among the remains of a 400-year-old stepwell, then the Environment Education unit (EE) at CSE has a job for you.

Explaining the concept of a city-as-an-ecosystem by taking schoolchildren for eco-tours of the city of Delhi can be both exciting and exhausting. Exciting for them, exhausting for us. Well, not really... A boat ride down the Yamuna, The Yamuna-Yuk Ride, has shock therapy value "Oh My God! I never thought it was this bad!". A stop over at the Yamuna Pushta slum on the banks of the river, an eye opener on how the poor live. A visit to a landfill site and a dark dingy plastic recycling centre in the bylanes of Delhi leaves students wide eyed about the amount of waste generated by all of us. "I had no idea what happens to all the *kachra* (waste) I throw away" exclaims a student. An early morning nature walk in the quiet misty scrub jungle of the Delhi Ridge forest is a sedative to a busy and stressed young urban mind. The hike underscores the need to preserve this last patch of natural greens in an otherwise concrete jungle.



L-R: Rustam, Pinkie

Like we said, it is fun but exhausting work. So why not equip teachers with ideas and information on these field trips and training them on doing EE in their own schools and classrooms? A teachers' manual, obviously. Comb the library for facts, talk to the 'experts', demystify their jargon, explain difficult and complex issues like ecological footprints and sustainable cities... draw clever cartoons and illustrations, make maps, diagrams, lay out pages... try out the activities with children on the ecotours and with teachers in workshops... lose sleep and hair... and send it to press... phew! Well, it is not over. Now to motivate teachers by inviting them for training workshops, introduce them to the manual and work with them on how to fit in EE amongst a packed school curriculum of regular academics, karate and *bharatnatyam!*

Someone somewhere listens and reacts. After attending one such workshop a call from an enthusiastic headmistress of Shriram School, has us address the staff of the school on EE and in consultation with CSE the school plans a complete water harvesting project for their building. The theatre group of Deepayan Vidya Niketan, a small but progressive school creates a play on the environment of Delhi based on their experiences with us.

Last but not the least producing six issues of *Gobar Times*...we are often asked how do we think up ideas for each issue on seemingly difficult and complex issues of environment and development and that too for children? Frankly, even we don't know how, what we do know is that even adults like reading *Gobar Times*...

In print

- *The Pioneer*, 23 July, 99: National parks versus people. Excerpts from Kaziranga, Living Resources chapter.
- *The Pioneer*, 27 Aug, 99: Excerpts of Tirupur story in Habitat chapter.
- *India Today*, 2 August, 99: "The fifth report is a systematic compilation of the state of our natural resources, aspects of pollution, biodiversity and their link to livelihood.
- *Frontline*, 24 September, 99: "the return to the original conception is a welcome one because it gives the document an identity of its own and makes it valuable source of reference of updated qualitative information on environment in the country."
- *The Pioneer*, 3 December, 99: Reproduced excerpts of the Veerappan and sandalwood smuggling story that appeared in the Forests chapter of SOE.
- *Business Standard*, 15 December, 99: "It is an incredibly pretty offering, The report is comprehensive in its coverage of all the big issues of the day."

And failures in urban India

While there is hope for rural India, urban environmental management is simply getting out of hand. SOE-6 introduces two new chapters – Waste and Disasters – to focus on urban solid waste management and industrial accidents. Nidhi Jamwal finds that poor solid waste management in the country has more to do with inefficiency and corruption of the municipalities than with the lack of resources.

Despite the Bhopal tragedy, industrial accidents are the order of the day in industrialised India where laws are flouted and the community is hardly made aware of the dangers in its vicinity. Kazimuddin Ahmed and Manish Tiwari, along with stringers Darshan Desai and Shiv Kumar, travel to Chennai, Mumbai, Pune, Delhi, Vadodara, Vapi and Surat to find that where the government fails, NGOs have mobilised groups to fight the filth and toxic wastes dumped in the cities. Citizens of the Civil society, Almitra Patel (Bangalore) and Bharati Chaturvedi (Delhi) encouraged the team by providing information and reviewing the numerous drafts of the Waste chapter.

Milking the earth dry

Groundwater is recklessly exploited and pollution over land is wrecking havoc with the aquifers. Groundwater overexploitation is due to apathy and faulty water management policies, of both the centre and state governments. The water chapter calls for exercising restraint with the precious resource and recharge aquifers through traditional water harvesting methods.

Cash registers: Marketing the SOEs

The fourth report, *Dying Wisdom*, published in 1997, had a print run of 2,000 copies and has been sold out. In 1999, a total of 1,512 books were sold in paperback and in hardback. It is now going for a second print run.

The Hindi edition of the book had a print run of 5,000 copies and was purchased by the Madhya Pradesh government. Some books were also bought by Tarun Bharat Sangh, an NGO in Alwar, Rajasthan.

Fouling the atmosphere

The atmosphere chapter points out the vulnerability of India in case of global warming even as the Kyoto Protocol is dithering to meet the objectives of protecting the planet by reducing the greenhouse gas emissions. The book hits out at the industrialised countries for forcing upon the world an unjust and ecologically ineffective global treaty.

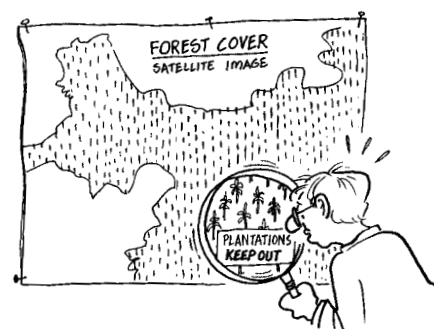
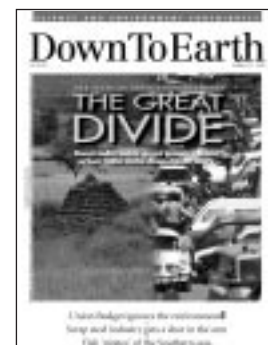
Mending ways

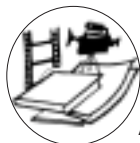
Pollution by industries is of overriding concern to environmentalists and the issue has been discussed a number of times in many courts across India. But is there a change in the attitude of the industry to make its products and process environmentally less harmful?

CSE conducted a survey and finds that the industries have mended their ways, but only due to pressure created by judicial activism and public outcry.

The statistical database companion

Beginning with the Fifth SOE report, we have begun to produce a companion volume of statistical databases on India's natural resources. The idea for putting together a database came to us a long time ago while we worked on the early SOE's and had harrowing experiences of sourcing data on natural resources. Thus was born a project of collecting data on every fact of natural resource management. We began the task of collecting district-wise information, some of them dating back to the 1950's, by sending out reporters to all corners of India. Last year, we published the first volume of the SOE database with the fifth report. During the year we worked on putting together the statistical volume for the Sixth SOE report.





Behind the scene

The grit behind the enviroscape

The year saw the transformation of the book unit into the SOE unit. The SOE-5 report which was out last year turned out to be a major success and a money-spinner as well. SOE took centre stage and here we were, 'the SOE experts'. We are told that SOE-6 is scheduled a mere 12 months away. So forget about boating in Nainital and trekking to Dalhousie. Back to the familiar territory of government department basements digging for buried data; to frantic trips from the CSE library to the plastic recycling unit of Narela to the CPCB office before it closes; to bribing Jose to keep the telephone free to conduct a telephonic interview.

Chitra is burning midnight oil to complete her forest chapter. She has not seen a single tree, she is neck-deep in a forest of files and books. Yoga decides to skip the Yamuna waters in summer and goes in search of dug-wells in Saurashtra. Having had her fill of never-heard-of-before diseases, Nidhi gets Kazu to go round the country and look at how cities (mis) manage their waste.

Then comes the time for using the power of the pen, sorry, the computer. The team begins to put

together the information collected and makes an attempt to get some order into the chapters. This is the critical period, the period when the phone never stops ringing at 231, Srini's Helpline. There is no dearth of variety in the complaints — a brand new virus has gobbled up the health chapter; dust has incapacitated the floppy drive; someone has sent a Trojan horse into Yoga's computer trying to snuff out her hot information; Chitra's hard disk crashed due to information overload.

We can almost hear the roar, WHERE ARE THE REFERENCES? All of us quickly make a beeline to Jagdeep's office and put in our requisitions for volunteers to do the referencing and verifying. Each piece of information has to be checked a minimum of 25 times. Blessed are the meek, the humble and the SOE volunteers. Volunteers are also given the task of chasing up the reviewers — by phone, post, fax and email.

We have not yet seen the light at the end of the tunnel. We still have miles to go before each chapter is finalised, referenced, indexed, glossaried, boxed, proofread and finally laid out.

SCIENCE AND ENVIRONMENT REPORTAGE

Continuing its task to keep people informed of the latest in the field of sustainable development, CSE produces detailed reports on every aspect. These reports are disseminated through *Down to Earth*, the fortnightly science and environment magazine and the feature service.

Air Pollution

CSE produced several reports on the problem of urban air pollution, in an attempt to focus attention on the twin problems of the health impacts of diesel and the privatisation of the diesel fleet. *Fatal Attraction* and *Licence to Kill* were two reports that discussed the increasing dieselisation of India and the deleterious impact of diesel on health. What was supposed to be cheap fuel for the poor is now driving the cars of the rich. The reports also highlighted the indifferent attitude of the national and multinational auto companies who are pursuing profits at the expense of the health of millions of people.

In another report, *Polluted and Ignored*, CSE analysed the problem of air pollution in the smaller cities and towns in India. These cities are far more polluted than say, cities like Delhi. But unlike Delhi, they are not in the public eye and are therefore neglected by the government.

Although data about rising levels of pollution in the ambient air of these cities is

available there are no programmes in any of these cities to counter the emerging public threats to health.

Water Pollution

CSE undertook a detailed investigation of groundwater pollution by collecting samples from several sites near industrial estates across India. *What Goes Down Must Come Up* was the result of this survey which documented the absolutely shocking state of affairs of countrywide groundwater pollution by industry. The really shocking part of the story was that factories across India are deliberately injecting untreated effluent directly into the ground water, contaminating aquifers. All samples of water collected had high levels



of heavy metals — one sample had levels of mercury 268 times higher than is considered safe by the WHO.

Going off the beaten track, CSE examined the social linkages between environment and culture and religion. The report *Pollution of Hinduism*, pointed out that while the environment is sacred to the Hindu, it is today bearing the brunt of pollution that is being brought about by religious practices. The present day Hindu has forgotten the emphasis that is laid on nature, the environment and the ecology by Hinduism. Witness the state of the sacred rivers, Ganga and Yamuna where the devout still take a dip to wash away their sins despite the polluted water.

Water Management

Looking at a broader issue of governance, CSE took up the case study of embankments in Bihar. The report, *Breach of Trust*, traced the entrenchment of embankment-building policies to control floods and the growth of corruption arising from this policy. Even as hundreds of kilometres of embankments have been built floods continue to ravage the population year after year and the common person's suffering increases manifold. Flood-prone areas and flood-related damages have increased enormously since independence.

The drought in Rajasthan and Gujarat in the summer of 2000, made headlines across the country. CSE staff brought back news of the impending drought as early as September 1999 from their travels. To find out more, CSE sent its researchers to Gujarat and Rajasthan to document the problem in detail. They found proof that small water harvesting systems are a good and sure way to protect against drought. Villages that had constructed small check dams and harvested water were able to withstand the drought and sometimes even have water for irrigation. Less than 15 km from such villages, those villages which had not

conserved water were witnessing mass migration and food scarcity.

CSE's report, *Harvest of Hope* documented this in detail and recorded the success stories of Hardevsinh B Jadeja, the *sarpanch* of Raj Samadhiyala village, Gujarat and Harnath Jagawat, director, of N M Sadguru Water and Development Foundation. CSE also organised a public meeting on the topic and invited them to present their experiences.

Forest Management

CSE has consistently been advocating a participatory way of managing natural resources. To highlight the need for participatory forest management, CSE sent out its staff to travel across Orissa, Nepal and Andhra Pradesh to examine the successes or failures of participatory forest management.

Although there is a large programme of Joint Forest Management in Orissa, the people of Kesharpur village have broken away from this half-baked scheme and have taken their destiny into their hands. They have been protecting their forests for the past three decades and as a result there is verdant forest in the midst of barren lands. *On the War Path*, a report documents the efforts of the villagers who have protected nearly 400,000 hectare of forest.

