

The image shows a blue-toned photograph of a book cover. The cover features a light blue background with several botanical illustrations in a darker blue. At the top left, there is a large, detailed illustration of a palm frond. Below it, on the left side, are two large, broad leaves with prominent veins. To the right of these, there is a smaller, more delicate illustration of a plant with small, rounded leaves. The overall aesthetic is that of a vintage or scientific publication.

## DIRECTOR'S REPORT

2 0 0 2 - 2 0 0 6





**T**he Centre for Science and Environment (CSE) is a public interest research and advocacy organisation based in New Delhi. CSE researches on, lobbies for and communicates the urgency of development that is both sustainable and equitable.

The scenario today demands using knowledge to bring about change. In other words, working India's democracy. This is what we aim to do.

The challenge, we see, is two-pronged. On one hand, millions live within a biomass-based subsistence economy, living at the margins of survival, the environment is their only natural asset. But a degraded environment means stress on land, water and forest resources for survival. It means increasing destitution and poverty.

The opportunity to bring about change is enormous. But it will need a commitment to

reform — structural reform — in the way we do business with local communities.

On the other hand, rapid industrialisation is throwing up new problems. Growing toxification and a costly disease burden. The answers will lie in reinventing the growth model of the Western world so that we can leapfrog technology choices and find new ways of building wealth, which will not cost us the earth. This is the challenge of the balance.

Our aim is to raise these concerns and to participate in seeking answers and more importantly, in pushing for the answers to become policy and then practice. We do this through our research and by communicating our understanding through our publications. We call this knowledge-based activism.

We hope we will make a difference.





---

## OVERVIEW

---

<i>From the chairperson .....</i>	<b>3</b>
<i>From the director .....</i>	<b>4-7</b>

---

## MANAGEMENT

---

<i>Institutional Development .....</i>	<b>8-11</b>
<i>Awards .....</i>	<b>12-13</b>

---

## POLICY RESEARCH AND ADVOCACY

---

<i>Right to Clean Air Campaign .....</i>	<b>14-21</b>
<i>Jal Swaraj .....</i>	<b>22-32</b>
<i>Clean River Campaign .....</i>	<b>33-34</b>
<i>Global Environmental Governance.....</i>	<b>35-39</b>
<i>Health and Environment .....</i>	<b>40-53</b>
<i>Industry and Environment.....</i>	<b>54-57</b>
<i>Green Messenger .....</i>	<b>58-67</b>

---

## EDUCATION AND TRAINING

---

<i>Environment Education Unit .....</i>	<b>68-70</b>
<i>Media Resource Centre .....</i>	<b>71-78</b>
<i>Anil Agarwal Green College .....</i>	<b>79-81</b>

---

## ENVIRONMENTAL RESOURCES AND PRODUCTS

---

<i>Environmental Resources Unit .....</i>	<b>82-87</b>
---	--------------

---

## EXTERNAL RESOURCES

---

<i>Volunteers .....</i>	<b>88-89</b>
-------------------------	--------------

---

## DURING THE YEAR

---

<i>Events .....</i>	<b>90-93</b>
---------------------	--------------

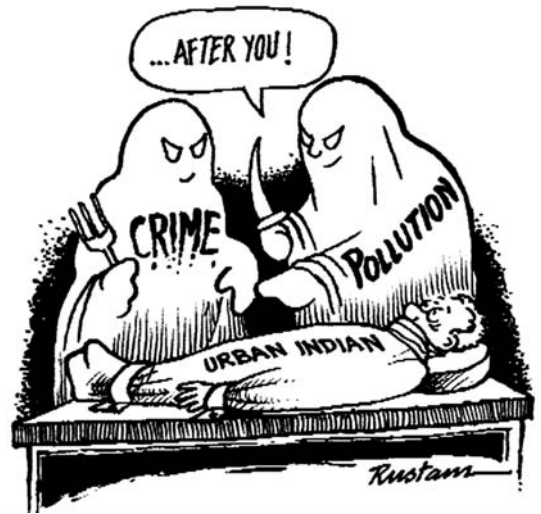
---

## RESOURCES

---

<i>Financial Overview .....</i>	<b>94-98</b>
<i>CSE's Executive Board .....</i>	<b>99-101</b>
<i>Staff at CSE .....</i>	<b>102</b>







## Perspectives

# Behind the success

M S Swaminathan, *Chairperson*

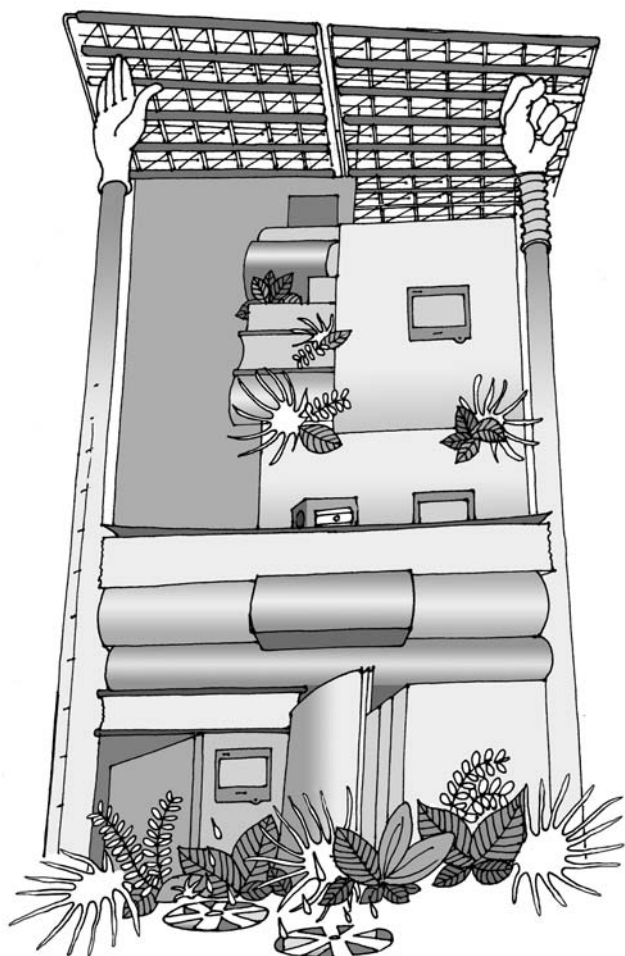
In life, pleasure and pain are like two sides of a coin. The Centre for Science and Environment's dedicated and distinguished staff led by Sunita Narain rendered during the year invaluable service by helping to place the right to clean air, water and food at the top of the nation's political and public agenda. The enormous harm being caused to human health and environmental safety by the indiscriminate use of pesticides, particularly with those characterised by long residual toxicity, was first highlighted by the founder-director of CSE, Anil Agarwal. It was based on his own personal and tragic experiences. This was once again brought to widespread media, public and political attention by CSE. Groundwater pollution too is particularly becoming serious and is affecting adversely the quality and safety of our food chain. I hope no further time will be lost in both establishing food safety standards and in strengthening the regulatory mechanisms.

In addition to information on the work done during this year on clean air, water and food, CSE made a major contribution to mainstreaming environmental parameters in assessing the performance of business and industry. This was done through nationally and globally acclaimed greener audit procedures. The Anil Agarwal Green College (AAGC) has become a unique institution in the area of training young women and men well versed in the art and science of environmentally, economically and socially sustainable development. The graduates of AAGC will become the torch bearers of a happy and healthy India movement, where every child, woman and man has access to safe food, clean air and unpolluted water. They will also bring home to industrialists the importance of the principle "good ecology is good business". The magazine *Down to Earth* has become the authentic and effective voice of the nation in the area of environment protection and conservation and enhancement of nature and natural resources. In addition, Sunita Narain has played a key role in developing a strategy for saving tiger habitats by strengthening the livelihood security of the human communities living in the vicinity of tiger sanctuaries.

I am happy that such socially meaningful and scientifically excellent work has received recognition through many prestigious awards to CSE including the Stockholm Water Prize, as well as to Sunita Narain through the award of Padma Shri by the President of India.

On the sad side, CSE lost its most eminent friend, philosopher and guide in the death of K R Narayanan, the former President of India. Similarly, the sad demise of Kamla Chowdhury, one of the senior and active members of the executive board of CSE, has left a void which is difficult to fill.

Finally, I want, on behalf of the executive board, to express our deep admiration and gratitude for the commitment and great contribution of the director and staff of CSE to the cause of a happy and sustainable future to the people of our country.







## Perspectives

# CSE: Using knowledge for change

Sunita Narain, *Director*

In 2005, we initiated an internal process to review our work and plan our future. The aim was simple: CSE has to remain an effective institution. The challenge we know is strategic. We don't have the power of scale or financial resources to do everything that needs to be done. We also are worried that if we become too big, we may lose our focus. But we also know that the environmental crisis demands an adequate response. What does an institution like CSE do, to make a difference?

We began by asking ourselves about what we had done in the past, we then looked at the present challenges and worked our way to discussing how we should tackle the future programmes of CSE.

What then is the challenge for India in moving towards economic growth, which, at the same time, will be based on equity and be sustainable? As I see it, there are two challenges:

1. **Environment is the development challenge:** To use the environment to build livelihoods. This involves work on community-based water management to forestry and democracy as it involves pushing for policy changes in the way we do business with natural resources and the institutions we need to build.
2. **Development is the challenge for the environment:** Economic growth, industrial development will be a nightmare unless we can get the approach right. This work involves work on industry, pollution and toxins — the leapfrog agenda with inventive thinking of new technologies;

### What we do? Our knowledge-based advocacy

In mid-1995, our colleague Anil Agarwal had defined CSE's objective as using information for change. He called it: knowledge-based activism. In other words, CSE as an institution would use its skills for information collation, research analysis and communication to drive for change in both policies as well as practice on key environment and development challenges of India. In the mid-1990s, we decided, to move beyond awareness creation, to actively participate in advocating solutions and in pushing for those solutions to become the change. As change requires values and principles, the knowledge we generate is embedded within a set of principles, which concern social justice, inclusion, diversity, respect for people's knowledge and democracy.

Therefore, the mid-90's was a turning point in CSE. We had published reports — state of India's environment reports in the early 1980s, *Towards Green Villages* in 1988; and started *Down To Earth* in 1992, with the objective of building an informed public opinion about the environment and development challenge. This work had generated huge dividends as the concerns took shape and policies were framed to manage environment in the nation. But even then all indicators of environment were

declining; we were successful in creating awareness but unsuccessful in ensuring implementation of the many policies and programmes for the environment. We therefore, felt there was a need for focussed campaigns in which we would take on a few issues and work towards finding and implementing solutions. The starting point for these campaigns would be knowledge, the outcome of detailed research.

In 1996, we launched the "Right to clean air campaign" and then in 1998 the "Community-based water management campaign" and more recently, the "Regulation of pesticides and other toxins campaign".

**The right to clean air campaign:** CSE's air pollution campaign was developed specifically as a response to the growing air pollution of Delhi. In November 1996, CSE, published *Slow Murder: The Deadly Story of Vehicular Pollution in India*. It was the first study in India to present a comprehensive picture of the causes of vehicular air pollution.

This started as an awareness campaign informing citizens about the causes of air pollution in cities and the risks to public health and later went on to involve professional communities, including the medical community, technologists and economists. The campaign consisted of a combination of awareness raising, policy research, networking, scientific research and advocacy. But most of all, the campaign drew its strength from the judiciary.

One of the most important elements was to build a constituency amongst the public for better air quality. We analysed and exposed shocking information on health effects of air pollution to fire up public opinion and gather support. We kept the media informed through regular press briefings and produced factsheets and monographs. We conducted research studies and persuaded the medical community to join our fight against air pollution. CSE's public meetings showing the impact of air pollution on public health drew a huge response. Exhibitions and public interest advertisements completed our strategy.

A critical aspect of the campaign has been the opportunity provided by our membership in the Environment Pollution (Control and Prevention) Authority (EPCA) to feed our research into policy making in this area. For instance, CSE's research on the state of fuel adulteration in the country led to the Supreme Court giving orders for the introduction of fuel which could not be adulterated.

We have also realised that pollution issues are highly technical and few civil society institutions have the necessary expertise to intervene effectively in this discourse. This weakness becomes a severe disability for civil society when the government observes a conspiracy of silence and refuses to provide information to the public. Secondly, the drive towards economic growth also results in increased



pollution, which grows much faster than the economy. As a result today it is not just Delhi, but several cities that are fast joining the ranks of the severely polluted — from Kolkata to Pune to Ahmedabad. This therefore, brings us to the third learning, that in the area of pollution, there is an urgent need for poor countries like India to leapfrog to clean technologies. If we were to merely follow the industrialised countries, we will have to go through various stages of poor technology and management systems, resulting in enormous pollution problems and clean-up costs. The big challenge before us is one of defining economic and environmental policies that will make the new leapfrogging technologies viable. This demands a great deal of political foresight.

The question then is: can we reinvent the dream of mobility so that it does not become a nightmare? Can it make new ways to the future city — combining the convenience of mobility and economic growth with public health imperatives? In this hybrid-growth paradigm — which combines the best of the new and old — cities would run on public transportation, using the most advanced of technologies.

The different sets of interventions that are needed to address these combined goals cannot be mutually exclusive, but mutually supportive. Every new generation of these vehicles, though a little cleaner, barely make an impact on the air quality as their super exponential numbers swamp the effect. This has distorted the action agenda. It is time to set new terms of debate that compel regulators to seek solutions not only to the pollution impact of transport, but also find a whole new way of managing cities to improve quality of urban life.

In other words, even as the whole world looks for little solutions to pollution and congestion, these cities must reinvent the answer itself. The question is will these cities, their people and their leaders have the capacity to do what the rest of the world has only imagined?

**Jal Swaraj:** When we started this campaign on rainwater harvesting, we wanted to ‘make water everybody’s business’. Today the concept has caught the attention of India’s political leaders and several water experts and the media. Its biggest strength is that it allows everyone to get involved in water supply and management.

Our aim was to make households, industries, institutions, villages and urban *mohallas*, all recognise the importance and value of rainwater harvesting. We produced simple literature and organised dozens of meetings to explain the principles and practice of rainwater harvesting. We organised tours with children in Delhi taking them to ancient water harvesting sites. To inspire people and the media we took them on *Paani Yatras* to see functioning examples of successful and innovative efforts. We provided decision-makers with easily understandable briefing papers that explained how policy options could be developed.

We also networked with institutions in Delhi to construct model rainwater harvesting projects. The CSE building, for instance, captures every drop of rain that falls on its premises. CSE’s Urban Water Harvesting Advisory Services staff interacted with every possible civil society and government institution — from NGOs, to schools to army cantonments and jails to motivate and help them to construct water-harvesting systems in their premises. We conducted workshops for builders,

architects, water administrators and other groups to acquaint them with the technology. We also collaborated with local agencies to help them set up resource centres (rain centres) that are a repository of information on water harvesting.

It is true that the idea has been established and widely considered. But the challenge now is to ensure that this idea is ‘worked’ extensively so that its practice can become policy. Water harvesting demands a new approach to governance itself — a participatory, rather than a top-down bureaucratic approach. Currently, water management is through a system of building pipes, dams, pumps and borewell paradigm. Building water harvesting structures is a very easy task — any contractor endowed with a bit of money can do so — but building an effective structure, which starts off a process of self-management in village communities is a much more difficult task. The challenge therefore, is to rebuild the relationship of communities with their water so that they can invest in conservation. This is really a slow process of creating awareness and confidence that water harvesting works, of organising communities to develop, maintain and manage water-harvesting activities.

This is the challenge ahead for us. CSE will, on one hand, focus on community-based water management strategies in rural India, and on the other, focus on urban and industrial water management strategies, which are prudent, efficient and sustainable. This will demand minimising the use of water in urban areas; augmenting water through rainwater harvesting and most importantly working towards reuse and pollution abatement of urban sewage.

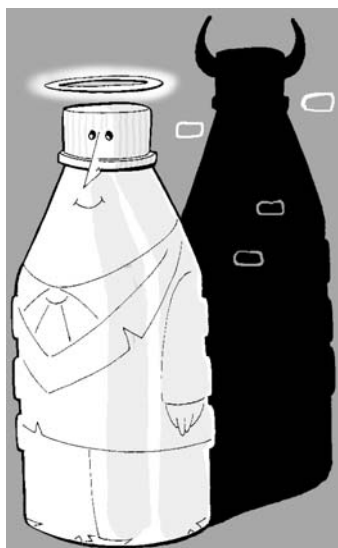
**Regulating and minimising toxins:** In 2003, CSE conducted laboratory tests to detect pesticide residues in bottled and packaged drinking water and popular brands of soft drinks. This we did to raise the issue of acceptable norms and standards for water and food to ensure safety.

When we released the study on pesticides in bottled water we brought to attention the fact that toxic and deadly residues were ‘legal’. This is because the standard set for pesticide residues in bottled water did not clearly define the quantity of pesticides legally allowed. The standard simply said that the pesticide should be “below detectable limits”. In the case of bottled water, the government moved to amend the standards to specify the limits.

Our world changed a little when we published the study on pesticide residues in soft drinks. What we had not anticipated was the sheer power and the virulence of the attack on us. The fact is that the two companies — Coca-Cola and PepsiCo — were incidental to our story on pesticide contamination and on the need for food standards to regulate for safety. The fact that there were two companies and that these were both American multinationals was a mere accident of history for us.

The first attack was on our laboratory — the companies questioned the data analysis, our capabilities, and our equipment and then as it got nastier, resorted to personalised attacks on our integrity and us. Their favourite was to dismiss us as a pawn in the conspiracy of Europe (because we get funds from multilateral and bilateral agencies) to destroy the good name of American companies. But this was not all. We heard rumours of phone calls from Colin Powell, the then US secretary of





state to the Indian Prime Minister's office. We heard of Washington DC-based high-priced lawyers (lobbyists) flying down to cajole the powers that be. We heard of intense activity in the corridors of power, in which we have no place.

We knew in a sense the tables had turned against us. We knew when we had visits from the men in grey from the Intelligence Bureau to check out on us. We knew when we were asked to submit to the government data on: 20 years of our accounts, 20 years of our funding data, 20 years of every staff member who has worked with us and their current address. The strategy we knew

was to trip us, somehow and somewhere. The government drafted the terms of reference of the Joint Parliamentary Committee (JPC), so that it was an enquiry against us. The 15-member JPC was to investigate if the "recent findings of the Centre for Science and Environment (CSE) regarding pesticide residues in soft drinks are correct or not". In other words, we were in the dock, not the Cola companies. The rest, as they say, is history. The JPC was created to bury us, but it ended up vindicating our study. It endorsed our position that the country needs health-based standards for food and water security.

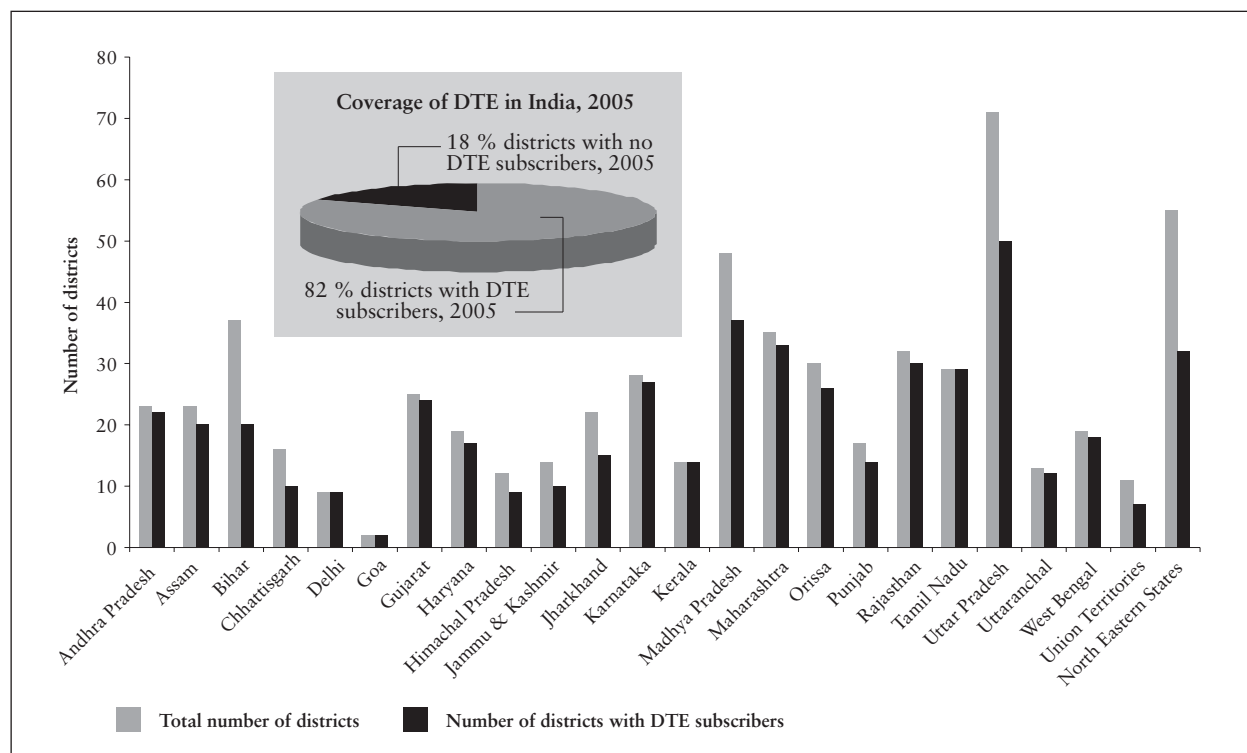
The committee proceedings continued over five months. CSE was asked to make three presentations to the committee. We started investigating these issues in-depth and found it extremely challenging to understand how

regulations for pesticides and food safety are done across the world. We understood the weaknesses in Indian regulations, also understood how global regulations for pesticide residues in food safety are irrelevant and inapplicable in India. We also learnt that though we need stringent health-based regulations, they must be based on our food diet. We also understood the power of large corporations, which had ensured that there are no standards for the final quality for their product and, therefore, remained unregulated. We also found that the parliamentarians were extremely receptive to credible information and were serious about the challenges of public health.

The report of the parliamentary committee was tabled in February 2004. It not only endorsed our findings on pesticide residues in soft drinks but also our demand for a strong public health agenda for food and water.








**Our information outreach/communication:** If we think back on the last 15 years or so, it has been a tremendous advantage for us to have a magazine like *Down To Earth* (published by the Society for Environmental Communications). Through this we have been able to communicate our research and our perspectives on critical issues of environment and development. *Down To Earth* reaches more than 80 per cent of all the districts in India. The information that we put out in *Down To Earth* every fortnight, covering the entire gamut of environment, development and science, is respected, read, and elicits a response from its readers (we get a large number of letters), which shows that people take it seriously. Many of its reports have served to catalyse change, been noticed and used as the base for public interest litigation. This has reinforced our belief that CSE's traditional role in providing credible and timely information is itself a powerful role and can catalyse change in society.

## State and district-wise reach of Down To Earth





## CSE's activities

Objectives	Knowledge dissemination	Knowledge portal	Research and advocacy	Training and outreach
	Science and environment reportage unit (DTE)	Environment resources – books, journals, AV resources, clippings	 Right to Clean Air campaign and sustainable urbanisation	 Anil Agarwal Green College
	Films unit?	Website unit	 Sustainable industrialisation	Anil Agarwal Green College Books unit
		Environment information dissemination unit	 Water conservation and EGS	 School education
			River pollution and sewage	Media resource unit
			Water and waste	

## The way ahead

**Learning agenda:** CSE must continue to track changes in fields, factories, forests and laboratories so that information can become power. CSE then disseminates this information widely to empower civil society.

**Doing agenda:** CSE must continue to research and campaign on key issues and drive change. Some of our campaign areas will be

- Air pollution upscale to sustainable urbanisation;
- Green rating upscale to industry/regulator/community programme;
- Community water upscale to natural resource livelihood and tracking the employment guarantee programme;
- River pollution and water and waste consolidate into programmes for driving change in the way we manage water and sanitation.
- Forest and livelihood to take forward the agenda put forward in the Tiger Task Force report to focus on the poorest district-forest connections.

**Networking agenda:** CSE has to work with different constituencies — media, educationists, parliamentarians, and lawyers.

**Training agenda:** CSE has to work to build capacities so that the information is disseminated and new cadres of change makers built.

**Knowledge agenda:** CSE has to build a knowledge portal for environment so that information is accessible and easy to use

**Regional agenda:** There are the same processes of change taking place in the south Asian region as well and CSE's experience and learning could be used effectively to bring about change.

However, the change that is made through *Down To Earth* is incidental — we publish a good article and we then leave it to chance that someone will read it and he or she will find the information useful and that this information will drive for change. This is an area where we definitely need to improve — how can we maximise the impact of this powerful information medium?

One way information dissemination is working is through the use of our fortnightly emails service. We send this to our friends, who now number more than 100,000. I do know the effectiveness of this list because wherever I travel I find people know about us because they read this email; they know about our campaigns; they are kept fully aware of where we are succeeding and where we are failing through this rather simple system. One way we have tried to refine this system is the media list service — we send out alerts to journalists across the country on key happenings in the area of environment. This service enables media professionals to understand the science, the politics and the people behind the politics in environment and development and then to report about these in the national, regional and local media.





## *Institutional development*

# A framework for new initiatives

New programme initiatives were launched between 2002 and 2006. CSE's pollution monitoring laboratory undertook studies to detect the presence of pesticide residues in bottled water and soft drinks, which, when released took the country by storm. A new programme of environmental training was launched with short-term training programmes. The new building to house this initiative under the aegis of Anil Agarwal Green College also took shape.

This period also saw the completion of many of the programmes. CSE completed and released the green rating of the cement industry in India and published a book on the rating, *Concrete Facts*; organised an international conference on Health and Environment and published the book, *Body Burden*; organised a conference on strategies to control air pollution and published the book, *The Leapfrog Factor* and also published the book, *Agenda Unlimited*. CSE's director also played a crucial role in pushing the water agenda at key fora.

### **Pesticides, bottled water and soft drinks**

One of the major highlights was the study on pesticide residues in bottled water and soft drinks and its impact. The study brought a strong response from the companies that were manufacturing soft drinks in India namely, Coke and PepsiCo who contested the findings and argued that the CSE laboratory report was incorrect. Soon after this the government came out with its own report on pesticide residues in soft drinks, which endorsed CSE's findings. The public response to the issue of pesticide residues forced the government to form a Joint Parliamentary Committee (JPC) to investigate this matter.

Only four parliamentary committees have been set up after Independence. The committee was formed in early September 2003 and gave its report to parliament in February 2004. This was a period of enormous challenge to the institution as the formation of the committee was both a threat and an opportunity for us. It was a threat because clearly if the JPC was to indict CSE for a wrong study it would be a tremendous loss in credibility. On the other hand, if CSE was able to hold its ground, it would also be an important move ahead for the institution. The JPC proceedings continued over five months and CSE was asked to make three presentations to it.

We undertook a detailed investigation of how pesticides are regulated globally and in India and the process of setting health-based norms for them. We understood how the EU regulations for pesticide residues in food safety are irrelevant and inapplicable in a country like India. We also understood the power of large corporations, which have ensured that there are no standards for the final quality for their product and, therefore, remain unregulated by national governments. We were able to explain to the parliamentarians the importance of stringent standards for water quality and health-based regulations.

The report of the JPC was tabled in February 2004. It not only endorsed our findings on pesticide residues in soft drinks but also endorsed our demand for a strong public health agenda for food and water. In conclusion this was an important and fascinating period for the institution as it was also a process when we learnt how we can 'work' our democracy better.

### **Anil Agarwal Green College**

During this period, we also initiated a new activity, environmental training. This has been institutionalised under the Anil Agarwal Green College (AAGC). The AAGC has been conceptualised to share the accumulated learning and experiences of CSE over the past two decades



The new AAGC building at Tughlakabad Institutional Area in New Delhi

with society. It is an effort to impart to others, the different dimensions and approaches to environmental Issues — from science to politics — and then to also build skills to research, communicate and to advocate for policy change.

In the coming years, we will work further to flesh out a longer-term course for young students to build their capacities to research, communicate and to advocate, in short, to become young environmental warriors. In the meantime, we tested the waters for undertaking training programmes by initiating a series of short-term training programmes on various aspects of environmental advocacy.

AAGC also started another initiative in targeting international students of environment and development to provide them an understanding of development perspectives from Southern countries. The course is an intensive one comprising classroom lectures, field trips and practical exercises.





## The Tiger Task Force

In 2005, following extensive media reports on the disappearance of tigers from the Sariska reserve, the prime minister set up the Tiger Task Force to review the tiger conservation programme and then to suggest a new paradigm for tiger conservation. CSE director Sunita Narain was appointed as the chairperson of the Task Force.

The task of steering the Task Force presented many challenges for Sunita Narain. CSE did not have a dedicated programme or team working on these issues to enable her to draw upon internal resources easily. However, what CSE had was an excellent library that had painstakingly documented the tiger and its conservation over the years. Reportage in *Down To Earth* was another key source of information. A small core team was formed out of reporters, copy editors and volunteers to undertake research and source data that was not publicly available. This team worked to put together background information while Sunita and the Task Force members travelled across the country meeting wildlife researchers, conservation scientists, forest bureaucrats and activists. The objective was to find ways of safeguarding the tiger and protecting its habitat, without excluding the people who inhabit the forests.

The report was completed within three months and presented to the prime minister with specific recommendations for action. The Tiger Task Force work provided a window of opportunity for CSE to work on rural issues — community-based forest management, participatory wildlife and biodiversity management. This could also be the path to reviving our linkages with grassroots groups.

## Long-term strategy building

We undertook an exercise to review, develop and plan for a long-term strategy for the organisation in 2005. We began the activity from within CSE and each and every staff member was involved in this effort to review what have been the strengths and weaknesses and what should be the future directions. The director kicked off this process of introspection and prepared a note summarising the origin and growth of CSE, what were the environmental challenges facing the country and how CSE can play a key role in meeting these challenges. Staff members, individually and collectively, critically analysed CSE as an environmental public interest organisation — its growth in the past 10 years, impact, mandate and context within the environmental movement. A SWOT analysis was carried out to find out what resources and skills within the organisation can be leveraged to maximise impact.

The entire exercise culminated in a full-staff meeting, which saw very intense and involved discussions on how CSE should move forward. The results were presented to the executive board to finalise the broad contours of its future programmatic strategies.

What we found from this, was that there was a near unanimous feeling within the organisation that CSE's campaigns have been successful and have been able to bring about positive changes, influence policies and provide direction to the environment-development debate. Importantly, CSE's work has resulted in a sense of hope among people that solutions can be found and implemented. We also found that the information that CSE creates and disseminates is highly respected and accepted. One of the most heartening findings was that there is a sense of pride among CSE staff about the work they do in CSE and its role in society.

We also found that there were weak areas, which the organisation as a whole needs to work on. One of the key weaknesses was that we were not able to orient the average staff member in CSE towards quality research. This is an intrinsic part of CSE's work and therefore we need to find ways to institutionalise research methodology and analysis in our work. AAGC could be one way of institutionalising in-house training on research and writing skills and understanding environmental issues. Another area of weakness is that over the years, our work has become more urban-focussed and our links with the grassroots have declined. In the past, CSE's work was enriched by its access to a huge network of civil society organisations. These links need to be created again.

The outcome of this exercise was that CSE's future areas of work would be based on the following principles: (1) consolidate and strengthen the core area of work in environmental communication and campaigns, and, (2) expand the recently initiated programmes on education, training and constituency building. At the same time improve research and analysis and thus put the publications programme back on track and strengthen work on forest-water-wildlife-biodiversity issues.

## Building a culture of excellence

We have set up a few measures to try and ensure that we maintain high quality standards. But this is an ongoing task and we constantly have to monitor them in order to bring in improvements. Ultimately the drive for excellence is a personal quality and institutions can, at best, provide the right incentives and systems to foster this. Some of our systems to help maintain this expectation for high quality are given below.

### ■ PROGRAMME MONITORING

We already had a system of programme monitoring and incentivising performance in place. In this period we made several improvements to this system, constantly and consciously making efforts to learn from the system and feeding the results of our learning back into it.

One of the significant improvements effected during the period was the development of an electronic programme monitoring software to undertake real-time tracking of the progress of activities planned for the year.

In the early years, the monitoring of programme plans was effected by measuring the percentage of work achieved against targets set in the annual plans. We have now refined this process considerably, by providing weightage for different tasks of the plan and also by providing weightages to each staff member of a team. A system of assigning higher weightages to priority tasks ensures that these tasks would get completed. Yet another refinement was also in develop-





## Feedback from staff

### 1. On CSE's achievements in the last 10 years

The near unanimous response was that CSE's achievements in the last 10 years were the publication of *Down To Earth*, the different campaigns of right to clean air, water harvesting, and pesticides and the programme of green rating. It is clear that both *Down To Earth* and the campaigns have a high visibility both within and outside the organisation.

### 2. On what were the key achievements of CSE in the last 1-2 years

Everyone felt that CSE's campaign and programme activities on air pollution, Jal Swaraj and the pesticide study were the main achievements. Many also identified the reasons for the success — high quality research, the credibility of information, use of democratic tools of media, public awareness creation strategies.

### 3. On CSE's contribution to the environmental movement/society

A majority identified mainstreaming environmental issues by creating public awareness and the unique tool of knowledge-based advocacy as CSE's contribution to society.

### 4. On CSE's key failures in recent years

A key failure identified was in not being able to maintain the momentum of producing publications, especially the flagship publication of the State of India's Environment Report. Other perceived key failures were the decline in our civil society network and constituency-building, research capacity and moving away from rural issues such as forest, wildlife, biodiversity and their linkages with poverty, to urban-centric issues.

### 5. On what CSE should do

CSE must strengthen its research and bring out publications regularly and also produce them in regional languages to extend its reach. Improving networking ability with grassroots groups and rural reportage were other recommendations. There were many responses on improving the outreach by using mediums like radio, films and also to focus more on marketing to achieve a degree of self-sufficiency. Continuation of campaigns and programmes were felt to be important. Many staff endorsed the new initiative of Anil Agarwal Green College.

### 6. On what CSE should not do

While there was much appreciation of our campaign against soft drinks and its impacts, there was also a feeling that CSE should avoid getting into consumer-oriented issues. There were suggestions that CSE must focus on a few core activities and not spread itself thin. There were many responses that also said that CSE should continue to do what it is doing and do it well.

### 7. On institutional issues

There was a widespread feeling that CSE should try to retain staff members, especially those who have spent more than five years, as they are repositories of institutional memory. Suggestions on issues of recruitment procedures and staff retention, staff training, mentoring and discipline were also sent in.

ing an index to incorporate factors such as financial performance, human resource indicators, and team development. These indices are then compared across units to decide on the actual and overall performance over the year.

Another significant progress was the initiation of the mid-term review process to take stock and make improvements in the annual planning process. This is a meeting of senior staff members where the progress

## Online monitoring system

- Personal diary where staff may store their daily work/appointments, etc.
- Monthly performance charts for individual staff members and unit
- Online help page
- Suggestion box
- Online monitoring report for the director
- Access to monitoring software from outside CSE
- Specialised data book for each unit
- Monthly messaging from the programme monitoring and administration unit (PMA)

of the annual plan is assessed to analyse the reasons for lags and failures.

## Monitoring impact

In 2006, we made major changes to the programme monitoring system to enable us to move to the next step of making sure that our programmes and activities meet the planned objectives, result in the desired outcomes and have impact and quality.

The institution has matured to a stage that we need to go beyond what we do, how much we do to looking at how we do and what impact each activity or each person has. In order to do this, we began right from the stage of annual planning. The process was modified in a way that the starting point for our activities will be the objective of each team and each activity. The programme monitoring system will thus generate reports on: (1) Impact of activities; (2) Impact of team; and (3) Meeting objectives.

### ■ TRACKING IMPACTS

Once the indicators were defined, we went on to set up a system to collect information on the impacts of our work. As CSE is in the business of creating awareness, influencing opinions and changing policies, measuring the impact of its activities has never been easy. Impact has come in a number of ways: letters from people appreciating our work; telling us of actions they have taken in response to our work; newspaper reports on our work; our reports being carried by other newspapers; permission to reprint or use our reports in many ways and other such impacts. The first task was to standardise the impacts for the different kinds of work that we do and the second step was to formalise the process of sourcing this information. The third step was to disseminate information on the impacts of various activities so that all staff members come to know about it.

### ■ SYSTEM OF PERFORMANCE-BASED INCENTIVES

We had introduced a system of performance-based incentives way back in 1998 and continued to make improvements to the system. The incentives system included a range of incentives — monthly, quarterly and annual awards. The monthly system was to ensure consistency of output throughout the year; the Quarterly Performance Reward (QPR) was designed for senior staff members and took into consideration the multifarious responsibilities and unplanned activities; and, the annual assessment process is a more rounded assessment that takes into consideration, not only the quantitative targets but also



work quality, inter-personal relationships, punctuality and other parameters. There are also annual special rewards for different kinds of work and skills.

In 2006, we made major changes to the system of performance-based incentives by doing away with performance-linked monetary incentives. We felt that CSE has matured in a way that that everyone at CSE is committed to their work and determined to complete it. Thus, there is now no need to continue with this tool.

#### ■ **DECENTRALISING LEADERSHIP**

This period was also important in terms of organisational development. In 2003, we wanted to decentralise leadership to make way for more sustainable institutional development. We created seven clear activity units consisting of both programme and management areas and appointed leaders to be completely responsible for their programme areas. We also conducted staff meetings to assess weak areas that hinder the development of leaders and also to understand their needs and organisational inputs. Programme leaders now have new roles to play and need to hone their skills in areas like time management, personnel management and information management. Team leaders and senior staff members identified the need for building up writing and analytical skills and also training needs in the area of time management and multi-tasking. Researchers need training on writing structured copy and picking up journalistic skills like reporting and journalists need training in research skills.

This period saw many younger staff members rise to take charge and assume new responsibilities. For instance, in *Down To Earth*, the managing editor was freed of day-to-day responsibilities as the news and copy chiefs now function independently. In the industry unit, the deputy coordinator was given the responsibility of continuing the basic work of industry ratings so that the associate director could look forward to an expanded scope of work and personal growth. Similarly, in water, new leaders will now take forward the work of river pollution and city-wise management of water. The web team was taken over by yet another new person.

### **Support for institutional development**

During this period, CSE acquired additional land adjacent to its office at the Tughlakabad Institutional Area. This was acquired primarily for the purpose of housing the AAGC. The building was designed by the architectural firm, Vastu Shilpa. B D Doshi, one of India's leading architects designed it to be eco-friendly, incorporating principles of reduced energy consumption and recycling of waste water for effective resource conservation. A series of cascading terraces provide opportunity for rainwater collection that will recharge groundwater by means of percolation wells.

Meanwhile a 10kva solar power back-up system that provides back-up energy for the entire computer system in the office was installed. This was part of our effort to promote the use of renewable energy.

In this period, we also focussed on strengthening our information technology (IT) hardware capacities to maximise the effectiveness of IT, by upgrading the local area network (LAN) cabling, terminations, the CSE mail server and the internet bandwidth. We also installed a firewall system to protect the system from viruses.

### **Outreaching CSE products**

CSE's informational products now reach more people and in more diverse ways. In 2003, we revamped the marketing unit and gave it new direction. Senior marketing professionals were recruited to hammer out a strategy for increasing the visibility and sales of all CSE publications and products, such as the library products (green files), the audio-visual services (videos, slides), in addition to major publications. The key strategy adopted was direct marketing using mailers, gift strategies, and advertising through the website. While previously no effort was made to market *Green Files* and other AV products, the team now focuses on these.

### **Income from products**

Products	April 2002 – March 2006
Green Files	Rs 28,41,912
Audio visual products	Rs 81,31,047
Total	Rs 109,72,959

#### ■ **INCOME FROM AAGC TRAINING PROGRAMMES**

A quick study to estimate the potential for a training programme showed that there existed a need and demand in society among different interest groups. The public response to our initial programmes launched last year also showed that there was a felt need for such training programmes in the environmental arena and that CSE's experience and reputation in this field would contribute greatly to the success of this programme. We will focus on this area in the coming year to build a strong foundation for the long-term success and sustainability of the programme. The training programmes have yielded an income of Rs 44.39 lakh for the period 2003-2006.



The rooftop solar power system installed at CSE's Tughlakabad Institutional Area office in New Delhi





## Awards

# Recognition from several agencies



President of India APJ Abdul Kalam awards the Padma Shri to CSE director Sunita Narain at the Rashtrapati Bhawan in New Delhi in 2005



The Stockholm Water Prize being awarded to Sunita Narain in Sweden

## Recognition from the Government of India

CSE director Sunita Narain was conferred the Padma Shri by the Government of India. She was given the award on occasion of the Republic Day, January 26, 2005 by the President of India APJ Abdul Kalam. This recognition by the government is an indication of the increasing importance of environment as a whole and especially of the efforts by CSE for promoting environmentally sustainable development.

## Stockholm Water Prize, 2004

CSE was awarded the Stockholm Water Prize for the year 2004 for its work over the past decade to promote alternate paradigms in water management.

At the opening ceremony, Sunita Narain, on behalf of CSE, made the laureate presentation, which received a standing ovation.



## Chameli Devi Jain Award, 2004

For her outstanding work in the field of journalism CSE director Sunita Narain was chosen the most outstanding woman media person for 2004 by the Media Foundation. She was awarded the Chameli Devi Jain Award on March 29, 2005 at a function organised by the Media Foundation at the India International Centre in New Delhi.

The jury comprised Malavika Karlekar of the Centre for Women's Development Studies, Neerja Chowdhry of *The Indian Express* and Sumit Chakravarty, editor of *Mainstream*.



CSE director Sunita Narain receives the Chameli Devi Jain Award from Vir Sanghvi, editor of the *Hindustan Times*

## Dadabhai Naroaji Millennium Award

The National Committee of the Dadabhai Naroaji International Society conferred upon Sunita Narain the Dadabhai Naroaji Millennium Award, 2003. This award comes in recognition of her outstanding achievement in creating mass awakening in society and her contributions in the field of environment awareness. The award was presented by T N Chaturvedi, Governor of Karnataka, at the Constitution Club, Rafi Marg, New Delhi on September 10, 2003.

## Dr B C Deb Memorial Award

The Indian Science Congress Association, Kolkata awarded Sunita Narain the Dr B C Deb Memorial Award for Popularisation of Science for the year 2002-03. The award was given for her leadership of CSE's science and environment reportage through the magazine *Down To Earth*. The award was presented in January 2003 in Kolkata where she delivered the Dr B C Deb Memorial Award for Popularisation of Science lecture 2002-03.

## Rotary Eco Foundation Award

Rotary International presented Sunita Narain the *Rotary Eco Foundation Award* in December 2003. The award was given for her leadership of CSE's water harvesting programme in Delhi.



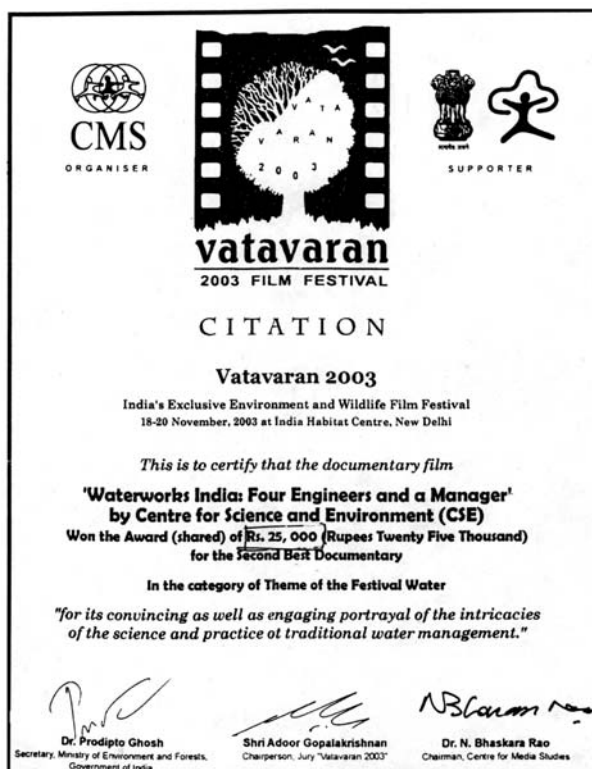
CSE director Sunita Narain receives the Siri Ram Washeshran Devi Bhatia Memorial Charitable Trust award in Dehradun

## Siri Ram Washeshran Devi Bhatia award

The Siri Ram Washeshran Devi Bhatia Memorial Charitable Trust awarded Sunita Narain, the 2004 award for her leadership of CSE's environmental programmes. The award is for her leadership of the pesticide campaign in 2003 and is a recognition of CSE's work, which touches the life of many ordinary people.

## Vatavaran 2003 award

Two of CSE's films won top awards at the Vatavaran 2003 environment and wildlife film festival. The Rainwater Harvesting PSA won the best documentary award in the public service message category. The other film *Waterworks India*, directed by Pradip Saha, won second best documentary award for the festival theme "Water for Life".







## *Right to Clean Air Campaign*

# Advocating ways to reduce air pollution

The years 2000-05 saw a transition in the Right To Clean Air Campaign in CSE. They witnessed a shift from the awareness raising phase to direct advocacy involving relentless efforts to implement the air pollution control measures to check the runaway pollution in Delhi.

A multi-pronged strategy that hinged on judicial action, public campaigns and media strategy has successfully catalysed significant policy developments to lower air pollution levels in the city. The wide-ranging policy measures include advancement of Euro II emissions standards for new vehicles in 2000, lowering of sulphur content in diesel and petrol to 500 ppm, lowering of benzene in petrol to 1 per cent, implementation of the largest ever CNG programme for public transportation systems, and phasing out of 15-year-old commercial vehicles. Simultaneously, certain important crosscutting measures were brought to focus that include the inspection and maintenance (I&M) programme for in-use vehicles, strengthening of air quality monitoring and checking of fuel adulteration. These first generation reforms have made a significant impact on the city's air.

The court's strategy is very crucial for the air pollution campaign. CSE's presence in the Environment Pollution (Prevention and Control) Authority (EPCA), which is responsible for advising the court on pollution control matters and responsible for monitoring of the pollution control efforts, offers an opportunity to provide research support and shape policy recommendations.

CSE follows a unique style of communication in its public strategy to build awareness, and provoke response. It explains the science of pollution in the language of the lay person to push for policy action, mobilise public opinion and build a constituency for its clean air agenda.

## Research and advocacy

### Implementation of the CNG programme

CSE's role and scope of action have evolved over a period of time. Almost the whole of 2001 was spent to counter the misinformation campaigns against CNG and neutralise opposition to the Supreme Court order on CNG. The air pollution team had to be vigilant to counter all efforts to sabotage the implementation of the CNG programme of July 28, 1998. CSE kept the public informed regarding the environmental benefits of moving to CNG, its safety measures and its availability. CSE mounted pressure on the government to be more proactive in implementing the programme.