CSE staff also went to Nepal to look at the Nepal experience. In 1993 the Nepal government, in a break from the past, gave some of the forest lands to rural communities. While government-managed forest lands are getting degraded day by day, those managed by the communities are getting better. *The Nepal Experience* reports on the efforts of rural communities in Nepal that are working to regenerate the depleted forest cover.

Biodiversity and Wildlife Management

CSE's position has been that the flawed wildlife management policies being followed



A model village

Richard Mahapatra tells the tale of Kesharpur villagers and their dedication towards the forest

Kesharpur in Orissa's Nayagad district is a tiny village, difficult to point out on a map. However, the people of this village have established an identity of their own by protecting a forest for the last three decades.

During the 1970's, timber smugglers stripped the village of its green cover. Natural streams dried up leading to recurrent droughts. The agricultural economy of the village collapsed. A university professor came to the village with the aim of saving the depleting forest. Villagers took up the cause of guarding the forest from timber smugglers and stopping stray grazing. They formed an organisation called *Brikshya-o-Jibara Bandhu* (friends of trees and living beings).

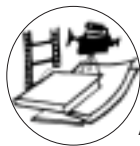
Even today villagers take turns at protecting the forest. They go out in pairs to keep watch over their resources and when they come back they hand over the batons to a different

pair, who go out the next morning. Protecting the forest by rotation is known as *thengapalli* in their native language.

DTE reporter Richard Mahapatra found that the forest had regenerated since people took the matter into their hands. Villagers have absolute control over it — they protect, manage and share it. The district became famous for its community forestry. But the government refused to recognise it and termed it illegal.

The villagers feel proud when they welcome visitors from as far off as Australia. And an overnight guest has the privilege of planting a tree in the school compound.

The dedication of the villagers in managing their natural resources for the last three decades inspired the education department of Hampshire County in United Kingdom (UK) to publish a book on Kesharpur — *Thengapalli*.



by the Government of India, have resulted in a state where most of the major species are well on the way to extinction. The policy of creating protected parks has only resulted in alienating the people. *Blues for the Big Cats* exposes the attitude of government *babus* who are unwilling to take any concrete action, despite the tiger's endangered status.

Examining an issue that has been little reported on, CSE produced a report, *The Milk that Ate the Grass*, that showed how the country's vast cattle population and development projects like the colossal Indira Gandhi canal in Rajasthan have adversely affected the grasslands of India. Of the 400 grass varieties found in India, some very valuable native ones may soon be lost due to mismanagement.

Corals often are the first indicators of environmental degradation. The report, *Neptune's Sorrow*, highlights the steady depletion of corals and the fact that human activity is gobbling them up. Corals are to the oceans what tropical rainforests are to land. And yet, little is being done to protect this precious resource.

Health and Environment

CSE prepared a detailed report on the silent but deadly killer disease, Kala-Azar, the black fever. Entitled, *The Black Fever*, the article points out that the state of Bihar accounted for 96 per cent of all cases of *Kala Azar* reported in the country in 1994. The numerous embankments in the state have resulted in waterlogging and marshy areas, providing

ideal spawning ground for the disease carrying sandfly. *A Deformed Existence* reports on the health impact of the nuclear establishment in Jaduguda and Rawatbhata where physical deformities are a way of life.

Looking at the impact of the deteriorating civic facilities in cities and towns across the country, *Garbage: Your Problem*, is a detailed report on solid waste management in India. The silver lining in the cloud is that several NGOs are showing the way to handle the problem by garbage as a resource.

Pointing the way: Policy reports

CSE was the first to report on the possible impacts of the fast receding of Himalayan glaciers — increase in incidents of landslides, changes in river regimes and floods. The report *Beating Retreat* won us kudos from other scientific magazines.

Gone with the Wind analyses why the programme on harnessing wind energy has not progressed in India and states that this is an important area of the future.

On celluloid...

The Centre produced three video films on water management. These films were screened at the CSE exhibition at the Second World Water Forum, The Hague in March 2000.

- *Arvari*: The film talks about the unique work undertaken by the villagers in Alwar district under the guidance of Tarun Bharat Sangh in reviving the traditional



Doing the right thing: Feedback

- Charu Uppal, student, Pennsylvania State University, "I am amazed at how much information you put in one issue of DTE, I have cited CSE's documents in my thesis. Other than being informational, I think DTE is doing a great service by informing us of our cultural heritage that relates to the environment. I am especially impressed by Gobar Times, since it is directed towards the young and shapes their attitudes towards the environment."
- Shantu@jsr.tatasteel, "I have been an avid reader of our mag for the last three years. It is no doubt the best readable and relevant magazine that I have come across, not only in terms of environment but also in matters of socially relevant issues. Gobar Times has also proved to be a source of joy for all youngsters that I am in contact with. Wishing you many more years of quality service to Indian society through your unparalleled magazine."
- Vipin Bhatnagar, "Do you think it is possible for anyone to do away with a magazine like Down To Earth? I think, "NOT". In fact, I first saw this magazine in the house of one of my friends. He had borrowed it, from one of his friends to prepare for an interview. I fell in love with this magazine the moment I laid eyes on it. This magazine satiates the hunger of the human mind about environmental issues."
- Shekar K Niraj, "I wish to say that despite working with the government, I am a staunch admirer of your magazine and the great cause it is serving. This magazine must continue even if the readership may be small."
- K V Ramana Murthy, AP Pollution Control Board, "I came to know from "Down To Earth" about chemical contamination of food carried in polybags. I have since stopped using plastic and buying anything packed in plastic sachets. I am propagating disuse of plastic bags and containers among my friends by educating them about the health hazards and environmental degradation caused by polybags."
- Shanshank Harshita, Ponda, Goa, "By now I think have become a member of the CSE family. DTE has changed my way of thinking about the environment and science. I went through the recent article in Down To Earth "Dirty River Blues" and was delighted to read about children getting involved in environment related issues. It shows that children can effectively be involved to save the environment."
- V K Uniyal, Conservator of Forests, "I enjoy reading DTE not merely because it keeps me updated on all relevant issues concerning our environment, but also because its imaginative layout, designing, photo-section, and graphics are superb. My daughters find Gobar Times fascinating and informative."
- K S Raman, Secretary, Tirunelveli Wildlife Association, "I would like to congratulate your editor for bringing out such an informative magazine, which is a necessity in the present modern times where pollution is taking over the country."

technology of harvesting rainwater. The river Arvari which was once just a seasonal stream has been dramatically made perennial.

- *Jhabua*: This is a film on the innovative effort undertaken by a state government that illustrates the powerful role that the state can play in bringing prosperity to the country if they limited their role to being a facilitator.
- *Downstream*: A film that illustrates through case studies the interaction between upstream and downstream users of a river. Upstream users have to be mindful of the fact that the river is also the property of people downstream while using or misusing the river.

Kudos

The fortnightly *Down To Earth* published a cover story on Himalayan glaciers. *New Scientist* reporter Fred Pearce picked up the article and termed it as "an excellent article on Himalayan glaciology".

A unique honour for an unparalleled feat: The Down To Earth-Joseph C John award

The President of India, Shri K R Narayanan, visited the twin villages of Bhaonta-Kolyala to reward them for giving life to the Arvari river. CSE organised a function for the presentation of an award for the most outstanding effort in environmental regeneration, given to the villages of Bhaonta-Kolyala. For the first time, the President of India had visited a village to honour people, as against the time-honoured custom of people going to the Rashtrapati Bhawan to receive an award. The visit of the President, ensured that the Rajasthan Governor, Anshuman Singh, and Chief Minister, Ashok Gehlot, also visited the village to honour its work. The President praised the outstanding efforts of the villagers and said that this would be an inspiration for the rest of India.

The award has been instituted by Dr Madhu John, in the name of his father, Joseph C John, an avid environmentalist. The award carries a cash prize of Rs 1 lakh which was given to the gram sabha of Bhaonta-Kolyala. Dr Madhu John had flown down from the US especially for the event. Mingling with a number of state government officials were hundreds of villagers who had thronged to see the President arriving in his helicopter.

Bhaonta-Kolyala and the neighbouring villages in Alwar, through their work in rainwater harvesting, have shown that it is possible to revive water sources and this is a source of hope for the whole of rural India. The *johads* built by the people of Bhaonta-Kolyala are an effort to capture the meagre 500-600 millime-

Excellence recognised



• It was another milestone for *Down To Earth*. When the Mayaram Surjan Foundation decided to set up awards to recognise the work of the alternative media in India and on the 25th of June 1999, former Prime Minister of India I K Gujral gave away the Mayaram Surjan Foundation Award in the third All India Journal Competition 1999 to *Down To Earth*.

• Richard Mahapatra, Senior Correspondent *Down To Earth*, received the Press Institute of India's best feature in rural reporting in November 1999 for *Down To Earth's* cover story on community-based forest management. The former Prime Minister I K Gujral presented the award in May 2000. The award carried a cash prize of Rs 5,000 and a citation.

tres of rain that falls in this region. These structures allow water to slowly seep into the ground, raising the watertable steadily and replenishing the wells.

The award and the process

To choose the most outstanding environmental effort was by all means a daunting task. There were several worthy candidates.

To begin with, the award focussed on individuals. Realising that there were several awards in India to honour individual efforts, *Down To Earth* decided to highlight community efforts. Such initiatives are often hidden from media attention because it is a collective effort and it is difficult to isolate one single heroic personality who stands out.

More than 1,000 missives were sent to environmentalists across the country, soliciting



JOSEPH C JOHN

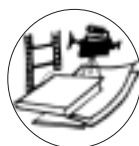
Man with a mission

Joseph C John founded Friends of The Trees, India's first environmental society, in 1957. He had the foresight to anticipate the kind of pollution problems India faces today. John was at the forefront of the Save Silent Valley campaign, the first environmental movement to succeed in India. In 1976, John made the first legal move against the

Silent Valley hydroelectric project in the Kerala High Court.

He aspired to see a rejuvenation of the greens in the concrete jungle of Bombay, now called Mumbai. He pressurised the Bombay Municipal Corporation to incorporate in its development rules a proviso for the compulsory planting of at least six trees at every new construction site. His efforts met with resounding success. An important contribution of his was to get the Maharashtra government to enact the Preservation of Trees Act and to appoint a Tree Authority.

As editor of *Vanashobha*, a journal published by the Mumbai-based organisation Friends of the Trees, from 1957 to 1976 and of *Tree India* from 1976 to 1998, John has worked towards propagating a love for plant life and the need to protect the environment among senior citizens and the younger generation. The award has been instituted by *Down To Earth* through the funds provided by the trust formed in his name.



President K R Narayanan presenting the *Down To Earth*-Joseph C John award to the village community of Bhaonta-Kolyala

their nominations. There were 149 entries in all, 106 of which were for individuals. Reporters and stringers attached with *Down To Earth* then visited the nominated candidates that made through the first shortlisting. The shortlisted ones — 35 in all — were for efforts spread out across the country, from Kashmir to Kerala and Nagaland to Rajasthan.

The elaborate reports were put before a jury broadly representative of the Indian civil society. The panel comprised of N C Saxena, secretary to the Planning Commission; Kamla Chowdhry, Vikram Sarabhai Foundation; Anupam Mishra, head of the environmental

What they said...

"The people of Bhaonta-Kolyala have shown how development is possible without harming the environment. The extraordinary effort of this village in Rajasthan can be compared with the achievement of King Bhagirath, who, according to Hindu legend, brought the Ganga to Earth. The most significant aspect of their effort is that they remembered the water needs of villages downstream. I would like to congratulate the people of this village. Their initiative and self-reliance is an example and an inspiration to the rest of rural India. This work will provide direction to the entire country." K R Narayanan, the President of India

"The effort of the villagers of Bhaonta-Kolyala in reviving the traditional water harvesting system is especially noteworthy given the fact that in Rajasthan, there are still 26,000 *gram sabhas* facing drought." Justice Anshuman Singh, Governor of Rajasthan

"The President's visit will provide great encouragement to environmentalists in the state. If all the villages of the country worked on rainwater harvesting, the state of the entire country can be changed." Ashok Gehlot, Chief Minister of Rajasthan

cell of the Gandhi Peace Foundation; Rahul Dev, eminent media personality; and Vikram Lal, trustee of the Vikram Sarabhai Foundation. The panel debated and discussed the merit of each and every nomination.

After a series of consultations, the community of Bhaonta-Kolyala village emerged the winner.

A pilgrim's progress : Anil Agarwal reports...