#### ■ BUILDING SCIENCE FOR A GOOD CNG PROGRAMME

To ensure quality in the CNG programme for maximum emissions reductions CSE organised a series of technical evaluation and studies on CNG bus technologies to feed the process of policy development. Since very little exper-

tise was available in the country to take up technical evaluation of the programme, CSE scouted for international experts from different countries, who had a deep and diverse experience and who would understand both CNG and diesel heavy-duty vehicle technology and undertake an assessment of the available CNG technology and the prevalent emissions and safety regulations in Delhi. The team comprised the following members: Christopher S Weaver, President, Engine, Fuel, and Emissions Engineering, Inc., Sacramento, California, Lennart Erlandsson, Motor Test Centre AB, Sweden, Fank Dursbeck, Independent international consultant in the field of traffic and environment who has spent many years with TÜV Rheinland Sicherheit Und Umweltschutz GMBH. The experts conducted two investigations in 2001 and 2002.

The technical evaluation identified items or manufacturing and engineering defects that could be further improved in order to minimise the risk of unwanted incidents. Based on these studies EPCA made recommendations to the Supreme Court. The Union Ministry of Road transport and Highways incorporated some of these recommendations in their notification published in November 19, 2001 — G.S.R 853 (E). Some legal modifications followed to include new safety norms that were woven into the safety code of practice for using CNG in IC engines — AIS 028 (Code of practice for use of CNG fuel in internal combustion engine vehicles) in addition to the AIS 024 (Safety and procedural requirements for type approval of CNG-operated vehicles) safety procedures for type approval of CNG vehicles. Regulations for conversion became tighter.

A separate safety council was set up by the Delhi government to deal with CNG-related safety issues and carry out evaluation of safety problems, identify solutions and

Chaos  
Neglect  
Grumble

Apathy  
Wishy-washy  
Aversion  
Reluctance  
Denial

Heh. Heh.  
All's Well,  
That Ends Well.





ensure implementation. Independent third-party inspection, different from the existing annual fitness inspection system for all vehicles, was instituted. CSE continued to evaluate the programme from time to time and proposed necessary changes to get a robust programme in place.

#### ■ CNG PRICING

When the final deadline of April 2002, for complete phase-in of the CNG programme drew close, the Indian government, without any prior warning, increased the excise duty on CNG. Close on its heels, IGL, the sole supplier of CNG in Delhi, hiked the price. The Supreme Court immediately stepped in to demand scrutiny of the price hike and review of favourable taxation policies worldwide to keep CNG competitive. The success of the CNG programme depends on its pricing policy. CNG prices must remain lower compared to conventional fuels to offset the higher capital cost of the CNG vehicles.

CSE reviewed and assessed the CNG pricing matter. It also organised technical consultation and commissioned Mats Ekelund from Sweden to study worldwide trend in CNG pricing. Based on these efforts CSE made specific recommendations that became the basis of the EPCA recommendations to the Supreme Court. Subsequently, the SC in its order of August 14, 2003 asked Union government to clarify the stand taken on the issue of CNG pricing vis-à-vis other petroleum fuels in the Petroleum regulatory bill. The Union of India informed in its affidavit of October 8, 2003, "...in future when the natural gas pricing policy is formulated, various fiscal instruments including the one suggested by the EPCA is its report would be borne in mind by the government so as to keep the price of CNG fuel competitive in the deregulated scenario."

#### ■ CNG THREE-WHEELER

Under the orders of the Supreme Court, one of the largest CNG-conversion programmes for three-wheelers is in full swing in Delhi that already has a strong fleet of 53,262 CNG three-wheelers. While considerable benefit is expected from these vehicles, controversy began to surround some of the vehicles that were seen to emit a plume of smoke while being used.

CSE first investigated the matter and organised technical assessment of the problem in 2002. The assessment indicated the possible source of smoke as the lubricating oil leaking without any, or partial, combustion due to fast wearing off of piston rings. Lennart Erlandsson, then the manager, Air Quality at Motor Test Centre (MTC), Sweden, explained, "Poor quality piston rings require more lube oil to function properly and would lead to smoke formation due to leakage of lube oil from the oil sump to the combustion chamber." To avoid the problem, he suggested complete overhaul of engines and change of piston rings with every 30,000 km, or twice every year. Clearly, this indicated that the quality of the pistons rings being provided by the manufacturer.

All these efforts notwithstanding, the problem of white smoke persisted. This led EPCA to examine this issue more closely. CSE helped to organise technical evaluation and suggest remedial measures.

#### ■ EXPANSION OF THE CNG PROGRAMME

After the successful implementation of the CNG programme it became imperative that the clean fuel programme should be expanded to the neighbouring



states of Delhi that are also reeling under serious pollution load. Accordingly the SC envisaged that Gurgaon and Faridabad in Haryana and Noida and Greater Noida in Uttar Pradesh should be covered under the CNG programme. To enable a decision CSE provided research support to EPCA. EPCA submitted its report number 11 called the *Report on the expansion of the CNG programme in the NCR towns of Faridabad, Gurgaon, Noida and Greater Noida*. Based on this report the Supreme Court in its order dated March 11, 2005 directed the states of Haryana and Uttar Pradesh to render full cooperation and assistance to IGL to set up the requisite number of outlets in Faridabad and Gurgaon in Haryana and in Noida and Greater Noida in Uttar Pradesh. Given the mandate all the state governments are working towards implementing a gaseous fuel strategy.

### Campaign for better emissions standards

The committee on the auto fuel policy, headed by the CSIR chief R A Mashelkar was set up by the Government of India to provide an opportunity to lay down the basic principles of setting standards for fuels and technology to meet region-specific air quality targets for the country. CSE was given the opportunity to make a presentation to the committee.

CSE criticised the interim report of the committee on the auto fuel policy for presenting a weak road map and ignoring public health objectives. The government was using this report to undermine what has been achieved in terms of cleaner fuels and better emission standards in Delhi. The entire move was to maintain status quo, and continue with Euro II diesel technology, and not insist on CNG in Delhi. Any possibility of implementing Euro IV emissions standards in the next 10 years was not even discussed in the report.

#### ■ EFFECTIVE IN-USE VEHICLE INSPECTION PROGRAMME

After almost a decade of the PUC programme the Union Ministry of Road transport and Highways responsible for setting standards for in-use vehicle programme had revised the PUC norms to be implemented from October





2004. CSE was shocked that this first-ever revision since the beginning of the programme in 1992, had not even addressed on-road diesel emissions — source of the deadliest particles in the ambient air. Neither had the notification laid out adequate test procedures for all types of vehicles to plug loopholes for manipulation and to validate the correctness of emissions tests.

CSE participated in the public comment process and sent detailed and repeated comments and objection to the draft notification. CSE constantly briefed the media and organised press conferences during the year targeting the proposed PUC norms. This made a considerable difference. The test procedures for the smoke tests conducted on diesel vehicles were tightened (requirement of measuring the key test parameters like oil temperature and engine RPM) that was earlier ignored. Similarly, post-2000, two-stroke engines were being allowed more lax emissions limits compared to their four-stroke counterpart. CSE campaigned for equal norms for both. The two-stroke norms were tightened to the level of four-stroke norms.

Noticing that the national norms were weighing down progress in polluted and bigger cities like Delhi, CSE also campaigned strongly for tighter norms for more polluted cities. For the first time, the central government notification made an explicit inclusion that state governments could adopt tighter standards for the in-use fleet than the national norms.

In October 2002, CSE invited two eminent experts Michael P Walsh, US-based international expert on vehicle technology, and Lennart Erlandsson from the Motor Test Centre Sweden, to assess the PUC programme in Delhi and chart a roadmap for improving the vehicle inspection programme. They undertook extensive field visits and consultations with the concerned agencies. Their report titled *A Plan for Progress: Motor vehicle inspection in the national capital region of Delhi: Recommendations for short, medium and long term*, outlined the future roadmap for strengthening the PUC programme and introduction of centralised inspection centres.

These recommendations became the basis of the EPCA report and recommendations to the Supreme Court. The immediate outcome was that the Burari revamp plan was split into two phases. The first phase would carry out the changes to improve the overall fitness test procedures and the second phase would involve upgrading of the centralised inspection for commercial vehicles along with loaded mode test procedures to enable measurements of PM and NO<sub>x</sub>. Based on the EPCA report, the Delhi government in its affidavit filed in the Supreme Court agreed with the EPCA's recommendations in principle.

CSE continues to organise surveys to assess the implementation of the new PUC norms and provides the key inputs to EPCA's deliberations on the matter. This has helped in improving the PUC programme in Delhi. For example, the PUC centres now work more efficiently and conscientiously. There is greater awareness with regard to the accurate test procedures.

#### ■ INTRODUCTION OF THE LAMBDA REGULATIONS

The Unit along with EPCA has been working towards the introduction of the lambda regulations as part of the PUC programme in the NCT of Delhi for petrol-driven four-wheelers equipped with three-way catalytic converters

and closed-loop feedback system. Pursuing EPCA's report, the SC discussed the rationale and importance of introducing lambda tests as part of the regulatory requirement. The PUC centres began testing lambda on a pilot basis to generate data and gain experience for implementing the test as part of the enforcement.

### Campaign on fuel adulteration

In 2001 the SC asked EPCA to appoint an independent agency to conduct an investigation into the problem of fuel adulteration in Delhi. CSE was selected by EPCA to undertake this independent study. The study was submitted to the court in February 2002. The CSE report had led to the court directive of April 5, 2002, on introduction of non-adulterable gaseous fuels like CNG and LPG in polluted cities of India.

The Right to Clean Air campaigners repeated their investigation in 2003. The team tracked this crime and witnessed pilferage from oil tankers outside the Bijwasan oil terminal in Delhi, and open sale of adulterated fuels from drums in garages, tea stalls and roadside workshops around Delhi and in smaller towns like Meerut. The article coincided with newspaper reports from around Delhi and other parts of the country about a large number of new vehicles reporting engine failures even before the expiry of the warranty period. Such engine failures were attributed to rampant fuel adulteration. The team exposed the fuel adulteration issue in Delhi with photographic evidences in *Down To Earth* dated November 15, 2003.

The SC converted the *Down To Earth* report and photo documentation of fuel adulteration into an interim application on November 24, 2003, and served a notice to the Union government and subsequently to all oil companies to respond. These photographs, along with the *Down To Earth* cover story (*Overhaul*), were presented to the court by Amicus Curiae Harish Salve.

The Chief Justice bench of the Court, was shocked to see the photographs taken by CSE's Right to Clean Air campaigners of the rampant pilferage from oil tankers and open sale of fuels to casual customers, and directed the Union government to respond to the report. Chief Justice V N Khare said that the findings were nothing less than "shocking", since the court has always been given to believe that tankers transporting fuel in the country are

### Reaching across borders

The Lahore Clean Air Commission (LCAC) set up by the Lahore High Court is advising the court on the lines of EPCA on air pollution matters. CSE provides information to this commission on request. An excerpt from the minutes of the last meeting of the Commission that was held on November 4, 2003.

"Mr Hassaan Ghazali gave a brief presentation on fuel quality in Pakistan highlighting the need for refineries to regularise product lifecycles to prevent the sale of adulterated fuels. He submitted that India benefited greatly from the efforts of the Centre for Science and Environment in reaching the depth of research required to make good policy for reducing vehicular emissions."



tamper-proof. Discussions on this rocked Parliament when former Union environment minister Saifuddin Soz drew the house's attention to the findings of CSE.

Following the court order, Union petroleum minister Ram Naik immediately stopped import of kerosene by private agencies, which was the major source of adulteration in many states. It was officially admitted that diesel consumption had dropped in the country — by nearly 7 per cent — owing to rampant adulteration with cheap imported kerosene.

The government is still silent on the larger issues that make fuel adulteration so easy in India — fuel pricing policy, effective monitoring of fuel quality in the field, appropriate testing methods, effective penalty and accountability of the oil companies.

## Campaign against dieselisation

The Right To Clean Air team refocused its diesel campaign in 2004 when it noticed phenomenal spurt in diesel car sales in the capital during 1999-2003 — the annual incremental growth rate was a staggering 106 per cent, as opposed to 12 per cent for petrol cars. This issue found good support from the media and provoked response from Sheila Dikshit, the Delhi chief minister who directed the state transport department to look into the matter. The air pollution team wrote to Sheila Dikshit expressing concern over the fact that there were indications that the Delhi government may not implement the decision to increase the sales tax on diesel. Skewed taxation was only adding to the mad craze for diesel cars in Delhi, they said.

The team organised a media campaign on this issue. The media carried this forward and unleashed a tirade against the explosive numbers of diesel cars in Delhi. Newspapers captured the concerns: — diesel undoing CNG's good work in Delhi; more diesel cars sold despite threat of cancer; Capital Pollution: diesel-run vehicles choking our cities. The lead editorial in *The Times of India*, a leading national daily, stated categorically that if price incentives were taken away, "the community might, in the short run, have to pay a higher price. But bearing in mind the eventual economic rewards and the vital necessity of preserving the purity of the air we breathe, the sacrifice would definitely be worthwhile." *Hindustan Times* did a front page story on this issue.

The chief minister of Delhi immediately directed the Delhi state transport department to investigate the air quality impact of dieselisation in the city. The finance department of the state government proposed to increase the sales tax on diesel in Delhi from the current level in the forthcoming budget.

The sustained pressure over some time paid off when the Delhi government in its budget 2005, announced an environmental cess on polluting diesel cars for the first time ever. The Delhi government also increased sales tax on diesel in the same budget. These were the vital steps forward to control the deadly trend of dieselisation in the city. Appreciating the Delhi government's move, CSE welcomed the decision through a press release on July 22, 2004.

Subsequently, however, the Delhi government came under pressure from the diesel lobby. Finally the Delhi budget was cleared, with the two per cent environmental cess included. CSE again did a press release, on July 28,

2004 condemning the move by industry and corporate lobbies to scuttle the measures taken by the Delhi government. But the battle was far from won. Eventually, under pressure from the diesel lobby, the Delhi government backtracked.

## Anil Agarwal Clean Air Model

The Anil Agarwal Clean Air Model was developed by CSE in December 2002, as a participatory tool to identify measures for reducing pollution. The model allowed one to perceive the impact of possible positive policy interventions in reducing the emissions load from vehicular sources. It calculated the possible scenario from 16 identified policy interventions.

The model estimated loads of key air pollutants from 2000 to 2015, and showed how these identified policy interventions could effectively bring them down in the



Chief Justice of India B N Kirpal (centre) at the release meeting of the Anil Agarwal Clean Air Model in New Delhi in December 2002

next 10 years. It gave a good approximation of the pollution load in Delhi and could be effectively used as a policy analysis tool.

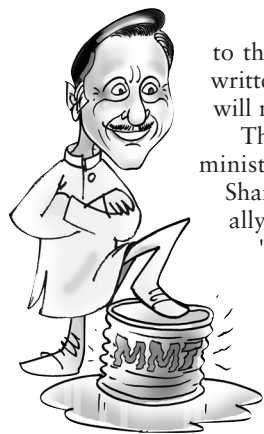
Chief Justice of India B N Kirpal released the model at a well-attended meeting on December 3, 2002 in New Delhi. At the meeting, the team also presented a People's Manifesto based on the results of the model. The manifesto was handed over to Ajay Maken, Delhi's transport minister.

## The MMT campaign

The Right To Clean Air team undertook a campaign to prevent the use of Methylcyclopentadienyl Manganese Tricarbonyl (MMT) as an additive in petrol to enhance the octane number. It issued a press release on April 1, 2005, highlighting the use of the highly toxic MMT by oil companies and wrote to key officials in the ministry, the Central Pollution Control Board and the transport department.

The media reported it extensively and there were lot of queries on the issue. The consistent pressure led to the tabling of a question in Parliament on the matter on April 25, 2005. The Central Pollution Control Board and the Delhi Pollution Control Committee responded favourably





to the concern and took the initiative of getting a written assurance from the oil companies that they will not blend MMT in petrol in Delhi.

This battle was finally won when the then Union minister for petroleum and natural gas Mani Shankar Aiyar, in response to CSE's letter, personally intervened in the matter. He wrote to CSE, "...public sector oil refineries are not using MMT any more. You will be glad to know that Numaligarh Refinery Limited (NRL) too will discontinue the use of MMT by March 2006." CSE issued a press release on June 23, welcoming the positive step.

### Pollution from transit traffic

The emissions from transit traffic have been a serious cause of worry in Delhi for a long time. Non-destined trucks have always been a special problem for the Delhi government. CSE has done extensive studies to assess the pollution impact of the transit traffic. In spite of interventions from the SC the matter has still not been resolved and all concerned parties continue to flout the various orders issued by the SC. The SC has now appointed a high-level committee under the cabinet secretary to look into the issue and work towards scheduling out the implementation and working on the final implementation strategy.

### Second generation reforms

The year 2004 was a turning point for the campaign. The impact of the first generation measures was clearly visible in Delhi. The air was cleaner but still pollution levels were too high. At the same time new pollution data indicated that many other cities were scaling the pollution peak. The campaign assessed and refocused:

- i. It recognised that there was an urgent need for second-generation reforms to sustain current gains and the momentum to meet the clean air target. Both technology measures and mobility management would have to be combined so that the pollution gains were not swamped by the rapidly rising numbers of vehicles in the city. The priority areas were charted as technology leapfrog, building of public transport agenda and travel demand management measures to reduce automobile dependency and car numbers.
- ii. In August 2003, CSE presented to the SC the new pollution data for other polluted cities to indicate air pollution was now a nationwide crisis. In response the SC expanded the ambit of the Delhi pollution case to seven other cities, including Ahmedabad, Kanpur, Lucknow, Chennai, Bangalore, Hyderabad and Sholapur, and made EPCA responsible for monitoring the progress of the implementation of the action plan to control particulate pollution in these cities. This presented an opportunity to upscale the campaign to the national level. The team worked closely with EPCA to help define the priority areas of intervention and provide research support to facilitate the national programme.
- iii. This was also the time to consolidate the learning from the decade old campaign, integrate that with the new research already underway on the emerging

issues and strategies. It became imperative to consolidate all this in a book and to define the way ahead to proceed with the next generation reforms and guide future work.

### Campaign to control car numbers

In a statement of concern presented to the SC in January 2004, CSE had pointed out that in spite of the enormous efforts and substantial gains made because of the directions of the SC to combat air pollution, the city's air remained polluted. Air pollution levels were threatening to rise again due to a phenomenal increase in the number of car and two-wheelers, leading to crippling congestion.

The Chief Justice bench of the SC admitted this statement of concern as an interim application.

Following this the campaign selected two priority areas of intervention to lever mobility shift. Improve public transport systems in the city and develop a parking policy to influence vehicle use to reduce congestion in the city.

### Building public transportation

As part of the second generation reforms CSE started its work on public transport strategy and mobility management. EPCA monitored the implementation of the public transport plan drawn up by the Delhi government.

Though the Delhi government had come up with an elaborate plan for public transportation projects, there were either no firm deadlines, or, as in many cases, the deadlines were too lax. There was no time-bound schedule for implementing the various transport projects envisaged. EPCA took up the matter and filed a report in the SC in July 2004: *The imperative of controlling vehicle numbers and increasing access: Report on public transport projects in Delhi*.

In its affidavit filed in the SC, the Delhi government agreed with EPCA's view, though the question remained on the implementation schedule. However, the high capacity bus corridor has been accorded the top priority for implementation. Considerable progress has been possible in this area.

### Parking policy to restrain traffic

Delhi is the foremost city to have come under public pressure to frame a parking policy as a traffic restraint measure. This was triggered by a statement of concern presented by CSE on the rapidly growing number of vehicles to the Chief Justice bench in the SC in 2004. The bench converted the statement of concern into an interim application and served a notice to the Delhi government directing it to formalise a strategy to control the number of vehicles and congestion.

Following this, EPCA in its report of July 2004, recommended to the SC that a parking policy be framed as a first step towards priority travel demand management measure. Key land development and municipal agencies should be directed to frame a composite parking policy for Delhi and link it with the mixed land-use policy. Mixed land-use should not be allowed without adequate parking provisions and any spillover should be checked and controlled with stringent parking charges. Pending the finalisation of this policy, all commercial development in





residential areas must stop immediately. In response, the government of Delhi framed a parking policy and submitted it to the SC in July 2005.

### Working with other cities

Considerable work has been done to refine and monitor action plans in the designated seven cities — Ahmedabad, Lucknow, Kanpur, Chennai, Bangalore, Solapur, Hyderabad and Pune. Through periodic reviews, EPCA monitors progress of the implementation of the action plan. This is an opportunity to take the first generation of measures to other cities of India and begin the process of national action on air pollution. The priority areas of intervention include public transport, vehicle inspection programme and gaseous fuel programme.

A series of reports have been prepared based on the review process. This has helped to expedite matters at the city level.

### Placing NO<sub>x</sub> on the campaign agenda

Even before Delhi could control the problem of particulates, newer problems have begun to surface. While other pollutants have stabilised or begun to decline, NO<sub>x</sub> levels recorded a steady rise in Delhi. Authorities have not yet assessed the possible reasons for this increase and in the absence of data many conjectures are being drawn — principally that the CNG programme in Delhi is responsible for this increase. If not handled with caution and science, this can sabotage one of the largest clean fuel programmes in the world. At the same time it may not solve the problem of NO<sub>x</sub> at all, as the root of the problem may lie elsewhere. Even other cities such as Kolkata and Pune that do not have CNG programmes have begun to record high NO<sub>x</sub> levels.

CSE looked into this issue closely and assessed the possible sources of NO<sub>x</sub> emissions in the city in response to the concern expressed by the Delhi government. CSE prepared a briefing note for the Delhi transport department to propose an action plan. CSE found that inappropriate policies were leading to a dramatic increase in diesel cars that are inherently high NO<sub>x</sub> emitter. Diesel vehicles are legally allowed to emit three times more NO<sub>x</sub> than petrol vehicles under the current and future Euro norms.

It also found that measures implemented to control particulate emissions can get traded for high NO<sub>x</sub> emissions. For instance, CNG vehicles have helped in cutting down diesel particulates and toxic hydrocarbons. But CNG vehicles are sensitive to maintenance and NO<sub>x</sub> emissions from poorly maintained buses could increase especially if their cat converters do not work. But it is possible to maintain the low emissions characteristics of CNG buses with the help of a good maintenance programme. Similarly, expansion in the four-stroke two-wheelers fleet was needed to control high particulate and hydrocarbon emissions from two-stroke engines, but they emit two times higher NO<sub>x</sub> compared to the two-stroke engines. The city is thus getting caught in a PM-NO<sub>x</sub> trade off. All new measures — technical and non-technical — need to be controlled together.

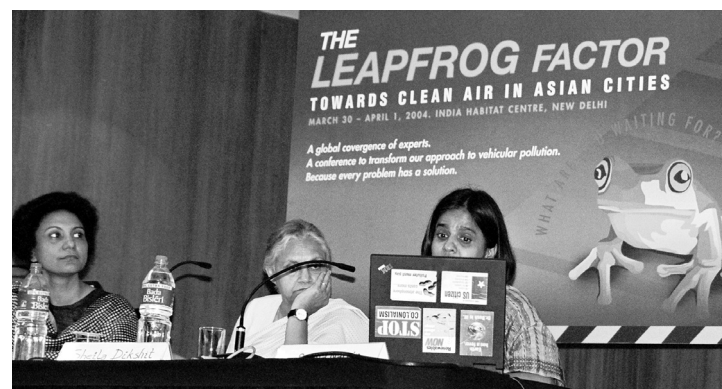
## Networking

### ■ UNDERSTANDING THE CALIFORNIA EXPERIENCE

CSE organised a meeting for policymakers, air quality managers and other experts in Delhi to provide them an opportunity to learn from California's experience in air quality management. Alan C Lloyd, Chairperson, California Air Resources Board, USA, discussed issues of pollution control with the participants and shared his knowledge and experience in changing the air quality in California, once known as one of the most polluted cities in the world. The event was organised on January 17, 2003 at the India Habitat Centre, New Delhi. The discussions explored ways to replicate the best practices for effective air quality management in India.

### ■ TOWARDS CLEAN AIR IN ASIAN CITIES

*The leapfrog factor: Towards clean air in Asian cities* was organised from March 30 — April 1, 2004. This forum, captured the learning in the region and outside to help cities evolve strategies to control pollution from mobile sources. A wide range of issues were covered for debate and for charting the way forward. These included 'The need to leapfrog vehicles and fuel technology', 'Why gaseous fuel strategy is an opportunity in Asia', 'The dilemma of two- and three-wheelers', 'Challenges of vehicle inspection and maintenance', 'Challenges of air pollution and mobility crisis' and 'How to manage mobility and control vehicle numbers?'



CSE associate director Anumita Roychowdhury (left) at the Leapfrog Factor conference held in 2004





## Letter to the World Bank

In April 2004, the coordinator of CSE's Right to Clean Air campaign, Anumita Roychowdhury wrote to World Bank expressing concern on several policy recommendations outlined in its handbook titled, *Urban Air Pollution: Policy Framework for Mobile Sources*. She noted that the Bank had censured the idea of technology leapfrog and declared it as inordinately expensive and an inappropriate model for developing countries. She also disagreed with the book's premise that pushing tighter fuel and vehicle standards without petroleum sector reforms could be inefficient and expensive. She expressed concern that the handbook downplayed the relative significance of health impacts of urban air pollution.

The World Bank replied to CSE's letter clarifying its position. In its final report, the Bank modified its position to concede that the early push for ultra-low sulphur fuels is possible in countries that have already moved to 500 ppm sulphur fuels. Although the Bank has agreed to the concept that developing countries should plan for ultra clean fuels, it still needs to go a long way to move towards stronger environmental standards.

The participants included air pollution regulators, state transport department officials, media persons and civil society groups. Participants came from the US, Sweden, Germany, Italy, Finland, Indonesia, Philippines, Hong Kong, China, Taiwan, Nepal, Pakistan and Bangladesh. The conference involved key regulators from different cities of India, including Hyderabad, Bangalore, Chennai, Ahmedabad, Mumbai and Pune.

Chief minister of Delhi Sheila Dikshit, who was the chief guest at the public meeting held on the last day of the conference, lauded the leapfrog message of the conference, "We must jump from Euro II to Euro IV or Euro V whatever is required. We don't have to take the steps, which Europe took for the rest of the world because it was experimenting. Now that the experience is there we need to go, move forward very hard."

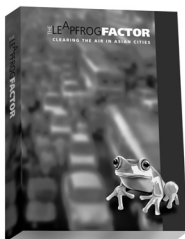
### ■ CONFERENCE ON HEALTH IMPACTS

The Right to Clean Air team and the Environmental Health team organised a roundtable on the health impacts of air pollution on November 22, 2002, titled, 'Translating health concerns into air quality regulations'. This interface brought together medical practitioners, health experts and air quality managers for sharing their knowledge and experiences on ways to understand the health impacts of air pollution, and steps for better air quality management in our cities.

## Awareness creation

### A book on vehicular air pollution

CSE published a new study on air pollution, *The leapfrog factor: clearing the air in Asian cities*, in March 2006. This first-ever comprehensive report in India assessed 10 years of action and its impact in Delhi. It captured the growing scale and deepening of the air pollution crisis nation-wide and in Asia. The book went beyond the problem to lay bare the leapfrog solutions. It made a strong plea based on a rigorous review of the international experiences that India will have to factor in the leapfrog agenda in its future roadmap.



The book warned that evidence of success in a few cities must not breed any sense of complacency as despite this change the national air pollution crisis had only grown bigger. A much larger number of cities are in the grip of killer pollution today — as many as 57 per cent of the cities monitored in the country have critical PM<sub>10</sub> levels. Newer and smaller cities are more polluted than the metros. Health risk in Indian and developing Asian cities could be more serious due to the unique factors — extremely high levels, risk of multiple pollutants going up together, and the impact of poverty.

The mobility crisis is building up in all our cities because a large share of daily travel trips in our cities is being made by personal transport. This occupies more roads, carries less people, pollutes more and throws out pedestrians, buses, and bicycles. As a result public transport, which is the key to leveraging change towards sustainable mobility is collapsing in most of our cities.

*The leapfrog factor* exposed the concerns over the toxic threat from diesel emissions. India's technology roadmap is getting blocked because refineries have failed to link their expansion with a bold roadmap. But review of the international experience shows that technology leapfrog is feasible and affordable.

The book found that the natural gas vehicle programme has the leapfrog potential to jump ahead of the stagnating technologies of diesel — a Euro II diesel bus emits 46 times higher particulates than the Euro II CNG bus in India. But the government is indifferent towards developing it as a national programme.

It also noted that despite the crippling oil prices and increasing dependency on imports, the government has not mandated fuel economy standards for vehicles.

### Public meeting

On October 12, 2003, CSE collaborated with Janhit Foundation, Meerut to organise a public meeting on local challenges to air quality management. This was done to expand the ambit of the programme to control air pollution in India and take up the issue in small towns. It is expected that this will be taken up in right earnest in the small towns of Uttar Pradesh.

CSE's pollution monitoring laboratory had undertaken air quality monitoring in the city and the results were released during the meeting. The daily average for PM<sub>10</sub> was 6.2 times higher than the limit and NO<sub>x</sub> 2.8 times. The city has 0.24 million motorised vehicles — nearly one vehicle per six persons. Those attending the public meeting demanded immediate implementation of all measures already enforced in Delhi. The Janhit Foundation has approached the High Court in this matter already.

### Right to clean air campaign newsletter

The team started *Smog Digest*, a monthly e-mail news update that is sent out to around 1,500 network members of the Right to Clean Air Campaign. Launched in September 2003, the newsletter goes out every month. *Smog Digest* gives news update on vehicular air pollution in India.

The editorial called *Policy police*, is a comment from the air pollution unit on the happenings in India, and the third section called *Action alert* reports CSE activities carried out during the month.



## Setting the facts right — the media blitz

*CSE issued several press releases to expose the government's attempts to deliberately undermine the Supreme Court's move to clean up Delhi's air.*

**April 6, 2002:** CSE welcomes the landmark Supreme Court ruling from the three-judge bench headed by Justice B N Kirpal. The order puts to rest all controversy over moving the public bus transport to CNG in Delhi and focuses on implementation.

**April 8, 2002:** CSE implores the Delhi government to implement the Court order and not divert attention by whipping up public ire for misguided political gains.

**April 10, 2002:** Press release highlighting the impact of 6,000 buses going off the road. Pollution levels plummet and respirable suspended particulate matter (RSPM) levels nosedive.

**April 17, 2002:** CSE calls a press conference to clarify its position on the CNG strategy in response to a defamatory message that is widely circulated maligning CSE and misrepresenting the facts of its campaign on CNG.

**April 19, 2002:** CSE condemns the threat from IGL to increase prices of CNG causing the Delhi government to hike bus fares and destroy consumer interest in the CNG strategy at a time when Delhi's Congress-led government has shown interest in implementing CNG and has even rolled back the proposed sales tax hike.

**April 29, 2002:** CSE organises a press conference to highlight Union minister for petroleum and natural gas Ram Naik's threat to increase the price of diesel and calls it 'malicious intent'.

**June 6, 2002:** CSE invites international experts to assess CNG safety issues and concerns, particularly those raised by the series of fires in CNG buses in the previous year.

**July 16, 2002:** CSE's press release on a study that shows that the Supreme Court ruling on trucks and goods vehicles will make a dramatic impact on the particulate pollution levels in the Capital.

**September 11, 2002:** CSE exposes IGL's attempts to prove that its price hike was due to low gas demand, low earnings and high investments. IGL faces contempt of court following its attempts to mislead the Supreme Court.

**September 16, 2002:** CSE says that bigger players are pressuring IGL to show low CNG demand in the transport sector for their own gains.

**October 4, 2002:** Press release on the flaws in the Pollution Under Control programme.

**December 3, 2002:** CSE press release on the Anil Agarwal Clean Air Model that was unveiled by Chief Justice B N Kirpal in Delhi.

**January 17, 2003:** CSE invites Alan C Lloyd, chairperson, California Air Resources Board (CARB), and a leading advocate of clean vehicle technology to share his experience in bringing down levels of air pollution in California.

**April 8, 2003:** The Right to Clean Air team issues an open letter to B C Khanduri, Union minister of state for road transport and highways calling attention to the dismal state of the emissions inspection programme for in-use vehicles in cities.

**September 5, 2003:** CSE flays the Union ministry of road transport and highways on its new in-use vehicle emissions norms for the pollution under control certificate (PUC) scheme, which do not address on-road diesel emissions. The silver lining is that state governments have been allowed to set more stringent norms.

**October 6, 2003:** CSE rejects the national auto fuel policy announced by Ram Naik, Union minister for petroleum and natural gas. As per the new policy, "clean" fuel meeting Euro II norms will be made available to the rest of the country only by 2005 and fuel meeting Euro III norms even later than 2010.

**November 13, 2003:** CSE exposé on the deadly crime and science of fuel adulteration in India. CSE staff photographed rampant pilferage from oil tankers outside the Bijwasan oil terminal and witnessed the open sale of fuels to casual customers.

**November 24, 2003:** In a dramatic development, the Supreme Court converts a CSE report and photo documentation of fuel adulteration into an interim application. In its order, it serves notice to the Union government to respond.

**January 22, 2004:** CSE's survey reveals that diesel passenger car registration in Delhi has shown a staggering 106 per cent annual incremental increase since 1998-99 as against 12 per cent for petrol cars.





## *Jal Swaraj*

# Community-based water management

CSE's community-based water management campaign, more appropriately called *Jal Swaraj* to signify the campaign's goal, gained momentum in its efforts to involve the public in the management of water resources. CSE staff participated in numerous meetings across the country presenting information on water harvesting and showing how this can go a long way in solving water problems. CSE's interactions with schools were particularly successful and resulted in motivating schools to implement water harvesting systems.

A special section was created to feature the works of individuals, institutions and communities and other key players in the water sector in CSE's website. The website, [www.rainwaterharvesting.org](http://www.rainwaterharvesting.org), is one of CSE's most effective campaign tools. Launched in April 2003, it gets on an average, 1,000 visitors per day. The site features a number of research and networking tools and is updated, with all the latest research and policy papers, which are presented in downloadable form.

The first rain centre in Chennai was inaugurated by Tamil Nadu chief minister, J Jayalalitha, in August 2002. The rain centre is a concept to help urban citizens learn about water harvesting by setting up a storehouse of environmental information in the form of posters, models and databases of environmental experts. Two more rain centres were opened in Meerut and Sayla. CSE also helped in creating model projects — rainwater harvesting systems constructed by other institutions with CSE's help — that can be used as demonstration projects. CSE undertakes regular monitoring of the water quality and quantity of water harvested in these projects.

CSE's training programme on rainwater harvesting went ahead full steam. Team members organised several training workshops to build capacity among plumbers, masons, architects and engineers on urban rainwater harvesting in Delhi and other cities. CSE staffers were invited by six state governments — Delhi, Uttar Pradesh, Andhra Pradesh, Madhya Pradesh, Maharashtra and Tamil Nadu to hold training workshops, in a bid to prepare their engineering staff to be able to implement rainwater harvesting systems. Training programmes were also organised for industrial houses, schools and colleges. To supplement these training programmes, water harvesting manuals were published in a number of regional languages. The attendance at the weekly technical advisory sessions held by CSE engineers shows the interest among the general public in implementing water harvesting in their houses. Among these, about 200 designs provided by CSE have already been implemented.

CSE networked with other groups in the country to start rain centres. Its collaboration with African NGOs also continued. Apart from study tours, CSE helped set up a model project in Nairobi on urban rainwater harvesting and prepared and launched a water harvesting manual for Nairobi. The launch event helped in catalysing interest and discussions on the issue.

Besides this, *paani yatras* or water pilgrimages, which

take groups of people, ranging from journalists, students to government officials and corporate executives, to witness first-hand examples of community efforts in water harvesting in rural areas, were conducted in four states. This programme evoked interesting responses from different professional segments.

## Research and advocacy

### Urban wetlands

An order by the Gujarat High Court to protect the lakes of Ahmedabad in response to a public interest litigation, prompted CSE to review the issue of urban wetlands across the country. Its study included public interest litigation (PIL) over lakes and wetlands in the courts in Hyderabad, Ahmedabad, Srinagar, Kolkata, New Delhi, Bhimtal and Surajkund. Subsequently, CSE presented an in-depth analysis of the conflicts between real estate lobbies and those working to protect urban lakes. The study also looked at the issue of land use in urban areas.

Following the court order, several organisations in Ahmedabad organised a meeting on May 13, 2002 to discuss its impact. CSE staff took part in this meeting in Ahmedabad where government representatives from Ahmedabad's Municipal Corporation, Urban Development Authority and lawyers and petitioners of different PIL on urban wetlands also participated.

CSE organised a meeting on October 3-4, 2002 in New Delhi to discuss the future strategies for protecting the fast disappearing urban wetlands. The representatives of citizens' groups, government officers, experts and individuals working on this issue, including many who have filed PIL cases to protect lakes in their cities, attended it. CSE also prepared a dossier on the law and litigations for protection of urban water bodies.



Participants at a CSE meeting on urban wetlands held in New Delhi in October 2002



## Fluoride contamination in Dausa, Rajasthan

CSE conducted a detailed study on groundwater quality in some villages of Dausa district in Rajasthan in February 2003, to assist the efforts of the Sardar Patel Yuva Gramin Vikas Sansthan, a local youth group engaged in rural development. The results showed a high concentration of fluoride in over 90 per cent of the samples, which was responsible for severe dental and bone abnormalities among the people of the area. CSE organised a meeting of representatives from the affected villages and suggested options to overcome the problem of high fluoride content in water. Rainwater harvesting was one of the options.

## Groundwater map of Delhi

CSE researched on the status of Delhi's groundwater, and put together hydrological information adapted from the Central Groundwater Board (CGWB) and primary data collected from CSE's model projects in May 2003. The map serves to help professionals in preparing more effective and site-specific water harvesting systems by providing information on the sub-surface litho log, water level and water quality of that location.

The research has been presented to the public in the form of an interactive groundwater prospects map put up at the CSE water harvesting website. It provides information at three levels — at the state level, block-level, and at the level of a specific locality. It provides a snapshot of Delhi's groundwater status, including the extent of groundwater exploitation, seasonal fluctuations in water levels and quality, and rainfall data. Detailed hydro-geological information about 25 locations in Delhi is also available.

## Drip irrigation briefing paper

CSE published a report in November 2003 on the use of drip irrigation by small farmers in rural India. Drip irrigation has the potential to enhance food productivity while preventing over exploitation of precious resources like soil and water. Tribal communities in the Khasi and Jaintia hills in Meghalaya have been practising drip irrigation using the bamboo drip system for the last 200 years. CSE researchers found that farmers in Maharashtra and Gujarat, owning tiny holdings, were practicing drip irrigation by devising fascinatingly simple, yet innovative, modifications. *Yards out of inches* was a detailed report on drip irrigation that reviewed the cost, market, potential and benefits of this irrigation method. The report also highlighted successful case studies of drip irrigation in the country.

## Terrain map of Chennai

In order to make its campaign for water harvesting in Chennai more effective, CSE undertook a study on the geology, hydrogeology and hydrometeorology of Chennai city. The aim of the study was to help develop terrain-specific water harvesting systems for Chennai. The study conducted in January 2004 also highlighted the city's declining water level and sub-surface soil formation.



Sumita Dasgupta of CSE makes a presentation to the UN Habitat Millennium task force in New Delhi in 2004

## Meeting on habitat

CSE organised a meeting with the UN Habitat Millennium Task Force on March 2, 2004 at India Habitat Centre (IHC) to discuss and debate water issues like urban water crises, water availability, distribution, pricing, sewage treatment and deteriorating quality. The meeting provided a forum for discussion on policy interventions in the area of water and sanitation. The discussion was followed by a site visit to Sri Ram School and Panchsheel Park Colony, both of which have implemented rainwater harvesting with CSE's assistance.

## Seven cities study

Between March and October 2004, CSE undertook a study on urban water status of different cities of India. Seven water-stressed cities from different parts of India were chosen for the study. These were Kanpur, Indore, Hyderabad, Thiruvananthapuram, Chennai, Kolkata and Mumbai. The study covered aspects such as demand-supply scenario, groundwater quality and quantity, rainwater harvesting practices, and future water situation in the different cities.

## Stockholm Water Week

In August 2005, CSE was awarded the Stockholm Water Prize for the year 2004 for its work over the past decade to promote alternate paradigms in water management.

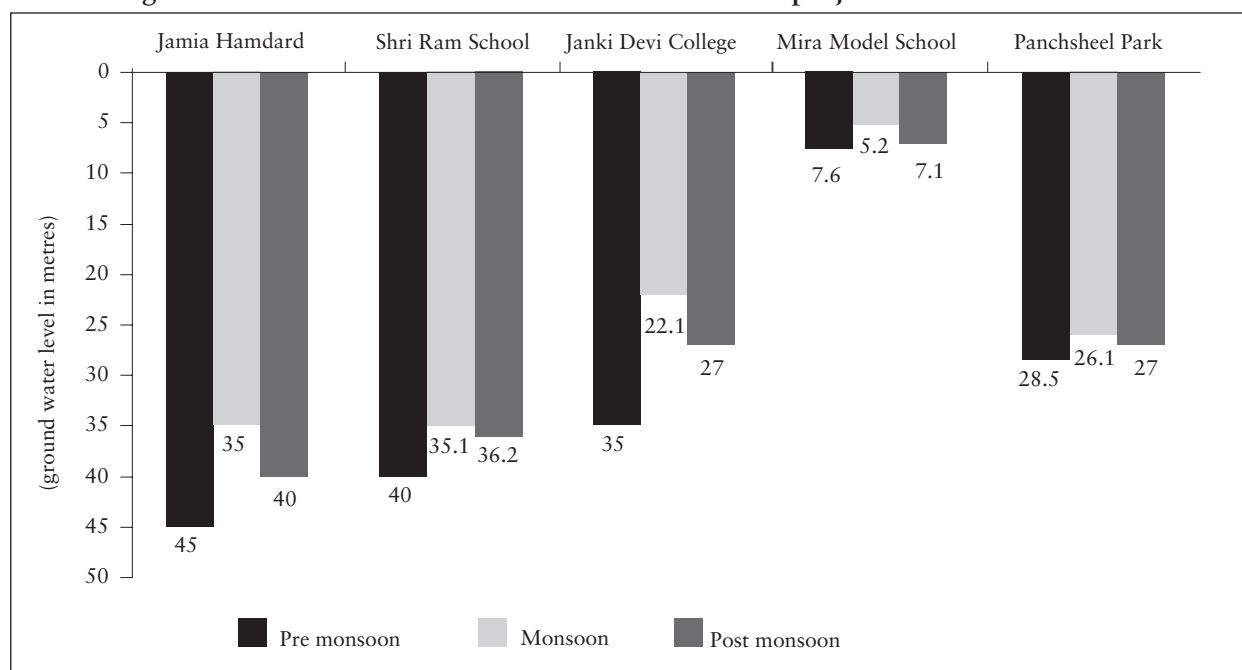
The CSE water team members also attended the World Water Week in Stockholm and organised two workshops, which attracted a large audience. Eminent scientists and academics such as M S Swaminathan, A Vaidyanathan, Arno Rosemarin and senior ministers from Tanzania and Zambia participated in these workshops. CSE highlighted the need for Southern countries to create new pathways of development for themselves and not follow the high cost and resource intensive developmental paradigm of the developed world. The sewage paradigm is one of the best examples where the established models are not relevant for poorer countries. The first workshop, *The political economy of defecation: Tales of*







## Monitoring results showed a rise in the water table in model project areas



Sultanpur Farm House, Chattarpur; Bharat Petroleum Corporation Limited, Noida and Defence Colony. These model projects were launched on August 20, 2003. In 2004, more model projects were constructed at Mother Dairy, Mangolpuri, New Friends Colony Club, Nizamuddin East Colony, the Royal Bhutanese Embassy and at Delhi Gymkhana Club.

The launch events served to bring together a variety of CSE model projects, and served as a forum for people, civic administrators and authorities to discuss key issues and concerns related to rainwater harvesting. Talks by the beneficiaries of rainwater harvesting models inspired many others. Journalists from different parts of the country visited the Defence Colony site.

CSE has been constantly monitoring changes in the groundwater levels in all its 21 model projects constructed in Delhi and Gurgaon (Haryana). The impact of rainwater harvesting on the quality and quantity of groundwater has been remarkable, proving that rainwater harvesting is one of the most effective tools to arrest rapidly depleting groundwater reserves.

In order to study the impact of rainwater harvesting on the water table in the model project areas, the water level in the existing borewells was measured every month.

### Paani yatras

CSE conducted water tours or *paani yatras* as they are known popularly, to showcase, familiarise and sensitise participants to the potential of rainwater harvesting by providing them a first-hand experience in community-based water management in rural India. *Paani yatras* are very popular with water professionals who welcome this opportunity to look at these innovative people-based efforts.

CSE had organised *paani yatras* in Rajasthan, Madhya Pradesh, Maharashtra and Gujarat. This helped the *yatris* in understanding linkages between rural commitment, investment, community participation and

the resultant ecological revival. Participants were also able to perceive diverse technologies and unique approaches that were tailored to suit specific needs of each ecological region. Each *yatra* has a group of 22-24 individuals from diverse fields and interest groups.

In August 2004, a group of 24 persons from across the country participated in CSE's 13<sup>th</sup> *paani yatra* to witness and learn from people-managed water harvesting efforts in Gujarat. The tour covered Surendranagar, Rajkot, Junagadh, Bhavnagar and Ahmedabad districts and showcased diverse approaches to harvesting and distributing water. It covered roof-top rainwater harvesting systems in Surendranagar, lift irrigation systems in Dahod, recharge well systems and checkdams in Rajkot, basin-wide watershed management in the Meghal river basin in Junagadh district and checkdams in Bhavnagar. The tour also covered different types of catalysers, from individuals, to NGOs, to government-NGO partnerships.



A watershed committee member in a Gujarat village explains the work to the *paani yatris*





### The paani yatras:

Place	Period	No. of participants	State	Profession
Rajasthan	June 24-29, 2002	22	Chhattisgarh-1; Haryana-1; Uttaranchal-1 W Bengal-2; Bihar-2; Andhra Pradesh-3; Uttar Pradesh-5; Madhya Pradesh-1; Gujarat-2; Maharashtra-3, Karnataka-1	Government-2, NGOs-14 Professionals-4, Individuals-2
Madhya Pradesh	August 26-31, 2002	22	Tamil Nadu-3, West Bengal-10, Maharashtra-3, Delhi-3, Karnataka-1, Madhya Pradesh-1, Manipur-1	Government-10, NGOs-3 Professionals/Individuals - 9
Maharashtra	October 29-November 2, 2003	24	Karnataka-4, Bihar-1, Tamil Nadu-4, Rajasthan-1, Haryana-3, West Bengal-4 Andhra Pradesh-2, Maharashtra-2	Government-2, NGOs-15 Professionals-, Individuals - 7
Gujarat	January 16-21, 2003	19	Karnataka-2, Himachal Pradesh-4 Madhya Pradesh-4, Chhattisgarh-2, Gujarat-4, Maharashtra-1, Delhi-2	Government-3, NGOs-6 Professionals-5 Individuals- 5
Gujarat	August, 2004	25	Bihar-1, Jharkhand - 6, Andhra Pradesh-2 Orissa-1, Haryana-4, Delhi-2, France-1, UK 2, Canada 1, Rajasthan-3, Gujarat-1	NGO: 13 Professionals: 2 Journalists: 3 Students: 6

In March 2005, CSE organised a three-day *paani yatra* to Bhaonta Kolyala and Neemi in Alwar district and Laporiya in Dudu block of Jaipur district (Rajasthan) for students from Norway's Oslo University as part of their study tour. The purpose was to show them rural water harvesting structures that have been constructed and maintained by the communities themselves. The efforts of communities has resulted in reviving the ecology of the region and has led to an appreciable improvement of their lifestyle. The visit exposed Norwegian students to the traditions and practices of Indian villages.

### [www.rainwaterharvesting.org](http://www.rainwaterharvesting.org)

Launched in April 2003, this is one of CSE's most visited websites. It carries in-depth information on water crises, their solutions, related policies, technologies and resource people. All the reports are in a downloadable form. It includes several research tools such as runoff calculator, technical helpline, groundwater map, waterlinks, dossiers and legislation. A special section features the work of individuals, institutions, communities and other key players in the water sector. The inverted umbrella on the homepage is an iconic representation of the campaign's suggested change in mindsets.

The section on dossiers deals with research and policy papers like watershed guidelines, national water policy, norms for water audit, etc. Every resource is presented in a downloadable form. The section on legislation provides information on various notifications and amendments to related legislation.

The section on water links disseminates experiences of people, organisations and communities, working in rural or urban areas on water issues. Interested persons can register themselves to be part of the water harvesters' directory. A special section called Jal Biradari was started to post events organised, information material generated, or significant milestones achieved by any community, NGO, government, individual, or industry in the water sector. The link also gives complete information on the Centre's model projects implemented so far. The site gets more than 2,000 hits a day and is rated as one of the best Indian sites on water by the Yahoo group.

### Exhibitions

CSE participated in several exhibitions in different parts of the country to represent its focus of water conservation.

- **January 17-31, 2003, Dilli Haat, New Delhi:** CSE participated in the Nature Bazaar organised at Dilli Haat by Dastkar, a society for crafts and craftspersons. The CSE stall displayed colourful and contextual panels,

### Paani yatris say....

'Firsthand inspection and exposure has taught me what I may never have learnt...what was not possible by reading books.' *OP Goel*, Soybean Processors Association of India, Indore, Madhya Pradesh

'The *yatra* was inspiring. Now I will spread my activities from village to *tehsil* and district.' *Valmiki Prasad Dubey*, founder, Vanshali Seva Samiti, Korea, Chhattisgarh

'With the discussion with the village samiti members and villagers, my understanding regarding community participation improved.' *Ramesh Nandy*, Jila Parishad, Howrah, West Bengal.

'It has given a clear understanding that people's participation is the key factor to resolve water-related issues.' *D Srinivas Rao*, Koraput, Orissa

'I have started looking at water as a base for the entire society.' *Marathe Suprabha Prabhakar*, Mumbai, Maharashtra

'I got an idea and now as per the site conditions we will ensure the solution for drinking water, irrigation by properly recharging groundwater aquifers.' *N K Manoria*, assistant engineer, Mungawli, Guna, MP.

'*Paani yatra* helped in one-to-one interaction. This trip has generated so many questions in my mind that I will have to work for answers now.' *Chandra Bhukani*, technical head, Sustainable Environment and Ecological Development Society (SEEDS), Ahmedabad

'I decided to join the *paani yatra* because it was in Gujarat, my home state and would be dealing with issues similar to mine. I can contribute a lot by adopting appropriate measures in my various projects.' *Kamal Mangal Das*, Architect, Ahmedabad.



working models and screened documentaries on water issues. School and college students participated in a painting competition and carried out a survey to test public awareness on water issues in Delhi.

- **February 15-23, 2003, Virasat festival, Jaipur:** CSE collaborated with the Virasat Foundation, a Jaipur-based NGO, to organise a week-long festival on water. The festival included mobile exhibitions, workshops for children and experts and a public lecture. CSE also held a public lecture on rainwater harvesting at the Institute for Development Studies (IDS) that highlighted the poor groundwater scenario in Jaipur. The meeting was attended by a large gathering of architects, engineers, builders, hoteliers and government officials. On this occasion IDS launched a project to harvest water on its premises.
- **March 21, 2003, Teen Murti, New Delhi:** On the occasion of World Water Day, CSE participated in an exhibition on water harvesting organised by the Ministry of Water Resources.
- **March 24-31, 2003, Dilli Haat, New Delhi:** CSE participated in Jal Utsav organised by the hydrology project of the Ministry of Water Resources to raise awareness on water issues.
- **October 10, 2003, Fresh Water Year 2003:** CSE put up an exhibition at this event organised by the Indo Tibetan Border Police at Sri Sai International Centre, Lodi Road. The Minister of State for Home, Shri Chinmayanand visited the CSE stall.
- **October 13-15, 2003, Mumbai:** CSE, in collaboration with the Maharashtra Natural Park, put up an exhibition on water harvesting at Jamnabai Nursing School and gave presentations and lectures to students and staff.
- **February 7-8, 2004, Maurya Sheraton, New Delhi:** In the Environmental Mela at the five-star hotel Maurya Sheraton, CSE put up an exhibition on urban rainwater harvesting.
- **February 17-22, 2004, India International Centre, New Delhi:** CSE participated in the water festival organised by the India International Centre at Lodi Road by

putting up an exhibition that included a live water harvesting model.

- **March 20-24, 2004, Unnao Pustak and Shilpa Mela:** CSE put up an exhibition in this mela organised by the Visvambhar Dayalu Tripathi Rajkiya Jila Pustakalya.

## Films and film festivals

### ■ PUBLIC INTEREST TV ADVERTISEMENT

CSE produced a public interest advertisement on rainwater harvesting in English, Hindi and Tamil. It was widely telecast on *Star TV*, *National Geographic*, *Zee TV network* and *Discovery Channel*. It drew tremendous response from people who wrote back expressing their desire to learn more about water harvesting. It also won the Best Documentary Award on special themes, 'Water for Life' at Vatavaran 2003, organised by the Centre for Media Studies.

### ■ TRAVELLING FILM FESTIVAL

The team took part in the travelling film festival, *Grameen Paryavaran Film Utsav*, two unique travelling film festivals in Rajasthan and Orissa in the months of November and December 2005. The event was aimed at using the medium of film as a platform for addressing issues related to traditional water harvesting and water management at the regional level.

### ■ TRAINING FILM, *RAIN CATCHERS*

CSE's film, *The rain catchers — a practical guide to solve your water problems*, was released in a packed auditorium at Sookna Bhawan in Bhubaneswar, Orissa. The film was released by the state Minister for Rural Development, Industries and Law, Shri Biswabhusan Harichandan on November 30, 2005, Orissa.

*The Rain Catchers* received accolades and appreciation from all sections. CSE staffers also made a presentation on this occasion on the urban water scenario and highlighted the water problems faced by some major cities of India, including Delhi.



Managing Editor of *Down To Earth* Pradip Saha (third from left) at the release of the CSE film *Rain Catchers* in Bhubaneswar





## Lectures and presentations

The water team undertook a number of lectures and presentations across the country to spread the message of harvesting rainwater. CSE staffers made presentations at different forums, ranging from industries to residents welfare associations to NGO groups and groups of students and teachers in different places — Chandigarh, New Delhi, Noida, Ghaziabad, Faridabad, Gurgaon, Chennai, Mussoorie, Mumbai, Jaipur, Kanpur, Kolkata, Amritsar, Jamshedpur, Bhubaneswar, Dehradun and many other places. Presentations were also made to several groups of visitors to CSE interested in water harvesting.

## Networking

CSE strengthens its network of practitioners of water harvesting through regular interaction. We organised a meeting of individuals and institutions harvesting rainwater on June 15, 2004 at the India Habitat Centre, New Delhi. The objective of the meeting was to stimulate interest and enthusiasm in water harvesting and facilitate exchange of experiences. Other interested individuals and representatives of government departments working on water issues also attended the meeting. Representatives from government departments like Delhi Jal Board (DJB), Central Public Works Department (CPWD), New Delhi Municipal Corporation (NDMC) and Central Ground Water Authority (CGWA) were also present at the event. At this meeting, CSE released the results of monitoring water recharge in its model projects areas.

### ■ RAIN CENTRE IN CHENNAI, TAMIL NADU

CSE launched its first rain centre in Chennai in collaboration with Akash Ganga Trust. Chief minister of Tamil Nadu J Jayalalitha inaugurated the rain centre on August 21, 2002. M S Swaminathan, chairman of the M S Swaminathan Research Foundation, welcomed the chief minister, and Sunita Narain, director, CSE, explained the meaning of the different panels and exhibits in the rain centre.

The rain centre houses exhibits on different aspects and techniques of traditional and modern rainwater har-



Tamil Nadu chief minister J Jayalalitha inaugurates the rain centre in Chennai in 2002

vesting systems, Chennai's water management system and urban water status. A live rainwater-harvesting model, complete with an artificial transparent system allows the visitors to understand how a rainwater harvesting system works. A CD-ROM was also released on water availability, rainfall, distribution and usage. In the evening, CSE organised a public meeting.

### ■ RAIN CENTRE IN MEERUT, UTTAR PRADESH

CSE set up the second rain centre in Meerut, in collaboration with Janhit Foundation. Shakir Ali, Uttar Pradesh minister for minor irrigation and Muslim waqf, inaugurated the centre on July 25, 2004. This centre is equipped with a live rainwater-harvesting model, a permanently set up exhibition featuring a colourful assortment of panels, murals, posters and publications. It provides comprehensive information on all issues related to water — sources, distribution systems, government agencies concerned and relevant policies. The staff of Janhit Foundation provides assistance to citizens who are keen on practicing rainwater harvesting. The aim is that the rain centre would emerge as a hub of all water-related activities in the district. The inauguration was followed by a public meeting, which was attended by



Salahuddin Saiph (extreme left) of CSE explains the concept of water harvesting at the Meerut rain centre

Meerut residents and farmers from villages across the district. At this meeting, Bhure Lal, chairperson of the Environment Pollution (Prevention and Control) Authority, released *Paani Ghano Anmol*, a field-level study conducted by Janhit Foundation, on the status of the existing water bodies in Meerut.

### ■ RAIN CENTRE IN SAYLA, GUJARAT

CSE set up another rain centre in Sayla, in Gujarat's Surendranagar district. This was done in collaboration with the Aga Khan Rural Support Programme. The aim of the project is to sensitise people of the Saurashtra region about the need for water conservation. The rain centre will be used to generate awareness about issues related to good water management and disseminate information about the water cycle, traditional water management practices, water quality and conservation issues and other related issues. It will serve as a resource centre to conduct training programmes, *paani yatras* and special events.



## Networking with Africa

In collaboration with the Nairobi-based international organisation Regional Land Management Association (RELMA), CSE initiated an urban rainwater harvesting (RWH) campaign in Kenya with the aim of generating awareness about rainwater harvesting, developing strategies for institutionalising urban rainwater harvesting and increasing the outreach in different cities of Kenya and among diverse groups.

### ■ RELMA VISITS INDIA

In March 2003, two members of RELMA, Maimbo Malesu, the regional coordinator, and Paito Obote, programme officer, travelled to Tamil Nadu, Maharashtra, Gujarat and Rajasthan to gain insight on community-led water works. Obote and Malesu visited the rain centre, Chennai, where they were briefed on RWH. They also visited a 600-year-old temple tank located at Pammal, 20 km south west of Chennai and Thalambedu village to look at the tank management efforts of a Madurai-based NGO, Dhan Foundation. The visitors interacted with *Neerkattis* (water managers) to learn traditional water distribution practices.

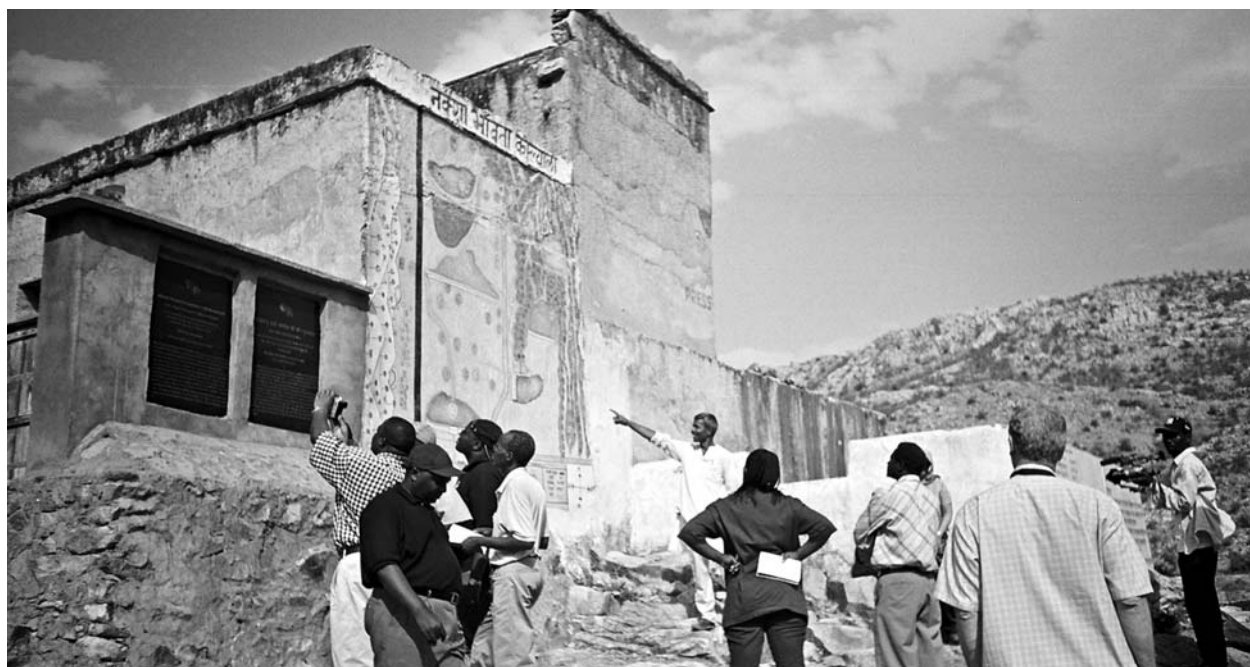
The RELMA visitors then travelled to Ralegan Siddhi in Maharashtra to see the innovative work of Anna Hazare in watershed management. They also travelled to Raj Samadhiyala in Gujarat and Laporiya in Rajasthan to understand community-led water harvesting. This visit paved the way for sharing experiences from the two continents.

In 2004, members of RELMA visited Chennai to take part in a training workshop on urban water harvesting. They also visited the rain centre in the city followed by a visit to the Chennai Water Supply and Sewerage Board Training Centre at Kilpauk, where the officials made a presentation to the visitors on the initiatives taken by the board for popularising rainwater harvesting in the city. The visitors were then taken to a house where they saw

greywater recycling at the household level, which substantially reduces freshwater consumption. They also met architects covering the engineering and architectural aspects of rainwater harvesting.

In April 2005, a delegation of senior policy makers, bureaucrats and industry representatives from eastern and southern African countries visited CSE. The delegation was led by Malesu. The purpose of their visit was to see examples of community-based water management and interact with decision-makers in the field of water. Participants came from different ministries including Ministry of Agriculture, Department of Water Affairs, Ministry of Water, Livestock and Development, Department of Land Rehabilitation, Ministry of Local Government and Housing, Eastern and Southern African Trade and Development Bank (PTA Bank), Picasso Production, Kenya Broadcasting Cooperation and Nairobi Water Company from southern and eastern African nations including Zambia, Tanzania, Kenya and Botswana.

The group met P R Dasmunshi, Union minister of water resources at Shram Shakti Bhawan led by CSE staff. The meeting was very enlightening and the minister gave an overview of the role of his ministry and responded to various queries raised by the group. A field trip was organised to Bhaonta Kolyala in Rajasthan to see the efforts of the local community and of Tarun Bharat Sangh, an Alwar-based NGO. The group greatly appreciated the initiative of the community to manage their water resources. The following day, they visited Laporiya village in Dudu block of Jaipur (Rajasthan) where the Gram Vikas Navyuvak Mandal, Laporiya, a local NGO has revived the ecology of the region by developing the Chauka system on pastures. At the end of their visit, a core committee was formed and an action plan was made to identify politicians from African and South East Asian countries who could play an active role on the water front.



Kanhaiya Lal of Tarun Bharat Sangh (an Alwar-based NGO) provides details to the RELMA team on water harvesting structures constructed by villagers





#### ■ CSE TEAM VISITS KENYA

A three-member CSE team visited Kenya from August 25 to September 3, 2003. On August 26, 2003, CSE and RELMA representatives met officials from the Ministry of Public Works, the Ministry of Water Resource Development, the Ministry of Agriculture, and the deputy mayor of Nairobi city and members of the UN Habitat Programme. Discussions centred on issues of urban rainwater harvesting technology and the Indian experiences.

The next day, CSE and RELMA jointly organised a conference in Nairobi for architects, representatives from NGOs, educational institutions, government officials, researchers, journalists and citizens on urban rainwater harvesting. This method would alleviate water stress in adjoining rural areas as instead of being diverted to the city, the water would be used to improve agricultural productivity, they said. CSE facilitated and steered the process of developing a Nairobi-specific manual on urban rainwater harvesting along with representatives from RELMA.

CSE made a presentation at Egerton University, Njoro, on the Indian urban rainwater harvesting experiences. Both teachers and university students actively participated in the discussion after the presentation that mainly revolved around the feasibility and relevance of groundwater recharge, ownership of water being recharged, and the role of the university in improving the water scenario in the region.

CSE representatives gave a public talk on 'Urban Water Supply and Storm Water Management' for the residents of Rift Valley Sports Club. The CSE team also visited Telak village adjoining the Masai Mara Wildlife Reserve near Nairobi to see the community water works carried out under the guidance of RELMA.

A seminar-cum-orientation programme was organised for the councillors and water engineers of the Nairobi city council. The presentation on the Jal Swaraj campaign and urban rainwater harvesting generated a buzz among politicians and professionals who were extremely interested in knowing the details and impact of urban rainwater harvesting initiatives in India.

CSE conducted several programmes during the month of December 2004 in Africa. CSE and RELMA put

together a rainwater harvesting manual suitable for urban areas in Kenya. The manual included case studies of successful initiatives from Nairobi, New Delhi and Mumbai. This manual was released on December 7, 2004 at the National Museum of Kenya by Nairobi's deputy mayor, Charles Kiyo Muratha. The meeting was attended by a large number of engineers, architects, planners, NGO representatives, government officials, researchers, journalists, and interested citizens of Nairobi.

At the same event, a model project of rainwater harvesting at the National Museum of Kenya was also launched by the deputy mayor. CSE staff had visited Nairobi earlier to build the model project at the museum premises. This model project system not only collected rainwater for non-potable purposes like cleaning, washing, gardening and use in toilets but also for drinking. The concept of the recharge well for groundwater recharge was introduced for the first time in eastern Africa and was of much interest to the visitors.

CSE also put up a poster exhibition highlighting aspects of traditional rainwater harvesting practices, principles and CSE's model projects in Delhi. A group of Nairobi University students requested for a copy of all the posters to be used in their environment festival.

Following the event, CSE and RELMA organised a seminar to initiate a debate and discussion on rainwater harvesting for Kenya. The speakers included Orodhi Odhiambo, lecturer, Department of Environment and Bio-systems Engineering, University of Nairobi and William Wambugu, Manager, Botanical gardens, National Museum of Kenya. CSE staff made an audio-visual presentation on CSE's experiences in urban water harvesting. There was a lively discussion on water harvesting, especially on harvesting rain for water recharge, as it was a new concept.

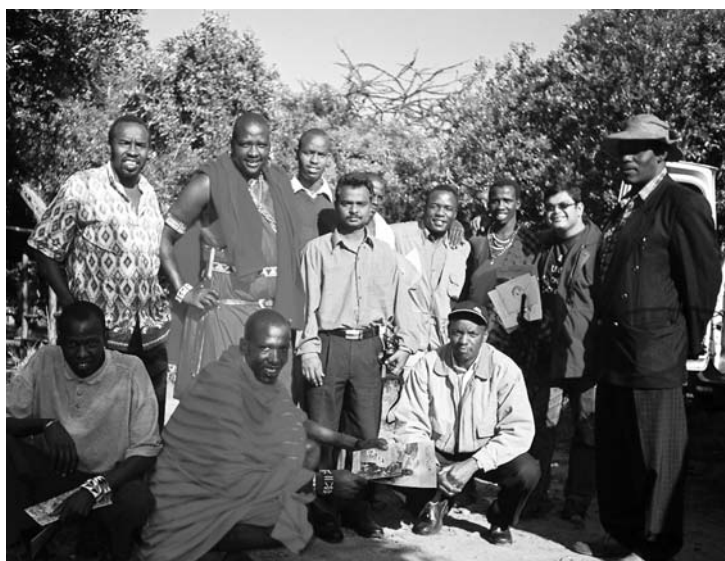
The following day, CSE staff were invited to deliver a lecture to staff and students of the University of Nairobi. The lecture focused on principles and techniques of rainwater harvesting with case studies from India. This was followed by the screening of a public service advertisement film on rainwater harvesting produced by CSE. The lecture made a considerable impact on the audience and several members requested for copies of the presentation.

#### Supporting community action

In an effort to catalyse water-harvesting work at the grass-roots, CSE assisted small NGOs working in this area. In the past few years, CSE assisted two such organisations, the Janhit Foundation in Meerut and the Thar Integrated Social Development Society (TISDS) in Jaisalmer district of Rajasthan.

The Janhit Foundation undertook a detailed survey of the *johads*, canals, wells, tubewells and hand pumps in 600 villages spread across 12 blocks in Meerut district. Situated in the Ganga-Jamuna *doab* (catchment area) this district was a water sufficient area a few years ago. But now the water table has fallen dangerously low owing to excessive withdrawals for irrigation. The aim of the study was to generate awareness for water conservation among villagers, and catalyse their active participation for the revival of these water bodies.

In April 2003, TISDS initiated a programme of developing the *paar* — a traditional rainwater harvesting technique for drought-proofing — in Manapia village of



CSE staffers with RELMA members in Nairobi in 2003



Jaisalmer district. Under this project, TISDS leased pan-chayat land for five years and developed the *paar* system of water harvesting. *Paar* is a common place where the rainwater flows from the *agar* (catchment) and in the process percolates into the sandy soil. In order to access the *rajani pani* (percolated water) *kuis* or *beris* are dug in the *agor* (storage area). Wells were constructed using traditional masonry technology. As a result of this initiative, villagers not only developed an asset, but also gained employment during the course of work.

## Capacity building

### Urban water harvesting

Good water management can help create sufficient reserves of water for use in times of crisis. CSE organised training programmes for construction technicians, plumbers, residents' welfare associations and professionals. Participants were provided an overview of CSE's water campaign, and introduced to theoretical concepts of water harvesting, including laws and legislations in different cities like Delhi, Chennai, Indore, Kanpur, Mumbai and Bangalore. The training curriculum included traditional and contemporary water harvesting techniques in urban and rural areas. Practical sessions were also conducted to give them a first-hand knowledge of rainwater harvesting. Visits to existing water harvesting locations and simulation exercises for developing rainwater harvesting schemes for different types of buildings were also a part of the programme.

CSE also conducted training programmes for plumbers and masons. The objective of the programme was to equip them in the technology of rainwater harvesting and prepare them for implementation.

### Manuals on urban water harvesting

CSE launched a new and updated version of the water harvesters training manual. Compiled with the objective of putting forward water harvesting techniques in a simple manner, the manual presented the basics required

for undertaking water harvesting. These manuals, the first of their kind, provided consolidated information on regional rainwater harvesting measures and practical tools for intervention in dealing with the urban water crisis. The urban rainwater harvesting manual is available in Hindi, Telugu and Marathi. The English version is available in Delhi and Mumbai.



#### ■ ADVICE FOR WATER HARVESTORS

CSE continues to provide technical advice to individuals and institutions interested in setting up rainwater harvesting structures. Every Friday, CSE staff meet persons interested in building rainwater harvesting structures and provide assistance by way of design, structural and financial advice. Every year CSE staff provide such technical advice for over 700 persons of which about 200 actually implement the system.

#### ■ TRAINING WORKSHOPS

Following are some of the training programmes conducted over the years for diverse groups of people on water harvesting:

- **May 30-31, 2002:** The team organised a two-day training programme for masons and plumbers to acquaint them with rainwater harvesting techniques. About 25 participants, sponsored by educational institutions, the hotel industry and resident welfare associations participated.
- **August 13-14, 2002:** A workshop was organised for construction and engineering professionals, NGOs and government agencies. The workshop imparted conceptual and practical knowledge of rainwater harvesting as well as its legal implications. Visits to water harvesting sites at Jamia Hamdard University in Tughlakabad and Panchsheel Park colony were organised.
- **December 12-13, 2002:** A workshop was organised to provide technical know-how to the Military Engineering Services on water harvesting in cantonment areas. Engineers were provided an understanding of the potential, feasibility and techniques of rainwater harvesting and taken to model projects.

## Release of English and Marathi versions of RWH manuals in Mumbai

On December 6, 2003, Mohan Dharia, former cabinet minister and president, Vanarai Trust, a Pune-based NGO, released the English version of Mumbai-specific water harvesting manual published by CSE at a seminar at IIT, Mumbai. This manual provides basic information on the water scenario, hydro-meteorology, water harvesting techniques and case studies from Mumbai. A seminar titled 'Jal Sangrah Shibir' was organised by alumnus of IIT, Mumbai with the objective of sensitising the professionals as well as other individuals on water-related issues. CSE also conducted a workshop on urban rainwater harvesting highlighting success stories from Mumbai and Delhi. It focussed on issues relating to implementation, maintenance and monitoring.

Kiran V Shantaram, sheriff of Mumbai, released the Marathi version of the manual on December 9, 2003, at a workshop organised jointly by CSE, United States-Asia Environmental Partnership and Hotel Lotus Suites. Participants included members of Rotary Inner wheels, Advanced Locality Management (ALM) Group (which looks after the welfare of residential colonies) and other interested persons. CSE highlighted the need for water conservation to overcome the water crisis in Mumbai.



Kiran V Shantaram, sheriff of Mumbai, releases the Marathi version of the water harvesting manual





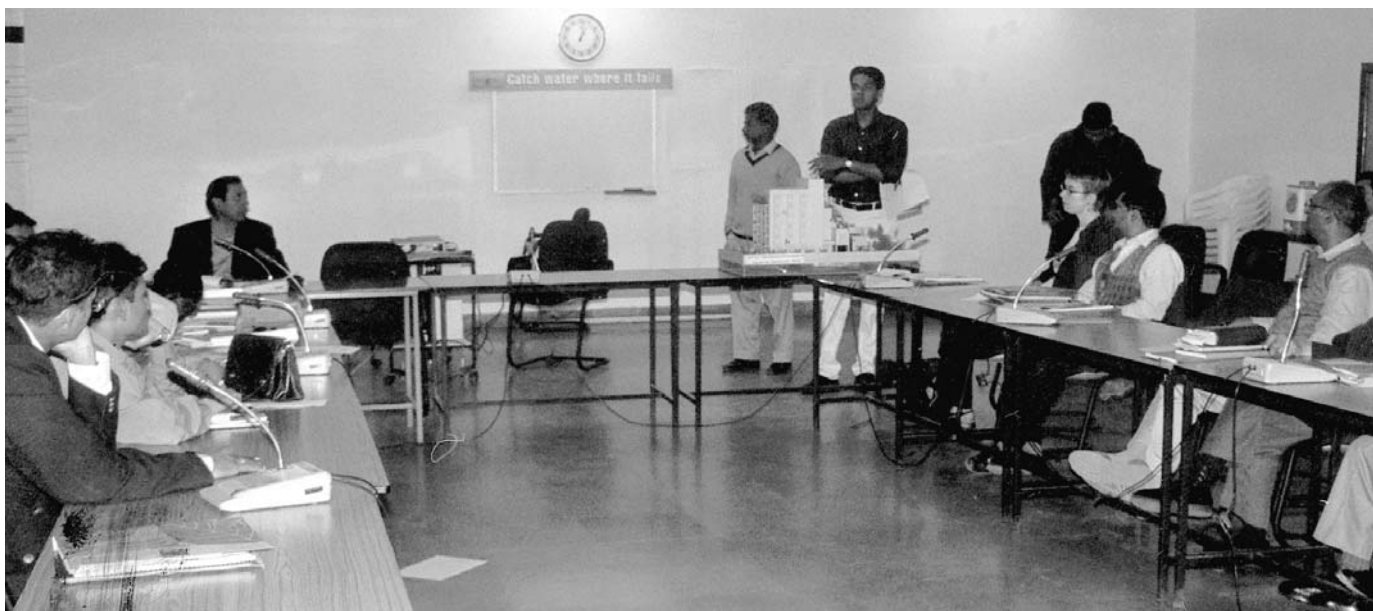
- **February 24, 2003:** During 'Jaipur Heritage Week', CSE, in collaboration with Virasat Foundation, organised a training workshop on urban water harvesting for architects, engineers, builders, hoteliers, government officials and citizens of Jaipur. Over 40 participants attended the workshop.
- **June 4-5, 2003:** Following a request from the Andhra Pradesh government, CSE conducted a one-day training programme each for municipalities at Hyderabad, Kurnool, Tirupathi, Vishakhapatnam, Guntur, and Warangal.
- **September 1, 2003:** CSE organised a training programme for plumbers and masons of Maurya Sheraton, Hotel Marriot and other hotels in collaboration with Hotel Maurya Sheraton, New Delhi.
- **September 22, 2003:** CSE organised a training programme on rainwater harvesting in collaboration with Tihar Jail in Delhi for jail personnel and inmates.
- **September 25, 2003:** CSE organised a training programme for 20 executive engineers and assistant engineers at Talkatora Indoor Stadium at the request of the New Delhi Municipal Corporation to help them outline a scheme of rainwater harvesting projects in the entire 42 sq km area of NDMC.
- **October 6-7, 2003:** CSE, the Pan-IIT alumni of Mumbai chapter and the Maharashtra Nature Park jointly hosted a workshop on rainwater harvesting for the people of Mumbai. CSE staff made a presentation on the existing and future water scenario for Mumbai and released a water harvesting manual specifically designed for Mumbai.
- **October 15, 2003:** CSE collaborated with the Brihan Mumbai Licensed Plumbers Association (BMLPA) to conduct a training programme for more than 70 plumbers from various parts of Mumbai.
- **February 5, 2004:** CSE organised a one-day workshop for the engineers of Bharat Sanchar Nigam Ltd (BSNL) from various parts of the country.
- **Delhi, April 18-21, 2005:** A four-day training programme in April was attended by engineers, students, representatives of NGOs and corporate

## Feedback from participants

- "We are thankful and congratulate your organisation for conducting such a fruitful programme. I hope you will again give us chances to express our views in an open debate" Azhar Ali Khan, Jamia Hamdard University, New Delhi.
- "The presentation on rainwater harvesting is simply superb" N Shivaram, BSNL, Mumbai.
- "Training was excellent and improved my understanding of rainwater harvesting" Radhey Shyam, BSNL, Ghaziabad.
- "I learnt to do rainwater harvesting from the training programme and definitely I will do it in practical life" Prabhat Sharma, Mira Model School, New Delhi
- "This is the best institution and small children also learn how to do rainwater harvesting. CSE could make us understand the value of water" Indu Singh, Children's Academy, Ghaziabad.

houses including Eureka Forbes, TERI, CEE and foreign participants from Pawai Gamde Research and Development, Kathmandu Nepal.

- **Delhi, June 13-16, 2005:** A four-day training programme in June was attended by 27 participants from different sectors. Organisations who participated included the Public Health Department of Himachal Pradesh, Jadavpur University, Kolkata, Punjab University, Chandigarh and Water and Sanitation Management Organisation (WASMO), Gujarat. Foreign participants from organisations like the Intermediate Technology Development Group (ITDG), Sri Lanka, Dhaka Community Hospital, Bangladesh and United Nations International Criminal Tribunal for Rwanda also attended.
- **Delhi, February 6-10, 2006:** A five-day long training programme in February 2006 included sessions on decentralised waste water treatment in addition to those on rainwater harvesting.



Members of CSE's Jal Swaraj campaign make a presentation at a training workshop organised in Jaipur in 2003



## Clean River Campaign

# The political economy of water and sewage

More than 70 per cent of the pollution load in Indian rivers comes from domestic sewage. Therefore, this campaign, launched in 2005, looks at options for management of domestic sewage in a way that rivers do not get polluted. Realising the need for minimising the use of water in urban areas and also for recycling and reusing water, CSE has initiated a programme to work consistently on issues dealing with sewage management and river pollution. As part of this work CSE has begun to explore alternative paradigms of sewage disposal. To begin with the campaign is working towards cleaning up the Yamuna river. The programme has been studying in detail the non-sewerage alternatives to the current paradigm involving sewers and centralised sewage treatment being developed the world over to understand this new technological paradigm and to popularise the concept. It is an important and neglected area of work — falling between the professions of water pollution experts, sewage technologists and water managers.

## Research and advocacy

### ■ RESEARCH ON YAMUNA: AN OVERVIEW

The study on the Yamuna and Delhi's wastewater situation began with a visit to a sewage treatment plant (STP) located in east Delhi. CSE found that the water being treated at the Yamuna Vihar treatment plant was being put back into the untreated drain because there was no plan on how the treated effluent was to be used. CSE also found that the story was repeated in other treatment plants as well. The research looked at other issues such as water-sewage arithmetic, location and technologies of waste treatment and sanitation issues of the unserved population, which accounts for almost 40 per cent of the sewage.

This research paper not only critiqued the Yamuna Action Plan in Delhi but also drew a blueprint for reviving the river. Looking beyond the sewerage paradigm of waste water management, the paper asserted that the Yamuna could be cleaned up if the administration was ready to clean up its act and look beyond sewers and STPs.

### ■ POLICY RESEARCH SUPPORT TO EPCA

As a member of the Environment Pollution (prevention and control) Authority (EPCA), CSE prepared research and policy papers to assist the SC in petitions related to wastewater management in Delhi.

Through its order of April 26, 2005, the SC directed EPCA to facilitate the handing over of common effluent treatment plants (CETPs) in Delhi to industry associations. CSE facilitated meetings with stakeholders like the Delhi government and the industry associations and organised visits and meetings to review the operational status of CETPs.



CSE surveyed the Mayapuri industrial area in south west Delhi in order to examine the options available for enhancing the capacity utilisation of CETPs. A drainage map of the Mayapuri industrial area was prepared and an action plan for increasing the utilisation of CETPs was worked out. CSE prepared a survey format for the Delhi State Industrial Development Corporation for assessing water use and pollution potential of industries in Delhi.

### ■ WASTEWATER RECYCLING IN PILOT PLANTS

CSE initiated alternative wastewater treatment in its new building. CSE staff prepared the plan, drawings for the installation of the settler, baffle reactor, planted filter and polishing pond. The wastewater of about 10 cubic metres (cum) is treated using natural anaerobic and aerobic microbes, and enzymes. This water is reused for irrigation for both the new and old building. CSE also implemented another pilot plant at a farmhouse in Chattarpur, New Delhi. In this farmhouse about one cum



A wastewater recycling structure being installed at the Anil Agarwal Green College in Delhi





of wastewater is treated using an anaerobic reactor, with anaerobic filter and polishing pond. In addition enzymes are also used to treat the wastewater. The treated wastewater is used for irrigation.

## Awareness creation

### Workshop on DEWATS

A two-day workshop on 'Decentralised Wastewater Treatment Systems' (DEWATS) was held in New Delhi on November 5 and 6, 2004. A large number of architects, engineers, representatives of local NGOs, officials from government agencies like Central Ground Water Board (CGWB), DJB, Housing and Urban Development Corporation (HUDCO), Delhi Development Authority (DDA) and institutions like School of Planning and Architecture, Indian Institute of Technology, Delhi as well as industries were among the participants.

The event, held at Indian Habitat Centre, New Delhi, was jointly organised by the CSE and Pondicherry-based NGO, Auroville Centre for Scientific Research (CSR). The workshop was sponsored by the European Union, Borda-Dewats Indian projects.

In her keynote address, Sunita Narain, director, CSE, highlighted the need for decentralised wastewater management instead of centralised treatment systems. The CSE director also released a film on DEWATS produced by CSR. This animation film explains how the DEWATS system works with the help of case studies.

After the inauguration, Pedro Kraemer, coordinator, FEDINA-BORDA spoke about their campaigns to spread the concept of decentralised wastewater management systems.

### Water and excreta research network

The objective of this network, launched in November 2005, is to understand how urban India is managing its water and sewage. This research project is being carried out with the help of 140 volunteers in both big and small Indian cities. These volunteers are trained to collect information about their city's water profile. This will be compiled and uploaded on the website. CSE staff and volunteers visited different cities like Aizwal and

Mussourie to collect information about the water and sewage status of the city.

### Capacity building: Sewage and pollution

A number of training programmes were held on 'River pollution and decentralised sewage treatment' for different interest groups:

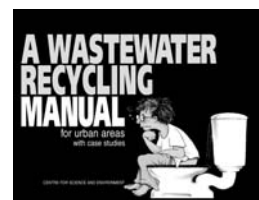
- **August 1-4, 2005, New Delhi:** A four-day training programme was organised which was well attended by architects, civil engineers, students and representatives of NGOs from various parts of India, including Delhi, Mumbai, Bangalore, Kolkata, Jhansi, Chandigarh, Ahmedabad, Hyderabad. Participants from Nepal also attended.
- **October 17-21, 2005, New Delhi:** A five-day training programme was organised. The workshop was well attended by architects, civil engineers, students, and representatives of NGOs. The participants represented Sweden, Kuala Lumpur, Delhi, Mumbai, Bangalore, Kolkata, Chennai, Hyderabad and several other cities of India
- **January 16-20, 2006, New Delhi:** A five-day training programme on river pollution and wastewater recycling was conducted in which 17 participants from all over the country participated.

As part of the programme, participants were exposed to the current sewage paradigm of centralised sewage treatment and its mismanagement, which has led to pollution of Indian rivers. To get an idea of the extent of river pollution, a boat ride was organised down the Yamuna river. Participants were also briefed about decentralised systems of sewage treatment in India. They were taken to sites where sewage is treated locally and reused. To provide a better understanding on decentralised systems, practical sessions were organised.

CSE staffers were also invited to give presentations on these issues in several fora including IIT, Delhi and the Water Expo.

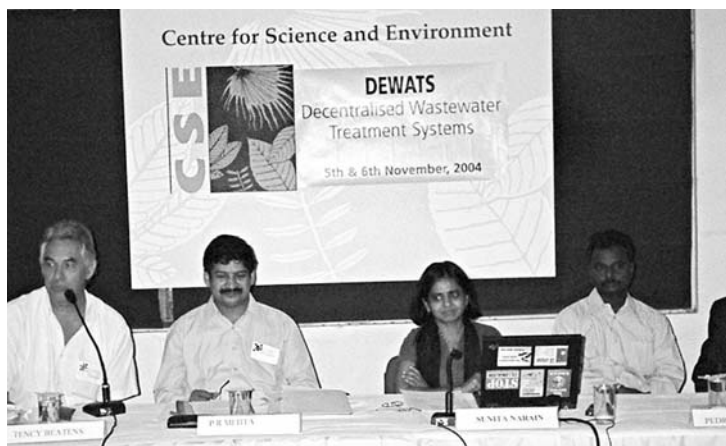
### Technical manual on wastewater recycling

A manual on alternate techniques and practices for treating wastewater was published in March 2005. There are several institutions and NGOs working on alternative technologies for treatment of sewage as part of their efforts to introduce sustainable sanitation models. This manual presents a compilation of these alternative sewage treatment technologies and case studies from across the country. The aim of the manual is to help architects, engineers and others interested in such alternative paradigms to implement such systems in their buildings.



#### ■ TECHNICAL ADVICE ON WASTEWATER RECYCLING

CSE team members offer technical advice and guidance to those who are interested in implementing decentralised wastewater treatment plants. The Shriram school has been given technical guidance to implement a project in its Vasant Vihar school. The Ajay Garg Engineering college in Ghaziabad has also implemented this system.



Panelists at a CSE workshop on 'Decentralised wastewater management systems' held in Delhi in 2004



# A focus on sustainable development

The Global Environmental Governance (GEG) team conducted several programmes during 2002-03 to build capacities in south Asia on global environmental issues, with particular emphasis on focal issues of the World Summit on Sustainable Development (WSSD). CSE also undertook programmes to sensitise the public.

### WSSD-related activities

The GEG team organised meetings in different parts of the country to generate interest in the ongoing international environmental negotiations. The first meeting was organised in February 2002 in Vishakapatnam in collaboration with the Indian Network on Ethics and Climate Change for Andhra Pradesh, Chhattisgarh, Orissa and West Bengal. Other meetings were held for the south, north, west and northeast regions. A press conference was held at the end of each of these meetings to brief journalists about discussions and issues of global environmental governance.

#### ■ SOUTHERN REGIONAL MEETING IN THRISSUR

This one-day meeting was held on April 11, 2002 in collaboration with Kerala Sastra Sahitya Parishad (KSSP). There were over 55 participants consisting of NGOs, media persons, scientists and bureaucrats from Kerala, Tamil Nadu and Karnataka. Some of the key issues discussed included environmental governance, ecological poverty, biodiversity, trade and environment, climate change and ecological security. *The Hindu*, *The New Indian Express*, television channels and other local newspapers covered the meeting.

#### ■ NORTHERN REGIONAL MEETING IN DEHRADUN

A two-day meeting on April 18-19, 2002, was held in collaboration with Experiments in Rural Advancement, Sarokaar and Centre for Advocacy Studies. Over 70 participants from the states of Uttaranchal and Himachal Pradesh participated. The discussions focussed on sustaining and preserving traditional knowledge systems, global and national environmental governance and impacts of economic liberalisation. There were sessions on combating poverty through sustainable development, natural resource and biodiversity conservation, and climate change, disaster management and law, policy and institutional framework for sustainable development. The meeting concluded with a press conference, and was covered by *Amar Ujala*, *Darpan*, *Badri Vishal*, *Garhwal Post* and other newspapers.

#### ■ WESTERN REGIONAL MEETING IN MUMBAI

This meeting on July 12-13, 2002, was held in collaboration with Youth for Unity and Voluntary Action (YUVA). There were 33 participants from Maharashtra, Rajasthan and Madhya Pradesh. Workshop sessions covered issues of poverty and environment, global democracy and sustainable development. There was a group discussion on local lessons for global policy makers.

#### ■ NORTH-EASTERN REGION MEETING IN GUWAHATI

This meeting on August 11, 2002, was organised by CSE with the help of Dileep Chandan, Editor, *Asam Bani* an Assamese language newspaper. NGOs, media, local activists, scientists and bureaucrats from Assam, Arunachal Pradesh, Manipur, Meghalaya and Nagaland

### Regional meetings on WSSD

Venue of meeting	Date	Organiser	States participating	Number of participants
Vishakapatnam	March 22 – 23, 2002	Indian Network on Ethics and Climate Change (INECC) and the Orissa Development Action Forum (ODAF),	Andhra Pradesh, Orissa, West Bengal, Jharkhand, Chhattisgarh	35
Thrissur	April 11, 2002	Kerala Sastra Sahitya Parishad (KSSP).	Kerala, Tamil Nadu and Karnataka	55
Dehradun	April 18-19, 2002	Experiments in Rural Advancement, Sarokaar and Centre for Advocacy Studies.	Uttaranchal and Himachal Pradesh	70
Mumbai	July 12-13, 2002	Youth for Unity and Voluntary Action (YUVA)	Maharashtra, Rajasthan and Madhya Pradesh	33
Guwahati	August 11, 2002	Asam Bani	Assam, Arunachal Pradesh, Manipur, Meghalaya and Nagaland	50
Nagpur	September 9-10, 2002	Indian Network on Ethics and Climate Change and the National Youth Foundation	All India	50





participated. The sessions were on global environmental negotiations, the needs of the northeastern regions and their links with global issues and industrial pollution. There was also detailed discussion on the biodiversity of the region, its sustainable use and benefit sharing with local communities from its use.

### Factsheets on environmental governance

CSE produced a set of 14 factsheets on the ongoing global environmental negotiations that provide concise information on the issues and politics involved in each negotiation. The factsheets were based on the two books produced by CSE, *Green Politics* and *Poles Apart* on the state of global environmental negotiations. They were also translated into Oriya, Malayalam, Marathi, Hindi and Bengali for a larger outreach. The Kerala Sastra Sahitya Parishad, Kerala, translated the factsheet into Malayalam, YUVA into Marathi, Unnayan Shamunnay into Bengali, the Nepal Forum of Environmental Journalists into Nepali and Manav Adhikar Seva Samiti into Oriya.

More than 7,000 factsheets were widely disseminated in India and south Asia. CSE targeted policy-makers and activists in India to help in pushing the government to take a proactive stand on these issues. In particular, the delegation dealing with WSSD in the Ministry of Environment and Forests was actively engaged to push for a proactive position on the issue of poverty alleviation at the WSSD. CSE took the help of organisations in south Asia to disseminate the factsheets to policy-makers in their countries.

### Media workshop for south Asian journalists

The GEG unit and the media training team organised a workshop for south Asian journalists on August 1, 2002, in New Delhi. The aim of the workshop was to provide an understanding of and to demystify the science and politics of global environmental issues. The workshop was also an opportunity to highlight important breakthroughs in global environmental negotiations, and to brief journalists about the positions of the south Asian countries.