It was a sight from the air that nobody could miss. The barrenness of the Aravalli hills stretching out from Delhi to Alwar is something President K R Narayanan could not help remark about, as his helicopter made its way to Hamirpura village.

I also showed him the dry agricultural fields that lay between the hills, obviously short of water because of the serious drought the state has been suffering for two years in a row. Otherwise, March-end is a time when the *rabi* (winter) crop should have been swaying in the fields.

Suddenly, after some time, we saw green fields stretching across the landscape. There must be groundwater here, I said to the President. And then I realised we were there, at our destination: we were seeing the lush green and yellow fields of Hamirpura and other villages of the Arvari watershed which had undertaken water harvesting. None of the eight people on the helicopter needed any convincing about the value of rainwater harvesting after that and the remarkable achievement of the villagers. A happy Chitra Narayanan, the President's daughter, a serving diplomat, said, "It was like seeing an oasis," as soon as she got off the aircraft.

The President, too, was thrilled. "You know," he said to me while returning, "you have convinced me for a long time of the importance of rainwater harvesting. But I must say there is nothing like actually seeing it on the ground. It has been a

memorable day for me." He thanked me so many times for inviting him to come to the village that he would not even let me thank him for coming to the village — possibly a presidential first because we are not aware of any President having gone to a village to honour it for its work. Everybody comes to Rashtrapati Bhawan to get awards from the President. Only someone like President Narayanan could have done something like this.

If there were any regrets he had, there were only two. One, he could not go by car, which, in fact, we would have dissuaded him against because of the pressure that a full day journey would have put on him, and two, that the local security did not allow him a chance to sit and spend some time with the villagers. It was, as Rajendra Singh of Tarun Bharat Sangh said in his vote of thanks, "It was a *tirtha-yatra*." And, most of all, the President, too, felt that way.

And what did the villages of Bhaonta-Kolyala and Hamirpura tell all of us: that there is no single village, I repeat, no single village in the country which cannot quench its own thirst and that of its fields through rainwater harvesting. Villagers can do it themselves. They just need some education and catalytic support. Nothing more. It is a very inspiring thought, one which generates enormous hope in what is otherwise becoming a water-starved country.

A big thank you: Extensive media coverage

The media coverage of the event was extensive and major newspapers like The Hindustan Times, The Times of India, The Statesman, The Hindu, The Economic Times, Business Standard and TV channels NDTV News, Doordarshan and Jain TV covered the event.

- Water Harvesting Community led Natural resource management in *Ilea* Vol 16, No 1, March 2000
- Narayanan to felicitate Rajasthan villagers in *The Hindu*, March 28, 2000
- President to visit miracle river in *The Hindu*, March 16, 2000
- World to face water crisis Narayanan, in *The Times Of India*, New Delhi, March 29, 2000
- Not President but copters excite villagers, in *Asian Age*, New Delhi, March 31, 2000
- A village revives a dying river, in *Business Standard*, New Delhi, March 31, 2000
- A miracle called 'johads', in *The Hindu*, New Delhi, March 30, 2000
- President calls for adopting of water conservation steps, in *The Indian Express*, New Delhi, March 29, 2000
- Villagers turn arid lands of Rajasthan green, in *The Hindustan Times*, New Delhi, March 29, 2000
- Our Prez also goes to a village, in *The Economic Times*, New Delhi, March 29, 2000
- Environment Award, in *The Tribune*, March 29, 2000
- President presents village award for saving a river, in *Business Standard*, March 29, 2000
- A small miracle in the desert state, in *The Statesman*, New Delhi, March 29, 2000
- A manmade oasis in arid country, in *The Times of India*, New Delhi, March 29, 2000
- Village gets environment work award, in *Asian Age*, New Delhi, March 29, 2000
- Environment award, in *The Statesman*, New Delhi, March 29, 2000
- President praises villagers' initiative, in *The Hindu*, New Delhi, March 29, 2000
- Old technique rescues villagers, in *The Pioneer*, New Delhi, March 29, 2000
- Check out these dams, in *The Financial Express*, New Delhi, April 2, 2000.

Behind the scenes

A human look at Down To Earth...

You don't need to kill time in the Science and Environment Reportage (SER) unit of CSE; it flies past your head, hits the wall, rolls over and dies. Even time becomes a casualty. It falls victim



L-R : Chawii, Kazu, Richard, Kumkum

to the confusion that reigns over the second floor. But there is a method behind the madness here. Even the confusion and the chaos have to be scheduled. A morning meeting ensures that reporters know what they are supposed to do finish off by the end of the day. Copyeditors promise to deliver pages by the evening and suddenly realise they have other obligations, like sourcing information from the net, fishing stories out from the bulletin board and seeking story and edit ideas from their lateral and senior colleagues. A lot of hard work and a lot of research goes into every report.

The SER is sandwiched between the library and the research sections, getting information from both sides to prepare and tellingly package the environmental message. The various library sections have taken it as their sacred duty to dish out environmental information in large and regular doses to feed our gargantuan appetites. Kazu decides that the canteen is a better place to feed. He has had one too many of the library alerts — the email alert, the article alert, the journal alert, the book alert and what not. Kumkum and Chawii hotfoot it to the Ministry of Environment to try and get an interview.

We are just beginning to recover from this information overload when Anumita comes rushing in with yet another hot news-break. She says its too hot to keep, you have to recall the pages from the press and put this story in. Sopan runs for cover. He does

not want to be smothered by the tiny killers. In the corner, Anju is conspiring with Rustam for her latest expose' on the skullduggery of the US negotiators. Indira is busy convincing Richard that he must drop all other assignments to go to Rajasthan to write about yet another miracle river revived by Tarun Bharat Sangh. Richard tells Indira, "I have already written about five new rivers. Now I am off to Gujarat to write about the check dams." Not to be left behind, Nair comes in shouting, "Boss, another external contribution of 10,000 words. We have to schedule it in the next issue." Ajit decides that the best way to restore order is to call a meeting. Everyone scurries to their desks to meet their deadlines.

The SER staff are regular tightrope artists trying to put 200 pages worth of information in 56 pages without losing the punch and keeping the gist in place. AND, they do this every 7th and 22nd of the month. But at what cost? Copyeditors go berserk; reporters drive their sources crazy forcing them to answer queries for the desk and the phone goes dead. Mr. Nair adds spice to life by telling everyone that Admin has decided to disconnect the DTE phone.



L-R : Sopan, Mridula, Jeevan, Ajit

It is 11.00 pm. There is a lot to happen still. Amit Shanker the photographer walks in. "Boss I have new pictures for all the sections," he says. And he proceeds to replace all of them. Mridula runs in to give new captions. Her fingers fly across the keyboard. Dodging mosquitoes Jeevan grabs the analysis pages and signs them off with a flourish. By now it is 2.00 am. The cover is yet to go. The leader has been cleared. But the deadline has expired and the team wish they were dead.

TELCO files a Rs 100-crore suit against Anil Agarwal and Sunita Narain

The Tata Engineering and Locomotive Company (TELCO) filed a 100-crore legal suit against Anil Agarwal and Sunita Narain, for an article they wrote against the current trend in the automobile industry to sell diesel cars. In the article the authors pointed to the growing evidence that diesel exhaust has some of the strongest carcinogens in the world and several countries were tightening regulations against diesel vehicles. TELCO has said that a picture carried with the article had singled out the company as a polluter.

TELCO's notice came at a time when the Supreme Court is already hearing a recommendation from the Environmental Pollution (Prevention and Control) Authority suggesting a ban on private diesel cars. TELCO subsequently withdrew the lawsuit after CSE went public about the indifferent attitude of auto companies to public health.

TELCO says, we are sorry...

The Rs 100-crore suit was withdrawn with a letter of apology after TELCO came to know that Agarwal was a member of the EPCA and the press widely reported it. Here is an excerpt from the letter...

- "You (CSE) stated, we remain deeply concerned by the dangers posed by the toxicity of diesel emissions and its impact on public health..."
- TELCO categorically affirms that it has no grievance at all with the Centre (CSE) which is working for a public cause. Our notice to you individually was based on your names appearing as the author of the *Business Standard* article...
- Here, as the solicitors of TELCO, we must explain that when we issued the notice we were not aware that one of the authors of the article, viz Anil Agarwal, was the member of the Bhurelal committee nor were we aware that the committee submitted its report on April 1999. We understand that the notice was hand-delivered to you at the Centre on 16th April (the day when the Supreme court was hearing the case on the committee report)...
- In view of your explanation, TELCO has conveyed to us that there would be no question of any proceedings against you...

May 1999: We publish Engines of the devil: Monograph on dirty diesel

To meet the backlash of resistance from the industry on the diesel issue, CSE produced a monograph on diesel, *Engines of the Devil*, which outlined all the key aspects about the use of diesel and its health impacts. The objective of this document was to sensitise people about the serious threat from toxic diesel fumes to public health and to pressurise the

What they say....

- *VK Raval, Ankleshwar* "My daughter read your article on the dangers of diesel and questioned me about the diesel driven TATA Estate that I use. After reading your article I have now decided to switch to a petrol driven vehicle within the next two months."
- *Minar Pimple, Mumbai*, "I would like to congratulate CSE for bringing out an excellent monograph on the impact of dieselisation. I fully agree that this needs to be stopped urgently. We need to take this up at the national level and pressurise the Central Pollution Control Board to act in this matter."
- On reading the monograph, *Murli Deora*, parliamentarian from Mumbai, wrote to say that he was deeply concerned and wrote to the Prime Minister. Urging the Prime Minister to intervene in the interest of public health, he says, "It is shocking to know that about 52,000 premature deaths occur in our cities every year due to particle pollution. If we followed a similar system of pollution emergency as in Mexico, Delhi would remain closed on most of the days! And we have yet to take a concrete step in controlling vehicular pollution."

government to take immediate action to curb the deadly trend towards dieselisation.

The book outlines the science behind the deadly impact of diesel, and says that health impacts are very severe because diesel engines emit extremely tiny particles. With advanced diesel technology, health impacts only get worse as advanced diesel engines emit a larger amount of tiny particles. It shows how diesel related pollutants, SPM, NO_x and ozone, have already reached alarming levels in the city and points out that it would be dangerous to allow further rise in diesel consumption in the city. Diesel already accounts for two-thirds of the total fuel consumed in Delhi.

Diesel was once considered as a 'green fuel' because it is 15-20 per cent more fuel-efficient than petrol. But in the 1990s diesel was increasingly recognised as a devil's fuel largely because of the inability of the current technology to effectively control toxic particulate emissions from diesel.

The monograph was widely distributed to experts, policymakers, captains of industry, activists, judges and others. The book was very well received and CSE received a number of letters in response to the monograph. CSE also published a report on the findings in the monograph in *Down to Earth*.

June 1999: Involving doctors and patients

On June 5, the World Environment Day, the team organised a public meeting to highlight the problem of air pollution. "We refuse to be victims of slow murder", said the participants at the public meeting held by the CSE on the World Environment Day. They had donned pollution masks as a sign of protest against the growing air pollution levels in the city.

The meeting was unique because a large number of participants were people suffering from cancer, asthma and other respiratory





CSE volunteers protest against air pollution on the World Environment Day

diseases aggravated by air pollution. Doctors and patients made presentations, voicing their frustrations against a system that gives such low priority to human health. The most vivid evidence came from Dr Naresh Trehan of Escorts Heart Hospital who provided pictures of the lungs of a person hailing from Himachal Pradesh which were a healthy pink, and the photograph of the lungs of a Delhi citizen, which, not surprisingly were a murky bluish-grey. The pictures are a dramatic evidence of the price one pays for inhaling Delhi's air.

Dr V Ramalingaswami, National Research Professor and chairperson of the CSE executive board, presented a "Statement of Concern" on behalf of 16 eminent doctors from around the country in the 'health and environment' sector.

July 1999: Industry misinformation campaign begins

As a reaction to the *Engines of the Devil*, two letters appeared in quick succession in the letters to the editor columns of *The Economic Times* and *Business Standard* (July 10 and July 15 respectively). These letters, from S G Shah, who has been a prominent industry spokesperson as the former executive director of the Society of the Indian Automobile Manufacturers (SIAM), simply sought to confuse the issue in the minds of the public and enormously underplayed the serious health risks arising from diesel.

Appalled by this attitude, CSE contacted SIAM to find out if this was the industry's stand. The executive director of SIAM, Rajat Nandi, said that Shah had written these letters in his personal capacity and this was not the industry's position.