Over 100 journalists applied to attend the workshop and 40 were selected from Pakistan, Sri Lanka, Nepal, Bangladesh, and India. Several experts and policy makers dealing with global environmental negotiations were invited to provide positions and perspectives on key issues of the WSSD process. Speakers included Emil Salim, chairman of the WSSD preparatory meetings, P V Jayakrishnan, secretary, ministry of environment and forests, Deepa Wadhwa, joint Secretary, ministry of external affairs, Atul Kaushik, deputy secretary, cabinet secretariat, Kirit Parikh, emeritus professor, Indira

### Journalists in CSE team at WSSD

- Vinod Varshney, *The Hindustan Times*, New Delhi, India
- Vaishnavi Chandra Shekhar, *The Times of India*, Mumbai, India
- Nagesha Prabhu, *Deccan Herald*, Bangalore, India
- Sonu Jain, *The Indian Express*, New Delhi, India
- Dileep Chandan Sarma, *Assam Bani*, Guwahati, India
- Richard Mahapatra, *Down to Earth*, New Delhi, India
- Clifford Polycarp, *Down to Earth*, New Delhi, India
- Navin Khadka, *Space Time Today*, Kathmandu, Nepal
- Mostafa K. Majumder, *The Bangladesh Today*, Dhaka, Bangladesh
- Nadeem Iqbal, *The News*, Islamabad, Pakistan
- Dilrukshi Handunnetti, *The Leader Publications*, Colombo, Sri Lanka
- Karan Singh, Doordarshan News, Doordarshan

Gandhi, Institute for Development Research, Dipak Gyawali, Pragma (academician), Nepal Water Conservation Foundation, V K Gupta, director, National Institute of Science Communication, and several others.

The workshop was successful in sensitising journalists to many inter-related issues of global environmental negotiations and helped to strengthen CSE's media linkages. An informal interaction was organised on August 2, 2002, for participants to meet civil society representatives in the city. Participating journalists covered the workshop in their newspapers after the completion of the workshop and there were over 20 articles on the workshop itself in different newspapers.

### Public meeting on WSSD

To focus public attention on the WSSD process, the GEG team organised a public meeting on August 1, 2002. There was a panel discussion and speakers were Emil Salim, chairman of the Preparatory Meetings of WSSD, Kamal



Former Union environment minister Kamal Nath, Emil Salim, chairman of the preparatory meetings of WSSD, and CSE director Sunita Narain at the public meeting on WSSD held in New Delhi on August 1, 2002

### SANGO network: Keeping them informed

The GEG team initiated the South Asia NGO (SANGO) Forum — an e-Group — to foster interaction among people/institutions working on global environmental issues and to keep them updated on the latest developments in the ongoing preparations for the WSSD. The network has over 200 members.



Nath former Union minister of environment, P V Jayakrishnan, secretary, ministry of environment and forests and Sunita Narain, director, CSE. The discussions focused on the need for a strong proactive agenda from India and other developing countries at the WSSD. Over 200 people attended the public meeting and it was well covered by the media.

## At Johannesburg, for the WSSD

The WSSD was held in Johannesburg from August 26, 2002 to September 4, 2002. Sunita Narain, director, CSE, was invited to be a part of the Indian government delegation.

The GEG team sponsored a team of 12 journalists from south Asia to participate in the WSSD. The aim of this effort was to provide an opportunity for Southern journalists to get a feel of international negotiations and report on the developments in their newspapers. Wide media coverage in the south Asian press of the negotiations process, with a special focus on what the government representatives were saying brought pressure on to the governments not to barter away the rights of the southern citizens.

CSE hosted two press briefings, one with Emil Salim and another one with Kamal Nath, to ensure media attention for the Southern perspectives at the summit. CSE issued four press releases on the WSSD negotiations. The press releases were widely disseminated both at the summit venue and to newspapers in the south Asian region. These press releases ensured a good coverage of the negotiations in the south Asian media. CSE staff also contributed to a daily newsletter published by Ecoequity, a coalition of NGOs and participated in other meetings. CSE staff presented papers on science and technology and sustainable development, democracy in global environmental negotiations, and on the impact of air pollution on health.

The journalists who attended the workshop wrote more than 75 articles on the WSSD and global environmental issues in their respective newspapers in the south Asian region.

## CSE at CoP-8

For the first time India hosted a major conference on climate change lasting over a week from October 23 to November 1, 2002. It was an issue of utmost importance to developing countries because of the adverse effects of climate change on agriculture, economy, water resources, weather, biodiversity and human health. This forum provided CSE a good opportunity to inform people about climate change issues and associated global negotiations. CSE organised a number of events to disseminate information among the media and public in India and other south Asian countries where there is little awareness about climate change issues.

### ■ ACTIVITIES FOR YOUTH

Given the fact that global climate change will have long-term impacts, CSE decided to involve the youth of the country to catalyse their interest in climate change issues. CSE collaborated with the Indian Network of Ethics and Climate Change (INECC), the National Youth Foundation (NYF) and Student's Mobilisation Initiative for Learning through Exposure (SMILE) in organising students from across the country to participate in programmes of awareness creation on climate change issues.

As a first step, CSE organised a two-day briefing for about 45 students and facilitators from across the country on September 9-10, 2002 at Wardha, to apprise them of the history and politics of climate change negotiations so that they could look at the negotiations critically and understand them better. These students in turn acted as resource persons and disseminated information through lectures and meetings in their respective areas and mobilised more people to come to the CoP 8 conference.

### ■ CLIMATE CARNIVAL

A climate carnival was organised at the India Habitat Centre on October 25, 2002. A cartoon exhibition on climate change issues was also inaugurated on the occasion. Youngsters performed dances, songs and skits to raise awareness on the issues. A newsprint roll was unrolled on

## Demonstration by youth

Over 200 school children from Delhi and 100 youths from several states took part in a demonstration at the Vigyan Bhawan in New Delhi to press for equity in the climate change negotiations being held during COP-8.

The children were also demanding that nations of the world should press for per capita emissions' entitlements to ensure justice for Third World countries. Later on the pretestors assembled in the India Gate lawns. Carrying placards they marched from the Jantar Mantar to the Parliament Street Police Station.

This demonstration at a climate change conference was a novel event and it was reported in every national newspaper during the climate conference. (*The Times of India, The Hindustan Times, The Economic Times, Asian Age, The Telegraph, Today, The Hindu, Star TV, CNN, CNBC, Sahara, Eenadu TV, Aaj Tak, Kairali TV, Zee TV and All India Radio*).



Rustam Vania and Pratap Pandey of CSE participate in the demonstration at Vigyan Bhawan in New Delhi during CoP-8





CSE's cartoon exhibition at the climate carnival held in New Delhi in September 2002

the floor for children and youth to write their messages. A cake was made to depict carbon entitlements and the largest slice was shown as the US share.

The exhibition on equity in climate change was put up in three different venues: at the India Habitat Centre, Vigyan Bhawan and Ashoka Hotel. Besides, posters and stickers with cartoons on climate change and its politics were put up at various strategic places.

### The climate change newsletter

In order to lobby for issues of justice and equity in the climate change negotiations, CSE produced and distributed newsletters every alternate day of the conference. CSE's staff reporters attended different meetings and these reports together with analyses and perspectives were fed into *EquityWatch*. The newsletter reached negotiators early in the morning before the start of the deliberations to keep them informed of the developments and perspectives. During the 10-day CoP-8 meeting 5,000 copies of five issues of *EquityWatch* were produced and distributed in the city.

The newsletters, one of a kind in providing the Southern perspective on climate change negotiations, went a long way in influencing the negotiators. Waller Hunter, secretary UNFCCC, said that she made sure that she read every issue and thus kept herself updated about the different views and opinions on the negotiations. CSE's strong advocacy also influenced the Indian government position. Since informed public opinion is a pre-requisite for public participation in national and global policy making, *EquityWatch* was also distributed widely in various locations — schools, universities, bookshops, libraries and markets in Delhi during the conference. In addition, an electronic version was also posted on the CSE site and copies sent to a large number of people via e-mail.

Beginning from a primer on climate change issues including scientific aspects and chronological update, *EquityWatch* took up issues related to US position on climate change negotiations over the years, issues of carbon

sinks and their role in mitigating climate change impacts, an analysis of the Clean Development Mechanism, and the impact on small island states and the liability of developed countries towards developing countries.

### Media briefing for CoP-8

CSE sponsored the participation of select south Asian journalists in the climate conference. A briefing meeting was organised just before CoP-8 on October 22, 2002 for journalists from India and south Asia. It provided an overview of issues to be discussed at CoP-8 in addition to the science of climate change, historical account of climate change negotiations and political stands of various countries. The workshop was attended by 14 journalists from India, Bangladesh, Sri Lanka and Nepal. Press kits containing a paper on climate change for members of Parliament by Anil Agarwal, *Equity Watch* newsletters and a factsheet on the impact of climate change in India were sent to 50 media offices.

### CSE at the WTO conference, Cancun

CSE carried out a series of activities in an effort to inform and build opinion amongst the stakeholders on the issues in the Doha agenda that were likely to be taken up at the ministerial conference in Cancun. The aim was to enable them to influence the debate on the trade issues more effectively.

As a countdown to the conference, CSE carried a series of reports in *Down To Earth (DTE)* and invited expert comments from *DTE* readers as a curtain raiser to the conference. A homepage — <http://www.cseindia.org/html/geg/cancun-indepth.htm> — containing news, views, interviews, documents, NGO views, background information on WTO and the Doha round related to the conference was hosted on the CSE site. Links were provided on the CSE and *DTE* homepages. The site also included links to the articles published by *DTE* and the expert opinions carried in *DTE*.

News updates from Cancun were simultaneously put up and links provided on the site. The site also hosted links to news items on the meet published by *The Times of India*, *The Economic Times* and *Business Standard*.

Interviews with Arun Jaitley, Union minister of commerce and industry and head, Indian government delegation to the WTO, Ulrike Schmuelling, advisor, Federation of German Industries (VCI) / member of the German Federation of Industries (BDI), Debapriya Bhattacharya, executive director, Centre for Policy Dialogue, Dhaka, Bangladesh, Nagesh Kumar, director general, RIS for Developing Non-Aligned Countries, and Biswajit Dhar, head, Centre for WTO studies, Indian Institute of Foreign Trade were also made available on the site.

CSE staff prepared and published a detailed article on the Cancun conference critiquing the processes, which resulted in the failure of the meeting. The report was widely circulated to a number of experts in India and abroad. The analyses of the outcome of the Cancun meeting were received from several experts, some of these were, Jurgen Maier, director of the School of International Service, American University, USA, Ross Gelbspan, noted freelance journalist and author on global environmental issues, John Hontelez, secretary general, European Environmental Bureau, Heike Loeschmann, director,



## CSE at Cancun

CSE representatives attended several events and press briefings that were taking place at the conference venue. They met and interviewed people to understand issues at hand in the negotiating round and their implications. CSE representatives participated in the following side events:

- 'The North American Free Trade Agreement (NAFTA) environmental record: Lessons and warnings for bilateral trade, the free trade area of the Americas (FTAA) and the WTO' organised by HBE, September 10, 2003.
- 'Seminar on WTO and beyond: Cancun, multilateralism and beyond' organised by WWF, September 10, 2003.
- 'Seminar on fisheries subsidies' organised by WWF, September 10, 2003.
- 'Symposium on agriculture trade reforms' organised by FAO, September 11, 2003.
- 'Cancun trade and development symposium', September 11, 2003.

South Asia Regional office, Heinrich Boell foundation, and published in *Down To Earth*.

## Reportage and dissemination

The team covered the key meetings during this period, the WSSD meeting, the climate change meetings in New Delhi and Italy, the WTO ministerial meetings and other international meetings.

Charting the progress towards the WSSD, CSE reports in *DTE: Three brackets to Johannesburg* commented that there was no agreement on the important issues of time-bound commitments, means of implementation and the principle of "common but differentiated responsibilities", all of which were transmitted as bracketed text to WSSD. *Rio10 Beached!* critiqued the failure of the final preparatory meeting in Bali.

*Repeat of Bali feared* and *Treading tentatively* focussed on the Indian scenario. One endorsed the urgent appeal of Emil Salim, chairman to the WSSD preparatory process, to the Indian prime minister to lead the delegation of the developing world in addressing the issues of poverty, unsustainable patterns of production and consumption and the degenerating ecosystem, while the second criticised the indecisiveness and inaction of the Union government on prioritising the delegation and agenda for the WSSD.

CSE staff attended and reported on the proceedings of the Summit in *Dialogue of the deaf*, which said that the Summit compromised the needs of many to accommodate the demands of a powerful few. *Trade might is not right* analysed the 'means of implementation' draft discussed at WSSD, which was a bullying exercise by the rich on the poor using trade and other sanctions. *Big brother* reported on the anti-US sentiments that were evident at the WSSD in Johannesburg.

A series of reports documented the progress of the Kyoto Protocol negotiations. *Backroom deals* criticised the secret talks between top US officials and CII on climate change issues and called for transparency in dialogues on critical issues such as climate change. *Nothing's brewing* recorded the apathetic and inept performance of India as the host country at the CoP-8,

which ended with no significant progress. *Putting a damper* and *Sublimating Climate Change* recorded the slow progress of the Kyoto protocol. CSE reported that the ninth conference of parties (CoP-9) to the UN Framework Convention on Climate Change was reduced to a near non-event as a result of no firm commitment from Russia. The editorial said that the Kyoto Protocol is the only option available to the nations of this world to deal with the impacts of climate change.

*Aerial Raid* was an assessment of the impact of the build-up of a vast layer of particulate matter over the Indian Ocean. The aerial haze, under study by a team of international scientists, including India, could lead to a disturbed monsoon, affect agricultural yield, block sunlight and lead to many health problems.

Disagreeing with the ambivalence of the western world in propagating sustainable development, the report, *A duty to save the world, without the right to survive* underlined the right of all human beings to the Earth's natural resources and the right of the Southern countries to grow.

*Shucks and Awww* was a cover story on the US war against Iraq and the pattern of its unilateral policy evident in other fora such as the Climate Change Convention. Major powers today are not forming a coalition against the US because in the past they have derived substantial benefits from aligning with the US. The report drew a good response from eminent civil society leaders as well as government representatives. Ernst Ulrich von Weizsacker, member of the Bundestag and chairperson, Environment Committee, wrote to CSE endorsing the views put forward in the article. Foreign minister of France Dominique de Villepin also wrote expressing his appreciation for the article. An editorial on the urgent need for multilateral institutions to maintain a just global order, *Ordering a new world*, also received a good response from leaders and thinkers across the world.

In *We need a revolution in global trade*, Walden Bello, professor of Sociology and Public Administration at the University of Philippines and executive director of the Bangkok-based research and advocacy organisation, Focus on the Global South, talked about the future of the governance of global trade.







## Health and Environment

# A choice between poison and nutrition

CSE created history in environmental advocacy by carrying out two studies on pesticides in bottled water and cold drinks. These studies revealed the presence of pesticides in bottled drinking water and soft drinks and generated lead stories in national newspapers and television channels. The tremendous media response forced the government to act. The ministries of food and civil supplies, consumer affairs and health and family welfare announced draft norms revising the testing methodology and standards for pesticide residues in bottled water. A high-level committee was constituted to finalise the new norms after a due review process. A Joint Parliamentary Committee (JPC) — the first ever on a public health issue — was set up by the government to look into the issue of pesticide residues in beverages and recommend safety standards.

The report of this fourth JPC was tabled in February 2004. The JPC report not only endorsed CSE's findings on pesticide residues in soft drinks but also endorsed the demand for a strong public health agenda for food products and water. According to the recommendations, all food testing laboratories would have to upgrade their testing facilities to meet European standards on bottled water and beverages. CSE filed a public interest petition in the SC and continues to work on this issue.

CSE's health and environment team organised an international conference in Delhi on health and environment in March 2006. The conference focussed on three areas: air pollution, toxins and water pollution.

### CSE laboratory accredited

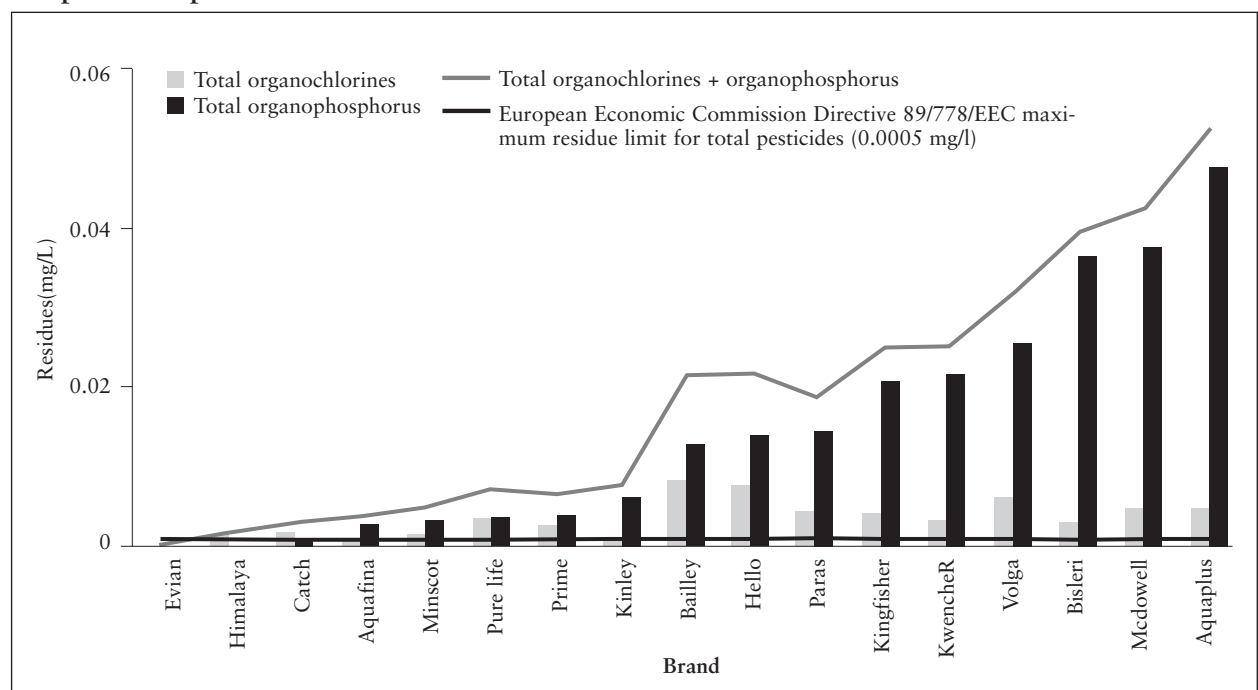
**Accreditation of the lab under ISO9001:** 2000 The lab staff undertook work for the audit of the lab for the purpose of accreditation under ISO 9001:2000. Detailed documentation of procedures, methodologies, quality control etc were prepared and systems set where necessary. The lab successfully obtained accreditation.

It also made a departure from looking at the diseases and instead, looked at overall policies, regulations and standards. Another area of weakness was lack of information arising from paucity of scientific studies on health impacts of pollution.

CSE has been working to compile information on the state of India's environmental health and substantial information had been amassed over the last 7-8 years. This information was classified and key-worded and put on the website. CSE also produced a compilation of all the health stories carried in *Down To Earth* in the book *Body Burden*.

The pollution monitoring laboratory continued its work on testing toxins in food and the environment. Another CSE study found high levels of deadly pesticides in the blood of farmers in Punjab. It was released in August 2005.

### No prizes for poison: Pesticide levels found in different Delhi-based brands of bottled water





## Pollution monitoring lab

In 2003, CSE released two major laboratory studies on pesticides in packaged drinking water, and in soft drinks. The two studies highlighted serious health and governance issues, such as weak regulatory mechanisms on food safety, groundwater use and pesticide use. The studies were published by *Down To Earth* and were widely covered by the national and international media. They made a big impact and CSE received hundreds of supportive messages from all over the world. CSE followed these up with another study on the process of setting standards and norms for pesticide residue limits in food and beverages and found the existing processes highly lacking in science and public health safeguards.

One of the aims of these studies was to evolve effective mechanisms to manage industrial growth and its toxic fallout, and to build foolproof governance systems to protect public health during increased private sector participation. The underlying concern that drove the studies was that unregulated use of pesticides is a matter of serious public health concern in India, and that all citizens have the “right” to clean water and safe food.

## Analysis of packaged drinking water

CSE undertook a survey of packaged water available in the Delhi and Mumbai markets and found some alarming results. The study was covered in detail in newspapers, journals and in television and radio broadcasts and their online editions. The study sent shock waves through the public, the Bureau of Indian Standards, the multi-crore packaged water industry, and the government.

### ■ LAB ANALYSIS: SAMPLES FROM DELHI AND MUMBAI

Between July 2002 and December 2002, CSE analysed 17 different brands of packaged drinking water and mineral water samples sold in and around Delhi. Random samples (two bottles per brand) were purchased from each colony such as Mayur Vihar, Defence Colony, Khan Market, INA Market, Green Park, Lodi Road and Mathura Road in New Delhi, and from adjoining areas — Noida, Ghaziabad, Meerut (in Uttar Pradesh) and Gurgaon (Haryana). Samples included the top five brands in the packaged water segment — Bisleri and Bailey, manufactured by Parlé; Pure Life, a Nestlé product; Aquafina, by PepsiCo; and Coca-Cola's Kinley, as also other brands such as Volga, Prime, Paras, Minscot (popular in Gurgaon), Aquaplus (sold mainly at railway stations and trains) and Evian.

All samples were tested for 12 organochlorines and eight organophosphorus from among the most used pesticides in India. The analysis and testing were conducted using internationally established methodologies approved by the United States Environment Protection Agency (USEPA) for pesticide detection in drinking water. The laboratory used a gas chromatograph (GC) with an electron-capture detector using a capillary column for the analysis. The test results were compared to the European Economic Community (EEC) directive on drinking water. Pesticide residues found were of the deadliest kind — gamma-hexachlorocyclohexane (g-HCH or lindane), DDT, malathion and chlorpyrifos.

Lindane, a banned pesticide, has an established link with breast cancer. DDT, also banned, is known to cause



CSE director Sunita Narain releases the study on pesticide residues in bottled water in New Delhi in February 2003

lung damage with extended exposure. Malathion is a known mutagen. Chlorpyrifos is suspected to attack the neural development of a foetus. All these chemicals exceeded permissible limits in all tested samples except for the imported brand, Evian, manufactured in France.

CSE also undertook sampling and testing of bottled water from Mumbai at the request of *Mid-Day*, one of Mumbai's leading newspapers. A total of 26 samples covering the 13 most popular brands in the western region were analysed.

### ■ PUBLICATION AND RELEASE OF FINDINGS

CSE published its analysis and test findings in *Down To Earth* and released them at a press conference on February 4, 2003. The study reported that even though a certification from the Bureau of Indian Standards (BIS) is mandatory, the norms set by the BIS for packaged drinking and natural mineral water were vague and ambiguous. It recommended clear, quantitative and transparent standards.

There was wide media coverage and all national newspapers as well as TV channels covered the study extensively. On February 5, 2003, the government announced a high-level investigation headed by additional secretary of the Consumer Affairs Department, Satwant Kaur Reddy to look into the inadequacy of the standards for packaged drinking water. This committee submitted its report on March 23, and recommended the adoption of the EU norms for pesticide residues in bottled water.

### ■ OUTCOME OF STUDY

The BIS convened a meeting to review pesticide standards and to discuss the appropriate testing methodologies. It proposed the adoption of the EU norms for packaged water. On July 14, 2003 the Union ministry of health and family welfare issued a notification on pesticide residues in bottled water under the Prevention of the Food Adulteration Act (PFA). This notification adopted the EU norms of 0.0001 ppm for individual pesticide residues and 0.0005 for total pesticide residues in bottled water. It also mandated the use of globally accepted methodologies







## Government's response to CSE's report on packaged water

In the wake of CSE's investigative report on presence of pesticides in packaged drinking water, then Union health minister Sushma Swaraj made the following statement in Lok Sabha in February 2003 delineating policy provision in setting the quality benchmark for packaged drinking water.

"There have been recent press reports on the quality of bottled drinking water... based on studies carried out by CSE... According to these studies [there were] pesticide residues in bottled water..."

...The Prevention of Food Adulteration (PFA) Rules provide compulsory BIS certification for the packaged drinking water and natural mineral water. According to these standards pesticide residues should be 'below detectable limits' when tested in accordance with the specific methods prescribed by BIS in their inspection and testing scheme... However, in the study by CSE, pesticide residues were found because of a testing method more sensitive than prescribed by BIS.

The BIS has now proposed:

- To revise the method of analysis and direct that the analysis shall be conducted by using internationally established test methods meeting the prescribed residue limits.
- To prescribe the maximum residue limit of pesticides in packaged drinking water and mineral water as follows:
  - Pesticide residues considered individually -0.0001 mg/litre
  - Total pesticide residues -0.0005 mg/litre
- Manufacturers shall produce a No Objection Certificate from the Central government/State government ground water authority for obtaining a BIS certificate.

Since packaged drinking water is under the Compulsory Certification Scheme of BIS, there is a necessity to harmonise the standards prescribed under PFA Rules with the standards amended by BIS..."

for testing pesticide residues in bottled water such as the USEPA method or the Association of Analytical Chemists (AOAC) method. This came into effect from January 1, 2004.

### Analysis of soft drinks

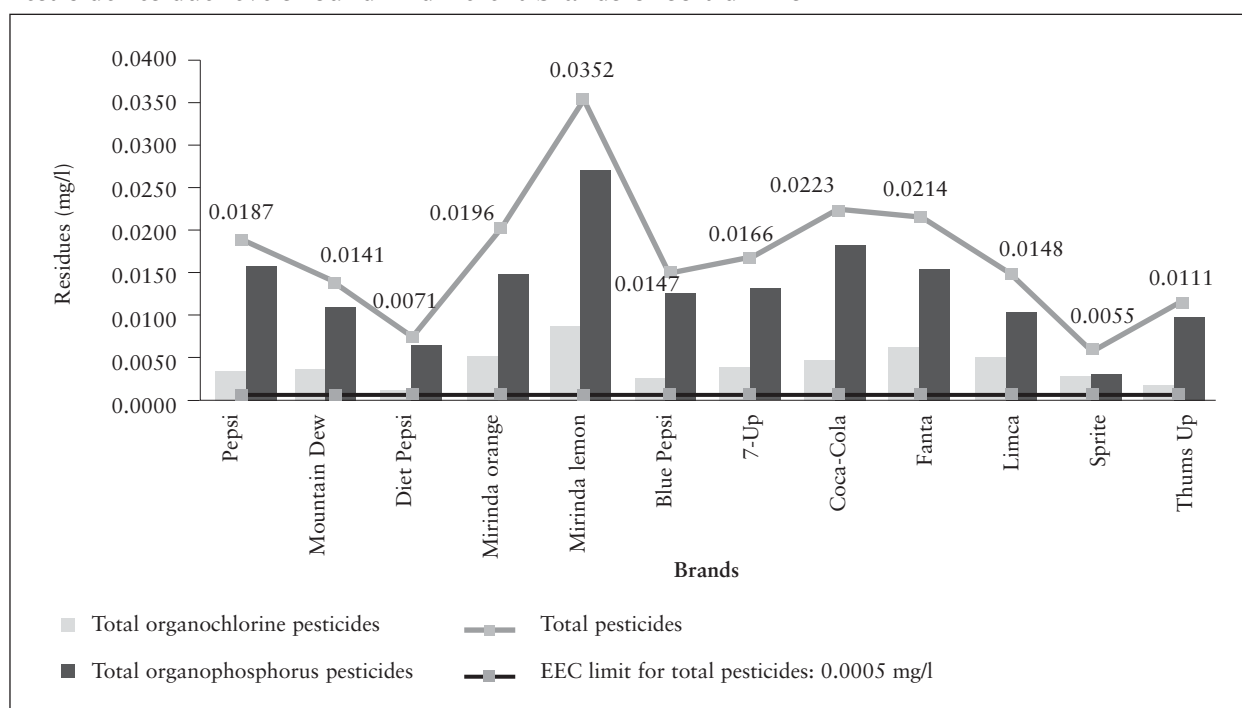
Following the publication of the study on bottled water, CSE received numerous letters from the public asking for a similar study on soft drinks. The key concern that emerged from these letters was that children are increasingly consuming large quantities of soft drinks and there was a need to find out if they contained similarly high pes-

ticide residues. Thus, CSE followed up with the test of soft drinks in August 2003.

#### ■ LAB ANALYSIS: SOFT DRINKS FROM THE NCR

Twelve of the most popular brands were chosen and three samples of each were purchased in and around Delhi. They were tested for 16 organochlorines, 12 organophosphorous compounds and four synthetic pyrethroids. A methodology similar to the one followed for bottled water was used. Test results were compared to the European Economic Community (EEC) and the World Health Organisation norms for water. Pesticide residues found reflected the findings of the tests carried out for the study

### Pesticide residue levels found in different brands of soft drinks







CSE director Sunita Narain addressing a press conference during the release of the study on pesticide residues in soft drinks in New Delhi in 2003

on bottled water — malathion, lindane and chlorpyrifos — were noticed in almost the same quantity. All the samples tested had pesticide levels 15 to 70 times higher than EEC prescribed limits.

#### ■ PUBLICATION AND RELEASE OF FINDINGS

CSE published these findings in *Down To Earth* and released the results at a press conference held on August 5, 2003. The report pointed out that the regulations for the soft drink industry were even weaker than that for packaged water. Neither the PFA nor the Fruit Products Order (FPO) regulates pesticide levels in soft drinks. Moreover, there are no standards to define what is 'clean' or 'potable' water in India. The CSE report called upon the government to put in place legally enforceable water quality standards.

There was an immediate reaction from the soft drink majors. At a joint press conference Coca-Cola and PepsiCo attacked the credibility of the CSE report claiming that their products were regularly tested at VIMTA labs, Hyderabad and TNO Nutrition and Food lab, The Netherlands and that their products were free of pesticides.

### The JPC: Investigation and recommendations

After a heated discussion on the issue in Parliament, Sushma Swaraj, Union health minister, announced the setting up of a 15-member JPC. This was only the fourth time in the history of India that a JPC had been set up and

the first ever on a public interest issue.

Sharad Pawar, member of parliament, headed the committee which had on its board 12 MPs and three scientists. The committee had to investigate whether the CSE findings on pesticide residues in soft drinks were correct and secondly, to set standards for pesticide residues in beverages. The JPC began its hearings in September and presented its report in February, 2004.

The JPC decided to involve experts to study the issue and invited suggestions from NGOs, industry representatives, farmers, medical professionals, toxicologists and other interested parties. R A Mashelkar, director of Council for Scientific and Industrial Research (CSIR), presented an overview of the issue to the committee. Scientists from the Central Food Technology Research Institute (CFTRI) and the Central Food Laboratory (CFL) also made presentations before the JPC.

In a three-hour presentation to the JPC, CSE contended that its area of concern was not just the presence of pesticides in soft drinks, but also their presence in dangerously high levels in food and water. CSE addressed the issues of 'safe', 'acceptable daily intake' and 'maximum residue limit' based on a database of all the pesticide residue studies done in India in the past 40 years. Simultaneously, CSE undertook a comparative analysis of pesticide residue standards under CODEX, EU, PFA and USEPA. CSE is the first institution to highlight the fact that average daily intake is not taken into consideration while setting standards for pesticide residues in food and beverages. In their daily intake of food, Indians take in as much as 5,000 times the permissible Acceptable Daily Intake (ADI) of pesticides.

After almost six months of deliberation, during which all parties — including CSE and the Cola compa-







**SHEE,...ALL PEP PHEENEESH.  
MATLAB SHAUB THANDA??**



nies — were heard out, the JPC presented its report in parliament on February 4, 2004. The committee's terms of reference required it to ascertain the veracity of CSE's study, and suggest a criteria for evolving suitable standards for soft drinks and other beverages. The JPC completely endorsed CSE's findings. It lauded the organisation's effort to draw attention to issues concerning public health, and said "...CSE stands corroborated on its finding pesticide residues in carbonated water". It

## Court battles

CSE had to fight the battle on several fronts. PepsiCo filed a petition in the Delhi High Court alleging that the CSE study was unreliable and motivated, and called for the establishment of an expert committee to review the tests. It also sought a gag order for CSE, by asking the court not to permit the organisation to publish further material, and remove the information from its website. Coca-Cola moved the Mumbai High Court seeking withdrawal of the state FDA order prohibiting the sale of soft drinks manufactured in its Pune plant.

The court summarily rejected PepsiCo's case on the ground that this was a public interest issue. The court also asked the government to set up an expert committee and come up with test results within three weeks. It asked the government to review the standards for soft drinks, and include pesticide norms comparable to the rest of the world. In December 2003, CSE filed a counter affidavit and PepsiCo quietly withdrew its petition just before the case was listed for hearing.

Justice Dharmadhikari of the Supreme Court took *suo moto* notice of a letter written by CSE director Sunita Narain on February 5, 2003, to key members of the judiciary informing them about the findings of the CSE, and converted it into a public interest litigation. The court issued notices to the Union ministries of food and civil supplies, health, and environment and forests. It made the Union of India the respondent in the case.

further noted: "The Committee... finds that the CSE findings are correct on the presence of pesticide residues in carbonated water strictly in respect of the 36 samples of 12 brand names analysed by it. The Committee also appreciates the whistle-blowing act of CSE in alerting the nation to an issue with major implications for food safety, policy formulation, regulatory framework and human and environmental health." Sunita Narain, director, CSE, said: "The report provides a reform agenda on food and water security in India."

## Outcome of the study

The exposé by CSE generated tremendous public interest. Several institutions, schools, airlines and government canteens banned cold drinks. Media reports said that sales had fallen by 30 per cent. Different state governments also

## Key highlights of the JPC report

- Water used for manufacturing soft drinks should be in conformity with the recently notified new packaged drinking water norms
- Stringent standards for carbonated beverages, best suited to Indian conditions, need to be fixed within the overall perspective of public health
- Draft notification for pesticide residues in soft drinks should not be made applicable to fruit juices and other beverages making a distinction between fruit juices (with nutritional content) and soft drinks (devoid of any nutritional content)
- Soft drinks companies should introduce non-caffeine versions of their products in the Indian market. They must follow the global best practices on caffeine regulations
- India should formulate its own food standards based on scientific criteria, meet global standards designed to protect the interest and health of people
- Water should be included in the definition of 'Food' in PFA. "Legally enforceable" standards should be formulated for drinking water to ensure that the general public gets clean and safe drinking water from taps
- A policy on pricing and regulation of groundwater, particularly when it is used for commercial purposes, should be put in place
- Pesticide policy in India, including the way pesticides are registered for use in the country, need to be reviewed to ensure proper and complete enforcement of standards





## In court

Following the expose by CSE on soft drinks, Swati Bhati, an advocate of the Rajasthan High Court (HC), Jaipur, filed a case against cola companies in March 2003, demanding that the companies paste a label on bottles listing all the chemicals in their soft drinks. In October 2004, the Rajasthan HC ordered soft drink companies (including Coca-Cola and PepsiCo) to display on their product labels the names and levels of chemicals, including pesticides.

The companies then approached the SC for a review of the order, but their plea was turned down. However, the SC ordered them to go back to the HC to work out how the order was to be implemented. Both companies filed a petition in the Rajasthan HC, seeking amendment/review of the order. The companies were trying to sidestep the issue by claiming that the level of pesticides in their products was not harmful. They also contended that labelling of pesticide content was not possible as there were no testing methodologies for checking pesticide residues in soft drinks.

In this context the HC order was not just about displaying pesticide content on labels, but also about empowering the consumer. With clear details on the label about the contents of the product, the consumer gets the freedom to make an informed choice. This enunciation of the right to information is what made the HC order special. By opposing it, cola companies provided a poor record in corporate citizenship.

In 2006, the SC, acting on a writ petition filed by the Centre for Public Interest Litigation, served a notice to the Central government asking for action on regulating soft drinks contents. This was an interesting development as the writ petition discusses the issue of additives (ingredients added to food) as against that of contaminants (such as pesticides). As yet, regulations on this are either non-existent or very weak. The petition will be important to track, to see how the government will put into place systems to regulate additives like caffeine and artificial sweeteners.

took action. Some undertook voluntary test of these soft drinks in their respective states. The Orissa government ordered its state facility and the Indian Council of Medical Research (ICMR) to test the samples of soft drinks in the state and in Kolkata and Ahmedabad. The Food and Drug Administration, Nagpur, banned distribution of Pepsi and Coke as a "precautionary measure". The bottling plants were told not to release any bottles into the market pending the laboratory analysis of the products. Samples were collected and sent to a laboratory in Pune. The West Bengal health department tested samples at the Public Health Laboratory and Salt Lake laboratory of the West Bengal Pollution Control Board. The Gujarat government also collected samples from plants in Bharuch, Ahmedabad and Rajkot.

Then Union health minister Sushma Swaraj announced in Parliament that government would independently test samples of soft drinks. Samples of 15 branded soft drinks from Mumbai, Chennai, Kolkata and Delhi were subsequently sent for testing to the Central Food Technological Research Institute (CFTRI), Mysore and the Central Food Lab at Kolkata. CSE stood vindicated when the tests reconfirmed presence of pesticide residues in the drinks.

The Union ministry of health and family welfare issued an amendment notification of the Prevention of Food Adulteration Act of 1955, to regulate the presence of heavy metals and pesticides in beverages and food products. This notification extended to all kinds of beverages, whereby the water used in making soft drinks was to meet the norms for pesticide residues in bottled water. All food testing laboratories were asked to upgrade their facilities to meet the new notification on bottled water and beverages, which was to become effective from January 1, 2004.

## Legal developments: Pesticides campaign

CSE has an ongoing case in the SC on pesticides and food safety issues. The original case was taken up *suo moto* by the SC on the issue of pesticide residues found in bottled water. In January 2004, CSE filed an affidavit explaining that the broader issue concerned pesticides in the food chain and that the root of the problem was pesticide regulation (or lack of it) in the country.

The Union government (through the ministry of health and family welfare) filed a response in July 2004 to CSE's affidavit arguing that the government was doing enough to regulate pesticide use in the country. CSE filed its own rejoinder affidavit on July 21, 2005. It argued that most of the contentions of the government were misleading and many completely false. To prove this, CSE showed the government's own records including the minutes of various committees that deliberated on pesticide regulations and the records of clearances given to various pesticides. CSE was able to prove that the government's claim that maximum residue limits — standards for pesticide residues legally permitted on food commodities — are fixed for every pesticide before registration was not true. CSE submitted a table in the affidavit, which gave the details of the pesticides that have continued to be registered since June 2003, without MRLs being set for them. This contradicted the claim of the government, that "no pesticide is registered without prior fixation of MRL under Prevention of Food Adulteration Act, 1955".

CSE was also able to prove that the government was continuing with the practice of allowing new pesticides to be used for crops without setting up MRLs. Again on the issue of ADI being used in regulation, CSE proved, from government records, that ADI was seldom used. In a few cases where ADI was used it was based on completely faulty calculations.

The case was put up for hearing in November 2005 and it was then listed for final arguments.

## Film on CSE's study on colas

The Public Service Broadcasting Trust, a Delhi-based non-profit organisation produced a film, *The Whistle Blower* on CSE's investigation into the issue of pesticides in bottled water and soft drinks in India. The film was about CSE and its campaign on pesticides. The aim of the film was to create awareness about the health impacts of pesticides. The film was screened at a public gathering at the India Habitat Centre, New Delhi on February 12, 2005. CSE director Sunita Narain was invited to participate in the discussion followed by the screening.





## Impact analysis: Study on pesticides in water and soft drinks

The impact was immediate and telling — the CSE office was flooded with calls from a wide cross section of civil society, concerned citizens, consumer action groups, hospitals, newspapers, magazines, television and radio broadcast stations. Subsequent to the release of the results on bottled water fears were raised that there could be pesticide residues present in carbonated drinks. Therefore in August 2003, CSE undertook studies to detect pesticide residues in carbonated drinks and found very high levels of pesticides in them. This created a media and public outrage unprecedented in the organisation's history. CSE's exposé made front-page headlines in the country's leading newspapers and became the subject of extensive television reports, discussions and interviews for several days.

### ■ COVERAGE OF GOVERNMENT'S ACTION

*The Deccan Chronicle* in Hyderabad; the *Hindustan Times* and *Hindu* carried the government's reaction to the studies on page one and also reported that Bureau of Indian Standards (BIS) had effected a change in standards, to match up to European norms. *The Business Line* reported that the Union health ministry had made a no objection certificate from central and state governments mandatory for sale of packaged water. And all the major and many regional dailies reported that seven bottled water plants had lost their ISI license.

On the bottled water issue, the newspapers also reported that the Union consumer affairs and food minister Sharad Yadav had called the matter "disturbing and very serious," and ordered a probe into the issue and demanded a report in three weeks from a four-member enquiry committee headed by additional secretary Satwant Kaur Reddy. All major dailies like *The Times of India*, *Business Standard*, *Dainik Jagaran*, *Hindustan Times*, *Economic Times*, *The Pioneer*, *Sentinel*, *Punjab Kesari* and *Rashtriya Sahara* reported that the government has ordered a draft notification to amend the Prevention of Food and Adulteration Act (PFA), 1955

### Widespread coverage in newspapers

All major dailies and their online editions and web portals followed the controversy on bottled water and soft drinks as front page or lead story, editorials or in the guest columns daily through the course of the controversy.

#### Lead stories/front page news

*The Times of India*, *Indian Express*, *Hindu*, *Hindustan Times*, *Financial Express*, *Telegraph*, *Business Standard*, *Economic Times*, *Statesman*, *Tribune*, *The Pioneer*, *Business Line*, *Asian Age*, *Jansatta*, *Rashtriya Sahara*, *Navbharat Times* and *Dainik Hindustan*; PTI, UNI and AFP; Rediff. Com, Planet Ark, Sify News and Ireland Online carried both the bottled water and the soft drink story as a lead story.

**Editorials:** All major English and regional dailies like *Hindustan Times*, *Statesman*, *the Indian Express*, *Economic Times*, *Business Standard*, *Financial Express*, *New Indian Express*, *Newstime*, *Pioneer*, *Rashtriya Sahara*, *Amar Ujala*, *Deccan Herald*, *Asian Age*, *Sentinel*, *Assam Tribune*, *Deccan Chronicle*, *Dainik Jagaran* took out editorials on the presence of pesticides in Pepsi and Coke and the need to set up norms and regulations for water as well as soft drinks.

**Popular columns:** *The Times of India* presented the reactions of citizens in its *People Talk* column. Jaspal Bhatti treated the issue in a lighter vein in his Friday humour column in *The Tribune*. *The Pioneer* covered CSE director Sunita Narain's interview in its *Debate* column where she stressed on the need for bottling plants to clean up their act especially as investments are low while profits are high. The *Hindustan Times* published a tongue-in-cheek take at Bacchi Karkaria's *Erratica*, 'Going by findings of CSE report, bottled water would leave us much worse than merely pissed.' The *Hindustan Times* website also initiated a reader's poll on question of packaged drinking water.



### Radio and television coverage of CSE study

The issue became a major talking point in the public domain with major television channels like the NDTV, *Aaj Tak*, *Zee news*, *Star News*, *CNBC*, *Sahara Samay*, *Headlines Today*, *Asianet*, *Kairali News* and *BBC*. The channels covered the controversies through discussion forums, interviews and public debates and opinion polls. In the widely watched 10 pm *News Hour* on NDTV, a consumer forum and a doctor on the panel joined CSE director Sunita Narain in a debate on the issue. *Mumbai Mid-Day*, *Zee News* and NDTV initiated polls to garner public opinion. *BBC* devoted a special slot to discussion in Hindi on key findings with Sunita Narain and members of the laboratory who conducted the study.

Sunita Narain was interviewed by *India Today* editor Prabhu Chawla on *Seedhi Baat* on *Aaj Tak* over the pesticides issue. She was also invited to participate in various discussion forums for NDTV 24x7 (*Newsnight*, *Hum Log* and *We the People*);

Business Line -- New Delhi -- 07-08-2003

### Govt gets busy over Cola issue

BIS to meet on Aug 18 for ground water norms

P.T. Jyoti Datta  
New Delhi, Aug 8

FOR the cola majors, the cup of wee was bitterness over on Wednesday with emotions running high in Parliament. From calling for a ban on the sale of colas to highlighting the need for regulating the quality of the groundwater that goes into becoming a soft drink, communication went back and forth between the three different Ministries governing the soft drink industry. Bureau of Indian Standards (BIS) of Koda said *Business Line* that they would be convening a meeting on August 18 where norms are likely to be passed for ground water that would be

the input material for soft drinks.

"This is a follow-up of the discussion in which the packaged water issue had come up. We had already scheduled a meeting for fixing norms for the ground water that would be the raw material for soft drinks". The BIS comes under the Ministry of Food and Consumer Affairs and is the body that provides ISI certification for bottled water. Health Ministry officials -- under whom the Prevention of Food Adulteration Act comes -- said that it was likely that the finished norms for bottled water in terms of pesticide residue would form the norms for the raw material going into soft drinks.

This is significant in the light of the observations made on Tuesday by the Centre for Science and Environment (CSE). It has pointed out that there are no norms for the water being used by the soft drink companies. "All that is said in the regulations is that potable water be used. There is no definition of what potable water is". Top brass in the Ministry of Food Processing Industries said that the matter had been referred to them. (The Food Products Order (FPO) comes under its purview). Meanwhile, the Health Minister, Mr. Sushma Swara, is likely to make a statement in Parliament within the next few days.

Following the furore that erupted today, the Minister said that she had sought a comprehensive report on the pesticide issue. "I will collect all the facts and come back to the House." No colas in Parliament: It will be "shameful" business for both Coke and Pepsi in Parliament with all five food outlets in the Parliament House complex suspending the sale of these two and other soft drinks as soon as the Chairperson of House Food Committee, Mr. S. Ahamed, announced a ban on their sale in the House. Only yesterday, the Pepsi chief, Mr. Rajiv Bhatnagar, had admitted to newspapers that the bottled water controversy did have an impact on sales initially.



## Headlines in the print media

Indian Express, Financial Express and The Times of India reported that the MPs had demanded a ban on Pepsi and Coke in Parliament. All major dailies reported the fall in sale of Pepsi and Coke and All regional major dailies like The New Indian Express, Kashmir Times, Rashtriya Sahara, Telegraph etc carried reports from various parts of the country about banning of soft drinks. For example, The Pioneer in Mumbai reported that residents had demanded a ban on soft drinks. The Statesman reported of a countrywide cloud over Cola. Assam Tribune reported that the Assam government had ordered tests of Colas. The Times of India and Hindustan Times from Ahmedabad reported that the demand for ban on soft drinks was growing. The Hindu reported that Anna University prohibited Pepsi and Coke in their campus. There were also reports of banning of soft drinks from Allahabad, Varanasi, Mysore and from Punjab University.

The Times of India reported that PepsiCo had received a letter from Union ministry of defence's canteen and stores department asking for an explanation on why they were not informed by PepsiCo of the pesticide issue and demanded a reply. They also said that failing a reply the canteen would be banning the products.

All major dailies reported that the Delhi HC ordered the government to get laboratory tests done for the samples and also that the SC refused to intervene in the petition submitted by the Coca-Cola challenging CSE's pesticide report. Coca-Cola was forced to withdraw its petition from the SC.

under which the ministry of health and family welfare suggested more stringent limits for the presence of pesticides, insecticides and heavy metals in all kind of beverages. The Statesman reported that food testing laboratories all over India would have to upgrade their technology to meet the testing standards of the European Union on bottled water and soft drinks.

### COLAS FOR CROPS

Farmers are spraying Coke, Pepsi and Thums Up on their crops to get rid of pests

**PRASAD RAO HYDERABAD**

THE CENTRE for Science and Environment's finding early this year that many carbonated soft drinks have high pesticide content and thus are unsafe for human consumption, has a queer spin-off. Farmers in some districts of Andhra Pradesh are taking to spraying Coke, Pepsi and Thums Up on their crops to get rid of pests. And they claim that the results are good.

The whole thing started with a few farmers in Guntur experimenting with the cola after the CSE report linking cola companies came out. "Why not try cola as they are cheaper and have high content of pesticides?" asked the initial argument. Some tobacco and chili farmers in Guntur reported "good results" and so word spread, more and more farmers to other districts started experimenting with the new idea.

"After all what is the loss? It costs less than Rs 300 to spray an acre with Pepsi. When I am spending up to Rs 8000 to 10000 in pesticides per crop per acre, what is the big deal in spending a few hundred rupees on cola?"

**ANDHRA PRADESH**

A tour of some villages in Warangal revealed that a number of chili and cotton farmers have given the cola treatment to their crops based on good feedback from Guntur farmers. They said that they found a number of dead pests a day after the spray.

"They generally buy 3-litre bottles of these drinks for Rs 30 each and spray them on their crops using pump sprayers. Some farmers even add small quantities of popular pesticides such as

"I observed that some of the pests on plants became immobile and began to die after the soft drink was sprayed," Krishna Rao, another farmer from Jagannadapuram village, said. "We will continue the cool drink spray if the result is like this," he added.

Many farmers are still pessimistic about the experiment by their co-farmers, but say that they would readily adopt it if it was beneficial. "Who said it significantly reduces our pesticide spend. One litre of pesticide, produced by MNCs, cost around Rs 10,000, whereas the same area could be covered by 10 to 12 bottles of 3-litre cola," Laxmaniah, a farmer said.

Senior agriculture officials, however, are not convinced about the efficacy of the spray. In fact, most of them dismiss the claim as rubbish. "Those soft drinks contain a primary substance. It will help in pest control any pest at present at a particular place for sometime, but not kill it. They may think it helps. It may be because of their ignorance," said Narasimha Das, agriculture officer.

The Hindu - New Delhi - 07-08-2003

## Tests confirm toxicity in sludge from coke plant

By P. Venugopal

THIRUVANANTHAPURAM, AUG. 6. Tests conducted by the Kerala State Pollution Control Board (KSPCB) have confirmed recent media reports about the toxic nature of the sludge generated by Coca-Cola's bottling plant at Plichimada, in Kerala's Palakkad district.

The KSPCB undertook the tests following a report put out by the British Broadcasting Corporation (BBC) last month that the sludge and drinking water samples collected from Plichimada contained "dangerous" levels of cadmium, a known carcinogen, besides lead, which can damage the human central nervous system.

Hindustan Coca-Cola Beverages Private Limited had been distributing the sludge to the farmers of the area free of cost to be used as fertilizer, terming it a "humanitarian gesture to the local community". Thousands of

A quantity of the sludge dumped at a spot about 4 km from the Coca-Cola bottling plant at Plichimada.

done at the KSPCB's Central Laboratory in Ernakulam, the presence of lead was found to be below the threshold limit. Lead concentration was found

distributing the toxic sludge to the farmers. A detailed probe is on to determine the source of the cadmium contamination."

Meanwhile, the global environmental action group, Greenpeace, asked the Kerala Government to direct Coca-Cola to collect back the entire hazardous waste it had distributed. It should be stored with proper precautions, the corporate campaign coordinator of Greenpeace, Ameen Shabul, said in a statement faxed to Thiruvananthapuram.

Greenpeace demands action

Mr. Shabul said the Government should persuade the company to dispose of the sludge in a safe manner. "Coca-Cola has no right to defile this beautiful land with its hazardous waste. The company should be forced to ship the sludge back to the U.S. its home country."

## Public reaction on the CSE website

I strongly feel that there should be a strict standard for soft drinks. This standard should be extended to water also. They should be free from pesticides and any impurities in terms of mineral and other organic or inorganic matter.

— Kantilal Shah

Good work. A lot of people may not be expressing it, but you deserve all our appreciation for opening our eyes to saving ourselves and our children from these deadly pesticides. I wonder how the executives of MNCs keep their children away from these same pesticides! It's the tough times that build the character of a person/organisation!

— Basant Khaitan

I congratulate you for your fearless efforts in exposing the global giants Coke and Pepsi. I wish to bring to your notice an important issue. Coke and Pepsi have the same plants for bottling various brands, atleast the facilities are the same in Mumbai and Pune. Hence the same water is used for manufacturing all the brands. So how come does Ms Sushma Swaraj say that only nine out of thirteen brands have pesticides whereas the remaining three do not have traces of pesticides. Further the government conveniently names the three 'pure' brands as Coke, Pepsi and Thums-up. Surprising. Hardly. Coke-Pepsi and Thums-up make up about 80 per cent of the sales of Coke and Pepsi! Even if the government was to ban all the other nine brands, the MNCs would hardly find a dent in their overall turnover! So the government plays safe, it earns its necessary excise and people are happy that the fast acting government has banned the nine drinks, which anyway are not popular! Wonderful isn't it

— Ajay David

I support the stand taken by the Centre for Science and Environment on the Coca-Cola and Pepsi-Cola case, as a public interest case. I would like to point out that each major city must have got government-funded and supported laboratories to identify adulteration of food, and the components of any food item. There was a network of such laboratories in the country, when I worked in the Health Secretariat of Andhra Pradesh in the early seventies. I presume they are still in existence and if so, they need to be made use of to verify the extent of adulterants or dangerous additives in any item of food or drink.

— Vasant Kumar Bawa





## Cartoons carried by newspapers on the pesticide issue in 2003





# How newspapers covered the pesticide issue in 2003

## Cola fiasco: Govt main culprit, says CSE

**Our Delhi Bureau**  
#AUG03

IT IS as if we welcomed the government's initiative to test the soft drinks sold by the two major companies for pesticide residue, the Centre for Science and Environment (CSE) says that the real culprit is the government. "It is not Coke per se and Pepsi per se that are to blame. It is the lack of government regulations."

"It is apparent that these companies are meeting only the virtually non-existent government norms and not the global ones," the CSE press release states. "Coke and Pepsi are not extra constitutional authorities in this country. They cannot determine the regulations they will follow." It also asked the government to broaden the ambit and test the soft drinks for cadmium, lead, arsenic and pesticides. On August 5, CSE's Sanita Narain had presented the findings of pesticides in soft drinks. She also spoke on the absence of government regulation. The Food Products Order and Prevention of Food

Addiction to soft non-alcoholic beverages is the fact that there are clear drinking water norms that the government has not made any provision for regulating pesticides. The soft drinks industry gets to operate under the FPO standards for lead and arsenic are 50 times higher than those for bottled water. The Bureau of standards does not have any norms. However, these are voluntary



## New standards for bottled water outlined

**Our Delhi Bureau**  
#AUG03

THE BUREAU of Indian Standards (BIS) has effected a change in its standard for packaged drinking water. It has adopted the European norms and its five-year-old standard and is now more stringent. The amendment follows a two-hour presentation made by Centre for Science and Environment (CSE) director Sanita Narain to BIS officials on Saturday. She had invited BIS to amend its standards for drinking water. BIS had invited Narain to amend its standards for drinking water. BIS had invited Narain to amend its standards for drinking water.

**IMPACT ON THE INDUSTRY**

Prices will go up: "Prices will increase by 20 to 40 per cent," said a leading bottler. At present rates, this could mean a bottle that costs Rs 5 now would cost Rs 6.50 to Rs 7. Small companies will be wiped out: Upgrading equipment to conform to the new standards, as setting up new plants (where treating groundwater may not be viable) could cost over Rs 10 crore. Big players will benefit: Coke, Pepsi and Bisleri seem to have an advantage on the investment front. For them, the main issue will be improving chlorine quality checks at their bottling facilities. However, they hope they will get a few months to upgrade equipment. Existing stocks may be a loss: Asked about water already bottled, they say they will get a few months to upgrade equipment. Existing stocks may be a loss: Asked about water already bottled, they say they will get a few months to upgrade equipment. Existing stocks may be a loss: Asked about water already bottled, they say they will get a few months to upgrade equipment.

## Big drop in sale of Pepsi, other soft drinks after CSE report

**By Our Correspondent**

Mumbai, Aug. 20: Sales of Pepsi and its other soft drink products have seen a dramatic downturn ever since the Centre for Science and Environment made public its report on the presence of pesticides in soft drinks.

## Mumbai demands ban on soft drinks

**CSE REPORT SPARKS PROTESTS**

MUMBAI (Herald): The city's commercial capital has witnessed a series of protests against the sale of soft drinks in the city. The protesters, who are mostly students and young people, are demanding a ban on the sale of soft drinks in the city. They are also demanding that the government should take action against the companies that are selling soft drinks in the city. The protesters are also demanding that the government should take action against the companies that are selling soft drinks in the city.

## Panel To Summon Sharma Over Giving Clean Chit To 12 Soft Drinks, Objects To Notification On Standards

**First JPC meet to untangle cola controversy**

Delhi. It is possible that the ground water in Delhi has high pesticide content compared to other states, noted an official. However, even if the tests prove that the levels of pesticides are above permissible levels, what will follow is not a ban on the product. There are no provisions for us to ban the product. The Food and Adulteration Act since there are no provisions for us to ban the product.

## After CSE & Kerala, Sludge Haunts Coke, Pepsi In Delhi

**States join in, start wringing bottles**

**KERALA Sludgehammer**

Pollution board confirms sludge from Coko plant has high levels of solid toxic wastes

**MAHARASHTRA Hit the bottle**

BJP to launch break-the-bottle agitation until Coke, Pepsi are banned



## TN to send samples of coke for lab tests

**By PUSHPA NARAYAN**

Chennai, Aug 12: The State Health department has directed the Directorate of Public Health and Preventive Medicine to collect samples of a dozen brands of aerated drinks of PepsiCo and Coca-Cola India from across the state for laboratory tests.

## Panel on bottled water set up

**Press Trust of India**  
New Delhi, 3 April

The government has set up a three-member group comprising of the health and environment ministers to look into the issue of bottled water.

## Cola majors asked to clarify position on sludge

**NEW DELHI**

GOVERNMENT is considering an independent evaluation of the bottled water industry in the wake of the recent allegations of sludge in Coca-Cola's plant in Kerala. The government is considering an independent evaluation of the bottled water industry in the wake of the recent allegations of sludge in Coca-Cola's plant in Kerala.

## Draft notification issued to revise soft drink standards

**NEW DELHI**

In the backdrop of the recent pesticide residue controversy, the government has issued a draft notification to revise the standards for aerated drinks. The draft notification is intended to revise the standards for aerated drinks.

## Norms for bottled water notified

**Our Delhi Bureau**  
#AUG03

THE health ministry has notified the new standards for bottled water. The new standards are more stringent than the previous ones. The new standards are more stringent than the previous ones.

## But legal standards are a health hazard

**by RAP**

It seems colas are within legal standards... But legal standards are a health hazard!







## Study on pesticide residues in human blood

CSE received reports of high incidences of cancer in Punjab villages and therefore carried out a study to find out the presence of pesticide residues in blood samples taken from farmers in Bhatinda and Ropar districts of Punjab. Samples were collected from four villages: Mahinangal, Jhajjar and Balloh, where there was a high use of pesticides and also from Dher, as a control area, which did not report high pesticide use. These were analysed for concentration of 13 organochlorine and 14 organophosphorus pesticides.

The analysis showed high levels of pesticides in all samples. Mean levels of total organochlorines in whole blood samples from Punjab were 0.1424, total organophosphorus was 0.2278 and total pesticides were 0.3701mg/l respectively. Tests were conducted for 28 types of pesticides out of which traces of 15 were found. The study concluded that each person is exposed to and carries a body burden of multiple pesticides. This could be due to a combination of direct and indirect exposure to these. The study also showed that organophosphorus pesticides, which are degradable and non-persistent in nature were also present. This could be due to the fact that people use them in large quantities under the belief that they are safe. Therefore there is a need to carry out more detailed studies on their concentrations in human blood and fat.

This study was followed by another sampling in November 2005. CSE took blood samples from 18 farmers randomly selected from four different villages of Punjab: Husnar, Kotbhai, Akalia, Bangi Nihaal Singh in Muktsar, Mansa and Bhatinda districts, where farmers were engaged in agricultural activities and pesticide consumption was high. The blood samples were analysed for 16 organochlorines and 14 organophosphorus pesticides using standard methodology. Among organochlorines — HCH, Lindane, DDT, Aldrin and Chlordane were detected. Again, organophosphorus pesticides were present in almost all samples, adding up to 63 per cent of the total.

## CSE press conference in Chandigarh

CSE organised a press conference on this issue at the Chandigarh Press Club. Sunita Narain addressed the meeting and demanded improved regulations of pesticides, introduction of a liability provisions for manufacturers, and comprehensive studies on health impacts of pesticides in Punjab. More than 70 media persons, including some senior editors and journalists, from key newspapers and television channels were represented. The local and national media reported on and covered the event and the CSE findings extensively. The Punjab chief minister, Amarinder Singh, set up a panel following the CSE report to look into the findings and suggest ways of controlling the problem.



CSE team addressing the press conference on June 7, 2005

## Studies on soft drinks on behalf of BIS

An analysis of caffeine in soft drinks was also carried out. Caffeine, a representative of the group of three methylxanthine compounds, acts as a stimulant on the central nervous system. Caffeine is an added flavour to soft drinks and in many countries non-cola soft drinks do not contain caffeine. However, in India only caffeinated versions available. In all the samples tested, caffeine was detected. All the samples were within the prescribed limit of 72 mg of caffeine per 12 oz given by USFDA. The highest concentration of caffeine was detected in Red Bull, the lowest concentration was detected in Coca-Cola. The diet versions of Coca-Cola and Pepsi contained more caffeine than the non-sugar containing versions of the given brands. The results were submitted to the Drinks and Beverage Committee of the Bureau of Indian Standards.

The laboratory also undertook a study of pH levels of commercially available soft drinks as part of our advocacy for improved food and beverage standards in the country. Tests were undertaken on samples of 11 different brands. PH levels measured in the range of 2.61-3.15. Pepsi was most acidic (pH 2.61) and 7 Up was least acidic (pH 3.15).

## Air quality monitoring

Since 2002, CSE has been monitoring the ambient air quality at Tughlakabad Institutional Area, a notified sensitive area as it has a large hospital. The main source of pollution here is heavy vehicular traffic on the Mehrauli-Badarpur road. CSE has been carrying out 24-hour monitoring since May 2002. The readings are taken in three phases at eight-hour intervals beginning 6 am. Daily data on the ambient concentration of criteria pollutants, suspended particulate matter (SPM), respirable suspended particulate matter (RSPM), oxides of nitrogen ( $\text{NO}_x$ ) and sulphur dioxide ( $\text{SO}_2$ ) is obtained and analysed. Based on this data an Air Quality Index (AQI) is calculated for each day, and along with the data, is displayed on the CSE website.

The results obtained by CSE indicated that SPM, RSPM and  $\text{NO}_x$  concentrations at Tughlakabad Institutional Area are way above permissible limits. These only come down during the monsoon months. The concentrations of  $\text{SO}_2$  are, however, relatively low.

CSE's monitoring results showed that many critical pollutants were consistently high. For instance, from July to December 2005,  $\text{NO}_2$  exceeded the permissible limit ( $30 \mu\text{g}/\text{m}^3$  for sensitive areas) on 161 out of 171 days of monitoring. RSPM concentration in the region exceeded the permissible limit ( $75 \mu\text{g}/\text{m}^3$  for sensitive areas) on 143 days out of 171 days of monitoring.

## Assessment of air quality at NCR schools

CSE conducted an air pollution monitoring programme in different schools of Delhi and the National Capital Region (NCR). The major objective behind this study was to assess air quality in schools. During the year, 16 schools were monitored for their air quality: five schools from Noida, two from Gurgaon, five from Delhi, three from Faridabad and one from Ghaziabad. This study created an awareness among school children regarding air pollution and its hazardous effects, aroused curiosity among them about environmental issues and pollution



## Results of air quality monitoring

School	AQI	Description
Modern School	301+	Critical
Blue Bells School	301+	Critical
Shriram School	301+	Critical
Delhi Police Public School	301+	Critical
Dewan Public School	301+	Critical
Gyan Bharti School	301+	Critical
Delhi Public School	301+	Critical
St Mary's School	301+	Critical
Cambridge School	301+	Critical
British School	247.12	Very unhealthy
Manavstali School	231.13	Very unhealthy
St. Paul's School	253.46	Very unhealthy
Mother's International School	301+	Critical
K L Mehta Public School	301+	Critical
Apeejay School	217.88	Very unhealthy
Central School	236.81	Very unhealthy

sources, nature of pollutants, pollution monitoring techniques etc. The air quality assessment exercise carried out at DPS, RK Puram helped them win the environmental trophy awarded to a school having the best environmental awareness programme in the NCR.

## Growing air pollution in Meerut

CSE undertook the monitoring of ambient air quality in Meerut on behalf of Janhit Foundation. CSE staff monitored ambient concentrations of major air pollutants like SPM, RSPM, SO<sub>2</sub>, and NO<sub>2</sub> at six typical locations during October 25-30 2004. The study showed that the pollution level in Meerut was extremely high in terms of PM and NO<sub>2</sub>.

Even a sensitive area (medical college hospital complex) registered about 152.95 µg/m<sup>3</sup> of RSPM, which is 2.03 times the permissible limit for sensitive area i.e. 75 µg/m<sup>3</sup>. Janhit Foundation filed a PIL on air pollution using this information.

## Research and advocacy

### Research for public awareness

Team members of the Environmental health unit researched and analysed the linkages between environmental change and health and published the results of their research in *Down To Earth*. A major focus was on children, a vulnerable group. The report, *Soft Target*, analysed several research studies by medical experts around the world that show a link between environmental pollution and increasing incidences of cancer, asthma, neurological diseases and heart diseases

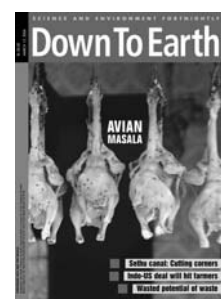
among children. The report advocated proactive lobbying by parents and civil society to push the medical establishment and the government to take action.

Several reports were published on the health effects of urban pollution on children and its long-term impacts. CSE reviewed the results of a study conducted by many Delhi-based organisations, including St. Stephen's Hospital, which had shown that high pollution levels reduce the ability of the body to produce vitamin D, leading to high incidence of diseases associated with weak bone structure among children in highly polluted urban areas. The second report, *Penetrating Evidence* reviewed the findings of a study conducted by the Chittaranjan National Cancer Institute (CNCI), Kolkata and Calcutta University over a period of six years. The study concluded that air pollution, both indoor and ambient, leads to severe health hazards like genetic mutation and neuro-behavioural problems, apart from severe damage to lungs. After a survey of hospitals and slums, a CSE staffer found that asthma makes poor children suffer far more than rich ones. The report, *Out of Breath* showed how pollution impacts the poor in more ways than one and concluded that a complete lack of policy and official apathy compounds their suffering.

CSE also studied the impact of urbanisation and changing lifestyles on human health. Reports on this subject concluded that there was an urgent need for surveillance, preventive programmes, public education and scientific epidemiological studies. These points were made in the background of the rise in dengue infections and the rapid spread of a mystery fever in Uttar Pradesh. *In denial* was a special report on a mystery fever in western Uttar Pradesh, which had claimed hundreds of children as its victim, and due to the indifferent attitude of the health authorities had still not been controlled. *Children of a lesser State* analysed the state of public health in eastern Uttar Pradesh where the outbreak of Japanese encephalitis (JE) claimed more than 1,000 lives in 2005. The report analysed the causes and prevention programmes undertaken in affected areas.

The report *Suffering SARS* concluded that the global outbreak of Severe Acute Respiratory Syndrome (SARS) in March-April 2003 exposed the lack of preparedness globally to fight infectious diseases. The report *Fowl Play* looked at India's preparedness to prevent an epidemic. Having claimed 68 human lives since December 2003, avian flu is being seen as a gigantic killer.

*Trap them all* looked at the new measures being adopted by the Municipal Corporation of Delhi to combat dengue and malaria with the use of oviposition (OV) traps. *Shot of hope* reported the development of a malaria vaccine by scientists, which has shown encouraging results in trials. The efficacy of the vaccine against severe malaria attacks was found to be 58 per cent among children aged 1 to 4 years in the phase II trials. Another report, *Resisting arrest*, reported on the two-year long findings by researchers from the All India Institute of Medical Sciences, New Delhi, which showed that the typhoid bacterium had become resistant to antibiotics due to their indiscriminate use. Such increased resistance meant that expensive drugs would have to be used to treat typhoid.







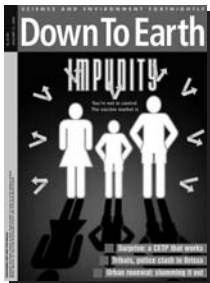
*The jab jigsaw* critiqued the government approach on eradicating polio. Even as developed countries are opting for IPV (inactivated polio vaccine), OPV (oral polio vaccine) is being promoted in India. *Taste of Toxicity* looked at the adverse effects of chlorpyrifos pesticide, known to cause abnormal foetus development and in some cases affecting brain and liver development. Chlorpyrifos continues to be manufactured in India. *Persistent poison* was a review of worldwide research on human reproductive disorders related to organochlorines (OCs). This highlighted the need for a global ban on the harmful chemical.

*A flavour of risk* was a report that reviewed a study published in the Archives of Paediatric and Adolescent Medicine. The study concluded that caffeine intake through soft drinks may increase blood pressure and augment risk of hypertension for adolescents. An editorial, *The battle of the Indian bulge*, commented on India's poor public health services and the progressive decline in fund allocation to the public health sector. CSE published a report that said that although obesity is a global pandemic, research on the disease in India is still nascent. *Wanted: An Asian measure of obesity* gave a warning call that the trend of obesity in India is on the rise and is equalling that found in Western countries. *Sweetly worked* was a report that highlighted the role of multinational drug companies in health management. The report highlighted the fact that research shows that low-calorie sweeteners do not help the diabetics or the obese, but rather have adverse health effects.

Another report, *A recipe for global good health* reviewed the health strategy being formulated by the World Health Assembly to deal with the growing burden of non-communicable diseases.

*More Arsenic* was a detailed study on the widespread presence of poisonous arsenic in Uttar Pradesh's Ballia district. CSE sent its staffers to take samples of blood, hair, nail, and also water from villages in Ballia district. The report was sparked off by a call from a doctor at the All India Institute of Medical Sciences who found patients with skin cancer from Ballia district. CSE called a meeting to highlight the problem of arsenic contamination.

*Vaccine eloquent* was a detailed report on the challenges faced by India in delivering necessary vaccines. The vaccination regime isn't changing fast enough for many children. The government is shifting to more expensive vaccines before full coverage of its universal immunisation programme is achieved.



## Awareness creation

### Dossiers on India's environmental health

CSE prepared dossiers on the different aspects of India's environmental health. This information, the result of over six years of work, was posted on the website. The dossiers covered the whole spectrum of environmental health issues ranging from impacts of pollution to toxins to industrial disasters to impact on vulnerable groups of children and women.

## Health & environment newsletter

The newsletter was started to bring together doctors, medical scientists and environmentalists. It brought into focus issues of environmental health and established links between poverty, health and environment. The newsletter went out to over 2,500 persons, particularly the medical community. The newsletter dealt with a range of health issues ranging from the health impact of plastics and pesticides to arsenic and mercury contamination to obesity to health statistics and research.



## Meetings and workshops

### HEALTH IMPACTS OF AIR POLLUTION

The Health and Environment Unit collaborated with the Right to Clean Air Campaign Unit to organise a roundtable on November 22, 2002 to discuss the health impacts of air pollution. This was an opportunity for experts in India to learn from the experiences of the members of the California Air Resources Board (CARB). Daniel Greenbaum and Robert O' Keefe of the Health Effects Institute (HEI), and Shankar Prasad, community health advisor to the chairman, CARB, discussed air quality management in cities with the medical practitioners, health experts and air quality managers.

Participants included more than 25 oncologists, paediatricians and general practitioners who agreed to work on plans for carrying out a detailed Asian study on the impact of air pollution. They also presented studies that they had undertaken wherein they noted the increasing trends in air pollution related illnesses. In the light of poor data and evidence, a one-to-one relation between air pollution and its health effects could not be established. However, doctors felt that increasing incidence of asthma in children in India was related to rising air pollution levels.

### ROUNDTABLE ON MALARIA

The Health and Environment Unit organised a roundtable on 'malaria control' on November 1, 2002. Among those present were Chris Curtis, professor of medical entomology at the London School of Tropical Medicine and Hygiene, Nirbhay Kumar, professor at School of Hygiene and Public Health, John Hopkins University USA; Rob Ridley, coordinator of Product Research and Development, World Health Organization, Geneva; and



P Venugopal, director (international operations) medicines for Malaria Venture, Geneva/India.

Discussions centred on awareness creation, improved sanitation and a good surveillance system. Concern over the judicious use of drugs for combating malaria was also expressed. The experts said that awareness programme must include education about simple solutions like insecticide treated bednets.

#### ■ ROUNDTABLE MEETING ON PESTICIDES IN FOOD

The CSE Health and Environment Unit organised a meeting of doctors and policy-makers on August 21, 2003, to create awareness among them on the health impact of pesticides. Participants agreed that there was an urgent need for better regulation of pesticides in the country. The meeting focussed on the environmental impact of pesticides, and helped to create awareness among the medical community and policy-makers on the linkage between environmental toxins and long-term health impacts.

#### ■ STAKEHOLDER MEET ON PESTICIDES

CSE organised a meeting with top agricultural scientists of the country on November 4, 2003. Leading scientists from Indian Agricultural Research Institute (IARI), Central Insecticides Board, Punjab Agriculture University and also officials from the Union Ministry of Agriculture attended the meeting that was chaired by M S Swaminathan. Discussions centred around the CSE findings on pesticide residues in soft drinks and its implications for policy.

Another meeting was organised on November 13, 2003, to bring together representatives from NGOs, consumer groups and civil society. About 20 representatives from NGOs like Gene Campaign, Toxic Link, Environmental Justice Initiative, VOICE, etc attended the meeting. A presentation on the CSE study on pesticide residues in soft drinks was followed by vigorous discussions on the issue of pesticides in food.

#### ■ CONFERENCE ON HEALTH AND ENVIRONMENT

CSE's conference on health and environment in New Delhi on March 24-25, 2006, brought together leading



CSE director Sunita Narain addresses participants at the health conference held in New Delhi in March 2006

## Participants at the health meet

### Air pollution and health

Robert O'Keefe, vice-president, Health Effects Institute, USA; Michal Krzyzanowski, regional adviser, air quality and health, WHO European Centre for Environment and Health, Germany; H Paramesh, medical and managing director, Lakeside Medical Centre and Hospital, Bangalore P H Anant Narayan, dy director-general, Directorate of Health Services, New Delhi; B Sengupta, member secretary, Central pollution Control Board, New Delhi.

### Water pollution and health

M. Sudersanan, chairman, Bureau of Indian Standards (BIS) committee on drinking water quality standards; KV Raju, Professor and head ecological economics unit, Institute for Social and Economic Change; RC Trivedi, additional director, Central Pollution Control Board, New Delhi; S K Gupta, scientist 'G' Planetary & Geosciences Division Physical Research Laboratory, Ahmedabad; Amitava Mukherjee, Jadavpur University, Kolkata.

### Toxins and health

P K Seth, former director, Industrial Toxicology Research Centre, Lucknow; Harry van der Wulp, Senior IPM policy officer, Global IPM Facility, Food and Agriculture Organisation, Rome; Alexander von Hildebrand, Environmental Health advisor Food and Chemical Safety Division, World Health Organisation South-east Asia Regional Office, New Delhi; Sandhya Kulshrestha, secretary, Central Insecticides Board and Registration Committee Faridabad.

experts, policy makers, civil society groups and industry representatives from India and abroad. This forum captured the learning in the region and outside to help Indian cities evolve strategies to address the problem of environmental toxification and health. The objective of the conference was to find ways to address critical issues and common concerns.

The response to the conference exceeded our expectations and showed the extent of demand for good scientific information in this area. Top scientists, environmentalists, government officials and international experts from organisations such as United Nations Children's Fund (UNICEF), World Health Organization (WHO), NEERI, USEPA, FAO, NIOH, AIIMS, ITRC, CPCB, BIS as well as other prominent civil society experts attended.

## Body Burden

The publication is a compilation of articles from DTE, which look at the health impacts of environmental degradation. The book is divided into seven sections — infectious diseases, air pollution, water pollution, toxins, lifestyle diseases, regulations and a section on industrial disasters. Each chapter contains an introduction explaining the status of the diseases/policies in India and efforts made at prevention.







## Industry and Environment

# Green rating of Indian industry

The Industry and Environment unit has thus far completed the ratings of four key sectors: the pulp and paper sector, the automobile sector, the caustic-chlorine sector and the cement sector. It has undertaken five rounds of rating, including two rounds of the paper sector. This programme has been unique in that it is the only public disclosure project in the developing world, in which a NGO conducts a rating programme based on voluntary participation and data disclosure. The project has come to be widely accepted by industry and has catalysed transparency and willingness to improve on environmental performance.

In 2002, the team completed the rating of the caustic chlorine industry and released the findings in an event chaired by Dr Manmohan Singh, then former Union finance minister. The rating highlighted the use of mercury in the Indian caustic chlorine sector. It resulted in the finance minister providing import duty exemptions on membrane technology, an environment-friendly option and substitute for mercury-based technology. The Central Pollution Control Board (CPCB) recommended phasing out of mercury cells to the Union ministry of environment and forests (MoEF). CSE also published a book, *Chlorine Chain Environment Rating of the Caustic-Chlorine Sector*, a comprehensive compilation of all the issues relating to the sector.

In September 2004, the second rating of the pulp and paper sector was released. This was a critical one because it was a measure of the success of both the sector and the Green Rating Project itself and helped us gauge how far the project was successful in making a difference to the environmental performance of companies. A comparison between the first and second rating of the paper industry showed that the industry had



**Award for clean industry:** former finance minister Manmohan Singh presenting the Five Leaves Award on September 2, 2002

made significant improvements in its environment performance. This was a clear signal that GRP plays a crucial role in catalysing companies to make voluntary improvements. The fact that companies, which were rated the worst during the first rating (July 1999) were the first ones to voluntarily participate in the project is a measure of the respect that the project commands.

CSE also published its book on the pulp and paper industry. This 350-page book documents the performance of Indian paper industry from cradle-to-grave. It contains cutting-edge research on industrial ecology, pollution estimation and life cycle analysis.

The Green Rating Project completed and released its rating of the cement industry in December 2005. The cement sector was chosen because it is one of the growth sectors of India even as it is environmentally destructive

## Green chips

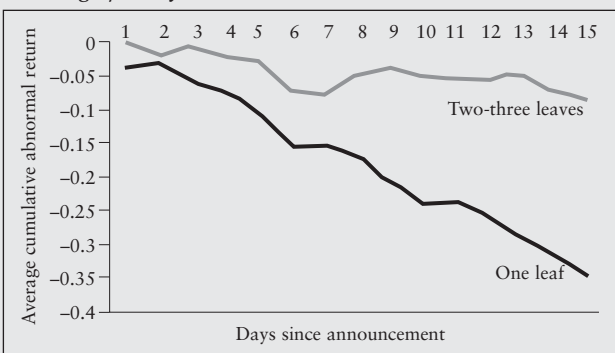
GRP influences the value of a company's stocks in the market significantly. A study conducted by the Delhi School of Economics and the Institute of Economic Growth, New Delhi found that stock prices of companies rated poorly in all the three sectors by GRP nosedived.

The study, *'Do Stock Markets Penalise Environment-Unfriendly Behaviour? Evidence from India'* concludes, "We find that the market generally penalises environmentally unfriendly behaviour in that announcement of poor environmental performance by firms leads to negative abnormal returns of up to 43 per cent. A positive correlation is found between abnormal returns to a firm's stock and the level of its environmental performance." The study further points out, "This result is not driven by disparate 'events', but by a comprehensive and consistent green rating. Thus, an important policy implication of the research would be institutionalising such public disclosure programmes as a tool for environmental management in developing countries."

The average cumulative abnormal returns of poorly-rated pulp and paper and chlor-alkali companies (companies with one leaf award) was as much as 35 per cent within 15 days of the announcements of the ratings by GRP (see graph *Impact of GRP on share prices*)

## Impact of GRP on share prices

*Companies rated poorly by the Green Rating Project lost share value significantly*



Source: Shreekanth Gupta et. al, *Do Stock Markets Penalise Environment-Unfriendly Behaviour? Evidence from India*, Working Paper No. 116, Delhi School of Economics, New Delhi



— mining irrevocably changes the land-use patterns, the watershed and ecology of the area. India's cement industry is the second largest in the world and is being given all incentives to grow but without the prerequisite monitoring of environmental impacts. What we found was that while the Indian cement industry is at par with the global best in terms of production processes, it lags behind in terms of mine management and mine rehabilitation.

## Green rating of industries

### ■ CAUSTIC CHLORINE SECTOR

The unit decided to include all caustic chlorine companies with an installed production capacity of more than 100 tonnes/day for the rating. The sample consisted of 25 production units of 22 companies spread across 11 states and a Union Territory. It took 16 months to finalise the rating initiated in May 2001. The team also produced a publication on the rating of this sector.

CSE released the rating and the book, *Chlorine chain*, on September 2, 2003 at a function chaired by Manmohan Singh, chairperson of the Project Advisory Panel, who presented the Five Leaves Award to the company representatives. CSE director Sunita Narain presented key findings of the rating. The project received good coverage in both the print and the electronic media. Leading national dailies and regional press covered the event.

The rating is significant because the caustic-chlorine sector is an intermediary industry. Its end product is used to make highly polluting substances such as pesticides and plastic. While more than 70 per cent companies used the membrane technology, which is less polluting, the remaining 30 per cent were based on the mercury cell technology, which is highly damaging to the environment and to human health.

The team found the water consumption in this sector was three times higher than that of global companies, the quality of salt input poor and 30 per cent of total hydrogen produced was being vented. Even though there is a ban on trans-boundary transportation under the Basel Convention, there is no such regulation for controlling the movement of chlorine within the country. Almost 60 per cent of the chlorine produced by the Indian caustic chlorine sector is transported within the country posing high risks in a densely populated country like India.

Chemfab Alkalis Ltd, Shriram Alkalis and Chemicals Ltd and Indian Rayon and Industries Ltd got the top honours in this exercise. However, the best that these caustic-chlorine companies could get was 'Three Leaves', which meant that they received scores between 35 and 50 per cent. At the bottom of the GRP rating list were the companies that did not cooperate in the rating exercise — Andhra Sugars and Chemplast Sanmar Ltd.

## Pulp and paper sector

CSE released the pulp and paper sector ratings at a meeting held at the India Habitat Centre on September 30, 2004. K R Narayanan, former President of India, presided over the meeting and released the ratings and gave the awards. The function was well attended by representatives from the paper sector including Pradeep Dhobale, managing director, ITC Bhadrachalam Papers Ltd, Harshpati Singhania, managing director, JK Paper



Former President of India K R Narayanan releases the second rating of the pulp and paper sector in 2004

and Gautam Thapar, managing director of the Ballarpur Group. A book on pulp and paper sector, *All about paper*, was also released on the same day.

A total of 26 pulp and paper units, including major paper manufacturers in the country, such as ITC Bhadrachalam Papers Ltd, Ballarpur Industries, JK Papers, Tamil Nadu Newsprint, Hindustan paper Corporation Ltd., Mysore Paper Mills and others participated in the rating.

GRP followed an exhaustive and inclusive process to rate the paper industry for the second time. To start with, GRP prepared a detailed booklet on the rating criteria and the weightages and an issues paper after several discussions with the technical advisory panel. The rating criteria, weightages and the issues paper were then discussed with the paper industry on October 5, 2002, to include the feedback and suggestions of the industry. Detailed questionnaires on the production processes and on corporate environment policy and management policies were sent to all participants. The next step was to prepare the environmental profile for each company. Personal visits and visits by green inspectors were undertaken (volunteers recruited to verify the information provided by the companies). The ratings for each company were finalised after several rounds of deliberations with the industry by the technical advisory panel. The ratings were finalised on September 14, 2004, after a nod by the members of the project advisory panel.

### Technical advisory panels

Sector	Name of person	Designation
Chlor-alkali	N J Rao	Professor, Institute of Paper Technology, Saharanpur
	K V Raghavan	Director, Indian Institute of Chemical Tech
	A K Rao	Technical expert, Gurgaon
Paper & pulp	N J Rao	Director of Jaypee Institute of Engineering
	M B Jauhari	Former General Manager – R&D, Ballarpur Industries
	T N Chaturvedi	Consultant, Adya Consultancy
Cement	S S Kothari	MD, Chemtech India
	S P Banerjee	Former Director, Indian School of Mines
	N J Rao	Director, Jaypee Institute of Engineering and Technology





## Cement industry rating

The fourth sector chosen for green rating was cement. The Indian cement industry is huge — despite narrowing down the scope of the rating the team still had to rate 41 plants, or 83 per cent of the total cement production in the country. Of these, 36 voluntarily joined the project, nearly 88 per cent of the companies short-listed.

The sector was rated on more than 150 environmental indicators covering its entire life cycle. CSE assigned the greatest weightage to the production process stage, characterised by high energy consumption and emissions of greenhouse gases and dust. Raw material sourcing was also accorded high weightage as this involves mining, which has wide-ranging and long-term environmental consequences. It also took note of the perception of the local communities and the initiative taken by the companies in managing occupational health.

This was the first time that the entire sector was given a 'Three-leaves Award' and the top company received a 'Four-leaves Award'. GRP found that the industry was at par with the global best in technology and energy consumption.

GRP found that the sector scored highly in energy efficiency and technology. It has invested in technology to reduce its energy cost. But cement plants have performed poorly in the management of their mines and have done little to control fugitive emissions from the plants. The reason being that investing in mines has no immediate economic returns.

GRP also found the cement industry poor on the social front. It found that the companies were taking resources



MS Swaminathan, Sunita Narain and Chandra Bhushan release the rating of the cement industry in 2005

from the area, but were not investing back into the community to improve their social and economic status.

## Research and advocacy

### ■ WORKSHOP FOR PULP AND PAPER COMPANIES

A workshop was organised on October 5, 2002, to review the rating methodology for the pulp and paper sector. A meeting with the technical advisory panel members preceded the workshop. Key issues finalised dealt with the survey methodologies and training of the Green rating network (GRN) members.

### ■ WORKSHOP FOR GRN MEMBERS

A full-day workshop was organised at CSE for GRN members on December 9, 2002, to acquaint them with the issues involved in the sector and their role in the project. A detailed guideline was prepared along with questionnaires for the survey.

### ■ ENVIRONMENT MANAGER SURVEY

CSE undertook a survey of environment managers in the Indian industry in June 2003 to look at industry best environmental practices. As many as 74 nominations were received from companies such as Ford, Xerox Modicorp, Philips, Ambuja Cement, ITC, HCL, Tisco, Glaxo, BHEL and Ranbaxy. The survey also generated information on critical trends in the state of environment management in Indian industry, and on the kinds of environment protection initiatives being taken. The survey also indicated that environment protection is still in its infancy, where the top management is not yet completely convinced of the importance of environment management. The average score obtained by the 74 nominees stood at a mere 18 per cent. The result of the survey was published in *DTE*.

### ■ RESEARCH ON MERCURY POLLUTION IN INDIA

The rating of the caustic chlorine sector threw up some startling facts. The study revealed that the caustic-chlorine sector in India releases an astounding 60-70 tonnes of mercury every year into the environment — about 75 times the amount that triggered the Minamata tragedy. The caustic-chlorine sector is also responsible for 40 per cent of mercury pollution in the country. It is also alarming that the sector has no clear idea about the end use of

## Top five companies of each sector rated during 2002-06

Sector	Rank	Top five companies	Number of leaves	Marks (%) obtained
Chlor alkali	1st	Chemfab Alkalies Ltd	3	46.6
	2nd	Shriram Alkalies and Chemicals Ltd	3	45.3
	3rd	Indian Rayon and Industries Ltd	3	38.8
	4th	Indian Petrochemicals Corporation Ltd	3	38.6
	5th	Search Chem Industries Ltd	3	36.2
Pulp & paper (2nd phase)	1st	ITC Ltd - Bhadrachalam Unit	3	47
	2nd	JK Paper Mills	3	45.3
	3rd	BILT Graphics	3	45.2
	4th	Tamil Nadu Newsprint	3	41.3
	5th	Harihar Polyfibres	3	40.3
Cement	1st	Madras Cement Ltd-Alathiyur Works	4	51
	2nd	Gujarat Ambuja Cement Limited - Gujarat Unit	3	48
	3rd	JK Lakshmi Cement Ltd	3	46
		ACC-Gagal Cement Works	3	46
		Prism Cement Limited	3	46
	4th	Gujarat Ambuja Cement Ltd - Darlaghat Unit	3	45
	5th	Ultratech Cement Ltd, Andhra Pradesh Cement Works	3	43



## Pat on the back

A scientific panel comprising experts from USA and the EU had studied in detail CSE's calculation of total mercury consumption in the chlor-alkali sector as a benchmarking tool. The panel presented its paper at the 7<sup>th</sup> international conference on mercury as a global pollutant in July 2004 and endorsed CSE's concept. The panel praised CSE's efforts in catalysing the chlor-alkali industry to take measures to reduce mercury pollution.

As a fallout of the CSE study on mercury pollution, questions were raised in Parliament. The government announced financial incentives for the import of membrane technology and the Central Pollution Control Board recommended the phase-out of mercury cell plants.

mercury. Data collected by the GRP reveals that as much as 44 per cent of mercury loss goes unaccounted for. As per the existing regulatory standards in India on mercury pollution, only 0.3 per cent of the total mercury loss through wastewater and hydrogen gasholder is measured. It is well known that mercury respects no borders and that it disperses over great distances.

CSE also found that there is a significant dumping of cheap mercury from the developed world. CSE looked at the spread of mercury pollution in India, examined the regulations, identified the loopholes, highlighted the threats to public health and explored ways to reduce the risk.

### ■ WORKSHOP ON MERCURY USE

On November 3, 2003, CSE organised a meeting on hazards of mercury with the aim of raising awareness about the increasing threats from mercury pollution in India. It was attended by representative from the chlor-alkali industry, alkali manufacturers' association, donors, research institutes, NGOs, government representatives etc.

### ■ INDUSTRIAL WATER USE

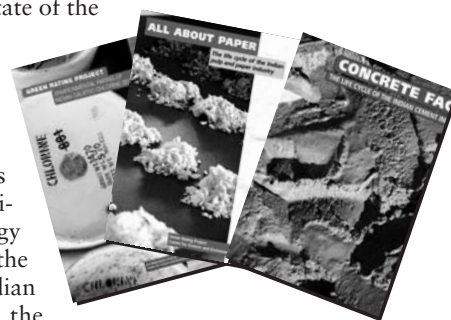
Water use in Indian industry is very high due to a combination of factors including obsolete process technology, poor recycling and reuse practices and poor wastewater treatment. On the regulatory front, there is a lack of effective policies or regulations to govern industrial water use. The GRP unit undertook a detailed study of the problem of industrial water use. The study was published as a supplement in *Down To Earth* on February 29, 2004.

## Publications

**Chlorine Chain:** It is an exhaustive life cycle analysis of players in the Indian caustic chlorine sector and its impact on the environment. The book deals extensively with the alarming issue of mercury pollution, its deadly effects and presents a comparative study with the global scenario.

**All About Paper:** This book presents a comprehensive Life Cycle Analyses approach for assessing the environmental performance of the pulp and paper industry in various phases of life cycle ranging from raw material sourcing to pollution generation and control.

**Concrete Facts:** It is a state of the art compilation of facts on the Indian cement industry. It assesses its environmental, economic and social performance by covering issues ranging from raw material sourcing to technology and finally benchmarks the performance of 38 Indian cement plants with the global practices.



## The process

**The first step: Producing a paper on the sector that highlights the technical issues involved, called the technical issues paper:** The first step is to identify the issues, both in the context of the global and the local environment. The issues paper provides a complete overview of the environmental impacts of the sector, identifying the best practices and the standards being adopted in the proactive industries/regulatory bodies. The issues paper also includes the broad rating methodology to be followed in the rating.

**The second step: Generating company level information on issues identified in the issues paper from the different companies, and its stakeholders:** In order to develop a company profile, a questionnaire is prepared based on the issues identified in the issues paper. The issues covered in the questionnaire include environment policy and environment management systems, raw material consumption, water and energy use, production and pollution control technologies, pollution prevention strategies, pollution generation and its impact on local environment, future environmental commitments and information disclosure etc. Information is collected from the companies as well as regulatory bodies and at the same time, independent verification is also undertaken. Local communities are also consulted to verify claims made by the companies.

**The third step: Developing the ratings criteria:** Based on the information collected from the company and field/external sources, sectoral and company environmental profiles are prepared. This information is then analysed under the supervision of the technical advisory panel.

**The fourth step: Undertaking the ratings — a broad-based and transparent methodology:** Combining the company profile and the ratings criteria, ratings on a number of parameters is undertaken. In order to achieve greater industry interest and participation, the rating process focusses on a company's future commitment rather than dwell on its past track record and also gives considerable weightage for voluntary disclosure of information.

**The fifth step: Public dissemination of ratings:** The final step is to release the ratings in a high profile public function, accompanied by a public advertisement of the ratings of the companies. This results in wide media coverage that is necessary for providing the reputational incentive for the participants. The public presentation also ensures that the public gets to know about the environmental performance of the companies. A recent study by economists confirmed the impact of this by studying the stock market performance of companies, which had a direct co-relation with their rankings under GRP.





## Green Messenger

# Reporting India's environment

Over the years, the Centre for Science and Environment has continued to refine its role of recording the unfolding drama of India's environment, adding depth and detail to the picture to uncover the nuances of environmental change and its impact on the people of India. These reports were published in the magazine, *Down To Earth*, to catalyse debate and discussion to provoke a debate over the issue. CSE's articles and reports go beyond mere reporting and play a advocacy role to elicit responses from the targeted policy makers and experts.