TELCO's magazine

Paranoid over the emerging concern over harmful effects of diesel emissions that will hurt their business, the diesel industry has resorted to a misinformation campaign to mislead people about the risks from diesel fumes. The public relations agency, Burson-Marsteller-Roger Pereira, produced pamphlets espousing diesel as a green fuel and as the "fuel of the future". One of the documents — *Myths and Facts about Diesel-Update 1* — has especially taken pains to keep the "experts" anonymous. This is an attempt to hide any clue about the credibility of the so-called experts and is a clear effort simply to create confusion and mislead the public.

August-September 1999: Learning from experts and taking multinationals to task

CSE organised a lecture by Dr Shankar Prasad, the community health adviser, California Air Resources Board (CARB), to highlight the steps being taken the world over to control particulate pollution. "If small particulate pollution level in California ever reached the same levels as in Delhi today, Californian



Dr Shankar Prasad delivering a lecture at the CSE office in the India Habitat Centre

environmental authorities would have declared an emergency, shutting all emission sources in the city and taking vehicles off the road," informed Dr Shankar Prasad.

"CARB has the 'unmistakable priority of reducing urban smog to protect public health'. They have identified 173 very poisonous compounds as toxic air contaminants (TAC) which have become a special target for control. Diesel exhaust has entered the TAC designation process in 1989 and has subsequently been endorsed by the California Scientific Review Panel in 1998".

He added that in California, the ambient concentration in most parts is close to the standards. Only on rare occasions do the levels reach the maximum level of 170 microgrammes to 200 microgrammes per cubic

metre. Compared to this the levels of small particulate pollution in Delhi always remains three to five times the permissible limits and in a worst case scenario, it hits levels even eight times the limit.

The situation in Delhi is particularly bad because of the cocktail of pollution recorded on a daily basis, in which several pollutants exceed the air quality standards at the same time. If the small particle pollution levels in California ever reached the same levels as Delhi, Californian environment authorities would have declared an emergency.

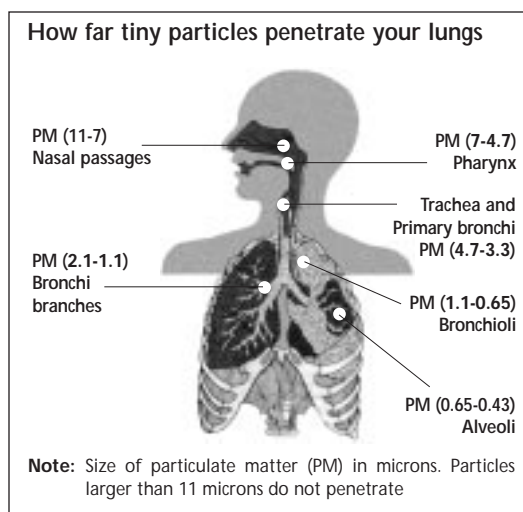
October 1999: Killer particles

They are tiny and deadly. Recent research has brought to light the existence of airborne particles so tiny they defy measurement. Toxic particles so minute as to be almost intangible. Though evidence is piling up increasingly on the lethal effects of particles, scientists are yet to fathom the extent of damage they can cause to public health. Meanwhile, these tiny killers continue to take more lives and send an increasing number of people to hospitals and emergency rooms. With the Indian government hardly bothering to respond, a dirty cloud of haze promises to blanket India's next millennium.

The only study on air pollution and human health in India came from the World Bank in 1995. This study had categorically stated that small particulate emissions, like

Science behind the tiny killers

- *Even at low concentrations, airborne particles are lethal:* New studies have revealed that particles even in small doses can be lethal. This has turned upside down the prevailing view that there can be no health effects below a certain level. Today, scientists are looking for answers not only in the chemical properties but also in the physical properties, i.e., the size of the particles.
- *Minimal increase in particulate levels can have adverse effects:* Scientists now believe that even very small increases in concentration in particles can lead to death and illness. This means that even if the peak levels are within the prescribed standards, small increases in concentrations even from a baseline as low as 30 microgrammes per cubic metre can be associated with measurable increase in death rates and hospital admissions.
- *The smaller the particle, the greater the risk:* Recent studies reveal that the size of the particles assumes vital importance. The small particles remain longer in the air. They can also be carried by wind for thousands of kilometres. The smaller particles also have a greater ability to penetrate deeper into the lungs and stay there longer.
- *Chemical coating makes the particles dangerous:* A study by the Harvard Medical School says that fine particles are a complex mixture of sulphate, nitrate, ammonium, hydrogen ions, elemental organic compounds, metals, polynuclear aromatics, lead, cadmium, vanadium, copper, zinc, nickel and so on. These harmful chemicals are what make the tiny particles so lethal.
- *The connection to diesel:* In recent years, the composition of diesel particles has been the focus of increased scrutiny as diesel vehicles emit extremely small particulate matter. A recent UK study reveals that 90 per cent of the diesel particles are one micron in diameter or smaller and thus highly respirable. Moreover, the diesel exhaust particles have a carbon core which is unique to them, as well as some of the organic compounds like polycyclic aromatic hydrocarbons and toxic gases. This highly lethal cocktail of toxic compounds makes diesel particles highly carcinogenic.





Walia visits CSE

Delhi Environment and Health Minister, Dr A K Walia, visited the Centre for Science and Environment (CSE) on October 26, 1999. Anil Agarwal, Director, CSE made a presentation on air pollution related issues and talked of various policy options.

Dr Walia had understood that all that the city needed was a strong inspection and maintenance programme and issuing of pollution under control certificates to vehicle owners to bring down the level of air pollution in the city. He had never heard of the term

'emissions warranty' and was very intrigued by it. It was a completely new concept for him when he was informed that vehicles are recalled by manufacturers in Europe and the US when they don't meet emission standards. Anil Agarwal took great pains to explain to Dr Walia why the consumer should not be harassed for a polluting car and why the manufacturer should be held liable. Walia left convinced that emissions warranty should be introduced. Unfortunately it was not in his power to do so.

PM10, and gases like SO₂ are responsible for over 95 per cent of the health damage such as lung cancer and emphysema (or severe breathing problem). Centre for Science and Environment repeated the study by substituting the CPCB air quality data for 1991-92 by the corresponding 1995 data and found that the number of premature deaths had increased in all cities from 40,351 in 1991-92 to 51,779 in 1995 and in Delhi from 7,491 to 9,859 respectively. This means one death per hour due to air pollution in the capital.

November 1999: Auto industry half truth exposed in court

TELCO submitted an affidavit to the Supreme Court of India, which misquoted Dr Dietrich Schwela, a senior scientist in the World Health Organisation (WHO), as saying that scientists have not established a safe level for particulate emissions due to lack of scientific evidence. Dr Schwela was in Delhi on October 4, 1999 attending a workshop organised by the Health Unit of CSE, rebutted this and said that the industry has misquoted him. He clarified that the WHO has not set any safe limit for PM emissions because PM in the air is unsafe at any level. This just goes to show that the auto industry will go to any lengths to protect their profits even if it is at the cost of public health.

Schwela's rebuttal

A claim

"... (the) threshold for the onset of health effects has not yet been detected for particulate emission. This means that the safe levels have not yet been identified which is totally different from stating (as EPCA has done) that there is no safe level of particulate pollution."

- Major automobile manufacturer,
Supreme Court affidavit, October 1999

The rebuttal

" This interpretation is certainly not correct. What we are saying is that effects occur at any concentration. There is no threshold for the onset of the effects meaning that for each concentration of particulate matter, there are already observed effects, starting from the lowest concentration of about 10 microgrammes per cubic metre and going to 150-200 microgrammes per cubic metre."

- Dietrich Schwela, WHO Expert,
October 1999

Schwela informed the public that of the 52 million deaths annually in the world, around 4-8 per cent are connected to air pollution. According to him there was scientific and medical evidence to suggest that exposure to fine and ultrafine particulate matter (PM) can be more harmful than exposure to large particles. These pollutants affect skin, mucous tissues along with sensory, immune, cardiovascular, respiratory and central nervous system. All over the world about 1.5 billion people are exposed to increased ambient air pollutant concentration.

Small city pollution

Talk about air pollution in India and everybody thinks of the four metropolitan cities. But the ambient air quality in even smaller cities and towns is deteriorating alarmingly and in some cases much worse. In Lucknow, for example, the maximum level of suspended particulate matter (SPM) in 1997 matched the highest levels recorded in Delhi. And if one person dies prematurely every hour in Delhi due to high SPM levels, the death count in Lucknow can well be imagined. The main reason for this is a sharp rise in polluting motor vehicles and mismanagement of public transport. Rogue industrial units also play a hand. Although data about rising levels of air pollution is available, there are no programmes in any of these cities to counter the emerging public health disaster. How many will die before India has an effective national air quality management plan is anybody's guess.

December 1999: How we asked for emission warranty for two-wheelers

CSE's Right to Clean Air campaign in Delhi has been demanding since 1997 that along with the consumers the manufacturers must also be made responsible for the tailpipe emissions from in-use vehicles for the duration of their useful life. CSE's dialogue with the automobile industry came to a head in December 1999 when CSE demanded that two-stroke two-wheelers fitted with catalytic converters with dubious durability claims could not be allowed in Delhi unless the two-wheeler industry was prepared to take full responsibility for it.



Delhi Chief Minister Shiela Dikshit inaugurating the CSE stall at the Auto Expo 2000

January 2000: The Right to Clean Air exhibition at the Auto Expo

The Centre for Science and Environment organised an exhibition at the Auto Expo 2000 amongst the glitz and glamour of beautiful cars and pretty girls. The exhibition underscored the inaction of the government, laxity of the automobile manufacturers and apathy of officials to show concern for the deteriorating air quality of the capital and presented a charter of action to clean up Delhi's air. "We shall overcome with your help", wrote Shiela Dikshit, on the graffiti panel put up at the exhibition, when she inaugurated the CSE stall on January 12, 2000 at 3 pm. Answering a question from school-children attending the inauguration, she admitted that the government had not done enough to curb the growth of diesel.

A major victory

CSE scored a major victory when Venu Srinivasan, President, SIAM announced an emissions warranty scheme for the first 30,000

km for two-stroke two-wheelers in Delhi on behalf of the two-wheeler manufacturers. Earlier he admitted that it would not have been possible to come out with this warranty without the insistence of CSE.

Feeling the pulse?

An online survey was also conducted during the Auto Expo and 925 visitors participated in the poll. The survey showed that as much as 81.09 per cent of the total number believed that diesel luxury cars should not be allowed on the road. Over 60 per cent believed that pollution control certificates do not help in reducing vehicular pollution. As many as 86.28 per cent thought that both the government and the automobile industry are responsible for air pollution.

CSE installed a sophisticated lung function testing equipment provided by Dr S K Chhabra, Vallabhai Patel Chest Institute. Visitors got the opportunity to check if their lungs functioned normally, given the polluted air that they were breathing.

Sage advice: Prof H B Mathur



Dr H B Mathur, formerly Professor Emeritus and Head of Mechanical Engineering Department and Centre for Energy Studies at IIT, Delhi is currently Head of Advanced Centre for Studies and Research in Energy Technologies at Delhi College of Engineering.

Professor Mathur is one of the foremost authorities in the country in the area of internal combustion engines and has been involved in R & D work in the field of fuel-

combustion and pollution. During his 30 years of stay at IIT, Delhi he guided more than 20 doctoral theses and more than a hundred postgraduate and graduate projects in the areas of abatement of combustion-generated pollution, use of alternative fuel, EIA studies and other engine-related areas.

He has served in various high-powered committees of the Government of India, Ministry of Environment and Forests, Ministry of Non-Conventional Energy Sources, Ministry of Industries, etc. He will now guide and advise the Right To Clean Air Team.



Doing the right thing: Feedback

- *Parezade Mama, Mumbai*, "We are very interested in starting a campaign against vehicular pollution on the lines of the one conducted by your organisation in Delhi. Could you please send us the papers and necessary information regarding the campaign?"
- *Amod Pokhrel, General Secretary, LEADERS Nepal*, "We in LEADERS Nepal are doing mass campaign work of environmental awareness by involving citizens in monitoring (air and water quality) and information dissemination activities. We will love to receive more information about CSE activities in mass campaigning against air pollution in Delhi and India."
- *Sunit Bhaumik, Student*, "As a citizen of Delhi, I was really influenced by what your campaign stands for. I would certainly like to participate and help support your work because clean air is something that is definitely lacking and the people of Delhi are suffering from chronic illnesses and asthma."
- *Rohit Mathur, Asst. PA to the Minister of State for Health and Family Welfare*: "After going through the book, *Slow Murder*, I realised it is one of the best possible documents that have ever been published on pollution in our country. Please accept my heartiest congratulations."
- *Students from Karnataka Regional Engineering College*, "We, the students of I semester, M.tech express our concern about the alarming pollution levels in India. We also appreciate your esteemed service towards environment. We join you wholeheartedly in protesting against the pollution in Delhi."