CSE covered rural India comprehensively — surveyed some of India's poorest districts to see why they were poor; looked at villages where the people have been empowered to take control of their resources; questioned the policy paradigms that lead to farmers' suicides; investigated why India's conservation programme is failing; and, put forward suggestions to use India's natural resources to generate livelihood for its rural people.

CSE's reports on urban issues reflected the urban crisis of India that is beginning to show across the country — documented the tremendous increase in air pollution in cities; surveyed the crisis of water and waste management; and, put under the scanner how the process of unplanned urban development is leading to a crisis in almost all the fast growing cities of India.

Environmental health was also an issue of interest and CSE studied and published reports on key environmental health events such global epidemic outbreaks such as the bird flu, Severe Acute Respiratory Syndrome (SARS) as well as outbreaks of different forms of influenza and malaria in India among other issues.

The issue of toxins was dealt with in terms of CSE's own work on studying the impact of pesticide spraying in Kerala and testing for residues of pesticides in soft drinks. These reports elicited a huge public response as well in terms of policy change. A study on endosulfan, a deadly pesticide, and as its subsequent publication in *Down To Earth* resulted in a ban on aerial spraying of the pesticide in Kerala. CSE's expose of the Dubey Committee report that gave the pesticide, endosulphan a clean chit, led to the setting up of another committee to re-examine the issue. The study on pesticide residues in bottled water and soft drinks led to the revision of norms and testing methodologies.

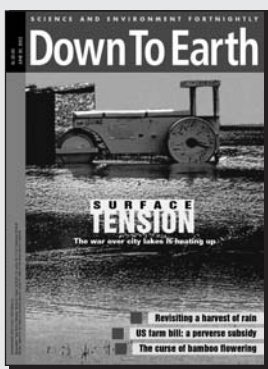
CSE's network of environmental writers is growing and its reportage is enriched with contributions from external experts. The reach of its reportage also grew and many regional newspapers use CSE/DTE feature articles. Science and technology stories figure very high among the reprints in the regional media.

CSE's reports published in *Down To Earth* now reach every nook and corner in the country. A survey of subscribers showed that out of the total 604 districts of India *Down To Earth* reaches 487 districts or 80 per cent of the districts. From the readers feedback we can also see that these reports are read, respected and are taken seriously.

## Water management

### ■ PEOPLE POWER

In an effort to popularise the idea of water harvesting, CSE continuously monitored the impact of water harvesting undertaken by communities in villages of



## Midsummer dream

In 2002, CSE sent its staff to revisit the villages that had taken up rainwater harvesting, to monitor the impact of water harvesting. The report, published as *A Midsummer Dream* tells its own tales:

Raj Samadhaliya, a village in Rajkot, Gujarat — Hardev Singh Jadeja, the former *sarpanch* and block president of 90 villages, says that they have gathered a profit of Rs 5 crore, much higher than expected. The village granaries are full as it is one of the few villages that have had three bumper crops in a year. The *sarpanch* has helped in reviving dykes to store water, obtain a GIS map of the *taluk* and helped neighbouring villages to construct check dams.

Mandlikpur, Rajkot, Gujarat — The village started recharging approximately 300 wells in 1993, with the help of organisations like the Saurashtra Lok Manch and Bhartiya Agro Industries Foundation (BAIF). It has built seven large check dams and five farm ponds that will recharge the wells in the monsoon. Through the drought in 2001, the village had drinking water. In the monsoon they were able to cultivate crops.

Gandhigram, Kutchch, Gujarat — This village is seeing reverse migration. It had four big dams, 30 small ones and 31 nullah plugs. At the revisit, they saw five big dams, 30 small ones and 72 nullah plugs. They were able to grow groundnut in nearly 120 and 50 ha of land brought under rabi cultivation. A cooperative for marketing agricultural products is planned next.

Mahudi, Dahod, Gujarat — As the village battled its fourth year of drought, four days of rain had been sufficient to provide drinking water security. The village now has three check dams and plans to construct a pipeline to bring drinking water to taps in *falias* or house clusters. The village has also once come to the rescue of a neighbouring village that could have lost its crop to drought by releasing water from its check dam.

Dotad and Kalkoont, Jhabua, Madhya Pradesh — Both villages are water sufficient despite a four-year drought. The damming of the river Modh has allowed them to irrigate 144 ha land and cultivate two crops. For this no government funding was availed.

Ghelhar Choti, Jhabua, Madhya Pradesh — After the initiation of water harvesting in 1997, with the help of the Rajiv Gandhi Watershed Mission, the village has independently and successfully maintained its resources and tripled its potential in irrigation in three years.



## Film on water harvesting

CSE produced an advertisement spot on water harvesting to create public awareness about the need for conserving water. The film was directed by noted film actress, Nandita Das, and was telecast free of cost by NDTV, STAR TV, National Geographic, Doordarshan and Zee TV on all their channels. It was produced in English, Hindi and Tamil. The Tamil



version was telecast by Sun TV and other regional channels. The telecast had a good impact and many people wrote in to CSE enquiring about water harvesting.

The film won the best documentary award on the special theme 'Water for life' at the Vatavaran 2003 film festival organised by Centre for Media Studies, New Delhi.

Raj Samadhaliya, Mandlikpur, Gandhigram and Mahudi, (Gujarat), Dotad, Kalakoonth and Ghelar Choti (Madhya Pradesh). CSE had been studying these villages since 2000, and its staff visited these villages to see how they withstood the effects of the drought. The findings were published in the report, *A Midsummer Dream*, which showed that in all these villages, which had undertaken water harvesting, the villagers were not only able to withstand the effects of drought but also successfully used the water to bring about economic improvements.

### ■ URBAN WATER WOES

*Waiting for a miracle* was an analysis of the complexities involved in solving the problem of destruction of urban water bodies. Against the backdrop of a public interest litigation case in Ahmedabad to protect the city's water sources from the land mafia, the urban water bodies, which contribute to a city's water supply in a big way, are today in a state of neglect all over the country. CSE reporters undertook an assessment of public interest litigation cases filed in Hyderabad, Ahmedabad, Srinagar, Kolkata, Delhi, Bhimtal and Surajkund on protection of urban wetlands and provided an overview in *Real estate on water*. CSE followed this up with a meeting on urban water bodies. An in-depth study of Chennai's water scenario looked at reasons for the water crises in urban India. This study was a pointer to what can happen to

## Reporting the tiger

As 2004 drew to a close, India woke up to a terrible truth: tigers, supposedly well protected in its 28 tiger reserves, were vanishing. Sariska, one of the premier reserves, had lost all its tigers. CSE staff visited Sariska to find out what exactly was happening there. Their findings were published as the report, *Maneaten*. CSE found that forest officials were denying the problem of poaching even as it found that there were no tigers in Sariska. While villagers pointed fingers at the forest guards, CSE found that the very method of conducting the tiger census was largely flawed.

Following extensive media reports on the disappearance of tigers from the Sariska reserve, prime minister Manmohan Singh reviewed the matter in the meeting of the National Wildlife Board and set up the Tiger Task Force to review the tiger conservation programme and suggest a new paradigm to undertake this task successfully. CSE director Sunita Narain was appointed chairperson of the Tiger Task Force, thus offering CSE the opportunity of studying issues of forests, habitat and wildlife conservation closely. The Task Force had eminent scientists, experts and conservationists as members.

The Task Force was given a period of three months to complete the report and present its recommendations. It was asked to study and suggest measures to strengthen tiger conservation, to incentivise local communities as well as forest officials for effective involvement in tiger conservation, to improve the science of conservation, and to make park administration efficient, cost-effective and transparent. The Task Force members held a number of consultations, met a cross-section of people involved with tigers — tribal activists, NGOs, scientists, researchers and visited a number of tiger reserves across the country. The objective was to find ways of safeguarding the tiger and protecting its habitat, without excluding the people who inhabit the forests.

A big part of the work was an in-depth review of the Sariska sanctuary. The Task Force looked at the sanctuary administration, the census methodologies and the management of the sanctuary and particularly the question of co-existence and human-animal relationship in the reserve. The second part of the work was to look at the larger context of the policy and practice of tiger conservation. The Task Force undertook a detailed analysis of the ills that plague the current system, from the way conservation is being perceived and implemented by the government to the institutional mechanisms that are in place to protect the tiger. The final report argued for an inclusive form of wildlife management that would take the forest communities on board while tightening the checks on poaching and recommended a number of measures to improve the science and administration of tiger conservation.

The report was completed in three months and presented to the prime minister with specific recommendations for action. These action points were cleared by the prime minister and are now being implemented.

CSE's studies on the issue were reported in *Down To Earth*. CSE staff visited and wrote about different problems in four different tiger reserves — Melghat in Maharashtra, Periyar in Kerala, Ranthambore in Rajasthan and Namdapha Park in Arunachal Pradesh. *Melghat malaise* reported the administrative problems that plagued this reserve, while the report on Periyar showed how it has become a model tiger reserve where the erstwhile poachers had been inducted as guards and involved in the protection of the park. The third story, *Got It* looked at tourism in tiger sanctuaries and how this is harming traditional human-animal relationships as the money from ecotourism does not benefit the forest communities. Another report on the state of Namdapha Park reported that it has hardly any tigers left, but its rich biodiversity and fauna could bounce back if the park authorities work with tribals.







other cities in India and thus also what lessons can be learnt from Chennai's experience in water management.



#### ■ POLICY POLICE

The report, *Wet drought*, unveiled the different faces of mismanagement of water in Kerala, turning a water-rich state into one facing drought. The story and the research behind it was an eye-opener for water planners in Kerala. It was widely used in the state — by lawmakers, planners, NGOs and water experts — for policy formulation. Against the background of the highly publicised Cauvery water dispute, CSE's staff toured the states of Uttaranchal, Maharashtra, Tamil Nadu,

Andhra Pradesh, Ladakh and Karnataka to look at traditional methods of solving water disputes and to document how the intervention of the government in all aspects of water management has led to the decline of this traditional practice in the report *Apt arrangers*.

There were several editorials on the issue of water during the period. These editorials addressed critical issues in the area of water management such as the role of the private sector, the rights and access of all to clean water, the role of regulatory frameworks, the need for social mobilisation and community institutions and issues relating to treatment and recycling of water in urban centres. They brought a wide response from people across the country.

### Sustainable bioresources

#### ■ BAMBOO BEAT

In contrasting styles, the government of Mizoram and Orissa took proactive and antithetic stances on bamboo cultivation. While bamboo has come under international notice as a source of livelihood, *Bamboo flowering* documented the efforts of the Mizoram government in formulating a bamboo policy and directing the state administration to take steps against the increase in the rat population during the time of bamboo harvesting. Contrasting this was the Orissa government's decision not to harvest bamboo and this raised concerns about the survival of the plant in the state and has also affected the livelihood of the bamboo cutters (*When bloom spells doom*). *Mautak will flower* reviews the state of preparedness among the north-eastern states for the bamboo flowering that will happen in 2006-07.

### Exhibition in the northeast

After the cover story on bamboo flowering and trade, *DTE* was invited in December 2005 to make a presentation to civil society in the northeast at a seminar held in Guwahati to look at conflicts in northeast India. It was fascinating that the *DTE* presentation was only one of the two among several, which looked at how natural resource management was part of the armed conflict in the region too.

On the occasion, before an audience of more than 100 representatives of civil society and researchers, *DTE* also put



up an exhibition on the same theme. The set of text supported visuals from several states of the northeast. The panels presented various facets of the monopoly of bamboo trade in the region and how it impacts lives and livelihood. The consequences of an imminent bamboo flowering and the setting up of a National Bamboo Mission by the Union government against this backdrop were presented through the exhibition. The exhibition elicited interesting responses. While some visitors appreciated the content there was as much interest shown by the audience in the usage of photography as a communication tool in development critiques.

### Elephant story

CSE staff travelled to West Bengal and Assam to take a closer look at human-elephant conflicts in March 2003. There has been a steady rise of elephant-human conflicts in West Bengal, Assam, Orissa, Karnataka and Kerala where human and elephant populations are at odds for survival. Loss of migration corridors and depletion of forest resources that form the food base of elephants, and finally, a growing human population that is encroaching into forest territory are the prime causes for these conflicts. While Project Elephant was initiated with much fanfare, it is still to show substantial results. Building elephant corridors that connect different populations of the elephants in fragmented habitats was another initiative of the project to solve the problem of inbreeding and extinction of populations. The report showed that the lack of progress was due to the fact that there was no clear policy direction.

#### ■ LOOKING NORTHEASTWARD

A series of articles on the north-eastern states of India focused on developmental policies for these states rich in natural resources. *Mautak will flower* looked at the issue of bamboo and its role within the economy of the north-eastern states. *Cross road* was a detailed study of the Apatanis, and their traditional way of managing their natural resources. The third report, *Truth is Slippery* reported on the Subansiri Lower Dam Project, the first major hydro-electric project for the state of Arunachal Pradesh and the





twists and turns that the project has undergone in the trade off between development and conservation.

#### ■ FOREST PEOPLE

*Orphaned by apathy* is an investigation into the denial of access to forest resources to the Van Taungiyas. Taungiyas were hired during the British rule as resident labourers to plant Sal forests in Uttar Pradesh. To these 26,000 people and their ancestors goes the credit for planting and conserving one of India's richest forests. Yet today they are being branded as a threat to the environment. The community has formed an organisation called the Van Taungiyas Vikas Samiti, which is fighting for its rights to manage forests.

#### ■ BETWEEN COURTROOMS AND COMMISSIONS

In recent years there has been an increasing trend by state governments and the forest department to take over unclassified forest and tribal lands and convert them into reserved forest lands under the garb of evicting encroachers from forest areas. This has led to widespread alienation leading to violent protests in many states. The story *Lost in the woods*, concluded that forest management is too complex an issue to be resolved by an executive fiat. Responding to the current debate on forests and forest conservation, another report studied the different methodologies of putting an economic value to the diverse services provided by the forests.

#### ■ WHAT FORESTS GIVE

Studies in Orissa, Madhya Pradesh, Himachal Pradesh and Bihar indicate that over 80 per cent forest dwellers depend entirely on minor forest produce (MFP). The tribal dominated Bastar district in Chhattisgarh is one of the richest areas for MFP and it provides up to 50 per cent of the income for forest dwellers. *Super market* is a special report that looked into the failure of the government to regulate and nationalise some of the important MFP items to ensure a steady income for forest communities.

*Phulmai's walk* was a detailed analysis of the crucial role that headloading plays in rural economy. A CSE staffer

spent a day with the headloaders of Jharkhand understanding how they survive against all odds in a system where they do not exist in the formal economic system. While headloading is illegal as per the forest laws, headloaders underpin the huge business of rural energy.

### Environmental governance

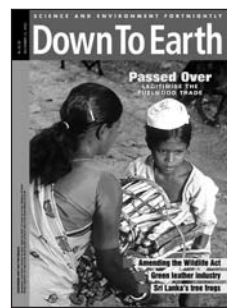
#### ■ DROUGHT PROOFING

Two reports, *Untapped data* and *Strong institutions*, looked into the linkages between drought and natural resource management. The first report examined the country's drought prevention policies and pointed out that the rise in the frequency and severity of droughts is due to faulty policies that involve huge centralised projects. The report concluded that small drought-proofing mechanisms and measures would ensure long-term gains in the natural resource base. The second report, *Strong institutions*, which took a look at Chhattisgarh, found that there was complete neglect of the state's rich store of water harvesting structures, even as that state was declared a drought-affected state.

#### ■ NATURAL DEVELOPMENT

The story, *Peacecraft*, analysed the development challenge for Jammu and Kashmir, and concluded that for sustainable development the state would need to build an economy based on its enormous wealth of natural resources. The story came to the notice of the Parliamentary Committee on Environment and Science, which was studying issues for the development of Kashmir. The committee asked CSE staff, who had worked on the report, to make a deposition on the issue, with particular reference to the Dal Lake. Subsequently, the Planning Commission made the article the basis for drawing up development plans for Jammu and Kashmir.

The cover story on Ladakh's developmental challenge highlighted the need for a sustainable developmental path in tune with nature, given Ladakh's meagre natural resources. *Development laboratory* was an analytical report that examined in detail the decentralisation

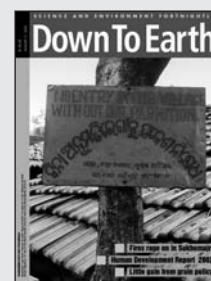


## The two faces of environmental governance



As part of CSE's work on the linkages between poverty and environment, CSE staffers travelled to look at the impact of both good environmental management and environmental degradation. They went all corners of India and what they found reinforced CSE's premise that good environmental management can lead to an improvement in the quality of life. The report, *Conspiracy of poverty*, was an investigation into the causes of poverty in the 10 poorest districts of India from the Planning Commission's list of the poorest 100. The common thread running through all these districts was environmental degradation. CSE also found that these districts had originally been richly endowed with natural wealth, but misguided government policies that put more emphasis on "development" at the cost of natural resources, were the main cause of poverty.

A contrasting picture was provided by the report, *Village Republics*, where local self-governance by villagers had resulted in remarkable successes in improving the village economy. CSE staff visited Dongripara in Chhattisgarh, Mendha in Maharashtra, Seed in Rajasthan, Nimalapedu in Andhra Pradesh and Horomocho in Jharkhand to get first-hand accounts of these success stories. All these villages have taken advantage of the Constitution's Fifth Schedule, which provides for local communities to have administrative powers over local resources in specified tribal-dominated areas in nine states. A conservative estimate based on different reports shows that close to 1,500 villages have declared themselves village republics. In these villages, residents control their natural resources — forest, land, minerals and water sources. They have also formed effective institutions to manage these resources. Natural resources and their equitable distribution form the core of governance in these villages.







## Unexpected development

*In search of the missing* highlighted the unexpected outcome of some of the development projects that have resulted in the marginalisation of the poor. The sudden transformation of more than 150 villages in Orissa into islands, an outcome of the Machkund and Upper Kolab hydroelectric projects in Koraput district, means that the villagers today live in great hardship deprived of their natural resource base. The story catalysed local media attention, which then pressured the chief minister and local MLAs to evolve a development package for these people.

experiences of Madhya Pradesh and Kerala. The report concluded that bureaucrats and politicians find it easier to promote a representative democracy and resent a stronger gram sabha that would ensure transparency and accountability in governance. The article was copied and widely distributed to Panchayati Raj officials in Karnataka to draw lessons from these experiences.

### ■ MINING WEALTH

In 1993, the Government of India began to deregulate the mining sector and, as a result, mineral rich states like Orissa and Jharkhand were awash with mining projects. *Theirs to mine* opined that the thrust on mining must be reconciled with livelihood creation for the tribals who inhabit these lands. The report said that state governments were going all out to woo industrialists ignoring the welfare of the people, which was leading to internecine violence. On January 2, 2006, nearly 800 tribals protested the construction of a boundary wall for a proposed mega steel plant by Tata Steel at the Kalinga Nagar steel complex in Orissa's Jajpur district when the police fired on them and 12 tribals were killed. In another part of Orissa, the pollution created by open cast mines in Darlipali forced people to move out of their village. CSE questioned the pursuit of developmental policies in *Mayhem in Kalinga Nagar*. *Orissa villagers demand relocation* showed that the people in whose name development is undertaken actually bear the brunt of such activities. In another study, CSE unravelled the process of Environmental Impact Assessment (EIA), identified the glitches that prevent it from being an effective regulatory tool and made recommendations to improve the mechanism. The Ministry of Environment and Forests accepted these suggestions and incorporated them into the revised procedures.

### ■ TRIBAL POWER

India has the largest tribal population in the world which accounts for 8.6 per cent of its total population. But tribals are among the country's most marginalised. The report, *Defunct democracy*, looked at why India's political democracy has not given its tribals their due. CSE covered the Scheduled Tribes (Recognition of Forest Rights) Bill 2005 in a series of reports. *Land unsettled* talked about the Scheduled Tribes Bill 2005, which re-asserted the rights of tribal people over land and forest produce and was stalled by vested interests. Another report *Status quo, how long?* concluded that the same bill has been made contentious by people who refuse to see merit in anything that changes the status quo. *Old wine in new bottle* provided a perspective of the

tribal people and said that the objective of the Bill was to correct the injustices suffered by the country's tribal people since colonial times. However, it argued that if the Bill was presented in its present form, it would fail to achieve its objective.

### ■ POLICING RIGHTS AND MODIFYING NATURE

CSE studied the little understood, but widely debated issue of patents. *Tripped* was a report on the emerging changes in India's patent regime and its implications for the healthcare and pharma sector. The story appeared even as Parliament readied itself to debate the Patents (Amendment) Ordinance, 2004, which was issued by the Union government in December 2004. CSE's report was used and referred to widely by the media to understand the subject of patents and its background. Above all, politicians and lawmakers referred to the story while debating the issue in Parliament. *Modified crop, unmodified policy*, reviewed the gamut of issues concerning genetically modified crops and criticised the current pattern of promoting genetically modified crops without an adequate evaluation of health effects, trade and consumer safety. The report said that policies in this area should have an objective of being pro-poor.



## Suicidal tales



CSE researched the issue of farmers' suicides in-depth. In 2004, when there was a spate of farmers' suicides in Andhra Pradesh, CSE showed how a combination of factors, led by the rise in input costs, the declining returns on agricultural produce, fall in institutional lending, together with the easy availability of loans from private money lenders, led to a pile up of huge debts. Amidst the clamour for

more credit being made available to farmers, CSE strongly condemned the 'more loans' approach and recommended long-term measures to make agriculture more profitable.

Two years later, farmers' suicides in Vidarbha made the headlines and CSE's study this time found that the reasons went beyond input costs. Farmers' indebtedness is brought on by a combination of international trade cycles, state policies on subsidies and tariffs and the trade-off between the interest of cultivators and manufacturers of the products that make cotton a commercial crop. While the US provides huge subsidies to its farmers making it easy for them to flood the market with cheap cotton, the Indian government provides hardly any subsidy even as the input costs rise.





## Reporting clean air

### ■ JUDGES SAY AYE FOR CLEAN AIR

The report, *A Seminal Judgment*, showed how the Supreme Court order of April 5, 2002, was a milestone in Indian judicial history. The order took recourse to significant innovations in the law, such as deeming public health as a part of the fundamental Right to Life and using the polluter pays principle to penalise a polluting technology.

In November 2003, the Supreme Court converted CSE's article on fuel adulteration in Delhi, which showed photographic evidence of adulteration, into a *suo moto* application and served notices to the Union government and subsequently to all oil companies, asking them to respond.

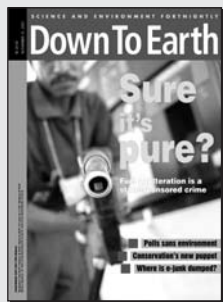
### ■ FINDING THE CULPRITS

CSE's Right to Clean Air team rang the alarm bells on the health impacts of air pollution. *Mounting Evidence, Collapsing Public Health* delved into the health effects of ultrafine particles, which could be associated with human mortality. The report took the reader through the maze of scientific information recording the deadly effects of particulates in cities like Mexico, Santiago, San Paulo and Seoul. *India Exposed* confirmed that the menace of air pollution had spread its tentacles wide, as could be seen from the data on particulate matter in more than 50 cities.

### ■ URBAN CHAOS

## Fuel scam exposed

*Down To Earth* exposed the rampant fuel adulteration in Delhi with photographic evidences in the article, *Overhaul*, dated November 15, 2003. The article was presented to the Supreme Court during its hearings on the ongoing air pollution case. The court converted the *Down To Earth* article and photo documentation of fuel adulteration into an interim application on November 24, 2003, and served notice to the Union government and subsequently to all oil companies to respond. Following the court order and the media reports on it petroleum minister Ram Naik immediately stopped import of kerosene by private agencies that were the major source of adulteration in many states. Discussions on this matter rocked the Parliament and former Union environment minister Saifuddin Soz drew the attention of the House to CSE's findings. All this created a lot of pressure and now, the Central Bureau of Investigation, the police and various ministries concerned are investigating the matter.



## Penetrating evidence

A six-year study conducted by the Kolkata-based Chittaranjan National Cancer Institute and Calcutta University associated toxic fumes, especially from vehicles, with genetic disruption and neurobehavioral problems, along with the usually associated respiratory problems. The findings showed that the body's natural resistance crashes like a house of cards when faced with air pollution, especially toxic vehicular fumes.

The report *Choked cities* raised the issue that urban transportation policies were faulty and described the chaotic state of the public transport system in most Indian cities. It pointed out the lack of a comprehensive transport policy both at the Central and state-level. Continuing the focus on the state of air quality in Indian cities, the report, *Overhaul*, exposed the state of fuel quality in India by capturing photographic evidences of fuel adulteration in Delhi. The article caught the attention of the SC, which called upon public sector oil companies to clean up their act. *Exhaustive predicament* dealt with the emerging problem of nitrogen dioxide emissions.

### ■ WHAT THE CRYSTAL BALL TELLETH

Other reports looked into the future scenarios of urban air quality. The report, *Steering the way*, presented a computer generated model, the Anil Agarwal Clean Air Model, which could predict the impacts of specific policy interventions on air quality. Thus the model could be used to put in place policies and strategies that would help Indian cities move towards improved air quality. Another report, *Nanoparticles*, provided a picture of emerging health threats from minute particulate matter that could arise as a result of improved engine technology and fuel quality.

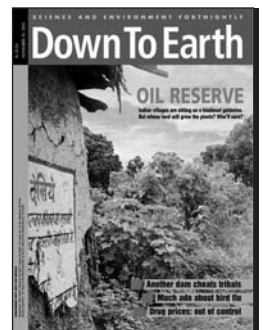
CSE also searched for alternatives. *Supplanting petrol, Biodiesel busfleet* and *Dispirited agreement* looked into issues relating to alternate fuels such as biodiesel and ethanol. There were also reports that analysed developments in the area of developing and implementing emission norms: *Normally lax* and *Euro V norm*.

## Industrial and urban pollution

### ■ WE, THE POLLUTERS

Two reports surveyed the state of the small-scale sector from the viewpoint of pollution management. The first of these, *The small big polluter*, said that the small-scale sector has become an uncontrolled and unregulated source of pollution and concluded that there is an urgent need for the government to put in place cost effective pollution control technologies. The second report, *For a good churn*, examined issues relating to common effluent treatment plants (CETPS). The report concluded that the key challenges to make this solution work are cost-effective technology and a strong framework to give incentives for pollution prevention.

In an effort to look at the state of river pollution in

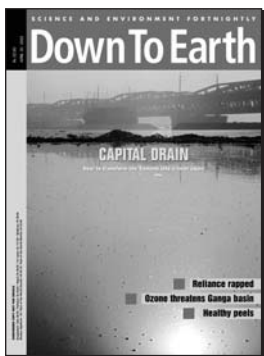






India, CSE staff travelled to the Damodar river basin. In *Coal dust, fly ash and slurry*, CSE reported that the river, the lifeline of a chain of industrial towns and cities for their drinking water supply, continues to be a dumping ground for toxic wastes. Another report, *Faith in spite*, brought into focus the severe stress on the Pampa river, which gets choked by the solid waste generated by the several million devotees visiting the Sabarimala temple every year. The Pampa river is the sole source of drinking water for nearly two million people. A Pampa River Action Plan has been prepared that would initially focus on improving sanitation facilities during the peak pilgrimage period when the river suffers the maximum pollution.

There were a series of reports on the river Yamuna. The report, *Political economy of defecation* was a story of how the Yamuna, a major river, has become little more than a drain due to the dumping of untreated domestic sewage from many cities, chiefly, Delhi. The report traced the progress of the Yamuna Action Plan and showed how, even after spending more than Rs 75 crore per kilometre, the river had become dirtier. The report concluded that it was possible to clean up the river, provided the government has the political will to look at alternate sewage paradigms. *Wanted: Yamuna counsel and Get real Mr Bajaj*, critiqued the proposed move by the Government of Delhi to hire consultants to clean the river.



#### ■ BEWARE THE INDUSTRY

The article, *By hook, crook or vision*, was an analysis of the industrial sector's use of natural resources, be it water, energy or forest products. The report exhorted the industrial sector to give more importance to environmental management and said that the role of the environmental manager is crucial. A detailed report on the use of water resources by the industrial sector was published as a *Down To Earth* Extra (supplement), *Overused, Underrated*. Another report was on the use of mercury in Indian industries. Titled, *The Mercury Menace*, the

detailed report showed that as developed nations get tough with mercury-generating industries, India is becoming a hotspot for this deadly metal.

Kicking off the 20<sup>th</sup> anniversary of the Bhopal tragedy, the report, *Nurturing Bhopal*, highlighted the government's lack of concern about the fate of people living in and around the plant. CSE staff gained exclusive access to the plant and found that hazardous materials were still lying around the plant area causing more toxic pollution. The report also exposed the government's intention to spend the

remaining relief money on drinking water projects. The report was used in the ongoing case on relief and compensation in the Supreme Court, which ruled that the money must be distributed to the victims.

As part of its work, the industry and environment team produced a detailed report on the green rating of the paper and pulp sector. The report detailed the rating and the rating process and highlighted the effort made by the paper companies to clean up their act and move towards

cleaner processes. The companies also undertook improved raw material sourcing, giving encouragement to farm forestry. The report, *Backyard Mess* highlighted the need and the immense potential of using wastepaper through good collection networks in collaboration with local communities and industry. Another report, *Concrete Facts*, put out the results of the rating of the cement sector. CSE found that although the cement sector in India was on par with the global best in terms of technology, the industry was not doing much in terms of the communities, its workers or the natural resources that it was using.

## Toxic pollution

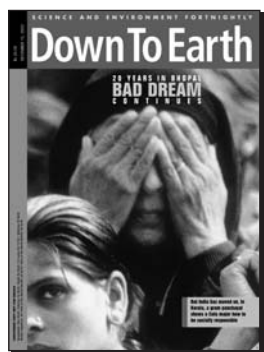
#### ■ BETWEEN CASHEW AND CANCER

In 2000, CSE investigated the impact of pesticide contamination in Padre village in Kasaragod, Kerala, where villagers suffered varying degrees of neurological and other diseases. Local doctors had linked this to the spraying of endosulfan, a pesticide banned in several countries, since the mid-1970s. CSE's investigations and the subsequent media coverage resulted in the Kerala government and the court ordering a temporary ban on spraying, putting at stake the existence of this Rs 4,100-crore industry. *Pesticide Inc* revealed the inside story of lies and deceit behind the industry's campaign to establish the CSE study as 'questionable' and prove endosulfan harmless. Although the industry succeeded in getting the ban lifted, the study undertaken by the National Institute of Occupational Health confirmed CSE's study, and forced government to reapply the ban.

Due to pressure from industry, the Union government set up the O P Dubey committee to probe whether endosulphan was responsible for the region's health problems. The committee, in its report, gave a clean chit to the industry and de-linked endosulphan from the health problems. *Lies, damn lies and endosulfan* was an expose of the nexus between the industry and the scientific community. This *DTE* issue was specially released in Thiruvananthapuram, so that local publications in the state could pick up the story and follow the trail. In September 2004, the agriculture ministry constituted a committee headed by C D Mayee, the then agriculture commissioner, to re-examine the entire issue and also to review the report of the O P Dubey committee. But this committee also proved to be pusillanimous and buckled under the power of the industry. It did not look at health effects at all.

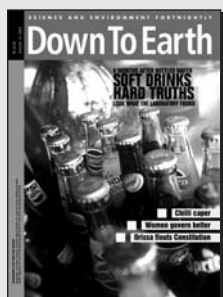
## Report on arsenic and fluoride

CSE's reports on arsenic and fluoride contamination brought in good responses. Raghuvansh Prasad Singh, former Union minister of state for animal husbandry and dairying wrote an open letter to the then prime minister Vajpayee through *Down To Earth* on the need for appropriate rural development policies citing the case of widespread contamination of arsenic and fluoride in groundwater. Many scientists from academic and research institutions such as IIT, IARI and other institutions dealing with water, sent in letters appreciating the coverage and perspective of the story and offering their insights.





## The Cola wars



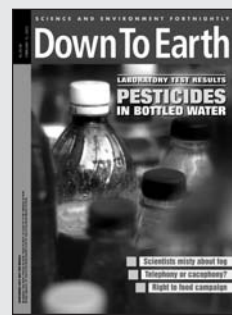
CSE published reports of its studies on pesticide residues in bottled water and soft drinks. These had an instant and wide-ranging impact on the government and the public. The wide media coverage of the story resulted in instant action by the government, which announced a committee the very next day and a draft resolution for improved standards and testing methodologies soon after.

*Gulp* highlighted the presence of lethal and banned pesticide residues in bottled water. It presented the findings of tests conducted by CSE's pollution monitoring laboratory for pesticide residues on samples taken in and around Delhi and Mumbai. The report also highlighted the link between pesticide residues found in groundwater and those in bottled water and demanded strict norms for testing and cleaning of water before bottling. It brought to the fore the lack of adequate safeguards by way of stringent norms and testing procedures to ensure quality.

Following this, CSE presented a hard-hitting expose in August 2003 on the presence of pesticide residues in 12 brands of soft drinks marketed by Coca-Cola India and PepsiCo India. The report, *Colonisation's dirty dozen*, was widely acknowledged as the business story of the year. It pointed out the glaring absence of a regulatory framework for food safety and the manner in which the companies could legally source their raw material — groundwater — at almost no cost. The story also highlighted issues of outdated methodologies and norms for pesticide residues in beverages and food, including soft drinks.

After the story broke, the media coverage was intense. The issue was debated in the NDTV programme, *We the People*. This episode was voted the year's best debate. The public response was tremendous and CSE became a household name. The greatest impact was the setting up of the Joint Parliamentary Committee (JPC) to investigate the issue and verify the CSE report. The JPC upheld CSE's report.

As part of the research presented to the JPC, CSE published a report, *The science, sociology and politics of ADI*, on the state of pesticide monitoring in India. CSE found that at every stage of the use of a pesticide, from its registration to its final use, there were no mechanisms to ensure the safety of public health. The methodology of developing the maximum residue limit does not ensure that the total acceptable daily intake of a particular pesticide from all dietary sources will be within the limits set by international standards. The report called for legally enforceable standards and institutional reform in the governance of food safety in India.



### ■ RESIDUE OF A REVOLUTION

CSE's study of pesticide residues found in the blood of farmers from Punjab villages was published in *Residue of a Revolution*. The revelations shocked the media, academic and scientific circles in the state and the country. This study concluded that pesticide residues might be responsible for the rising number of cancer cases in certain cotton growing areas of Punjab. CSE director Sunita Narain was invited to address members of Parliament in November 2005, where she made a presentation on the various pre-requisites of the food safety and standards bill.



### ■ POISON BENEATH

*Pumping out poison* was a detailed report of arsenic and fluoride contamination that is the result of our misinformed quest for safe water by boring deeper into groundwater reserves. CSE staffers travelled extensively to meet people affected by fluorosis and arsenicosis in several states. The report concluded that the first task was to change water policies and put a stop to further groundwater extraction and to implement water harvesting. In 2004, CSE reporters broke the story of arsenic contamination in water rich Uttar Pradesh. They found that skin ailments, a result of arsenic poisoning, were common in several villages of the district. Tests on groundwater and nail and hair samples of residents revealed the presence of arsenic way beyond permissible limits.

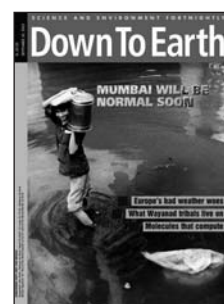
## Urban infrastructure

### ■ TALE OF THREE CITIES

The state of urban infrastructure of three cities was studied in detail. Haryana became the first state of the country to adopt a policy on public-private partnership for urban development to speed up urban development. The report, *Dhamaal growth*, examined the story of how this policy went wrong and how private developers failed in their responsibility to plan properly for infrastructure leading to a city full of problems — from power to sewage to solid waste to water.

*There's nothing august about Mumbai* said that India's most populous city is a disaster area. The floods of 2005 were foretold, the disaster, in all its dimensions — perhaps not the scale was already mapped. It was the result of the fact that for years, Mumbai's politicians ignored the signs of the crumbling drainage system, the built over natural drainage, the poisonous landfills and untreated sewage being dumped into the Arabian Sea.

DTE extensively researched the various issues concerning the fast growing and fast breaking city of Bangalore in the cover story *A Blocked Circuit*. Taking the case of Bangalore it argued that funds and technology alone cannot substitute principles of urban planning and city governance.

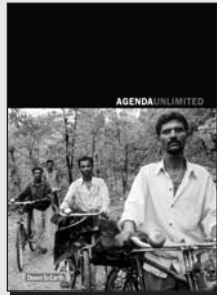






## Agenda Unlimited

For the past 14 years *DTE* has documented initiatives across the farms, fields, forests, factories and laboratories of India where individuals, communities and agencies are struggling to do things differently, some successfully and some not so successfully. CSE edited and compiled the human stories of innovation, courage and commitment in the book *Agenda Unlimited*. The foreword says that this book is about India unlimited, where the agenda is for change and it is unlimited.



The book details who is doing what and where on different aspects of development — from organic farming, vermiculture to rainwater harvesting to recycling waste to alternative healthcare, energy systems and deepening democracy. The aim of the publication is to explain the environmental changes taking place at India's grassroots and most importantly to inspire hope in others. The publication is a very good source book for grassroots initiatives across the country and in different areas of work.

## Communities — their travails and rewards

In keeping with its role of highlighting community efforts, CSE produced a number of reports on efforts at the grassroots level by people to improve their natural resource base and enhance the quality of their lives.

CSE recorded the efforts of the Gubraida gram panchayat in Karauli district of Rajasthan, which scripted a success story by bringing illegal mining in forestland to a halt. Another report documented the efforts of Uttaranchal villagers in Kumaon area of Uttaranchal in using traditional beliefs that linked forests with sacred deities to protect their forests.

Dharohar's dividend showed how the Dharohar Samiti

is spearheading a programme to conserve the traditional varieties of rice, minor millets and vegetables in Golavand village. A report showcased two pioneering initiatives that were nominated for the Equator Initiative Awards from among 10,000 entries. The award winners were the Kani tribes of the remote Agasthyar Hills in Thiruvananthapuram, Kerala and the tribal community of Jeypore in Koraput district, Orissa — both for conservation of their indigenous rice varieties. Another report captured the efforts of the villagers of Minjrad in Barmer district of Rajasthan to revive the famous Tharparkar breed of cattle.

*Fast Forward to the past* is the story of one village, Pokhlabeda in Patamda block near Jamshedpur, where a handful of villagers led by Nimai Singh Sardar constructed tanks to harvest rainwater. These tanks help them reap three crops a year and sometimes even four or five. *Beating the drought* showed how the villagers of Hamirpur in Himachal Pradesh revived the traditional water harvesting structures called *khatri*s and succeeded in beating the drought.

## Down To Earth on Water

The book is a compilation of water and sewage related editorials and articles from *Down To Earth*. It also has case studies of Delhi and Chennai, which talk about the status of water supply and sewage management. The book highlights the drought that took place in Kerala due to poor water management, since the state is blessed with plenty of rainfall. It also talks about community-level water management practices in Gujarat, Madhya Pradesh and Rajasthan. This compilation was prepared during CSE's participation at the Stockholm Water Exhibition.



Looking at grassroots efforts in urban habitats, a report documented the efforts of housewives in Behala, West Bengal to fight urban pollution by filing a case under a public interest litigation (PIL). Another recorded the efforts of the citizens of Panaji, Goa, who came together to protect the irreplaceable rain trees of Panaji against a callous government. In Saligao, Goa, determined villagers decided to fight the growing illegal mining and sale of groundwater. CSE also reported the Chandigarh administration's efforts to clean up construction debris.

CSE recorded the efforts of Bhasha, a Vadodara-based organisation, which trains tribals to inculcate a tribal idiom in education. These students then fan out to other villages to teach tribal communities to adapt to the changing realities of a developing world. CSE also recorded several initiatives in alternative media — *Grassroots Opinions*, a magazine about the northeast; a unique mapping exercise on lead poisoning in India; a radio programme entirely run by slum children in Delhi; and VOICES, an organisation that runs community radio networks on development-related issues.

There were also several stories on women's groups. From the report on self-help groups in Kanyakumari

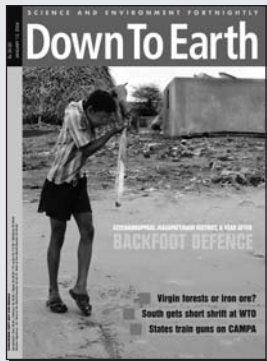
## Awards and fellowships

- Surya Sen, *DTE*'s senior photographer was awarded the first prize in the General News Story category of the India Press Photo Awards for his photo shoot on the Andhra Pradesh farmers' suicides. The photographs, along with the other winning entries, were on exhibition in Mumbai.
- Nitin Sethi, who works on wildlife issues and development in Northeast India, was awarded a fellowship by Centre for North East Studies to work on bamboo flowering in the northeast. He also received a fellowship from Sarai, a new media initiative to look into application of GIS mapping in urban planning.
- Ritu Gupta received the Chevening scholarship awarded by the Foreign & Commonwealth Office of UK to print journalists. As a part of her scholarship she studied at the University of Westminster in London for more than three months.
- Sopan Joshi, the news coordinator of *DTE* was awarded a media fellowship from the National Foundation of India on *Seeds and pesticides: What's the way forward in Andhra Pradesh*. This fellowship helped him to publish a cover story in *DTE* on the Seeds Bill, 2004.



## One year after

CSE staff travelled to Tamil Nadu to find how the areas hit by the tsunami were faring. In January 2006, it organised an exhibition of photographs on the occasion of the first anniversary of the Asian tsunami. The 15-day exhibition at the India Habitat Centre, New Delhi, was inaugurated by noted journalist B G Verghese. A documentary *Children of tsunami* was also screened on the occasion. Annie George of the NGO Coordination and Resource Committee, Nagapattinam, presented an illustrated account of life after the tsunami.



Visitors at a photo exhibition organised by CSE at the India Habitat Centre on the first anniversary of the Asian tsunami

district of Tamil Nadu to the one on the efforts of women affected by mining from across India to come together and form an alliance to highlight their plight. There were also several reports on the initiative and energy of women to better their lives.

## Feedback on Down To Earth

- "I write this to congratulate you and *Down To Earth* for the sensational expose' on bottled mineral water. The whole nation has taken note of what it is drinking and that too at a high cost." A R Maslekar, by email.
- "The article 'Sacred Context' was very knowledgeable. We know that tribal people are important conservators of the forest ecosystem and that their social customs, traditions and behaviour are based on nature's laws". K Nayak, Utkal University, Bhubaneswar
- "The other day my friend and I were discussing the state of environment in India and why is it deteriorating so fast. The answer lies in the fact that the so-called educated persons in our country never follow rules. We were also considering publishing *Down To Earth* (limited editions) in regional languages." Shashank by email.
- "I have been a regular reader of *DTE* ever since I was a student of Delhi University 10 years ago. It has provided a forum for discussion and a medium for highlighting positive initiatives in the field of development." Satya Mishra, Delhi.
- "Amazing! During travelling all travellers depend on bottled water and if it is contaminated what is the alternative? It is necessary to analyse cold drinks also to know its purity. We hope you will take up this task". Ramachandra Hegde by email.
- "Let me congratulate you on having exposed the true story behind the endosulphan conspiracy. I feel ashamed of the scientific community in my own state, Kerala, who inspite of their expertise in this particular field of scientific study, ignored such a damaging report on endosulphan exposure." M K Prasad, Kerala Shastra Sahitya Parishad, Cochin, Kerala.
- "A few weeks ago, CSE brought out a report that

highlighted the high levels of pesticides in packaged drinking water bottles. The act of CSE marked how a small step from civil society could alter what it gets." Sumit Kasera by email.

- "*Down to Earth* has provided me very valuable information on interesting topics related to our work. I especially very much like the editorial articles, which have given me a deeper insight to the world as well as India's environmental problems." Professor. Nguyen Hoang Yen, Vietnam.
- "I enjoyed reading about Kerala and MP's experiences in decentralisation. I am sending copies of your analysis to all my colleague secretaries so that they can reflect on the points you made." Raghunandan, Secretary, Panchayati Raj, Karnataka.

At the beginning of the 2004 academic year, 29 students of Class VIII from the TVS School, Tumkur, Karnataka, were asked to read articles from *Down To Earth* and submit a report every 10 days. The students found the magazine very interesting. Some of the feedback received from the children is as follows:

- "The articles helped me interrelate things with whatever we are learning." Anjushree
- "A bank full of facts that have made me question issues critically." Ganashruthi.

## Joseph C John Award

CSE collaborated with the Friends of the Trees, Kochi, to honour innovative environmental efforts in Kerala. The award also honours Joseph C John, a devoted environmentalist since the 1950s. Out of the 36 applications received, Prof S Seetharaman, environmentalist, was selected by the jury.

Seetharaman launched the Association for Environmental Protection in Aluva, Kerala, in 1986. He worked to stop the pollution of the Periyar river and conducted extensive studies on the degradation of the river. He actively fought polluters through the courts and played a key role in afforestation programmes in Ernakulam district. He took an active interest in environmental education and launched nature clubs in Kerala.

The award was presented on February 11, 2005, by Justice V Krishna Iyer at a ceremony in Kochi, Kerala.





## Environment Education Unit

# Building capacity in society

The Environment Education Unit networks with students and educators across India in an effort to promote environmental understanding among these future leaders and their mentors. The team reaches its target group of young students by addressing the teacher fraternity, who in turn, will engage the student community. The unit has been pursuing this through various independent programmes like workshops for student and teachers and organising exhibitions etc. To integrate these activities the unit launched the Green Schools Programme (GSP) in January 2005.

GSP is designed to catalyse educators, students and school managements to collectively take positive measures to improve their environmental performance. The programme has two components: a Green Schools Manual and a training module for teachers that provides step-by-step guidance on how to use the manual through the medium of presentations, film clips and practical interactive sessions. The Green Schools Manual is a handbook that enables schools to audit their performance in management of natural resources within their own premises.

We received a good response from government agencies as well as from private schools. The Andhra Pradesh wing of the National Green Corps has adopted the manual in 5,000 schools across the state. The Navodaya Vidyalaya Samiti, with a network of over 500 schools located in different parts of India, has also taken up this programme.

A very important component of the programme is *Gobar Times* (GT), the monthly magazine on environmental issues for children. Readers' responses to the newsletter has driven home the message that in GT we have a very strong medium of communication to reach across to young people in the country.

## Gobar Times

GT was published and was received with great enthusiasm by children and adults alike. During 2005-06, it was redesigned to include some new features besides the cover story. A page



on commonly used products presents the life cycle assessment of products. 'Open forum' draws links between science and environment, while 'Ecofutures' features environmental careers.