Children's painting competition

The Environment Education Unit of the Centre organised a painting competition for children on air pollution. The unit also got children to report on the Expo and produce a special edition of *Gobar Times*. (See: *Catching them young*, p48)

Several important dignitaries visited CSE's stall. The Ambassador of Denmark, Birgit Storgaard Madsen enthusiastically participated in the online survey and even gave important tips to the young reporters on how to bring out the magazine. Other important guests included the renowned environmentalist Anna Hazare, S Variava, Chief Justice, Delhi High Court, Ashok Parthasarthy, former Secretary, National Commission for Scheduled Castes and Scheduled Tribes, Jean Breteche, Counsellor Development, Delegation of the European Commission and Owe Anderson, Counsellor and Head, Embassy of Sweden.

February 2000: The TERI/CSE Controversy

The Tata Energy Research Institute (TERI), a New Delhi-based energy consultancy, has also contributed to misinforming the public about CNG and ensuring the non-implementation of the Supreme Court order on CNG. Despite overwhelming evidence on how CNG is far cleaner than diesel, TERI industry nexus has gone to town advocating diesel as the top priority.

When the Delhi government actually set its mind to take the implementation of the order a little more seriously — just before the

March 31, 2000 deadline for moving eight-year-old buses to CNG — TERI added another spoke to the wheel. On February 3, 2000, a report in the Delhi edition of *The Hindustan Times* quoted Ranjan Bose as saying that moving to CNG would be detrimental to the "overall environmental balance". Bose said the best method to reduce air pollution levels was ultra-low sulphur diesel with end-of-the-pipe particulate trap: "CNG comes low as an alternate fuel because of its high global warming potential." Ironically, TERI stressed the need for learning from international experience. An overwhelming body of scientific information from right across the world shows that diesel has a greater potential to cause global warming than CNG.

At this stage, CSE intervened to contest TERI's misinformation campaign and show how were they creating confusion in the minds of the policymakers over the merit of the Supreme Court ruling. Even if CNG has potential for causing global warming, policy action must be in accordance to the immediacy of the problem, and in the case of New Delhi, it is particulate pollution that poses immediate danger. In California, for instance, when the diesel lobby tried to raise the global warming issue, air quality regulators insisted that this was a concern of federal agencies and that their primary concern was to reduce urban smog.

March 2000: DTC files an affidavit seeking extension of time to convert to CNG

Concerned over the lethargic attitude of the Delhi Government in implementing the Supreme Court directive to convert a fleet of 10,000 buses to CNG by April 2001, CSE director, Anil Agarwal wrote to Sheila Dikshit, "It is very disturbing that instead of focusing on the strategy to enforce the directive within the stipulated time frame, the DTC should try and get the order diluted by filing an affidavit asking for more time for conversion of its bus fleet to CNG and for permission to buy EURO I compliant diesel buses instead."



Bus ride to truth: CSE investigates allegations against CNG

CSE researchers took a bus ride to find out the truth behind reports of overheating of CNG buses. Armed with thermometers CSE researchers measured the ambient temperature in the driver's cabin and the passenger area of the bus. Throughout the journey the temperature varied from 36.5°C to 38.5°C and there was no difference in temperature between the drivers cabin and the passenger area. The engine temperature according to the control panel of the bus varied from 80 – 85°C which is normal.

CSE and the EPCA

Anil Agarwal continued to attend the meetings of the Environment Protection (Prevention and Control) and Authority (EPCA) and through him, CSE was able to keep the Committee updated on its research in this area. Thus it was following his presentation on the harmful effects of diesel to the EPCA, the Committee recommended to the Supreme Court that the registration of the diesel private cars should be restricted in Delhi. The Supreme Court directed the government to implement EURO I emission norms from June 1999 and EURO II from April 2000.

These directives brought on a flood of applications from the auto industry to counter the ban on diesel cars. The Supreme Court passed on these applications for a technical assessment to EPCA which in turn passed them to be assessed by CSE. After a laborious review, CSE prepared a detailed technical rejoinder demolishing all their arguments espousing diesel.

The other important issue on which CSE was able to influence the EPCA was on the issue of CNG conversion. Anil

Agarwal emphasised to EPCA the need to speed up CNG conversion to phase in cleaner fuel and reduce diesel consumption and provided detailed research information to prove that CNG produces cleaner emissions. EPCA then put pressure on the implementing agencies in Delhi like the Gas Authority of India Ltd, DTC, Delhi government, Ministry of Surface transport to get the Supreme Court order on CNG enforced.

Anil Agarwal also drew the attention of EPCA to the need for drawing up a priority action plan to control vehicular pollution in the city. CSE has consistently provided knowledge support to all the initiatives made by the EPCA and provided information on a variety of key issues that include among others, the importance of promoting non-motorised transport, the need for fiscal incentives for improving vehicular emissions, the importance of introducing emission warranty to fix responsibility on the manufacturers and the feasibility of the conversion of vehicles, particularly the buses, to run on CNG in Delhi.

CSE investigated the matter in detail and found that DTC had no real excuse. The industry grapevine had it that the diesel lobby was putting a lot of pressure on DTC to get the proposal reviewed to sell diesel buses as an interim measure till the conversion to CNG is completed at a much later date.

The Chief Justice bench in the Supreme Court rejected DTC's plea for extension of the deadline to convert eight-year-old buses to CNG by March 31, 2000. The ruling further

squashed all demands to buy EURO II diesel buses to replace old buses. The Supreme Court will entertain a new schedule for conversion only if the Delhi government gives an undertaking in writing that it will abide by the new commitment, acceptable to the Court, and accordingly fix responsibility. *"Shut your shop, we cannot put the citizens at risk"* said the Supreme Court to DTC as they fail to meet the deadline to convert all buses over eight years old to CNG.



Looking outward: Lectures and presentations

Presentations on the problem of air pollution and strategies for control were made in different fora during the year

- May 1999: Anil Agarwal gave a public lecture on challenges to air quality regulations at a meeting organised by the Kanpur IIT Alumni in New Delhi.
- June 14, 1999: Sunita Narain participated in the Advanced Management Programme on issues of Air Pollution organised by Apeejay Surrendra Hotels, New Delhi
- June 1999: Anil Agarwal gave a public lecture on air pollution and health on the World Environment Day in New Delhi.
- September 1999: Anil Agarwal gave a public lecture on issues in air pollution control in a meeting organised by the Society for Engineers.
- December 1999: Anumita Roychowdhury made a presentation in the World Bank sponsored workshop to evaluate the World Bank environmental assistance in Asia in New Delhi.
- January 14, 2000: Anumita Roychowdhury made a presentation on the action plan for vehicular pollution control in the training programme organised by the Indian Institute of Petroleum for the senior managers in refinery sectors in Dehradun.
- December 10, 1999: Sunita Narain attended the roundtable talk organised by SIAM to discuss the proposed ban on two-wheelers



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- Order on vehicle emission praised, in *Asian Age*, New Delhi, May 1, 1999.
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 - Environmentalists hail SC verdict, in *The Hindustan Times*, New Delhi, May 1, 1999.
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 - TELCO, greens clash over diesel vehicles, in *The Times of India*, New Delhi, May 4, 1999.
 - No Apology, in *The Hindustan Times*, New Delhi, May 5, 1999.
 - TELCO slams Rs 100-crore suit on NGO for drive against diesel cars, in *The Indian Express*, New Delhi, May 5, 1999.
 - Tatas threaten to sue green group, in *Asian Age*, New Delhi, May 5, 1999.
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 - Plans in place for environment day, in *Business Standard*, New Delhi, June 4, 1999.
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 - NGOs hail ban on diesel taxis, in *The Pioneer*, New Delhi, October 18, 1999.
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 - Dieselisation of vehicles will worsen air quality, in *Asian Age*, New Delhi, July 14, 1999.
 - IMA awareness drive against diesel run vehicles, in *The Pioneer*, New Delhi, July 14, 1999.
 - IMA voices concern over dieselisation, in *The Times of India*, New Delhi, July 14, 1999.
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 - Diesel cars fuel IMA's pollution fears, in *The Hindu*, July 15, 1999.
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 - Market forces behind green diesel, in *The Times of India*, New Delhi, September 4, 1999.
Public Lecture by Dr Shankar Prasad, community health adviser in California Air Resources Board, September 9, 1999
 - Diesel fumes prime cause of pollution, in *The Hindustan Times*, New Delhi, September 10, 1999.
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 - Pollution level approaching disaster stage in Delhi, in *Central Chronicle*, September 11, 1999.
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- Belch not, Ecozone ahead, in *The Economic Times*, New Delhi, January 13, 2000.
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- Delhi to prefer bus services offered by domestic firms, in *Business Standard*, January 14, 2000.
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- Warranty hailed, in *The Hindu*, New Delhi, January 18, 2000.

Behind the scenes

A day in the life of a campaigner in the air pollution control team in CSE...

Supreme Court hearing on air pollution case is coming up. Really, when? Just day after tomorrow! Drop everything... rush .. find out the mischiefmongers (who have moved the application) and their mischief. Strategise and go BANG. The three-member team runs amuck. A few hurried phone calls later... oh so it is what we had expected. Its the diesel car manufacturers who have inundated the court with applications to save their diesel business. Armed with a battery of lawyers they are all set to sabotage the recommendations of the Environment Protection (Control and Prevention) Authority to restrict diesel cars in order to reduce cancer risks.

Now don't you even think of leaving office at 6.00 pm. After frantic scanning of the literature in hand and furious typing for an hour, we are ready with a fact sheet exploding all possible myths. The ones that the industry is likely to espouse next day in the court to mislead the judges. Unfortunately, defenders of environment do not go with their own battery of lawyers but only depend on the amicus curiae appointed by the court who represents us but strangely who never has enough time for us. So what? Just snatch the time. "Mr Harish Salve will be free only at 8.00 pm," says the reluctant PA. That's okay I will wait ...or I do not mind a breakfast meeting just before he leaves for the court tomorrow. So be it.

But the battle outside the court is murkier. That we realised when a hundred-crore legal suit from TELCO against Anil Agarwal and Sunita Narain caught us off guard in April 1999. TELCO is paranoid over our anti-diesel campaign and the legal suit is nothing less than an underhand attempt to gag us. How dare they? We fight our battle in public. Call the press immediately to let the world know that CSE stands by its position even if TELCO drags us to the court. Prepare invitation cards for a press conference, put together press kits including a press release with screaming headlines, and distribute copies of the

legal suit. Oh hell! What about organising the venue, microphone, chairs, tea... ahh! we just did all that on time. Thank God, we at least had a day.

The hundred-crore lawsuit was withdrawn with a letter of apology a week later. Hurray!!

But ominous silence prevailed thereafter. We started getting scraps of paper from different unanimous sources – mediapersons, doctors who had signed a statement of concern condemning diesel and automobile experts. They were getting unsigned promotional material on diesel from a public relation agency, Burson-Marsteller Roger Pereira, espousing diesel as the "fuel of the future". Challenge them head on.

Spruce up vigilance APC team. Scan all newspapers in the morning and shoot off press releases come what may if you come across any untoward statement damaging to our campaign. But press statements must be faxed by 4.00 pm.

Then it was the fateful October 4, 1999. We chanced upon a TELCO affidavit in the Supreme Court. A copy of this will

never come our way through any normal channel. The affidavit misquotes Dietrich Schwella of WHO to say that it is possible to set safe levels for particulate pollution while Schwella says it is not. Oh! How lucky we are. Schwella is attending one of our workshops the same day. Hurry! Get a statement from him and write about it in the closing issue of *Down To Earth*. Deadline — yesterday.

This is the normal routine in the APC unit. Hey! But you can't always be campaigning. Keep up with your research to be on top of information and provide intellectual leadership. So let us smuggle time out of campaign and complete our next book on action plan to control vehicular pollution in Delhi.

Cheers! We have made an impact. We can take on a little more I think...



L-R : Chandrachur, Anumita, Lopamudra



PEOPLES' WATER MANAGEMENT CAMPAIGN

In 1997, CSE had published its citizens' fourth report on the State of India's Environment entitled *Dying Wisdom*, which had focussed on India's traditions in rainwater harvesting. The report had argued that historically water management in India was built on harvesting of rainwater — which makes eminent sense in a monsoon-type climate — and community participation. The report concluded that Indians can learn from their traditions to develop new approaches for sustainable water management. The book was extremely well received by the media and civil society.

Internalising this message, CSE decided to undertake advocacy of water harvesting programmes. Given the fact that water needs are growing at a tremendous pace and the availability of clean water is getting reduced rapidly, the state would require to make large investments, which it cannot do at the scale required. Therefore, we need to look at alternative solutions to water management. The paradigm of community-based rainwater harvesting holds good even today as much as it did in the past. This is the message of CSE's water programme.

Spinning a web

Following the National Conference on Water Harvesting in October 1998, CSE set up a network of people across the country who are interested in water harvesting and management. The network is a crucial step in the process of social mobilisation as it brings together like-minded people who in turn can promote and push the concept of community and household-based water harvesting through awareness-raising and policy research. We have, today, 246 members in the network.

CSE's role as the national secretariat is to provide information, and act as a clearing-house for information on financial, technical and policy issues. CSE set up a steering committee of experts in water management to provide guidance and help steer CSE's water programme. With the help of this committee, CSE was able to help the water managers in Rashtrapati Bhawan develop and implement a system for rainwater harvesting as a model for other public establishments.



The steering committee

Dr R N Athavale, National Geophysical Research Institute, Hyderabad; Dungleana, Former Secretary, Government of Mizoram; Rajendra Singh, Tarun Bharat Sangh, Alwar; Sunita Narain, CSE, New Delhi; Dr Ujjwal Pradhan, Ford Foundation, New Delhi; Anil Shah, Development Support Centre, Ahmedabad; Dr Jes Boye Moller, Royal Danish Embassy, New Delhi; Dr K L Vyas, Save Lakes Campaign, Hyderabad; Dr A Vaidyanathan, Madras Institute of Development Studies, Chennai; Nafisa Barot, Development Action Plan Team, UTTAN, Ahmedabad; R Ramaswamy Iyer, Centre for Policy Research, New Delhi; Anil Agarwal, CSE, New Delhi;

CSE sent out mailers to more than 2,100 persons informing them about the network. Those contacted include NGOs, companies, government organisations involved in natural resource management, irrigation, water resources and others. Information about the National Water Harvestors Network (NWHN) and membership is also hosted on the website and we get a good response.

The Chennai branch

The first branch network in Tamil Nadu has been functioning for the past one year in Chennai under the leadership of Dr A Vaidyanathan.

Creating awareness pays dividends

A series of five articles, written by Dr Goutam Ghosh from Chennai were published in *The Hindu* on water harvesting. Several successful case studies were showcased to motivate people to take up water harvesting.

The unit organised a meeting with builders so that they could contribute in spreading the message of water harvesting. A number of builders — some of them already involved in building water-harvesting structures — attended, and, an action plan was proposed. R Jeyakumar who is a member of the Tamil Nadu unit steering committee and a Rotary Club member helped in mobilising funds from the Rotary Club for building a 3,000 litre capacity water harvesting structure in Kul Thottam, a slum in Chennai.

The Chennai unit participated in a number of meetings and workshops to promote the concept of water harvesting.

- CSE staff gave a presentation at a conference on water harvesting organised by the Environment and Health Foundation in November, 1999, Bangalore.
- The unit also participated in a water harvesting event organised by the Aringar Anna Government Arts College, Cheyyar. CSE staff organised a seminar on water harvesting and screened the CSE film, *Harvest of Rain*. Students were so enthused by the presentations that they planned to carry out a door to door campaign on rainwater harvesting in Cheyyar and nearby towns. V Anbazhagan, MLA of Cheyyar, expressed his desire to have a sub-chapter of the National Water Harvester's Network for Cheyyar, failing which, at least a rainwater club should be formed.
- The Chennai unit participated in the Millennium Fair organised by Rotary Club of Madras East, IOC and CBS (India). Pamphlets on water harvesting were distributed to participants. CSE's set of 21 posters on water were put on display as were publications pertaining to water. The stall drew large crowds and a number of young students offered to work voluntarily to promote rainwater harvesting.

A survey on awareness about water harvesting systems in buildings

A survey of rainwater harvesting structures installed in various buildings in Chennai was undertaken jointly by the Madras Institute of Development Studies and CSE, Chennai. Out of 500 buildings that were given municipal sanction between 1997-1999, a random sample of 100 buildings were surveyed. The questionnaire had questions related to the level of awareness, description of methods used, methods adopted and costs

incurred, effectiveness of these systems, the need for maintenance and problems associated with these systems. The amazing conclusion that emerged from the study was that there was a total lack of awareness amongst householders about rainwater harvesting in their own buildings.

This clearly shows that it is not enough to merely create laws but there is a need for social mobilisation to involve the people in this effort.

CSE Chennai staffer visited Pondicherry in January 2000, to study the work of several organisations such as Harvest and Adecom Network. Harvest, an organisation under Auroville, has rehabilitated 17 tanks and seven ponds in and around Pondicherry.

Sharing the experience



To keep the network members informed of the latest developments in this area and to facilitate their interaction with each other, CSE produces a newsletter on water harvesting, *Catch Water*. Since February 1999, six issues of *Catch Water* have been published.

The newsletter is sent to all members of the NWHN. The 12-page newsletter covers policy issues, successful initiatives, campaign news, technology, editorials, book reviews, activities of the NWHN and its branch units and members. It also contains reportage of water harvesting activities undertaken across the country. The newsletter is widely appreciated and fills a much-felt need to facilitate an exchange of views and experiences amongst people interested in water harvesting.

The key to resources: Water Links

CSE maintains a detailed compilation of persons and institutions involved in water harvesting. The first international directory of water harvesters, *Water Links*, published in 1999 covers a wide range of issues and is a detailed compilation that gives information on

the areas of interest and activities of persons listed.

The unit also worked to compile a list of all water-related information that appeared in books, newspapers and in journals. We have compiled a bibliography of 191 newspaper and journal articles. Another database of water related issues as they appeared in books, documents and reports is ongoing. The list compiled so far numbers 220. This is an ongoing process.

Telling people how to catch water

The success of CSE's awareness raising efforts resulted in a number of requests on how to install water harvesting systems. This is when CSE decided to employ the services of an engineer who would give technical advice to interested persons and organisations.

CSE initiated a non-profit consultancy service that provides services such as planning and drawing up model systems for construction in schools, institutions, households, airports and railway stations to name a few. Under this programme, CSE also conducts workshops for architects, builders, construction managers and individuals interested in constructing such systems.

During the year CSE has provided technical services to seven persons and organisations. Drawings for water harvesting systems to be constructed have been prepared for Vikram Nair of Vasant Vihar, the Shri Ram School of Vasant Vihar and Westend Green Farms Society. Services include the study of the water harvesting potential of the site, possible water harvesting systems that can be employed and the cost of building the structure.

What they say...

- *K Gnanasivam, Sankari*, "We believe that this type of newsletter will certainly enrich good knowledge and recognise the importance of environment"
- *H Kumar, Alwar*, "I extend my good wishes to the new initiative on water harvesting spearheaded by your organisation in India."
- *Shree Padre, Puttur*, "Our sincere congratulations for fulfilling the long-felt need of a water harvesting network and directory. Your *Catch Water* is really catchy!"
- *C Vardhini Rajan, Secunderabad*, "We congratulate you for the efforts, as a team, to formulate the National Water Harvesters' Network and to bring out the bimonthly newsletter *Catch Water* and Water Harvesters Directory."



Sharing concern

As an outcome of the national conference on water harvesting held in October 1998, participants signed a Statement of Shared Concern to highlight the need to promote the emerging paradigm of community-based water harvesting. The statement defines the agenda for future action. The statement of shared concern was sent to more than 1,000 persons between October and March 2000.

Leading the pack

A strong believer in practising what it preaches, CSE has constructed a system to capture every raindrop that falls on its roof and in its garden.

Given the average rainfall of Delhi at 611 mm the potential to harvest rainwater in CSE is a whopping 5.5 lakh litres per annum. Annually, monsoon willing, about 5.5 lakh litres can be used for recharge.

Eleven bore wells have been dug to a depth of 30 feet in different parts of the compound. All water that falls on the roof, the paved area or the non-paved area is directed to these bore wells and is used for groundwater recharge. Water that falls on the front portion of the roof has been diverted to a collection pipe that takes this water into an underground water storage tank. The water that falls on the back portion of the roof has been diverted into an abandoned bore well for recharging the well.

At the gate, a trough has been made and three bore wells dug so that all the water that flows from the paved scooter parking area is

used for recharging. Three check bunds have been made so that the water can stagnate for a short while. This allows time for groundwater recharge. The height of Seven stormwater drain inlets have been raised for groundwater recharge. The water that falls on the car shed has been directed through a split bamboo into a small storage tank for immediate use. This water will be used for purposes other than drinking.

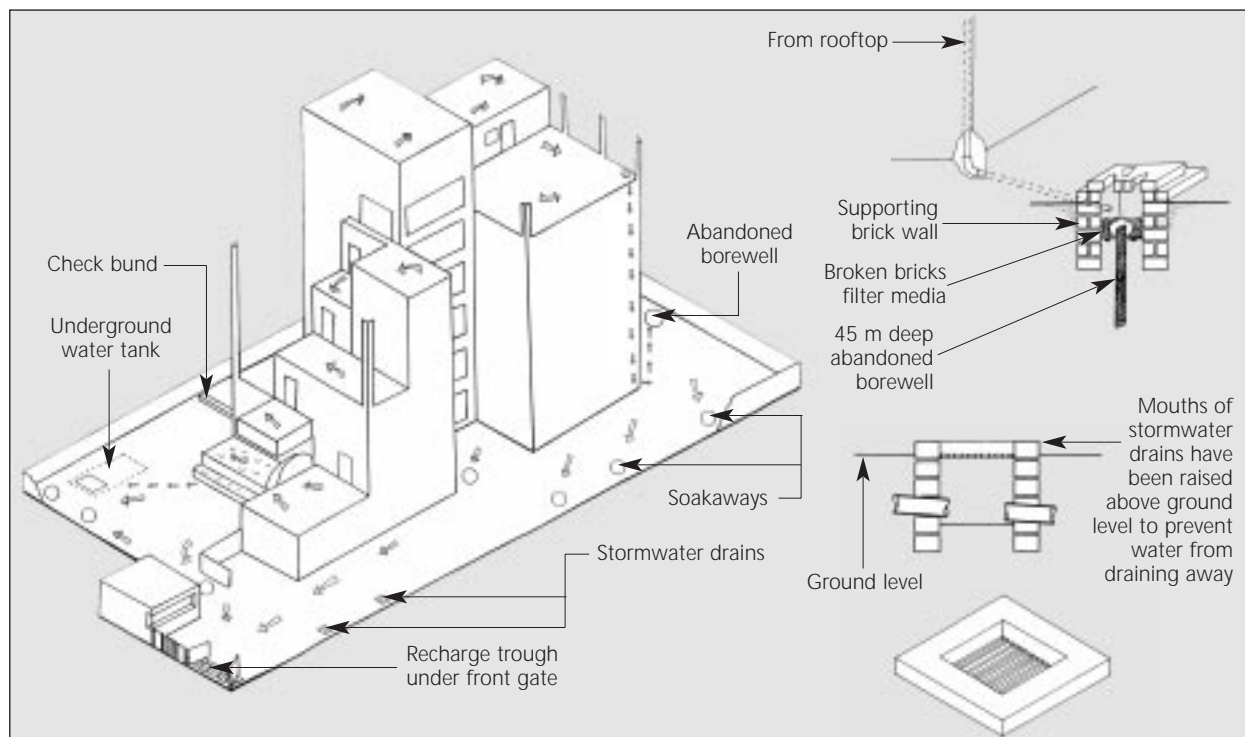
A rain gauge installed at the building to get an accurate record of rainfall recorded 7.5 mm of rainfall in March 2000. Given the total area of CSE this amounted to 7,500 litres of water. Given a 75 per cent efficiency in harvesting, the amount of water that was harvested was 5,625 litres. This amount was enough to meet the drinking water requirements of the 100-strong staff of CSE for a period for six days.

The adoption of such simple methods could go a long way in making groundwater extraction in Delhi and other places a sustainable option.