During the period, this magazine covered a wide range of issues such as water, transportation, biodiversity, public health-care, glaciers, climate change, the role of rag-pickers

## Special issues of Gobar Times

Students produced a special edition of *Gobar Times*, 'Waiting for what'. It was released by Enele Soaga, the UN ambassador for Tuvalu Islands. The Tuvalu Islands will be most affected by the rise in sea water level due to climate change. Students from five schools in Jaipur organised a survey on the use of water in the city and interviewed people from 175 households. They produced a special edition of *Gobar Times* called 'Paani, Paani', which was released by Gaj Singh, the Maharaja of Jodhpur, at a public function. Students from seven schools in Delhi brought out 'Plastic Dreamz' by reporting India's largest plastic fair, Plastindia 2003. Children from the Bharat Petroleum Housing Society, Noida, brought out a special edition of GT on Noida's environment.

in the management of urban waste, impact of environmental degradation on women, the role of oil in world politics. There was also a series on marginalised groups like nomads, tribals and fisherfolk.

## Media workshops

The media workshop is a unique training programme where students are exposed to the various dimensions of environmental journalism and publishing. During one



School children prepare a graffiti on climate change at an event organised by CSE during CoP-8



such workshop, children produced an issue of *GT*. Several such workshops were organised in Varanasi, Delhi and Jaipur. Special editions of *GT* were also produced.

Theme-based workshops were organised for street, slum and spastic children and school children from various schools in Delhi and cities like Jaipur and Mussoorie. A high-profile programme for youth was organised during the climate conference in Delhi in October 2002.

Seven schools in Delhi participated in the media workshop organised on plastics during Plastindia 2003. The students visited a recycling unit and interviewed rag-pickers, plastic producers, traders and consumers. As part of this event, children undertook the *Message in a bottle* campaign, where they put a message inside a bottle for plastic manufacturers asking them to reduce the plastic content in bottles. They also took out a signature campaign requesting the Election Commission to stop the use of plastic during election campaigns.

Children staying in homes of the organisation Child Watch India participated in a workshop in September 2002 on waste disposal and water. The high point of this workshop was a meeting with the chief minister of Delhi, Sheila Dikshit, with whom they shared their concerns. A workshop on water was organised at Gandhi Darshan on June 2003 for slum children mainly drawn from south Delhi. A workshop on water and waste was organised for 25 special students of the Spastic Society School in Hauz Khas, New Delhi, in August 2003. Students from Woodstock School, Mussoorie, attended a four-day workshop on environment in Delhi.

## City-as-an-ecosystem programme

The city-as-an-ecosystem programme was a series of eco-tours and presentations on water harvesting, river pollution, waste management, sanitation, water treatment, and natural forests. This programme was conducted in Akshay Pratishthan, Vasant Kunj, Cambridge Junior School, Noida, Junior and Tiny Tots School, Panchsheel, Salwan Public School, Shri Ram School, American Embassy School, DAV School and Modern School.

## Teachers' workshops

During 2002-2004, the team conducted several workshops for teachers on environmental issues. The aim was to provide an understanding of environmental issues and how they are linked to our everyday lives. This understanding would help educators make academic teaching holistic by incorporating environmental perspectives. The table below gives details of the workshops conducted for teachers during 2002-2004.

### Teachers' workshops: 2002-2004

Place	Date	Number of participants	Number of schools	Theme of workshop
Jaipur	August 23-24, 2002	22	11	Jaipur's environment with a special emphasis on waste and water
Delhi	January 6, 2003	60	36	Air pollution
Delhi	February 13, 2003	32	20	Water harvesting for Kendriya Vidyalaya schools
Varanasi	April 2003	25	9	Water, waste

## The Green Schools Programme

GSP was launched by CSE in January 2005. In a bid to reinforce the *GT* brand, the programme has been been renamed *Gobar Times* Green Schools Programme.

The objective of GSP is to spread the environmental message to every student and every school in the country. It meets this objective by educating teachers who, in turn, train school children. This training is through a structured programme, under which teachers are taught to evaluate and move their schools towards better environmental practices. The training programme is a three-day long session that provides step-by-step guidance on how to use the Green Schools' Manual, through the medium of presentations, film clips and practical interactive sessions. The Green Schools' Manual underpins the programme and teachers can independently carry out the environmental audit with the help of school children and implement necessary steps to improve their environmental performance with the help of this manual after the training programme.

## GSP training workshops

Several training workshops were conducted in collaboration with various nodal educational agencies, which have nationwide networks. The scale of such workshops was big. For instance, the two-day programme done

### GSP partners

In the green schools network now, we have the following partners: All Navodaya Vidyalaya Samiti schools of a total of around 510, spread across all states of India, barring Tamil Nadu.

All Kendriya Vidya Sangathana schools (while technically every KVS is involved, since it is a huge and completely unwieldy network, focus is on the Maharashtra region only and follow up with around 500 schools here).

All schools under the National Green Corps (NGC) programme of the Delhi government (around 1,450 schools). This group includes the 23 NDMC schools, for which we have conducted an exclusive two-day workshop.

with NGC, Delhi government, had 65 'lead school' participants, who in turn carried the message, not only to their own schools, but to 20 'buddy schools', which were attached to each of them. Therefore, students of 65x20 schools in the National Capital Region were inducted into GSP through this. The training of all eco club schools in Delhi was also completed. Follow up





Sumita Dasgupta of the Environment Education Unit speaks at a teachers' workshop organised by CSE

meetings were organised with NGC Delhi for a future action plan. A meeting of principals of 28 Delhi schools was organised on February 19, 2005, to get their feedback and suggestions on the programme.

### The Green Schools Programme manual

The GSP manual helps schools conduct a self-rating process on the way they interact with the natural environment. Students and teachers are taught to collect information on the school's interface with water, air, land, energy and waste and rate themselves. The entire process helps in creating awareness about the natural

environment among all stakeholders in becoming more environment-friendly. For instance, a school that encourages private transport will get lower marks than one that encourages the use of public transport. Each of these broad aspects carries 100 points and the whole exercise is for 500 points.



### GSP training workshops

Institution/School	Region and date	No. of Participants
Workshop for teachers of Delhi schools	Delhi, January 13-15, 2005	3
DPS, Delhi and NCR	Delhi, March 10-12, 2005	18
Workshop for private schools and government schools of Delhi	Delhi, April 12-13, 2005	12
Navodaya Vidyalaya Sangathan (NVS)	Representative from all-India NVS zones, May 2005	44
Greater Noida Development	Greater Noida schools	24
Ministry of Environment, Govt of Delhi	All leading eco club schools of Delhi, July 21-22, 2005	65
Kendriya Vidyalaya Samiti (KVS), Gwalior	Representatives from all KVS regions except one, August 4-6, 2005	38
New Delhi Municipal Schools	All NDMC schools in NCT, August 8-10, 2005	23
Navodaya Vidyalaya Sangathan and Kendriya Vidyalaya Sangathan	Pune region of NVS and Maharashtra region of KVS, October 24-26, 2005	45
Young Men's Welfare Society (YMWS)	Schools from Kolkata and surrounding areas, November 15-17, 2005	25
Ministry of Environment, Govt of Delhi	All National Green Corps schools of Delhi (August-November 2005)	12



## Increasing environmental coverage

In view of the increasing media coverage of environment and development issues, the Media Resource Centre (MRC) unit was set up in 2002 to build an informed and vibrant community of writers on environmental issues and to reach out to a large number of young media professionals across the country and in south Asia, with information and analyses on current issues on environment and development, and to encourage them to write in a more informed and rigorous manner.

The team continues to run its print and online versions of a feature service, which goes out to over 150 editors across south Asia in two languages (Hindi and English). A new service, e-media alerts on current topics in environment and development was started. This is sent to about 1,100 journalists across the region.

CSE also initiated training programmes on research and development reporting. These aim to tap the growing interest in the area of environmental writing and reporting, and developing a cadre of well-trained writers and reporters. The team has developed course material, including a workbook, for these courses.

CSE conducted a number of media fellowship programmes for journalists on sustainable development and livelihood. The team worked hard to identify new candidates for the fellowship so that young journalists could be encouraged to study issues in-depth and report on them. CSE used its network of editors and other media contacts to promote the programme. It also conducted media briefing workshops on various environment and development issues.

### CSE media fellowships

The journalists' fellowship programme is an effort to motivate journalists to devote more time to study environmental issues, develop a holistic perspective and generate more reports in mainstream media. Information about the fellowships is circulated extensively through letters to editors, e-mails to journalists, posters and announcements in media services. Selection of fellows was effected through a detailed assessment of applications by panels constituted by eminent journalists and experts.

The fellows were provided comprehensive and customised briefing documents prior to the commencement of the fellowship. They were given a communication schedule, based on which the fellows kept the MRC updated on the progress of the fellowships on a weekly basis. Following the completion of the programme, each candidate submitted a comprehensive report. This included the original clippings of published stories, original drafts of the stories submitted for publication, a complete set of pictures taken during the course of the fellowship, a list of contacts and responses to a feedback questionnaire.



Recipients of the fellowship on 'Making Water Everybody's Business' in 2002

### ■ FELLOWSHIP ON WATER HARVESTING

The first CSE fellowship was initiated in October 2002 on water management. A total of 120 journalists sent proposals from all over country. The jury selected 11 on the basis of the criteria to provide depth and variety to the programme. A stringent selection criteria was identified and a grading system developed. CSE also organised a two-day briefing meeting chaired by Anupam Mishra of the Gandhi Peace Foundation to familiarise the journalists with different aspects of water harvesting.

### What the fellows say

Participating journalists appreciated the programme and made many useful suggestions. Priya Ranjan Sahu (*Hindustan Times*, Sambalpur, Orissa) said, "The fellowship provided an opportunity for me to travel to the most remote and poor places in areas like western Orissa to highlight the failure of well-meaning programmes due to corruption." Sudhir Pal (*Ranchi Express*, Ranchi, Jharkhand) pointed out that the duration of the fellowship was short and required a broader spectrum. Bharat Dogra (Freelancer, Delhi) said, "The fellowship has proven extremely useful as it has helped me to evolve a new perspective. I have understood that there is no issue of more pressing importance than environment." Tashi Morup, (*Kashmir Times*, Leh Ladakh) said that the fellowship was the first step in his study of the Changthang ecology, while Anuradha Kumar, (*Economic and Political Weekly*, Mumbai) said, "It provided an opportunity for me to expose the spread of fluorosis in Yavatmal due to ground-water extraction."





#### ■ FELLOWSHIP ON 'DISCOVERING THE DESERT'

The second fellowship focussed on the ecological dynamics of hot and cold deserts where ecosystems and people are severely stressed. An advertisement was taken out in *Dainik Bhaskar* in all its 12 editions to attract young journalists working in the language media. A total of 80 applications were received. The jury selected 11 journalists from different parts of the country.

#### ■ FELLOWSHIP ON 'FORESTS AS HABITAT'

Forest communities across India, whose lives have been inseparably tied to forests for centuries, are being dispossessed of their homes, livelihood and their rights over resources through policing and policy. The third CSE media fellowships on 'Forests as habitat' in July 2003 was an attempt to investigate the truth about forests in the country, and talk about the lives and livelihood of the communities living in and around them. Ten journalists out of 144 applicants were awarded fellowships.

#### ■ FELLOWSHIP ON INDIA'S NORTHEAST'

The fourth media fellowship programme conducted in October 2004, focused on India's northeast, a region, which is little understood and written about by mainstream media. Blessed with immense riches and cursed with a variety of human-made and natural disasters, the region offers possibilities of exhaustive research on how the people have (or have not) used their resources to survive through the ages. Through the work of its fellows, the fellowship decided to investigate issues of natural resource management, livelihood and sustainable development in the northeast. The programme yielded a wealth of stories and information. Freelance photojournalist P Madhavan's photo features were particularly incisive.

#### ■ FELLOWSHIP ON MINING AND PEOPLE'S PROTESTS

In 2005, CSE received 60 completed applications from across the country to research and write on 'Mining,

### Jury members of the media fellowships: 2002-06

<b>'Making Water Everybody's Business'</b>	
Sanjoy Hazarika	Managing Director, Centre for North East Studies and Policy Research
Om Thanvi	Executive Editor, Jansatta
Anupam Mishra	Gandhi Peace Foundation
Sunita Narain	Director, CSE
<b>'Discovering the Desert'</b>	
N S Jodha	Policy Analyst, ICIMOD (International Centre for Integrated Mountain Development)
Umesh Anand	Resident Editor, Times of India
Sunita Narain	Director, CSE
<b>'Forests as Habitat'</b>	
Keshav Desiraju	Joint Secretary, Union Ministry of Personnel
P S Ramakrishnan,	Head, School of Environmental Studies, Jawaharlal Nehru University (JNU)
Shambhunath Singh	Political Editor, Hindustan
Susheel K Sehgal	Senior Programme Officer, Natural Resource Management, Winrock India
Umesh Anand	Senior Editor, The Times Of India
Savyasachi	Reader, Sociology Department, Jamia Millia Islamia
Sunita Narain	Director, CSE
<b>'Innovating Survival: Livelihood and Sustainable Development in India's Northeast'</b>	
Sanjoy Hazarika	Managing Trustee of the Centre for North East Studies and Policy Research
P S Ramakrishnan	Professor of Ecology at the School of Environment Sciences, the Jawaharlal Nehru University.
Roshmi Goswami	Programme Officer for Sexuality, Reproductive Health and Human Rights, Ford Foundation, New Delhi
Monisha Behal	Director, Programmes, Northeast Network, New Delhi
Vichitra Sharma	Formerly with the Press Institute of India and the European Commission. She started the magazine, <i>Grassroots</i> , published by the Press Institute
Sunita Narain	Director, CSE
<b>'Mining, Environment and People's Protests'</b>	
C R Babu	Faculty, Department of Botany, Delhi University.
Madhusudan Srinivas	News Editor, The Times of India, New Delhi
Mangalesh Dabral	Executive Editor, Sahara Samay, New Delhi
R Sreedhar	Convenor, Mines, Minerals and People, New Delhi.
S Muralidhar	Advocate, Supreme Court of India, New Delhi.
Sunita Narain	Director, CSE



Environment and People's Protests'. Twelve journalists were awarded the fellowship. Of the 12, Ratna Bharali Talukdar from Assam received two awards — Chameli Devi Jain

award, 2005, for outstanding women mediaperson and the Ramnath Goenka Award — for her stories on the coal mine workers of Makum area in Upper Assam.

### Fellows: 'Making Water Everybody's Business'

Name	Designation	Name of paper	Language	Area of focus	No of clippings
Aniket Alam	Senior correspondent	<i>The Hindu</i> , Hyderabad	English	Assessment of proposed river-interlinking scheme	6
Mrinal Talukdar	Senior correspondent	UNI, Guwahati	English	Water crisis in Cherrapunji	6
Sudhir Kumar Pal	Staff reporter/sub editor,	<i>Ranchi Express</i> , Ranchi	Hindi	People's initiatives to save water in Jharkhand	9
Paul Jose Fernandes	Chief reporter	<i>Gomantak Times</i> , Panaji	English	Water pollution of rivers and groundwater depletion in Goa	15
Arjumand Hussain Talib	Economic editor/columnist	<i>Greater Kashmir</i> , Srinagar	English	Water management in Jammu & Kashmir, review of 'Hariyali movement'	9
Anuradha Kumar	Assistant editor,	<i>Economic and Political Weekly</i> , Mumbai	English	Exploitation of groundwater in Vidarbha and its impact	8
Priya Ranjan Sahu	Senior staff writer	<i>The Hindustan Times</i> , Sambalpur	English	Assessment of the major and minor irrigation projects in Orissa	16
Deepak Kumar Singh	Staff writer	<i>The Hindustan Times</i> , Jaipur	English	Government schemes of water management in Rajasthan	10
Ashutosh Upadhyay	Managing editor	<i>Pahar</i> , Nainital	Hindi	Traditional water harvesting in Dudhatoli	15
H Bharat Kumar	Senior reporter	<i>Kannada Prabha</i> , Bangalore	Kannada	Problem of fluorosis in Kolar and other parts of Karnataka	5
Saurabh Sinha	News correspondent-cum copy editor	<i>The Times of India</i> , Delhi	English	Degeneration of urban wetlands in Delhi, Punjab and Haryana	4

### Fellows: 'Discovering the Desert'

Name	Designation	Name of paper	Language	Area of focus	No of clippings
Bharat Dogra	Freelance writer	<i>Grassroots</i> , New Delhi	Eng/Hindi	Famine, food security and poverty in western Rajasthan	9
Jayant Singh Tomar	Bureau chief	<i>Dainik Jagaran</i> , Morena	Hindi	Traditional systems of environmental management in Bhind-Morena	3
K Venkateshwarlu	Special Correspondent	<i>The Hindu</i> , Hyderabad	English	Desertification and resultant fall-outs in Anantapur and Mehboobnagar districts of Andhra Pradesh	7
Myda Narayan Reddy	Science and Environment Reporter	<i>Vaaritha</i> , Hyderabad	Telugu	Drought and desertification in Anantapur, Adilabad and Bidar districts of Andhra Pradesh	4
Rajesh Sinha	Correspondent	<i>The Hindustan Times</i> , Jaipur	English	Disappearance of the Luni river in Rajasthan and	5
Ravsahab Pujari	Sub-editor	<i>Sakal</i> , Kolhapur	Marathi	Issue of soil salinity in Maharashtra and Karnataka	7
Satananda Bhattacharjee	Correspondent	<i>Assam Tribune</i> , Guwahati	Assamese	Aspects of jhum cultivation in the northeast	4
Tashi Morup	Correspondent	<i>Kashmir Times</i> , Leh	English	Threats to traditional in Changthang from eco-tourism	4
Vijay Thakur	Correspondent	<i>The Statesman</i> , Jaipur	English	Politics of drought	6
Vinay M	Senior Reporter	<i>New Indian Express</i> , Bangalore	English	Trends of desertification in Chamrajanagar and Mandya	4





### Fellows: 'Forests as Habitat'

Name	Designation	Name of paper	Language	Area of focus	Clippings
P Balakoteswara Rao	Metro Bureau Chief	<i>The Times of India</i> , Hyderabad	English	JFM in Andhra Pradesh	13
Geetarth Pathak	Assistant Editor	<i>Asam Bani</i> , Guwahati	Assamese & English	Impact and implications of the SC ban	6
Rajeev Kumar Katara	Freelancer	<i>Hindustan</i> , Delhi	Hindi	JFM in Balaghat, Betul and Harda	4
N Satyajee	News Editor	<i>Manipur Mail</i> , Imphal	English	Survival strategies of forest dwellers in Manipur forests	4
Puran Bisht	Freelancer	<i>Pahar and Jansatta</i> , Nainital	Hindi	Van panchayats	8
Ratan Kumar Pani	Staff Correspondent	<i>The New Indian Express</i> , Rourkela	English	Non-timber forest produce policy and Orissa CFM initiatives	6
Riyaz Ahmad Wani	Chief Sub-Editor	<i>Greater Kashmir</i> , Srinagar	English	Militant-politician-timber smuggler nexus in the state	4
Salam Rajesh	Freelancer	<i>Imphal Free Press</i> , Imphal	English	Community initiatives and management strategies devised by Khambi villagers	5
K V Sudhakaran	Chief Reporter	<i>Deshabhimani</i> , Kottayam	Malayalam	Kerala's forest management policy and practices — where are they headed	3
Vasavi	Freelancer	<i>Prabhat Khabar</i> , Ranchi,	Hindi	The Mundari-Khunkatti system of indigenous forest management	7

### Fellows: 'Innovating Survival: Sustainable Development and Livelihood in India's North-east'

Anil Yadav	Freelancer	<i>Dainik Jagaran</i> Purvanchal prahari,	Hindi	Illegal trade in medicinal plants of north-east.	5
Manish Tiwari	Principal Correspondent	<i>The Hindustan Times</i> , Chandigarh	English	Causes of floods and damage caused by floods in Assam.	3
P Madhavan	Freelancer Photojournalist	<i>The Statesman</i> , DTE, Eastern Panorama	English	Visual presentation of coal mines.	3
Sivasish Thakur	Staff Reporter	<i>The Assam Tribune</i> , Guwahati, Assam	English	Management of Manas national park	3

### Fellows: 'Mining, Environment and People's Protests'

Anupama Kumari	News Writer	<i>Prabhat Khabar</i> , Ranchi, Jharkhand	Hindi	Mining in Jharkhand (Singbhum, Hazaribagh, Dhanbad, Latehar etc),	9
Brajakishore Mishra	Freelancer	<i>The Samaja</i> , Bhubaneswar, Orissa	Oriya	Critical analyses of POSCO's EIA	6
Ejaz Kaiser	Staff Reporter	<i>The Hindustan Times</i> , Raipur, Chhattisgarh	English	Diamond mining in Chhattisgarh	7
Kulsum Talha	Freelancer	<i>The Pioneer Hindustan</i> , Lucknow, Uttar Pradesh	English, Hindi	Mining and its impact on the stone crushers in Sonbhadra in Uttar Pradesh	4
M T Shivakumar	District Correspondent	<i>Prajavani and Deccan Herald</i> , Bellary, Karnataka	Kannada	Issues in mining in Bellary, Karnataka	4+several more in Telegu
Mahesh Chandra Joshi	Assistant Editor and Freelancer	<i>Nainital Samachar Sabara Samay</i> and Yugvani, Nainital	Hindi	Mining in Almora, Pithoragarh, Tehri, Nainital etc in Uttaranchal.	6
Raju D Nayak	Principal Correspondent	<i>Loksatta, Panaji</i> , Goa	Marathi	Impact of mining in Goa	5
Ratna Bharali Talukdar	Freelancer	<i>Asomiya Pratidin</i> , Guwahati, Assam	Assamese	Safety of mine workers in the coalfields of Makum, Assam	5
Sasidharan Mangathil	Sub Editor	<i>Mathrubhumi</i> , Mallapuram, Kerala	Malayalam	Technical aspects related to the feasibility of sand mining in these areas	4
Shafi Rahman	Staff Correspondent	<i>The New Indian Express</i> , New Delhi	English	Evolution of mass movements against and mining and the role of politics	3
Sunny Sebastian	Special Correspondent	<i>The Hindu</i> , Jaipur, Rajasthan	English	Marble mining industry in the Rajnagar area in Rajsamand, south of	2



## Briefing workshops for media

The team organised four workshops on topical issues — water management, the World Summit on Sustainable Development (WSSD), climate change negotiations and vehicular air pollution — for journalists.

### ■ GLOBAL ENVIRONMENTAL NEGOTIATIONS

CSE organised the South Asian Journalists' Workshop in New Delhi to familiarise journalists about issues relating to global environmental negotiations with special reference to the WSSD that was held in August 2002. Over 40 journalists from India, Pakistan, Nepal, Bangladesh and Nepal participated. The workshop provided them with an opportunity to meet key players in the negotiations process and to report on these issues in depth.

### ■ MAKING WATER EVERYBODY'S BUSINESS

The second media workshop held in Bangalore in October 2002 on water harvesting was organised for journalists in Kerala, Tamil Nadu, Andhra Pradesh and Karnataka. About 20 journalists participated. The workshop included a field trip to the rainwater harvesting structure at the Governor's residence, Raj Bhavan.

Experts who spoke at the workshop included representatives from Bharatiya Agro Industries Foundation, Institution for Rural Development, MYRADA, Rainwater Club of Bangalore, Save Lakes of Hyderabad, Institute for Social and Economic Change, SKD Institute of Management, Centre for Water Resource Development, Environment Centre, and Kerala Sastra Sahitya Parishad. The deputy commissioner of Dharwad, collector and district magistrate of Cuddapah also spoke on the occasion.

### ■ CLIMATE CHANGE NEGOTIATIONS

In November 2003, a week prior to CoP-8, CSE organised briefing sessions for the media on climate change negotiations. It was attended by 25 journalists from Delhi, 11 journalists from other parts of India and NGO representatives.

### ■ JOURNALISTS' MEET ON AIR POLLUTION

In February 2003, CSE invited journalists to New to discuss and understand issues related to the air pollution crisis, challenges faced by pollution control boards, growing transportation demands, and health and economic fallouts of air pollution. The workshop brought together 30 participants from south Asia.

Participants were taken on a field trip to see the air quality monitoring station at ITO and the vehicle-testing centre at Burari. They also met Sheila Dikshit, chief minister of Delhi, who spoke on how Delhi had leapfrogged to cleaner fuels like CNG to reduce air pollution levels.

### ■ SOUTH ASIAN MEET ON FOOD SAFETY

Organised on August 4-5, 2004, at the India Habitat Centre in Delhi, the workshop brought together more than 30 participants from India, Pakistan, Nepal, Sri Lanka and Bangladesh to discuss and deliberate on a wide range of issues that had emerged after CSE's successful campaign against pesticide contamination of soft drinks. Some of the leading media houses and publications — *The Hindu*, *Sakal*, *The Assam Tribune*, *The New Indian Express*, *Deshbandhu*, *Dawn* (Pakistan), *The Island* (Sri Lanka),

*The Daily Star* (Bangladesh), etc — had sent their representatives. Experts from CSE, including Sunita Narain and Chandra Bhushan, as well as external speakers such as Lalit Mansingh, secretary, Union ministry of consumer affairs; Madhulika Prakash, director, food and agriculture, Bureau of Indian Standards; Sanjay Nirupam, former MP and member of the JPC on soft drinks; and MPs Anil Basu and Nilotpal Basu addressed the audience.

The workshop covered topics such as the JPC recommendations on soft drinks, standards for soft drinks, the regulatory regime, global politics of standard-setting, health implications (the question of obesity) and drinking water legislation. Most of the participants at the workshop filed and published detailed stories on the event. A comprehensive media briefing paper on the subject of food safety, titled *Poison vs Nutrition*, was released on the occasion.

### ■ SUSTAINABLE LIVELIHOOD

In December 2004, CSE joined hands with the Sambalpur-based non-governmental organisation, Manav Adhikar Seva Samiti (MASS) to organise a two-day

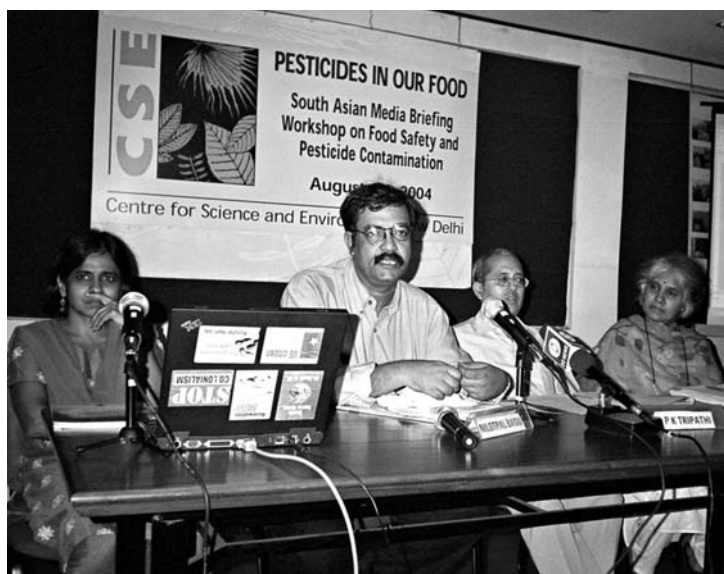


Anumita Roychoudhary of CSE addressing participants at the journalists' meet on air pollution held in Delhi in 2003

## Resource persons for the journalists' meet

AK Dey, managing director, Indraprastha Gas Limited; NV Iyer, general manager, Bajaj Auto, Pune; DK Biswas, chairperson, Central Pollution Control Board; Twisha Lahiri, head of the department of Neuroendocrinology, Chittaranjan Cancer Institute, Kolkata; Balraj Bhanot, director, Automotive Research Association, Pune; Bhushan Tuladhar, executive director, Clean Energy, Nepal; SK Chhabra, head of the department of cardio-respiratory physiology, Vallabhai Patel Chest Institute, New Delhi; Umesh Anand, resident editor, *The Times of India*, New Delhi; B Sengupta, member secretary, Central Pollution Control Board, New Delhi; Shreekanth Gupta, Delhi School of Economics, New Delhi; AK Jain, Indian Institute of Petroleum, Dehradun; and HB Mathur, professor emeritus, IIT, Delhi.





Speakers at a media briefing workshop on 'Food Safety and Pesticide Contamination' organised by CSE in New Delhi in August 2004

briefing workshop from December 22–23, 2004, in Bhubaneswar, the capital of Orissa.

In the workshops and similar events that CSE had been organising in the past, participants had repeatedly voiced the suggestion that CSE should conduct workshops in regional centres and smaller cities. It was felt that more media persons and readers in smaller cities were taking an interest in CSE and its work and would like to know more about it. These workshops would thus help spread awareness about CSE's work.

The Bhubaneswar workshop worked to create awareness about the potential of using natural resources to create jobs in rural areas. CSE's report on the issue, titled, *Jobs* provided the framework for the workshop. The study argued that years of planning and economic

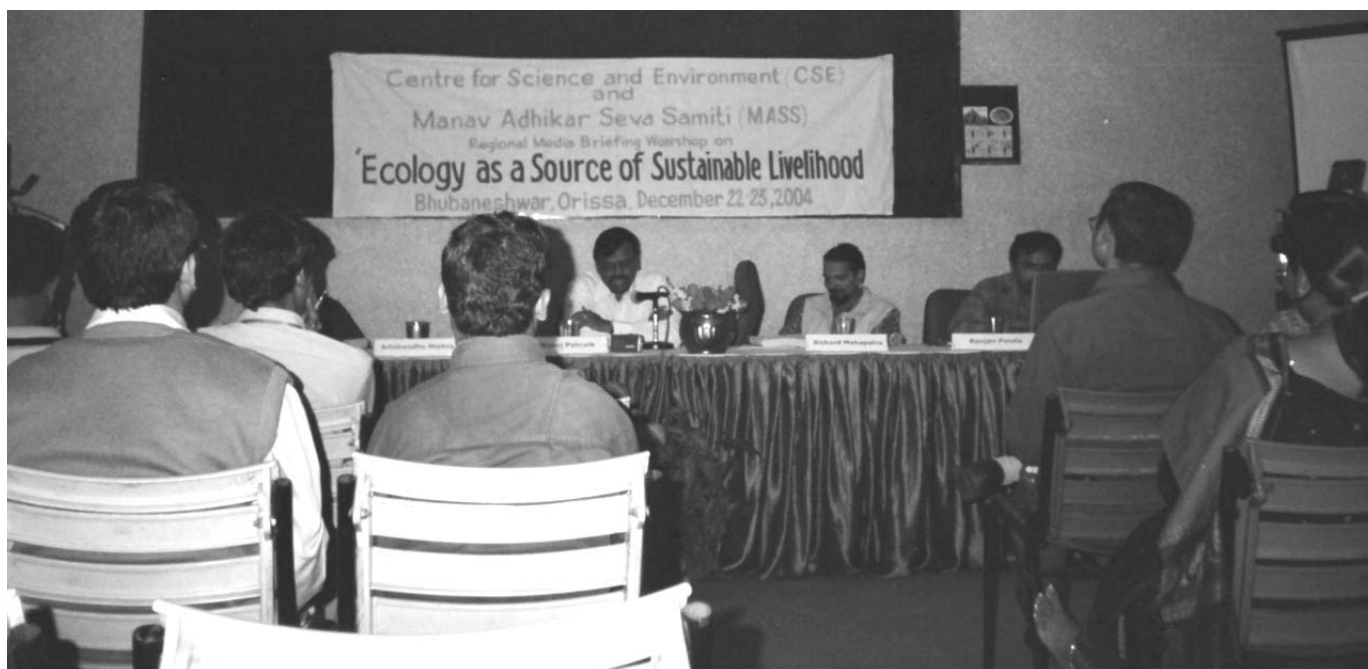
growth in India had not resulted in employment generation; instead, the number of unemployed had surged — especially in rural India. The key to generating employment lay in building productive and sustainable livelihood-based on natural resources.

Twenty-three participants from Orissa, Andhra Pradesh, Chhattisgarh and Jharkhand attended the workshop; they represented publications and media houses like *The Times of India*, *Hindustan Times*, *Indo-Asian News Service*, *NDTV*, *The New Indian Express*, *Asian Age*, *Dharitri* (Oriya), *Vaaritha* (Telugu), *Hitavada* (Hindi and English) and *Prabhat Khabar* (Hindi).

The workshop agenda was divided clearly for the two days: the first day was devoted to across the table discussions on various aspects of the issue, and the next day to a highly instructive site visit to the village of Magarbandh (Sulia forests) in Nayagarh, about 150 km from Bhubaneswar. The purpose of the visit was to give the participants a first-hand feel and look at a community that has revived its forests and is now thriving on forest-based activities. Led by the local Jungle Suraksha Samiti, 750 villages in the district have taken over control of their forests, regenerated them extensively, are managing them and are successfully using them for their sustenance. The field trip was a good experience for the media professionals and this story was covered by *Doordarshan*, *NDTV*, *Zee TV* and *BBC*.

#### ■ ARSENIC CONTAMINATION

CSE organised a two-day briefing workshop in Varanasi from January 27–28, 2005, in collaboration with the Rural Journalists Association of India, the Indian Media Centre for Journalists, Lucknow and the Madan Mohan Malaviya Institute of Hindi Journalism, Kashi Vidyapeeth, Varanasi. The topic was arsenic contamination of groundwater in Uttar Pradesh. CSE had for the first time reported on the presence of arsenic in Uttar Pradesh, which was traditionally a problem in West



A media briefing workshop on 'Ecology as a Source of Sustainable Livelihood' organised by CSE in Bhubaneswar in 2004





Managing editor of *Down To Earth* Pradip Saha, addressing the media at a briefing workshop on 'Arsenic Contamination of Groundwater' in Varanasi in 2005

Bengal and Bihar. CSE found that several villagers in Ballia were suffering from skin cancer as a result of arsenic in groundwater. The aim of the workshop was to create awareness in the local media on the problem and discuss ways of addressing and reporting it.

More than 60 people participated in the workshop. Among them were representatives from almost all local and national dailies, academicians, politicians and 15 senior students of Hindi journalism from Kashi Vidyapeeth. The second day of the workshop was dedicated to a field visit to Rajpur village in Ballia, which has seen widespread arsenic contamination and related skin ailments. One of the key highlights of this workshop was our successful effort to conduct the event in Hindi. Media coverage (print as well as audio-visual) of the workshop and its subject was extensive.

CSE also released a comprehensive media briefing paper (in English and Hindi) on arsenic contamination of groundwater on this occasion. The paper offered exhaustive reference material on arsenic and its spread, available mitigation technologies and a resource bank.

### Short courses on environmental journalism

In an effort to shape public opinion and create public awareness about social and environmental policies through different media, CSE organised short-term training courses in environmental journalism. These courses assume greater importance given the fact that there is no mass media course currently available in India that is devoted totally to environmental journalism.

### Course on environmental journalism

The course, *Elements of Environmental Journalism*, was spread over a month, between March 23 and April 23, 2004 and was conducted in the evenings. Twenty participants with varying profiles — from experienced researchers and scientists to college students, from journalists and film-makers to economists and environmental activists — attended.

The course provided a broad overview of topics ranging from importance of research in environmental journalism to global politics of environment. Classroom-based sessions were conducted by a skilled faculty comprising internal as well as external resource persons. Film shows and comprehensive reading material provided additional support to the course participants. The course concluded with the submission of the course project and distribution of certificates of participation. External resource persons included Paranjay Guha Thakurta, director, School of Convergence, New Delhi, Prabhas Joshi, consulting editor, *Jansatta*, Pradip Mathur, head of English journalism, Indian Institute of Mass communication (IIMC), Delhi, Himanshu Thakkar, former activist, Narmada Bachao Andolan and Anju Sharma, consultant on global environmental governance.

### Short-term course in reporting and writing

The course conducted in 2005 saw 15 participants — students, NGO representatives, journalists and researchers. Conducted by research experts and seasoned development





## Media briefings on the pesticides campaign

The team played a crucial role in interacting with the media and keeping them informed of the development in the soft drinks story. The team organised press briefings and meetings to elucidate the issues raised by CSE in the campaign. The success of the campaign owed greatly to the media support in keeping the public informed of the issues. CSE's report was released at a very well-attended press conference on August 5, 2003, and received widespread coverage in national, regional and international news networks. A second press meeting followed in mid-August on CSE's demand for legally enforceable safe drinking water standards. A number of press releases were issued to keep pace with the rapidly unfolding campaign.

- **August 5, 2003:** Press release to announce the results of the study conducted by CSE's Pollution Monitoring Laboratory (PML) on 12 major cold drink brands sold in and around Delhi.
- **August 7, 2003:** CSE expressed disbelief and its annoyance at the way the soft drink industry is trying to make a mockery of the Indian public and the media by questioning CSE's credibility and the test results.
- **August 8, 2003:** CSE welcomed the Union government's initiative to have soft drinks sold by the two Cola giants independently tested for pesticide residues.
- **August 11, 2003:** CSE welcomed the decision of the high court in response to a petition filed by PepsiCo India Holdings Pvt Ltd and others, calling for an expert committee to review the findings of pesticide residues in carbonated soft drinks.
- **August 13, 2003:** CSE expressed satisfaction at the Supreme Court's decision asking Hindustan Coca-Cola Beverages to withdraw its petition, saying there were no grounds for the court to hear the issue.
- **August 17, 2003:** CSE responded to the strategy adopted by the Cola majors to discredit concerns raised by the CSE report on pesticides in aerated drinks sold in India.
- **August 21, 2003:** CSE expressed concern at the Health minister Sushma Swaraj's announcement that pesticides were found in 18 out of 24 soft drink samples tested by government laboratories establishing that the pesticides were present in soft drinks – in higher levels than those stipulated by the European Union as well as the government own recently notified bottled water norms.
- **August 25, 2003:** CSE welcomed the Supreme Court's notice to government on the 'right to clean and safe drinking water re-iterating its demand for "legally enforceable safe drinking water standards" for every Indian.
- **August 30, 2003:** CSE appreciated the draft notifications released by the government on pesticide limits. The draft notification was an important step in ensuring that regulations on this "food" industry are tightened and made health-based, which were imperative, as CSE has always pointed out.
- **September 22, 2003:** CSE welcomed the Union government's request in the Delhi High Court seeking the dismissal of PepsiCo's petition. The PepsiCo petition sought to restrain CSE from publishing its findings or putting its report in the public domain.
- **December 16, 2003:** CSE happy over the withdrawal of its petition by PepsiCo from the case on receiving CSE's counter affidavit, which argued that the claims made by the Cola giant in its petition were incorrect and misleading.
- **February 5, 2004:** CSE expressed satisfaction and welcomes the report of the Joint Parliamentary Committee's (JPC) vindication of its study on the presence of pesticide residues in soft drinks. The JPC suggested that the water used in manufacturing soft drinks should be in conformity with the recently notified new packaged drinking water norms.

CSE also welcomed the JPC's recommendation on food standards, which says that India should formulate its own standards, which are based on scientific criteria, protect the interest and health of its people, and are in tandem with the global best.

journalists from CSE and other organisations, it aimed at enabling participants to appreciate the importance of research in reporting on development issues. It provided them with a choice of strategies and tools for conducting such research. The workshop also provided practical skills required to report on development issues. A training manual/workbook was also prepared and distributed. The feedback from the participants was encouraging. Most of them felt the course offered them "a great learning experience".

## Media Alert Service

In January 2005, the team initiated a new service for its constituency of journalists and editors: media alerts on current topics in environment and development were sent to about 1,100 people. These alerts brought to the attention of journalists the most important stories breaking in the area, as well as interesting angles that could be explored.

The alerts also provided comprehensive lists of resource persons whom the journalists could contact to develop their stories. The service generated a good response, and is now being dispatched on a fortnightly basis. The subscriber base is also increasing rapidly.

## Feature Service

The CSE/*Down To Earth* feature service offered a free service to journalists and media houses, providing them with well-edited, ready to use feature stories and news briefs on environment and development in Hindi and English. CSE now has an agreement with the *Sarvodaya Press Service (SPS)* of Indore to write, translate, dispatch and monitor its Hindi feature service. The Hindi service is currently going out to 120 subscribers, which include all the leading Hindi publications in the country.

The English service has been categorised into two segments. The first is a customised service targeted at specific newspapers and magazines in India. Under this, CSE offers the kinds of stories that a newspaper asks for, and provides them at the periodicity required. For instance, *The Statesman* has asked for (and is given) only science and technology stories every week. This segment has about 10-12 regular subscribers. The second segment is that of the south Asian service, under which stories are provided online to media in other south Asian nations.

Stories supplied by the feature service are being regularly published in many newspapers and magazines. CSE is working to expand the reach of the service — a subscriber in every region is the goal — in 2006-07.



## Reworking society

CSE has been working to conceptualise the Anil Agarwal Green College (AAGC) and the challenge was to start the programme in a way that we could build and learn along the way, without compromising on quality. Training is a new area of activity for CSE, which has earlier focussed on research, communications and advocacy.

We decided to launch it in stages to better gauge the response to this initiative, as well as to build internal capacity. Therefore, we started with short and medium-term training programmes for a variety of interest groups, ranging from students and documentation professionals to journalists, NGOs and industry professionals. Several teams took time out from their regular activity to prepare courses to conduct training workshops. It was as much a learning experience for the participants as for CSE staff.

However, to achieve maximum impact and outreach, the overall goals of AAGC have been sharpened. From a focus on the number of courses conducted, attention will now shift to carefully targeting all courses towards those groups and professionals who can take and propagate the environmental message throughout society and governance and policy systems. Such multipliers include key stakeholders such as journalists, young professionals, lawyers, policy makers, government personnel and regulators, industry participants, as well as practitioners such as plumbers, architects and urban planners

### Training programmes under AAGC

A number of short-term training programmes were undertaken on documentation, using web for advocacy, environment education for teachers, urban rainwater harvesting, and environmental research and reporting. The medium- and long-term courses were designed to enhance research, writing, advocacy and dissemination/outreach skills of participants, and to expose them to a holistic approach of dealing with environmental issues.

We started the short-term training programmes in 2003-04 with two programmes for the library and website units. During 2004-05 there were 10 short-term

training programmes. During 2005-06, 11 short-term training courses were organised on various subjects, including research and reporting, urban rainwater harvesting and wastewater treatment. Total money generated from the training courses from 2003-2006 was Rs 44.39 lakh.

#### ■ RESPONSE TO THE TRAINING PROGRAMME

The response to these courses was well beyond our expectations. The courses even attracted international participants from Italy, Ghana, Kenya, the Philippines, Mexico, the Netherlands, Pakistan and Nepal. In addition, participants' positive feedback showed their satisfaction regarding course quality, materials and training approach. This overwhelming response demonstrated the respect and admiration for CSE's environmental programmes.

In most courses, participants repeatedly preferred CSE staff trainers, speaking as they were from their experience and knowledge, as against invited faculty. Our biggest challenge, therefore, is of building capacities internally, among our own staff. If AAGC is to make a mark as a quality teaching institution, the whole institution will have to be involved in this effort.

#### ■ ORIENTATION FOR STUDENTS FROM OSLO

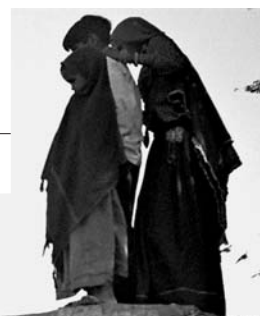
Two training programmes were undertaken, one each in 2004-05 and 2005-06 for students enrolled for a course in Environment and Development in the Centre for Development and the Environment (SUM), Oslo University, as part of their four-week overseas study tour.

AAGC invited faculty on various areas for lectures and panel discussions. This was supplemented by film shows, hands-on exercises, role play and class-based exercises. Courses were designed to familiarise students with environmental management in rural India. In addition, local field trips (ride on the river Yamuna) and visits to several decentralised sewage and sanitation systems were meant to explain challenges in the management of rivers and water pollution in the country. Students were also taken to several urban rainwater harvesting model sites to show

### Training courses conducted under the Anil Agarwal Green College

Project/ activity	Objectives	Output
Documentation and information management	To train NGOs in how to collect, archive, retrieve and use information courses; for outreach	10
Elements of environment journalism	To provide exposure to participants basics of environmental on communications	1
Research and writing	To enhance research and writing skills of participants	2
Urban rainwater harvesting and water pollution	To share CSE's RWH experiences and perspectives; impart design/ maintenance skills for RWH and water recycling	8
Web for information dissemination	Capacity building in NGOs	2



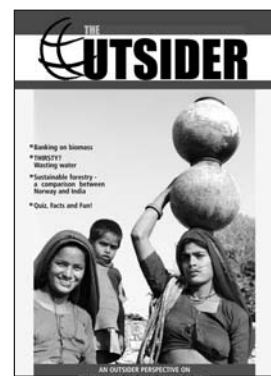


Students of the Oslo University on a CSE field trip to Bhaonta-Kolyala to see a community-based water harvesting initiative

them the promise, potential, and impacts of harvesting rainwater in urban areas

During 2004-05, a group of 15 students from Oslo University participated in a four-week intensive, multi-faceted course titled, *The challenge of the balance: Learning the practice of environmental management in India*. The students, despite being exposed to environment and development theory, however, lacked the wherewithal to draw connections between economy, environment, science, politics, sustainability and social history. The curriculum combined classroom lectures, hands-on research, films, field trips to rural India and other site visits. We found that by the end of the course, we had a group of very enthusiastic CSE ambassadors who would play a key part in extending our reach globally.

The 2006 course received an even better feedback from the students than the previous one. Based on the responses of the previous year, we had made changes to the course curriculum. A new element was introduced in 2006. The students designed a newsletter on their experiences of the CSE programme and their learning. The participants were very excited about this task and put in a great deal of effort in designing and producing *The Outsider*.



## Feedback from participants

- “Yes, the programme has been rewarding. Actually the way CSE is run; how you organise your work is very inspiring and impressive. Your emphasis on knowledge-based activism is something to learn from and take back to Norway.” Elin T Sorensen
- “I was hoping to learn more about the connection between environment and development and how CSE looks upon development.” Maria Andersen
- “I think it would have been interesting to get more information on social rather than the technical level.” Elin T Sorensen
- “It may have been more technical than I had expected. Coming from the social sciences background I am used to focusing on social and societal aspects, rather than technical explanations.” Karoline Ehrenclou
- “Despite having background knowledge I felt sometimes that the information load was too heavy because of the intensive structure of the course. I have missed time to digest the information attained — referring particularly to the first three weeks of the course.” Hilde
- “The lectures were so intense and filled with information that we had some problems in digesting all the information and to be able to discuss the different issues.” Guro Somes
- “It’s much easier to understand theory when you have seen projects in real. And its good to get the Indian perspective compared to the Norwegian.” Anborg Kolaas
- “It helps to understand the theory we have gone through in the SUM 3000 course, and how this is applicable to real life.” Karoline Ehrenclou





CSE staff with the students from Oslo University, during the month-long orientation programme in 2005

#### ■ FEEDBACK ON THE FIRST COURSE

The first course, which was conducted in 2005, was evaluated very positively by the students. Many students cited this experience as the most rewarding in their academic careers. The university reported that the term papers were excellent as were their final written exam. Three of the participants came back to CSE on their own initiative to work as interns on their Master's thesis.