A world vision on water

At the 1998 Stockholm Water Symposium, the World Water Council announced the creation of the 'World Commission on Water for the 21st century'. CSE Director, Anil Agarwal, was made a member of that Commission. On 9th and 10th August 1999, the Commission met to discuss World Water Vision and National Sovereignty and International Waters. Anil Agarwal participated in a seminar on upstream/downstream hydro-solidarity and discussed the regional cases of this problem,

Harvesting rainwater at the CSE building in Delhi



comparing those living upstream and those living downstream. He pondered over the institutional structures, which can achieve solidarity between the two.

He said that at present there is no concept like river basin planning in India for water quality purposes. He presented four case studies of the problems that have emerged in the Sabarmati basin, the Yamuna basin, the Bhavani and Noyyal river basins. He also presented a case study of the effort which has been made in reviving five rivers in the Alwar district of Rajasthan through water harvesting by village communities.

The Stockholm Water Symposium

The 9th Stockholm Water Symposium began on 8th August 1999, with its focus on future strategies for urban water management. Sunita Narain, Deputy Director, CSE, attended the plenary session on 9th August. She made a presentation on the subject, "We all live downstream: Urban industrial growth and its impact on water systems".

Lesson on drought-proofing

In the face of dire predictions about the impending water crisis CSE organised a public lecture on 6 January 2000 to coincide with the release of the millennium issue of *Down To Earth*. The cover story of this issue was 'Harvest of Hope' The message of the public event was clear: it is possible to meet water demands by valuing rainwater and harvesting it through community efforts.

Anil Agarwal's presentation cited several examples of the impact of outstanding efforts of communities, who, in the face of extreme adversity, had brought about dramatic change

Doing the right thing: Feedback

- *D K Gupta, retired member, telecom commission, "Your institution has been playing a tremendous role in making people aware of the role of water harvesting. I will be grateful if I can get more details about roof-top water harvesting."*
- *Abhay Kumar Singh, Rajpur, Jamui, Bihar, "I was spellbound by the wisdom of our ancients as told in the book *Dying Wisdom*. I would also like to be actively involved in consciousness-raising efforts and campaigns to protect these people-based water systems."*
- *A Singh, Water Technology Centre, IARI, "I have been attending most of the programmes organised by your Centre since 1990. You have been able to create awareness about the traditional wisdom on water harvesting."*
- *Dr Adarsh Kishore, principal secretary to the CM and PS, Policy Planning, Rajasthan, "Thank you for the presentation you made on the possibilities of watershed development, particularly for Rajasthan. We would like to consult you further and decide on a feasible plan of action."*



in the local ecology and economy. Not only did these efforts increase water availability, but also resulted in an increase in biomass availability, agricultural production and improved economy. These efforts also put a halt to distress rural-urban migration. He pointed out that drought and scarcity are not problems of availability but of management of the vital natural resource.

To recount their experience at community water management, were Hardevsinh B Jadeja, the *sarpanch* of Raj Samadhiyala village, Gujarat and Harnath Jagawat, director, of N M Sadguru Water and Development

Looking outward: Lectures and presentations

- April 1999: Anil Agarwal gave a public lecture on 'Water and Health on the eve of the 21st Century: Problems and perspectives' organised by the Tehran University of Medical Science.
- April 1999: Indira Khurana made a presentation on 'Role of natural resource management in poverty alleviation, food security and employment generation', at the United Nations, New York.
- April 8, 1999: Sunita Narain gave a lecture on 'Environment Agriculture and Sustainable Livelihoods', organised by M S Swaminathan Research Foundation, Chennai
- April 15-16, 1999: Sunita Narain gave a lecture on 'Poverty and Environment Linkages' at the annual seminar of DANIDA, Indore.
- May 20, 1999: Sunita Narain participated in a meeting on 'Media and Sustainable Development' organised by Universite Européenne de l'Environnement, Brest
- May 22, 1999: Sunita Narain participated in a conference on Population and Environment organised by College of Natural Resources, University of California, Berkeley
- June 14, 1999: Sunita Narain participated in a roundtable discussion organised by The Ford Foundation, New Delhi.
- June 1999: Indira Khurana made a presentation in a three -day symposium organised by the International Environment Technology Centre (IETC) on poverty and environment in Kobe, Japan.
- September 1999: Anil Agarwal delivered a lecture on Sustainable Water Management — An Indian Perspective at a lecture organised by the Harvard University Committee on the Environment.
- November 1999: Anil Agarwal and Sunita Narain participated in the International Conference on India in the New Millennium: Energy, Environment and Development organised by the Harvard University.
- January 2000: Anil Agarwal, participated in the Technical Advisory Committee meeting of the Global Water Partnership in Manila.
- January 2000: Anil Agarwal and Sunita Narain participated in a meeting organised by the Political Economy Research Institute on Redressing Ecological Poverty through Participatory Democracy at Santa Fe.



In print

- Reports on the Alwar experience*
- When a river returns to life: *The New Indian Express*, Bangalore, April 11, 1999
- Water conservation and people's participation: *The Sunday Observer*, New Delhi, June 12, 1999
- Reports on the Jhabua experience*
- How the other half lives: *The Hindu*, New Delhi, June 20, 1999
- Urban water harvesting systems*
- Hidden vessel holds the key: *The Hindu*, New Delhi, June 20, 1999
- Metros waking up to water paucity: *Business Standard*, New Delhi, June 26, 1999
- Rooftop harvesting need of the hour: *The Hindu*, New Delhi, June 26, 1999
- We look for what we have: *The Hindu*, New Delhi, June 27, 1999
- Book reviews*
- Misplaced Wisdom, *Hyderabad Bachao*, Vol.5 No.2, April-May 1999
- Looking back, traditional water harvesting systems: P Babu Rao
- Dying Wisdom (Book review): *ILEIA Newsletter*
- "Water Link": *Sarvodaya Press Service*, Indore, October 4, 1999
- On water harvesting in Saurashtra*
- Small is Beautiful: Small dams improve the lives of Indian farmers: (e-mail), *Third World Network Features*, April 24, 1999
- Small Dams prove a boon: Patrick Mc Cully, *The Tribune (Chandigarh)*, April 27, 1999
- On water harvesting and drought*
- Worldwater forum on all Indian fire & brimstone: *The Indian Express*, New Delhi, March 19, 2000
- Whose govt. is it anyway: *The Hindu*, New Delhi, April 16, 2000
- Dry waterbeds, parched throats: Anita Kanungo, *The Hindustan Times*, New Delhi, April 28, 1999

Foundation, a Dahod-based non-governmental organisation.

Jadeja recalled the conditions in the village 15 years ago, when Raj Samadhiyala village was declared a desert zone, where nobody wanted their daughters to wed men from this village. Today the situation has undergone a tremendous transformation, thanks to soil and water conservation. While parts of the state and surrounding villages are in the grip of drought, drinking water is not scarce in this village. There is water enough even for irrigation. This has been made possible because the village community has been harnessing rainwater to meet their water needs. The villagers have built 52 check dams and planted trees. From 1,600 trees some years ago, the figures have now reached 15,000.

N M Sadguru Water and Development Foundation has undertaken a similar initiative across 350 villages on the borders of Gujarat,

Madhya Pradesh and Rajasthan. Now 35 local rivers and rivulets are perennial, not seasonal. According to Jagawat, in many places villagers have stepped in to take charge of planning as well as building their own masonry check dams.

The second world water forum

The Second World Water Forum was held at The Hague between March 16-23, 2000. CSE was the only Southern NGO participating in the fair independently and also the only presence to say that the answer to the world's water problems lay in communitising the resources and not in privatisation. It is CSE's belief that there is more mismanagement of water than actual water scarcity which is leading to water shortages. In pursuit of this conviction, CSE had taken some water experts from India to tell the world how, even with meagre rainfall and community participation and involvement, water can be conserved, managed and shared equitably without large investments.

Drawing crowds

The CSE stall in the World Water Fair drew huge crowds. A number of people visited the stall, some with their friends. Klaus Koenig, a German practising architect said "*Clearly we in the West have a lot to learn on how to manage with minimal water.*"

The exhibition used large, visually attractive panels that showed positive stories from India, the experiences of people-centric watershed management of the Madhya Pradesh government and the work of Tarun Bharat Sangh, in Rajasthan.

The centrepiece of the CSE stall was a scale-model of a *kundi*, a structure that is used to harvest rainwater in Rajasthan. The technology of this traditional structure was explained through a digitally-produced three-dimensional



Participating at the CSE public lecture on the release of the millennium issue of *Down To Earth*



Madhya Pradesh CM, Digvijay Singh at the CSE stall in The Hague

animation behind the structure. The monograph *'Rememory of Water'* distributed in the stall created a flutter in the forum as did the leaflet that announced the workshop with the slogan: *there is no water scarcity*. A large number of visitors passing by stopped to say that they believed in what CSE was talking about.

Community-based water management

CSE organised a one-day workshop on *Making water everybody's business: lessons in community-based water management'* on March, 21. The objective of the workshop was to highlight the role of community-based water management and to dispel the myth that there is a water shortage. The central message was that the current water shortage being experienced

in many parts of the world is more due to mis-management rather than scarcity.

The workshop was inaugurated by Digvijay Singh, Chief Minister of Madhya Pradesh who emphasised the need for harnessing the power of the people to meet the challenges of ecology and economy. Sunita Narain, Deputy Director, CSE stressed the need for community-based water and environment management as a tool for poverty alleviation. The issues that were discussed included the role of science, bureaucracy and donors. The need for community self-regulation and the need of setting up institutional mechanisms that empower and help communities to deal with conflict resolution were highlighted. Participating in the workshop were practitioners who have managed water by harvesting the rain.

Behind the scenes

Indira welcomes the Rain God...

What started with just a conference and a book has slowly gathered force and become a groundswell and today we are ready to usher in a movement for water harvesting. CSE's campaign for water harvesting came of age in 1999 amidst a flurry of activities centered around rain and refreshed jaded mindsets across the country.

We all learnt the value of water only too well, thirsty and hoarse after numerous presentations and talks on water harvesting. But the CSE staffer in Chennai, was only too glad to lecture on water harvesting, having had his fill of saline water. The residents of Kuil Thottam in Chennai where the Rotary Club sponsored a 3,000-litre tank for rain water were so enthused that they now wanted to know how to create rain to fill up the tank. CSE's efforts in raising awareness in Chennai were but a drop in the ocean, so great is the problem of water scarcity and salinity.



L-R : Leena, Indira, Eklavya

After trying to explain to a varied audience —from Chief engineers to masons to housewives the simple technology behind a water harvesting structure, we decided that it was best to build a model in CSE and let everyone see for themselves. Seeing is believing. Slowly at first, and then in a great rush came the responses from a thirsty public. Eklavya was hard put to respond to the multifarious queries and requests — questions on how to build water harvesting systems; questions about how to locate water experts in their areas; questions on how much it will cost

and how to raise money and more besides. A lot of information came pouring in about the work of NGOs, farmers, engineers all over the country. Effortlessly we were able to catch information for *Catch Water*.

The team decided to usher in the new millennium with a dose of good advice to everyone to catch water. Long before it became the talk of socialite dinners, we told the world of the wonders of water harvesting and gave Delhi's public first-person accounts from water harvesters in Gujarat. We took the President of India on an unprecedented tour of villages and showed him that even humble villagers can do a King Bhagirath act and release the water from the clutches of the earth. Was the mighty media impressed! There was a flood of articles and TV shows on the fruits of rain-water harvesting.

But our travails were not at an end. To round off an arduous year, we decided to take our message across the seas. We set up camp at the World Water Forum, put up an exhibition and showed the Western world what the humble *kundi* looks like. Visitors were amazed to know that this simple dome-like structure has been the provider of water to people and animals alike in the deserts of Rajasthan for centuries.

There's no time to sit back and savour the sweet taste of success. We sit and calculate, how much of the rain did we capture last year? How much more can we do next year?

lectures and special skill-building modules. Training will be provided in research, writing, copy editing, and documentation. We hope that in this process, we can satisfy two objectives – to identify young people who want to work with us and to build a strong network of individuals who share our skills, ideas and perspectives.

Since 1997, we have had a volunteers programme which has been very effective. *Down To Earth* gives us a great outreach mechanism. Today we have a regular programme for volunteers and we have at any given time over 25 volunteers working with us. In 1999, we recruited three young persons who had earlier worked with us as volunteers. (See section: *Lending a helping hand* p56).

Challenge 2

To maintain quality and to maximise output

Plan of action: To set up internal management systems to plan and monitor programmes

The annual planning system is designed to promote deadlines, synergy between different groups and avoid strict departmentalisation while maintaining clear lines of management. It ensures that every staff member plans his/her work output in advance and thereafter is responsible for the outputs. This is a process in which the entire organisation is involved.

But this system can only work if there is an effective monitoring system that keeps track of the progress being made by individual staff. While there existed a monitoring system earlier, it was not formalised to give a clear picture of the progress of work of the organisation. During the year, a monthly monitoring system that ensures that each staff member provided progress reports in a timely manner has been put in place. This system provides for making timely interventions where necessary.

Annual review process

The annual reviews help to identify overall weaknesses — in staff members, in the planning process, in the monitoring process. The review provides staff members opportunities to improve their performance progressively. The annual review process also includes an external peer review process to make this more objective and ensure higher standards of quality.

The annual review process consists of a 360 degree evaluation for all staff members. Every staff member has to assess his or her work progress against specified targets for the year. This is also an opportunity for everyone to think about their future in the organisation and convey to the management their own perception of their career and professional aspirations and training needs.

Each individual is assessed by lateral

colleagues and immediate supervisor. Where applicable a person is also evaluated by the juniors. This all round evaluation is not just an evaluation of work performance but also inter-personal skills, work culture and ethics and other such issues. Finally a rating is arrived at, which takes into account all these issues, and increments are linked to these ratings.

Annual performance awards

This is a transparent, rigorous and merit-based system of annual performance awards and encourages those whose performances are exceptional and noteworthy. On the basis of both quantitative and qualitative criteria each individual is given a rating. Those rated above the category good, in addition to the monthly increment also receive an annual achievement reward of Rs 10,000 for notable performance, Rs 20,000 for very good performance and Rs 30,000 for excellent performance.

The external review process

To strengthen the internal review process and to make it more objective, we have started an external peer review system. Every unit is evaluated by a group of external peers who are experts in the same programme area. Unit members make a presentation on their performance over the past year as against targets and also present their plans for the coming year. The group not only evaluates their performance but also provides directions for the future. Our experience with external review has been very rewarding and both the staff and the external

External reviewers for 1999-2000

Unit	Resource persons
Environment Education	Kamla Chowdhry, Vikram Sarabhai Foundation; Anil Bordia, Lok Jumbish; Vinay Kanth, East-West Educational Society
SOE	R Sudarshan, UNDP; P.S. Ramakrishna, JNU; S K Sinha, National Professor, IARI
Water Pollution	Ujjwal Pradhan, Ford Foundation; C K Varshney, CREED; P S Dutta, Nuclear Research Laboratory; Devendra Gupta, NCAER; K C Sivaramakrishnan, former Secretary, Ministry of Urban Development
Air Pollution	Rajendra Gupta, former transport minister, Delhi; Geetam Tiwari, IIT; Prem Shankar Jha, Columnist
Industry and Environment	Bibek Debroy, Rajiv Gandhi Foundation; H B Mathur, Delhi College of Engineering; T N Ninan, <i>Business Standard</i>
Down To Earth	B G Verghese, Centre for Policy Research; Jeetendra Tuli, WHO; V P Sharma, WHO; Ramesh Mukalla, SIDA
Programme Monitoring unit	B D Dikshit, former chairman Union Bank of India, Arun Duggal, Bank of America (BOA), India; Vikram Lal, Vikram Sarabhai Foundation



Endowment grants

CSE received two endowment grants during the year, both given as challenge grants. The condition for both grants was that CSE must match rupee for rupee by raising matching funds from the sales of its publications. This provided a big impetus for us to strengthen and innovate our sales strategies as every rupee from the sale of our publications got us two more rupees. In order to increase our sales income we initiated a number of steps:

- We worked hard to produce new publications, as new publications sell the fastest;
- We have changed our pricing policy for books. For the first time we have priced the hardbound publications at the high end to recover the paper and printing costs and also cover for the low-priced paperback publications. CSE traditionally priced its books very low to make them reachable to NGO's and individuals. As per the new strategy we release and sell the hardbound books first to institutional buyers and then release the paperback books for individuals and small NGOs. Last year we raised Rs 16 lakh from the hardbound editions of the State of India's Environment Report.
- And, lastly we do tight management of money, investing money as soon as we earn it to realise the maximum interest on funds.

reviewers have found it enriching and has led to strengthening of relationships. The process makes sure that programme staff be accountable and open to external experts.

Challenge 3

To increase outreach for our publications.

Plan of action: To increase the efforts to market and distribute publications

In 1999-2000 we have worked hard to increase the outreach of our publications. This is reflected in the increase in income

from publications, which doubled this year, from Rs 18 lakh to Rs 34 lakh. Realising the need to increase our share of income from the sale of our products we worked hard to evolve strategies to ensure this.

Strategy 1 — Increasing the range of new publications:

The first thing we need to do is to ensure that we bring out new publications regularly. It has been our experience that new publications sell very well in the first year of publication. For instance, *the Fifth State of India's Environment report*, published in 1999, was sold out by October 2000. The *Global Environmental Negotiations report* published in October 1999, was sold out by October 2000.

Therefore, we are planning on a variety of new publications to be brought out regularly. The table below gives you an idea of the new publications that are in use and those that are planned to be published in the coming years:

Strategy 2 — Dual pricing strategy:

Traditionally, CSE's books are very economically priced in order to reach as many readers as possible. We always aimed only to recover just the paper and printing costs. The paperback editions are even more cheaply produced so as to enable a number of interest groups like students, small NGOs, activist groups, individuals etc. to purchase the books. But in order to raise more funds we have decided to publish a hardback edition of our major publications that will be priced

CSE publications

Published	Ongoing:
<u>Annual publications</u> Fourth Citizens' Report (SOE-4) Fifth Citizens' Report (SOE-5) State of Global Environmental Negotiations (GEN-1)	State of India's Environment Report — 6 State of Environment & Health — 1 State of Global Environmental Negotiations — 2
<u>Occasional publications</u> Slow Murder Homicide by Pesticides Challenge of the Balance	Water harvesting practices and policies; Domesticated biodiversity; Action Plans to control vehicular pollution in Delhi River pollution; Manual on environment education Manual on urban water harvesting
<u>Library products</u> Corporate Environment Inc Slides, photographs Set of four video cassette on environment Health Links — Directory of resource persons on health and environment Water Links — Directory of water harvestors	Directory of resource persons in the area of natural resource management; Specialised clipping compilations

higher than our usual hardback editions. For instance, the SOE-5 was priced at Rs 1,590 for the hardback edition. We printed 1,000 hardback copies and this was sold out within six months of publication and netted us Rs 16 lakh. We decided that we would release the cheaper paperback edition only after we have sold a substantial number of hardback copies. We released the paperback copies of the SOE-5 in mid-1999 by which time most of the hardback were already sold out. The paperback edition was also sold out by

October 2000, thus making us ready for the next SOE.

Strategy 3 — Sale of bulk copies :

The third strategy is to work hard to sell bulk copies to donor institutions and government departments. For instance, the GEN-1 has been recommended as textbook reading material by a number of American universities therefore, CSE was able to sell a substantial number of copies in bulk.

The CSE internal website

To wire the organisation together we have developed an internal website. The internal website is a central repository of information about the organisation. It acts as the CSE *chaupal*, which is designed as a fun place that staff will visit to know what others in CSE are doing and to share their experiences with everyone. The website hosts the following information: annual plans of all units, a comprehensive guide of CSE rules and regulations

for the newcomer, the career path available to staff, minutes of staff meetings, information about events and feedback from people etc.

The internal website allows people at CSE to share information across units, give people access to CSE services right from their desktop and builds a sense of community. This is the beginning of what we hope to grow into – an intranet and from there a paperless office.

What lies ahead?

The process of developing organisational and management design for the Centre is an ongoing task. It cannot be static and will continue to evolve to meet the changing needs of the organisation. We have found that the best system is only workable when it meets the capacities of people. We will continue to work towards a cohesive, structured but flexible organisational framework for programme management.

The next thrust area for us would be to develop a system that would review personal development needs of individual staff members and tailor a programme to facilitate the upgradation of skills and capacities of all staff at various levels. We hope to implement a human resource development programme through a combination of formal training courses, informal on-the-job training, in-house training and lectures, and attendance at seminars and workshops. But one thing is clear, we will never be able to do enough on matters relating to internal management.





though the city continues to add an unbelievable 200,000 vehicles every year.

In March 1997, we were ready to release our book, *Dying Wisdom*, a massive ten-year exercise to document India's traditions in water management using the technology of rainwater harvesting. Though rainwater harvesting was till then an unknown water management paradigm, with only a few people like P R Mishra, Anna Hazare and Rajendra Singh working on it, isolated and with little impact on policy, it was clear to us that this traditional paradigm was as relevant today and in the future as it was in the past. This was also something that people could get involved with, without waiting for the government to get them water. A few islands of irrigated prosperity.

This message had to get across the country. We, therefore, asked friends in the civil society to organise public meetings to release the book across the country. The response was extremely warm. Some 11 meetings were organised within a period of three months – from Leh to Kochi and Chennai. Only in Delhi did CSE organise the meeting itself and Mrs Sonia Gandhi, now leader of the Congress Party but who was then out of politics, agreed to release the book. The resulting media coverage was enormous. Water harvesting soon enough became a point of discussion. Again, the aftermath swept us off our feet. Today, water harvesting is not just an issue for discussion and implementation in India but also one being talked about globally. A message of hope in a field that is otherwise full of despair.

All these efforts were made on an impromptu basis. We had knowledge. We had social capital. We just married the two together. But now we have a structured strategy for our knowledge-based activism. Any campaign we start has a **pre-launch phase**. A team of one or two people work to put together a book on an environmental problem and broad contours of its solution. This pre-launch phase is very important.

- Firstly, it helps CSE to understand the issue in depth, get a good grasp of the state of art. Nobody will listen to us if people do not have confidence in what we are talking about.
- Secondly, it helps to create a tool for spreading the message.
- Thirdly, it helps us to get in contact with the civil society working in the field and build a network of people already active or interested in it.

Thus, we are reasonably well prepared with our knowledge and answers before we launch any campaign. It takes a year or two to launch a campaign. It is a phase when the team is small and we can lose people on the way. Some people can get bored pretty fast. But this phase has to be done well.

Then comes the **post-launch phase**. This

has proved to be an extremely difficult one in all our campaigns. As interest grows exponentially, demands and, therefore, activities intensify rapidly.

Firstly, we have to keep the information flowing. In other words, our **awareness raising** work must go on. We must keep our constituency informed, key opinion-makers and decision-makers informed, and, of course, the broad public informed through our own publications and through the media. This may also include **training**.

Secondly, we have to **develop and strengthen the network**, which also means responding to the needs of its members. This can even mean a quick response to save a water harvesting structure built by the villagers with the help of, say, Tarun Bharat Sangh in Rajasthan. The network is itself a big asset in dealing with such crises.

Thirdly, we have to be prepared to respond to any criticism or problems raised. This means a lot of **policy research** and building up of a capacity to do that. It means a lot more publications but this time on specific dimensions of the issue. We are now in a phase where we have to specialise. How does one develop an action plan to clean up the air of Delhi or any city of India? What role can water harvesting play in drought-proofing the country? How does one create a mass movement for water harvesting?

Fourthly, we must be able to respond to any scientific issues that are raised. This means building up a network of experts to support the campaign and undertake **scientific research**, if necessary. How will water harvesting affect upstream-downstream water flows? Under what conditions will particulate traps work on buses? Anything can be thrown at us and we are expected to answer.

This is an unending phase. The team grows dramatically. Even 5-6 people often prove to be too few. Building up a culture of volunteers often helps to deal with sharp increases in demand for manpower. It requires people with grit and determination, skills and knowledge, and a fire in the belly. It requires great management skills. Such people are very difficult to find. You have to build them up within the organisation. It is fun and exciting – that is the big reward – but it takes the wind out of you. Illness or holidays lose their meaning. And you can do just as much work as you want depending on just how much you want to stretch yourself.

The results, however, have been deeply satisfying. We can indeed get our time bombs onto a short fuse. If we have good knowledge and we have social capital (friends and well-wishers ready to cooperate with us), the combination does help to push for change. *It is possible to work Indian democracy*. The power of Mother Saraswati is enormous. I now pray to her every morning. And we try to incorporate this strategy now in all our work.