The course was also appreciated by university officials and others — the president of the Oslo University praised the effort and said that it should serve as a model for other courses. SUM director, Harold Herstad presented the CSE course as one of the more important and innovative of SUM's activities at a review meeting at the University of Oslo. It was also praised by the former ambassador to Norway who encouraged SUM to continue and broaden its cooperation with CSE.

#### ■ ORIENTATION FOR NGOS FROM NORTHEAST

CSE organised a training workshop for participants from the eight northeast states from March 20-31, 2006 on '*Forests, wildlife and livelihood: Changing contours, shifting debates*', in New Delhi. The 10-day workshop was held for journalists, researchers and NGO representatives to help build their knowledge and perspectives on forestry and wildlife related issues and to create advocacy and dissemination skills in people to help them use the media and other communication networks better.

The participants included conservationists, journalists, biotechnologists, activists as well as middle-level editors of newspapers and correspondents of national press wire services. There were 21 participants in all including three women. Apart from the lecture and discussion sessions, the participants were taken for a field visit to the Chipko homeland.

#### ■ WORKSHOP ON URBAN WATER MANAGEMENT

A five-day training programme on '*urban water management: Meeting the challenge*' was conducted from

February 6–10, 2006 in New Delhi. CSE invited the participants who were nominated by the Ford Foundation to attend the training.

A total of 17 participants from India and from Nepal attended the programme. These included six persons from the northeast on scholarship. The participants were briefed about the various aspects of rainwater harvesting, water pollution and wastewater treatment. They were also taken for site visits to the urban rainwater harvesting model projects and taken for boat rides on the Yamuna River to understand the various issues related to river pollution.



Participants from the northeast attending the workshop on '*Forests, wildlife and livelihood, changing contours, shifting debates*' in New Delhi





## Environment Resources Unit

# Green treasure trove

CSE's Environment Resources Unit (ERU) continued with sourcing, acquisition and documentation of books, research papers, articles, journals, news clippings, photographs and films on environmental issues. Along with documentation of printed books, journals and articles the unit proactively put in efforts to identify and acquire their electronic/digital versions too. This was aimed at developing the unit as a state-of-art documentation centre on environment in the south Asian region. A new clippings software was put in place to improve the management of clippings and make retrieval and circulation of clippings quick and easy. A collection of around 7,00,000 news clippings collected during 2001-2006 was stored in a centralised archive. A new work process/system was set up to create a digital bank of news clippings for effective access. The unit provides a Daily News Bulletin with full text clippings for CSE users and Green Files are being upgraded to an e-version.

An important focus of the unit in this period was on the newly-initiated activity of environmental training. Several workshops on information management were conducted, which were well attended by participants from across the country and from abroad. The five-day training programme on '*Knowledge Management and Documentation*' was enormously successful and well appreciated.

Requests for reference information came from as far as Singapore, USA, Canada, Bangladesh, UK and Germany. Educational institutions and student groups constituted the most regular visitors to the CSE library. The library is a member of Developing Library Network (DELNET) and thus has access to the online catalogue of approximately 900 libraries in India and abroad.



Researchers working in the CSE library at Tughlakabad in Delhi

Another achievement was in developing and disseminating the audio-visual resources of the institution. Film distribution increased several times as institutions and individuals obtained copies of CSE films on environment. For the first time CSE also produced some of these films in Hindi, which were well received by the public. CSE entered into an agreement with North East Television (NETV) for broadcasting documentaries on environment and sustainable development issues.

The CSE website unit launched some new sections while its regular mailing of information reached new heights as CSE was reaching more than one lakh people every fortnight. The CSE homepage was redesigned and incorporated easier navigation and access to information from all CSE websites. A new site map for the entire family of CSE sites was launched in November in order to help visitors surf the copious amounts of information. Several new homepages were introduced and launched.

The unit has been working on standardising the procedures for collection, flow and capture of information to enhance the database as well as to update the existing one. This was made possible through the addition of data on a daily basis by internal and external sources, daily incoming and outgoing mail journals contacts (visiting cards) of the director, CSE staff and from revalidation forms.

## Books, documents and journals

The unit continued with the significant activity of accessing, indexing, abstracting and cataloguing books and documents. It now has nearly 52,000 books, two lakh articles and about 25,000 documents. Digital information on Supreme Court judgements from 1957 to date is also available. The section provides a number of services to its staff members — bibliographies, conference news, current awareness services like Books Alert, Articles Alert, Email Alert and a searchable database of *Down To Earth* articles. Bar coding of books was completed and circulation (issue/return) system was completely automated.

Significant articles on environment, development and related issues, both print and digital were published in national and international journals. Newsletters, press releases were regularly indexed, documented and archived. This system upgraded to incorporate and facilitate central accessibility and documentation of research papers existing in digital format.

The unit reviewed the collection of books and journals and set up a weeding strategy with an objective of retaining qualitative and useful resources and optimise the utilisation of limited physical space. This has taken a significant amount of the team's time and effort in the last quarter. As a result, 60 per cent space saved for books/documents storage and 88 per cent space saved on journals storage.



## CSE as a role model

CSE was invited to share its experiences on information, documentation and communication at Accessing and Communicating LEISA: Workshop Three, Bangalore, September 13-17, 2004. This was a training workshop organised by the Centre for Information on Low External Input and Sustainable Agriculture (ILEIA) based in the Netherlands to provide insights into best practices in documentation and communication. Participants came from Bangalore, Lucknow, Chennai and Gorakhpur in India and from New Zealand, Zimbabwe, UK, and The Netherlands.

## CSE's digital library initiative

In November, 2004, documentation staff attended a workshop at Hyderabad on DSpace, an open access digital asset management system organised by Osmania University, Information and Library Network Centre (INFLIBNET) and Documentation Research and Training Centre, Bangalore. The workshop helped to understand various technical and non-technical issues associated with the digital asset management system and DSpace in particular.

The unit customised a digital asset management software "LS Digital" for integrated, centralised documentation, digital archive and online access of clippings, books, journals and articles. A system has already been set up to provide digital archive of journal articles, books, studies, reports and other documents.

## Newspapers and newsmagazines

News clippings are an important source of information for CSE. It gets newspapers and newsmagazines from across India and downloads international newspapers from the Internet. Key environmental news-clippings, which go out to the public as the Daily Bulletin Board on the website, are now available as a searchable database. The section also produces specialised clippings compilations on diverse subjects as state government action plans on water harvesting, reportage on drought and water related issues by the Indian media, global warming, river pollution, urban floods, natural disasters, climate change, earthquakes and dioxins. A collection of around seven lakh news clippings during the period 2001-2006 has been stored at a centralised archive.

The section gets 63 newspapers and newsmagazines from across India, and has expanded its coverage of Jammu & Kashmir, northeastern states and Himachal Pradesh. More than 18 international newspapers are downloaded from the Internet.

## Total income from Green Files, 2002-2006

Product	Total subscribers (March 2006)	Total income (2002-06)
India Green File,	578	Rs 28,41,912
South Asia Green File	200	
Corporate Environment Inc	102	

The earlier manual filing of the clippings had led to a huge stock of news clippings, resulting in difficulty in retrieving information and also leading to a space crunch. Therefore, CSE invested in electronic filing of news clippings. More than a lakh and half news clippings are scanned, catalogued and archived every year. These are searchable by source, topic, date, etc.

The unit continued to produce three different editions of the Green Files — the India Green File, the South Asian Green File and the Corporate Environment Inc.

## Audio-visual section

CSE's audio-visual section, with one of the best audio-visual collections on issues relating to the South Asian subcontinent, is in the process of digitising its stock of photographs. Digitisation will also improve qualitative and quantitative access for all users. CSE photographers travel to remote regions of India to capture environmental events as they happen

The audio-visual section has added significantly to its store of audio-visual resources for use in publications, slide shows, brochures and the websites. All still images have been digitised, catalogued and are fully searchable. Today the section holds nearly 75,000 slides, 15,000 photographs and 50,000 contact prints and negatives. The video library has more than 700 videos. Of the 12,000

## Photo archives

- Farmers' suicides in Andhra Pradesh
- Tourism in hill stations and its impact on the ecological balance of the region
- Arsenic in groundwater and its impact on human health
- Landslide at the Tehri Dam
- Health and environment focussing on spraying of the pesticide, Endosulfan
- Life cycle analysis of cement industry, right from sourcing raw materials to the dispatch of cement to different destinations
- Photo documentation of government-sponsored watershed development work in Gujarat



Films and publications produced by CSE





new still images acquired during this period, over 6,000 were digitised. All still images are catalogued and are searchable. Many new video films were acquired during this period.

### Information dissemination

The team produced a 38-minute training film on urban rainwater harvesting titled *The Rain Catchers: a practical guide to solve your water problems*. This film is based on five years of research by CSE on rainwater harvesting in the urban areas. Some of the case studies shown in the film include the ones, which are regularly monitored by CSE. The film was released nationally during a public event organised by the audio-visual unit in Bhubaneswar, Orissa, in November 2005.

During 2002-06, about 12,455 CDs and DVDs of environmental documentaries on a variety of subjects were prepared for distribution by the AV unit. Educational institutions across the country have shown keen interest in procuring these films for raising awareness among their students. The team also produced Hindi language versions on some of the pressing environmental issues of our times. There are now a total of 17 video films in Hindi.

### Film festivals

Two unique film festivals were organised in two different regions of India catering to two different audiences and creating awareness about two different issues. The first of these festivals was held in five villages of Jaipur and Tonk districts of Rajasthan in October 2005. It was a unique event where for the first time environment films in a local language were taken to rural audiences.

This was followed by the Orissa Traveling Film Festival held in Bhubaneswar, in November 2005. Twelve films on a variety of subjects were shown to urban audiences over a period of two days. The Orissa film festival was complemented by a poster exhibition on Orissa's environment and a drawing and painting competition for school children. The festival was inaugurated by Biswabhusan Harichandan, minister for industry, law and rural development, Orissa.

CSE collaborated with local civil society organisa-



Salahuddin, research associate of the water unit interacting with visitors at a poster exhibition organised by CSE in Bhubaneswar in 2005

## Helping hand

The audio-visual resources section took several initiatives to help universities and schools in their environment education programmes

- Assisted Modicare, in the production of a film to generate awareness about water pollution and health effects and Yashwantrao Chavan Maharashtra Open University to make educational videos on industrial and air pollution.
- CSE videos were screened at various national and international events such as the First Environment and Wildlife Film Festival organised by Centre for Media Studies.
- Loaned CSE videos to schools including Shri Ram School, DAV School and the American Embassy School for their environmental education events.
- Prepared a photo exhibition titled Mega Cities for the Department of Geography, Delhi School of Economics, Delhi University in March 2006.
- Provided photographs to National Council of Education Research and Training (NCERT) for use in textbooks for school children.

tions working in the field of natural resource management. A large audience made up of social and environmental activists, researchers, journalists from the print and electronic media and school and college students attended these events.

### Dissemination and outreach

The unit regularly provides informational services to CSE through books alerts, articles alerts, Daily News Bulletin, conference alerts, review books alerts etc.

- **Current awareness services:** The books and journals alert keep CSE staff informed about the recent collections acquired.
- **Daily News Bulletin:** CSE staff are kept informed of current happenings through daily news bulletins. This is one of the premium services for internal users and is used by CSE teams to strengthen their publications, campaigns, and advocacy, research oriented activities. The daily news bulletin and its archive is put up on the website and it has a subscriber base of 2,000.
- **Electronic dossiers:** Electronic dossiers are also made available to CSE's research staff.
- **Electronic journals database:** CSE staff can access paid and free e-journal/newsletters from more than 130 leading journals.
- **Photo research service:** Photo services are provided to support core CSE activities.
- **Good practices database on the web:** A searchable database of significant initiatives undertaken by NGOs on CSE website.

### Capacity-building for professionals

CSE initiated training workshops to build capacities of documentation professionals in an effort to share its own learnings and experiences with the larger society. CSE has built up considerable expertise in the area of environmental documentation as the unit has one of the best environmental documentation centres in Asia. The response to





Environment resources unit coordinator Kiran Pandey making a presentation at a documentation training programme in New Delhi

the e-marketing of the workshops to CSE's contacts was tremendous and there were many international participants also. Participants came from varied backgrounds — the NGO sector, industry, academic institutions and individual consultants.

Each workshop was held over a five-day period and included site visits to other documentation centres in the city. Participants were put through classroom lectures, practical sessions, assignments and interactive discussions. External resource persons included Jagdish Arora, library director, IIT Delhi, S Majumdar, director, Central Secretariat Library, H K Kaul, director, Developing Library Network, Ratnakar, regional consultant, Infotech Services Pvt Ltd. Ten workshops conducted from December 2003 to March 2006. More than 150 persons attended in which a significant number were international participants from Mexico, the Netherlands, Sri Lanka, Thailand, the Philippines and Nepal.

At the end of the programme, participants were asked to prepare action plans on how they would plan a documentation centre in their organisations. The participants' feedback to the training workshop was very encouraging as nearly 90 per cent of the total participants found the training useful and said that they would recommend the programme to other people and organisations.

### Internship on information management

An exclusive 15-day internship on library, information management and documentation was organised for two students B Anand and Kodeeshwaran of XI standard, from Sholai School in Kodaikanal, Tamil Nadu, from December 21, 2004 to January 2005. They were provided training in filing, shelving, classification, indexing of

### Impact of training programmes

The documentation training programmes helped many organisations and institutions set up and streamline their library documentation systems. Some feedback:

- Swami Vivekananda Youth Movement prepared an action plan, identified the priorities and prepared a detailed plan to reorganise its information resources. It shared the revised project plan with CSE.
- Action For Social Advancement reorganised its books, journals, CDs and automated its library.
- Sense International restructured its resource centre including digital photographs after the programme.
- Shell India restructured its contacts database for using it for mass mailings.
- Library automation was initiated at the Rajiv Gandhi Foundation, New Delhi.
- The Wildlife Protection Society of India started building a classification scheme based on the training programme.
- The World Wide Fund for Nature India and Lava started using Filemaker Pro, the audio-visual software taught at the workshop and also visited CSE to learn more about it.
- An individual participant got inspired and created an online discussion group immediately after attending the workshop.
- A few organisations sent trainees to CSE for more exposure. These were the Maharashtra Pollution Control Board, *Malayalam Manorama*, Mamta and Himachal Pradesh Forest Department.





Students from Sholai School, Tamil Nadu attending an internship programme on information management and documentation at CSE

information, key wording of information, creating a database, cataloguing. This practical course helped them in confidence to apply these in their school. The programme was highly appreciated by the students as well as their school principal.

Serendip Productions, based in Pakistan, sent one of their staff members for an internship programme on environmental documentation with CSE. A month-long internship on various aspects of information management was conducted for their representative. He received training in the areas of managing books, address databases news clippings, films and photographs.

## Database

In an effort to reach out to researchers, planners, NGOs and journalists, the team worked on the compilation of data on several databases, both national and international, consisting primarily of contact persons and organisations with a presence in the various areas of environment like forest, water, health, natural resource, wildlife, biodiversity, air pollution, climate change and sacred groves. In addition, the team identified groups like non-government organisations, inter-government organisations, research centres, state and central government departments, journalists, photographers and scientists from the collected data.

The database unit developed new software to keep records of people related to environment. The main feature of this software is that users can add/modify their contacts from their own terminals.

## Database of free online journals

The unit developed a database of online journals and newsletters which is searchable according to subject and period. This will also have an update on new e-journals / newsletters, since many journals that are available in print are also planning online versions. Information will also be provided in the database on whether a full text or abstracts of articles is available. If CSE subscribes to any of the journals, then the passwords will also be provided for easy access.

## Statistical database on environmental issues

Data collected from newspapers, newsmagazines, books, documents, journals etc. and categorised topic wise. Besides this, an effort was made to acquire updated data on health, habitat, water and agriculture and animal husbandry from the ministry of health, ministry of agriculture, Census of India etc.

## Statistical database on socio-economic issues

CSE subscribed to *Indiastat.com*. This site consists of over half a million pages of statistical facts and figures on Indian socio-economic issues that have been collated through various authentic sources. It can be easily accessed and downloaded in MS Excel and HTML format.

To solve the problem of physical storage space we prioritised the acquisition of CD databases. CSE purchased a CD of the full text of all Supreme Court judgements from 1957 to 2005 and another one on 40,000 maps of India.

## Database for marketing

The database unit of CSE played an active role in promoting CSE publications *Down To Earth*, Green Files, Corporate Environment Inc. and the films.

This unit has developed databases on the following different segments:

- Academic (schools, colleges, universities)
- Corporate
- Eco clubs
- Professional (doctors, lawyers, engineers, architects)
- Government organisations
- Non-government organisations
- Research Institutes
- Libraries

A new concept was introduced to market products by sending mailers through e-mail. This proved to be a very effective tool in terms of low cost marketing. The team continuously adds new e-mails to the database. Now the total number of e-mails in this database is over one lakh, and these persons receive the CSE newsletter "*What's New at CSE*".

## Website

The team revamped sections of the existing website to improve the look and usability of the sections. Several outstanding operational issues facing the CSE websites were addressed. In particular, efforts were made to increase the visibility and marketability of the websites (for instance, optimising the web pages better for search engine spiders), sharpening MIS reporting systems, and improving making online payment.

The CSE homepage was redesigned and now incorporates easier navigation and access to information from all CSE websites. A new site map for the entire family of CSE sites was launched in order to help visitors surf the copious amounts of information.

As part of its role in supporting CSE campaigns and programmes, several in-depth sections and mini-sites were launched. The website unit also added a web-based database of experts working in the areas of water pollution, urban water management and sanitation.



A new section for CSE's pollution monitoring laboratory was introduced to showcase community-based testing services, activities and related events. In addition, daily data collected by the lab on the air pollution status in selected locations in Delhi is displayed on the site. In February 2003, when CSE broke the story of pesticides in bottled water, a series of interactive features were introduced, including message boards, press release feedback, in addition to a special content package on the laboratory section and Media Resource Centre homepages. A similar interactive initiative was introduced following the release of the study, *Pesticides in Soft Drinks*. Over this same period, the CSE laboratory report was downloaded more than 1,500 times from the CSE websites — a good indicator of the effectiveness of the websites' interactive features.

A new section was created for CSE's database section on the CSE website. Visitors can now submit information on their areas of expertise and interest here to be added on to CSE's database of experts. The library section was revamped, and now incorporates a sleeker design and a more useful search. The library database was converted from FMPPro to SQL to potentially combine the CSE library search with the DTE online search.

CSE store was made available to online visitors to the CSE site. Available at <http://csestore.cse.org>, this store has all CSE products like books, directories, images, films and other products for sale. Users can select any product, fill in an online order form and make the payment through credit cards. The order status can be checked later against the transaction ID. Sales and subscriptions to various services and products made via the CSE and DTE websites have been brisk.

The website [www.gobartimes.org](http://www.gobartimes.org) and a new section on the Media Resource Centre were launched. The design and format of the online health newsletter was changed to allow better navigation and access to archived material and other sections. The CSE intranet was redesigned and now carries updated information on CSE news, as well as policies and rules.

The Green Rating Project of the Industry and Environment team was given a separate site to coincide with the release of the ratings of the various industry sectors. The Environment Education unit was revamped with a new site for environmental careers. The *Gobar Times* site was redesigned. To provide deeper perspective and understanding on the global environmental negotiations on the clean development mechanism, a special in-depth web section was also launched.

Following the release of the Tiger Task Force Report (TTF), the CSE website carried an exclusive in-depth section with detailed research papers, coverage on issues such as wildlife management debates, issues concerning relocation/displacement of village communities and extensive data on protected areas and conservation issues, together with the complete TTF Report (in HTML and PDF formats). A message board was also created in order to solicit and record opinion on this contentious issue.

### Training workshops on 'internet for advocacy'

The team conducted two training workshops on 'Internet for advocacy'. The course was organised in response to the widely felt need of many organisations in the development sector to sharpen their outreach and communications initiatives. The course announcement received more than 50 applications, of which 15 were short-listed. These included three participants from Nepal, three from Kenya and one from Bangladesh. Teaching methodology included several hands-on workshops, classroom instruction and case studies. Peer-reviews helped participants share and learn from each other. Course faculty included both internal and external experts. A comprehensive manual, *Websites and E-mail as Advocacy Tools: A manual for information managers* was distributed. Each participant received a certificate of participation at the end of the course.



Participants at the workshop on 'Internet for advocacy', organised by CSE in New Delhi





## Volunteers

# Lending a helping hand

Volunteers have been an integral part of CSE's programmes. People from across the world, from different educational streams have worked in CSE in an effort to be part of its environmental research and advocacy work. During their stay, volunteers and interns interact closely with staff members and learn about CSE's perspectives and values. At any given point of time, volunteers constitute about 20 per cent of our regular workforce. To keep pace with the stream of volunteers coming in we have been continuously improving our institutional systems to handle a large number of applications. Over the last two years, we have developed an online system for volunteers' registration. This system allows us to search for and appoint suitable candidates and helps to maintain all records pertaining to volunteers' work, online.

Since the inception of the volunteers software in December 2003, we have had over 1,500 registrations. CSE regularly conducts orientation sessions for new volunteers and interns. The volunteers form a good resource base for recruitment within CSE, as we get a chance to evaluate the candidate and at the same time the candidate learns about CSE's work culture. We have recruited about 15 volunteers on regular or contractual basis during this period.

## Celebrating the spirit of volunteering

We celebrate International Volunteers Day on December 5 by organising a lunch for volunteers and a trip to a place of environmental interest like a biodiversity park, a sanitation museum, or a boat ride on the Yamuna. Volunteers are given a letter of commendation and a CSE memento.



Volunteers and CSE staff participating in an eco-tour organised in New Delhi

## What volunteers say

• **Hans Ditner Sohn, PhD scholar at Otto Suhr Institute, Berlin (Global Environmental Governance)**

"Perhaps the most important skills and experience I obtained at CSE was the Southern perspective on global environmental negotiations and training in writing skills...."

• **Madhu Roy, New Delhi ( Education and Training)**

"Working as a volunteer with CSE was an enriching and enlightening experience. It has not only increased my awareness of environmental issues, but has also proved to be a motivating factor for further work choices. High levels of interaction made me feel a part of the CSE family"

• **Kavitha K, Kerala, (Right to Clean Air Campaign)**

"Being a first year student in college, this was the first time I was exposed to the work atmosphere in an office. I got an opportunity to interact with many people specializing in different fields of knowledge. I have also become more aware of the global issues, which are currently under discussion, and of great importance to all."

• **Tirthankar Dutta, Kolkata (Down To Earth)**

"I had the rare opportunity of picking up important skills of practical application in the workplace. I got a glimpse of the excitement of journalism while working with 'Down To Earth'. Most importantly I gained a lot of insight into global issues and concerns that need to be tackled."

• **Diana Rix (Jal Swaraj)**

"I think that I have learnt a lot from my time at CSE and it has given me great enthusiasm for my future studies at University and ideas for further work experience and my career path. I have found the research I have been doing on the water situation and status of rainwater harvesting in African countries and cities particularly interesting, and I hope to study it further in my next few years at university. I hope that it is as useful to CSE."

## Contributing to CSE's work

Volunteers have made significant contributions to the various programmes in CSE. The highlights of work done by volunteers from 2002-06 are given below:

### Right to Clean Air Campaign

Volunteers contributed to research papers on the cost of air pollution, public transport system policies, health effects of air pollution in Indian cities, two-wheeler technology and fuel specifications. They helped in organising a workshop on CNG in Delhi and conduct a survey on the inflow of heavy vehicles in Delhi. They also played a key role in organising the conference, The Leapfrog Factor held in March 2004.



## Water campaigns

Students of engineering and architecture helped in designing rainwater harvesting projects and wastewater recycling systems, and monitoring of water levels and water quality at the model rainwater harvesting sites in and around Delhi. They also helped in organising training workshops and exhibitions. Volunteers participated in *Paani Yatras* and helped in the logistics of the tours. They contributed to various research, analyses and surveys conducted on the river pollution study as well.

## Industry and Environment

Volunteers participated in the Green Rating Project of three different industrial sectors during this period, namely chlor-alkali, pulp and paper (which was rated for the second time), and cement. They were involved from the initial stage of developing a briefing paper on the environmental implications of each sector, to life cycle analysis, to liaising with various stakeholders and also individual surveys of various manufacturing units. They have assisted in organising the rating release functions for each of the sectors. Various other projects were taken up by them such as — research papers on mercury pollution, hazardous waste regulation and disposal patterns in various countries and a study on special economic zones.

## Global Environmental Governance

There were two major events in 2003, the World Summit on Sustainable Development (WSSD) and the Eighth Conference of Parties on Climate Change (CoP-8). CSE organised several meetings, ran an e-discussion forum, wrote articles, published factsheets and lobbied policymakers and other key opinion makers. Volunteers helped in assimilation of information and collaborating with reporters and the website to upload everyday information.

## Environment Education Unit

CSE's education team conducts training workshops for students and teachers and also eco-tours in Delhi. Volunteers helped in organising these events and also provided research assistance for *Gobar Times*. Volunteers helped collate information related to environmental courses and colleges which offer these course to develop an interactive career section in the CSE website.

## State of India's Environment

Volunteers helped in basic research, development of related databases and making dossiers on various chapters of publications, updating and maintaining information on webpages.

## Reporting

Volunteers were engaged in research, reporting, designing, copy editing and also photography. They were given a freehand at suggesting story ideas and many published individual articles.

## Pollution Monitoring Laboratory

Volunteers with biochemistry and general science backgrounds carried out biochemical analysis work in our laboratory. They were also involved in pollution monitoring activities.

## Support units

Volunteers regularly contribute to compiling databases, literature and marketing surveys, referencing and research activities in the library, updating and maintaining files and the website.

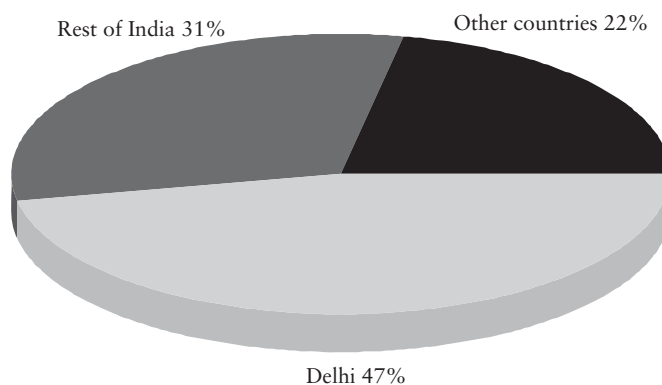
## Reaching out — collaborating institutions

We receive volunteers and interns from major universities and colleges in India especially from specific fields like journalism, environmental science and engineering, planning and architecture, social work, biochemistry.

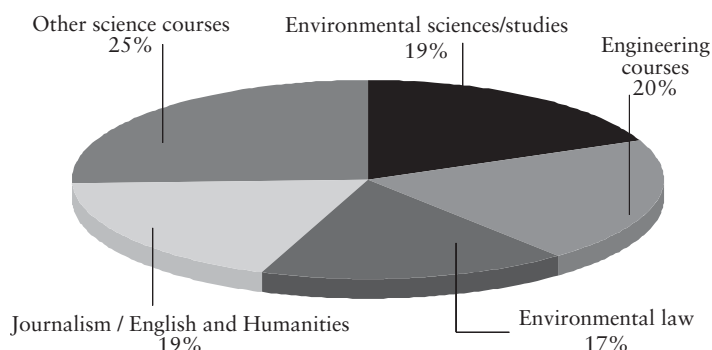
Some major foreign universities from where volunteers came here during this period:

Oxford University, UK; Leed University, UK; University of Sussex, UK; Yale University, USA; Stanford University, USA; Mississippi University, USA; University of Ottawa, Canada; Ecole Nationale des Travaux, France; National School for Water and Environmental Engineering, France; Free University, Berlin; Katholieke Universiteit, Germany; Kings College, UK; Sydney University, Australia; University of Oslo, Norway. Institute for Medicine, Germany.

Volunteers: where they came from



Volunteers: their academic background







## Events

# Programme highlights

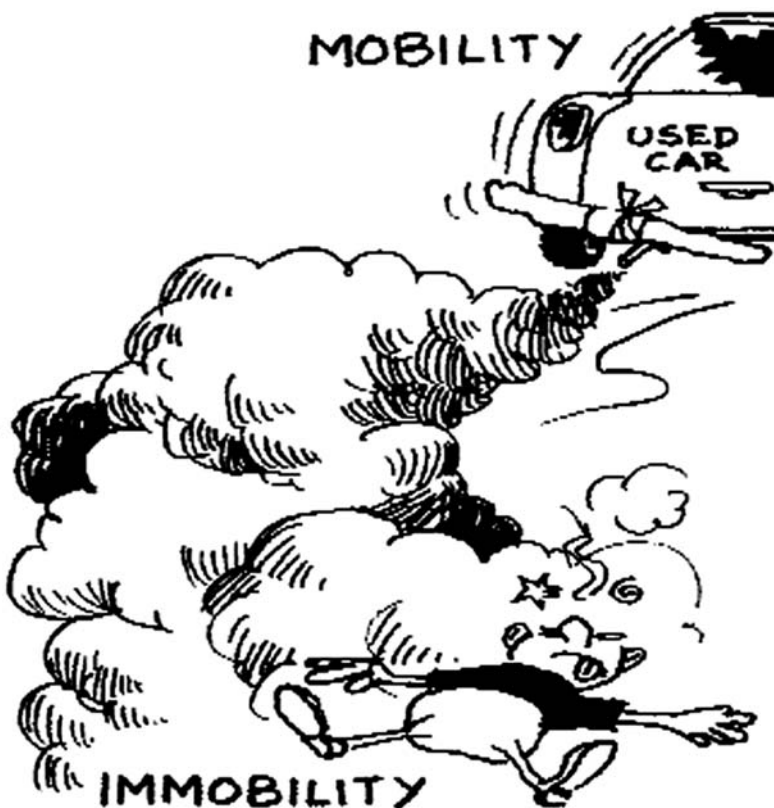
## Right to Clean Air

- **August 2003:** Anumita Roychowdhury made a presentation on CSE's CNG programme in an international conference organised by the NGO coalition in Jakarta.
- **September 2003:** Anumita Roychowdhury made a presentation on Automobiles inspection and maintenance in Asia: lessons to be learned — to develop a framework for the vehicle inspection programme for Vietnam.
- **December 2003:** Anumita Roychowdhury made a plenary presentation on Urban air quality management in India: progress and challenges in the international and annual event called Better Air Quality (BAQ) organised by the Clean Air initiative for Asian cities in Manila.
- **September 2004:** Sunita Narain attended the EPCA meeting to implement the action plan for control of RSPM levels in the city of Ahmedabad.
- **April 2005:** Anumita Roychowdhury attended CARB's Fifth Haagen-Summit Symposium in Seascape Monterey Bay, Aptos, California. The topic of discussion was Ships, trains, and the future of goods transport.

- **April 2005:** Visit for EPCA by Sunita Narain to implement the action plan for control of RSPM levels in Hyderabad.
- **April 2005:** Anumita Roychowdhury made a keynote presentation in the national seminar Towards cleaner air organised by the Pakistan Law Association and co-sponsored by the IUCN- Pakistan and LAED, Pakistan at the Dr Parvez Hassan Environmental Law Centre, University of Punjab, Quaid-e-Azam Campus, Lahore.
- **July 2005:** Anumita Roychowdhury attended the workshop Air Quality Management in Hanoi and Exposure Assessment organised by USAEP in collaboration with Vietnam Center for Environmental Engineering for Towns and Industrial Areas (CEETIA) and the East West Centre (Honolulu).
- **September 2005:** Sunita Narain attended the EPCA meeting in Pune.
- **March 2006:** Sunita Narain attended the EPCA meeting in Ahmedabad.

## Jal Swaraj

- **June 2004:** Sunita Narain delivered a keynote address at the inaugural session of the workshop on rainwater harvesting organised on groundwater day by the National Botanical Research Institute, Lucknow.
- **June 2004:** Sunita Narain inaugurated the state-level media seminar on rainwater harvesting organised by Jananidhi and Press Club, Thiruvananthapuram.
- **July 2004:** CSE director delivered a lecture on 'From your Flush to the River: Delhi's Responsibility for a clean Yamuna' as part of the series 'Survival of Cities' organised by India Habitat Centre, New Delhi.
- **August 2004:** Sunita Narain made a presentation at a seminar on 'water management' organised by Mathrubhumi, Palakkad.
- **September 2004:** Sunita Narain was the chief guest in the handing-over-ceremony of the rainwater-harvesting project by *Malayala Manorama* at the Palakkad Collectorate.
- **February 2005:** Sunita Narain delivered a lecture on decentralised water harvesting and recharge. Participated in the synthesis on India's Water Economy: Its Nature and its Future at the IWMI-Tata Partners' Meeting organised by International Water Management Institute, Gujarat.
- **February 2005:** Sunita Narain delivered a lecture on 'Safe drinking water for all' at the inaugural programme of Paribesh Mela 2005 organised by West Bengal Pollution Control Board, Kolkata.
- **May 2005:** CSE was invited to make a presentation on Drinking water crisis and rainwater harvesting at the Indian Council for Forestry Research and Education (ICFRE), New Delhi. The programme was organised







A visitor at CSE's stall in the Third Water Expo in New Delhi in February 2006

by the Ashoka Trust for Research in Ecology and the Environment, (ATREE), New Delhi in collaboration with the Union ministry of environment and forests, government of India.

- **August 2005:** Sunita Narain made a presentation on 'water conservation' for the members of both houses of Parliament.
- **October 2005:** Sunita Narain attended the advisory committee meeting on People's Movement for Water Conservation in Trivandrum.
- **November 2005:** CSE water harvesting team members made a presentation in Bhubaneswar on Urban water scenario and called upon the need for rainwater harvesting to avoid water crisis in the future.
- **December 2005:** Sunita Narain attended a symposium on Water and Energy Law: Issues in Management and Adjudication organised by National Judicial Academy in Bhopal.
- **December 2005:** CSE made a presentation on rainwater harvesting techniques for 80 teachers from government and public schools at Hotel Regency, Gurgaon. The seminar was organised in association with a Japanese international organisation, OISCA-International (Organisation for Industrial, Spiritual and Cultural Advancement), North India.
- **January 2006:** Sunita Narain delivered a lecture on water resources and conservation and rainwater harvesting at a workshop organised by Achyut Das in Bhubaneswar.
- **January 2006:** Sunita Narain delivered a lecture at the Kalinga Institute of Industrial Technology (KIIT) entitled Water conservation: Challenges ahead in Bhubaneswar.
- **February 2006:** Sunita Narain participated in the brainstorming meeting towards Establishment of a National Rainfed Area Authority organised by the Planning Commission in New Delhi.
- **February 2006:** Sunita Narain delivered a keynote lecture at the Arghyam Trust's first annual conference on Leveraging knowledge for the water sector in Bangalore.

- **February 2006:** Everything about water, a Delhi-based organisation organised the Third Water Expo at NSIC grounds, New Delhi. It was attended by various industries, NGOs and government organisations working in the field of water management.
- **February 2006:** CSE made a presentation on 'Rainwater harvesting: Potential and economics' in a conference on environment and safety. The national conference was organised by JK Lakshmi Cement, JK Puram, Sirohi, Rajasthan.
- **March 2006:** CSE was invited to deliver a lecture on rainwater harvesting at a workshop on 'Management of large complexes'. The workshop was organised by Amity School of Urban Management, New Delhi.
- **March 2006:** CSE and Kheti Virasat, a Faridkot-based NGO organised a two-day long water wisdom workshop at Ambedkar Bhawan, Faridkot, Punjab.
- **March 2006:** CSE was invited to deliver a lecture on rainwater harvesting to members of India Habitat Centre.
- **March 2006:** Sunita Narain participated in a workshop organised by UNDP in Jodhpur.
- **June 2005:** Sunita Narain gave the Environment Day address on Water situation in the country – quality and quantity of water, organised by National Academy of Agricultural Sciences in New Delhi.

## Water pollution and recycling

- **April 2005:** Sunita Narain attended the WASH Roundtable at CSD13 on Mobilising women leaders for the MDGs and also to address the high-level segment of CSD in New York.
- **November 2005:** Sunita Narain delivered a lecture at the International Seminar on ECOSAN organised by Indian Water Works Association in Mumbai.
- **March 2006:** Sunita Narain made a presentation in IIT Delhi on decentralised wastewater systems in a training programme organised by the IIT for engineers from various government departments.

## Industry and Environment

- **June 2004:** Chandra Bhushan, associate director Industry and Environment Unit, made a presentation on Mercury pollution from the Indian chlor-alkali Industry — Inventorisation and impact Assessment at the 7th international conference on mercury as a global pollutant organised by the United Nations Environment Programme in Slovenia
- **October 2004:** Sunita Narain delivered a talk on Corporate Social Responsibility — An NGO Perspective as part of the lecture series Looking Beyond organised by Gas Authority of India Limited (GAIL), New Delhi.
- **October 2004:** Review meeting on Stock-taking of Progress Towards Sustainability at India International Centre, New Delhi, organised by CUTS.
- **November 2004:** Chandra Bhushan delivered a lecture on added shareholder value through environmental management at the symposium on environmental





issues in public policy' held at railway staff college (ministry of railways), Vadodara.

- **January 2005:** Sunita Narain made a presentation on Towards improving environmental performance of industry in an international conference on Enabling Cleaner Solutions: Industry and environment organised by Centre for Environment Education in Ahmedabad.
- **March 2005:** Second meeting of the steering committee for implementation of the decision taken in the charter on corporate responsibility (CREP). The meeting was organised to follow-up on the status of the charter finalised under CREP.
- **March 2005:** Sujit Kumar Singh attended a seminar on fly ash utilisation organised by Complete Environmental Solutions Pvt Ltd at the India International Centre, New Delhi.
- **March 2005:** Chandra Bhushan attended a seminar on the Asian Experiences in creation of opportunities for the informal recycling sector organised by Chintan in New Delhi
- **September 2005:** Chandra Bhushan represented CSE at the International Conference on Corporate social responsibility organised in Copenhagen by Copenhagen Business School.

## Pesticides and Toxins

- **October 2004:** Sunita Narain delivered a lecture on Poison vs Nutrition at a seminar organised by the Indian Agricultural Research Institute, New Delhi.
- **October 2004:** Sunita Narain attended the 10th meeting of the Drinks and Carbonated Beverages Sectional Committee, FAD-14 organised by the Bureau of Indian Standards in Chennai.
- **January 2005:** Sunita Narain made a presentation on Pesticides and regulations at the National Seminar on pesticide residues and their risk assessment organised by National Institute of Nutrition at Hyderabad.
- **May 2005:** Sunita Narain and Chandra Bhushan attended a BIS meeting in Hyderabad to finalise standards for pesticides and caffeine in soft drinks.
- **September 2005:** Sunita Narain delivered a talk on Poison in the bottle: Multinational colas and national eco-crisis, in JNU, New Delhi.
- **October 2005:** Chandra Bhushan attended the 12th Meeting of the drinks and carbonated beverages sectional committee, FAD-14 at Chandigarh.
- **October, 2005:** Sunita Narain attended the 12th Meeting of the Drinks and Carbonated Beverages Sectional Committee, FAD-14 in Mysore.
- **November 2005:** Sunita Narain made a presentation on the various pre-requisites of the Food safety and standards bill to members of Parliament
- **November 2005:** Chandra Bhushan represented the South East Asia Working Group for persistent organic pollutants under the Stockholm convention organised by Toxic Links.
- **December 2005:** Chandra Bhushan attended a conference organised by the Asia Europe Foundation on chemical management in Indonesia.

## Environment Education

- **July 2004:** Sunita Narain delivered a lecture on 'Society and Environment — the Element of Sustainability' as part of the annual summer seminar of Springdales School, Dhaula Kuan, New Delhi.
- **October 2004:** Sunita Narain addressed and briefed participants at the national-level conference on environment and the declamation contest in honour of Anil Agarwal organised by Salwan Public School, Rajinder Nagar, New Delhi.

## Media Resource Centre

- **April 2004:** Sunita Narain attended a workshop of the SIDA-VACNE project on environmental reporting in Hanoi, Vietnam
- **July 2004:** Sunita Narain delivered a keynote address at the inaugural session of the four-day all-India environmental journalism course in Kolkata 'The Green Dream' organised by British Council and Concern for Calcutta.
- **January 2005:** Sunita Narain delivered a lecture on 'Engaging Mass Media for Advocacy on Sustainable Development: CSE's Experience' at the opening plenary of the workshop on the Media and Sustainable Development organised by Centre for Environment Education (CEE), Ahmedabad.
- **November 2005:** Gita Kavarana and Suresh Babu attended a press meet at Pali.

## Press meetings organised by CSE

- **April 2005:** CSE held the first press briefing of the Tiger Task Force at IHC, New Delhi.
- **May 2005:** Press meet on Lambda tests at CSE.
- **May 2005:** Press briefing after the first consultative meeting of the Tiger Task Force, at IHC, New Delhi.
- **June 2005:** Informal press meet after the second consultation of the Tiger Task Force in Nagpur.
- **June 2005:** CSE organised an informal press meet after the third consultative meet of the Tiger Task Force in Bangalore.
- **August 2005:** CSE organised an informal press meet after the submissions of the Tiger Task Force at PMO and IHC.
- **August 2005:** CSE organised a press conference in Chennai after the submission of the Tiger Task Force report.
- **November 2005:** Press meeting at the CDM conference at IHC.
- **November 2005:** Press meet at the travelling film festival in Bhubaneshwar, Orissa.
- **December 2005:** CSE held a press briefing at the release of the cement rating at the WWF auditorium in New Delhi.
- **January 2006:** Press invites for the photo exhibition on the tsunami held at the IHC in New Delhi.



## Meetings, presentations and lectures

CSE director Sunita Narain attended several meetings and presentations and gave lectures during this period:

- **March 2004:** Attended the Conference on International Environmental Governance in Paris, France.
- **April 2004:** Attended the workshop on the draft report of Vietnam: Life and Environment in Vietnam.
- **May 2004:** Attended the PERI inaugural lecture series – Environment and health in Amherst, USA.
- **May 2004:** Presented a talk on 'Urban Life – a living hazard' as part of the 'Leaders in their Field' series organised by IHC, New Delhi.
- **May 2004:** Attended the conference Copenhagen Consensus on environment and sustainability issues in Denmark, organised by Environmental Assessment Institute in co-operation with *The Economist*.
- **June 2004:** Participated in the National Roundtable on Farmers Issues and Agriculture Policies organised by Agriculture Today, New Delhi.
- **June 2004:** Participated in the National Roundtable on Farmers Issues and Agriculture Policies organised by Agriculture Today, New Delhi.
- **August 2004:** Delivered a talk on 'Failure of Indian science to deal with the challenges in our daily lives' at the seminar organised by NISTADS, New Delhi.
- **September 2004:** Presented a talk on the Indian Perspective at the regional conference 'Resource Sustainability — Closing the Materials Loop' organised by United Nations Industrial Development Organisation (UNIDO) and Confederation of Indian Industries, New Delhi.
- **November 2004:** Attended the IX All India Meeting of Women in Science as a chief guest and delivered the inaugural lecture organised by the Indian Women Scientists' Association, Mumbai.
- **November 2004:** Participated in the Mega Trends Workshop of Centre for International Forestry Research (CIFOR) as a speaker at CIFOR Headquarter, Bogor, Indonesia.
- **December 2004:** Attended the X<sup>th</sup> Meeting of the National Afforestation and Eco-development Board (NAEB) organised by the Ministry of Environment and Forests, New Delhi.
- **February 2005:** Chaired a discussion organised by the Council on Foreign Relations, New York, on India's energy and environmental challenges at the India International Centre, New Delhi.
- **March 2005:** Attended the conference of Asia Society, New York.
- **March 2005:** Attended the function of the 30<sup>th</sup> anniversary of *Business Standard* in New Delhi and delivered a speech.
- **May 2005:** Attended the Task Force meeting to visit Tiger Reserves in Periyar, Kerala.
- **June 2005:** Addressed the World Environment Day celebrations of The Institution of Engineers as chief guest in New Delhi.
- **June 2005:** Attended the 1) Roundtable conference on 'Emerging Powers in the south' (Informal roundtable debate of HBF staff and partners) and and 2) Event on Mcplanet.com 2.0: Consumption 'Global and Environment in Berlin & Hamburg.
- **June 2005:** Visited the Tiger Reserves in Pench and Kanha in Nagpur and other places.
- **June 2005:** Attended the Consultation Meeting with regards to the Tiger Task Force in Bangalore.
- **July 2005:** Attended the Executive committee meeting of the Directors Guild of India in New Delhi.
- **July 2005:** Attended the Tiger Task Force Meeting at Wildlife Institute of India, Dehradun.
- **July 2005:** Visited the tiger reserves for Tiger Task Force work in Sariska-Ranthambore.
- **July 2005:** Delivered a talk at the annual Barin Ganguli Global Forestry Lecture Series in Dehradun.
- **August 2005:** Delivered the plenary talk on the thematic areas of relevance to sustainable agriculture and rural development in the Conference on Human Centered Sustainable Development Paradigm at M S Swaminathan Research Foundation, Chennai.
- **September 2005:** Delivered the 11th Leadership Lecture under the Modernites Leadership Lecture Series at Modern School, Barakhamba Road, New Delhi.
- **September 2005:** Participated in the panel discussion on Delhi – The City of Excellence on the occasion of the PHDCCI Centenary Partnership Summit in New Delhi.
- **September 2005:** Attended the annual general body meeting of the Editors Guild of India in New Delhi.
- **October 2005:** Attended the Anniversary Function of Saptahik Sakal in Pune.
- **October 2005:** Gave a lecture at the University of Hyderabad and was Education Day Guest at L V Prasad Eye Institute, Hyderabad.
- **October 2005:** Was the guest of honour at the Rotary Club meeting in Ashoka Hotel, New Delhi.
- **October–November 2005:** Attended WEFTEC, the annual technical conference and Exhibition in Washington DC, USA.
- **November 2005:** Attended the IWMI board meeting in Colombo, Sri Lanka.
- **November 2005:** Gave a talk on human-wildlife conflicts at the IFEJ Congress organised by Darryl D'Monte in New Delhi.
- **December 2005:** Chief guest at the annual day function of NBRI, Lucknow.
- **December 2005:** Golden Jubilee Lecture in Lady Shri Ram College, New Delhi.
- **December 2005:** Barin Ganguli Lecture on Global Forestry Lecture Series at the IGNFA, Dehradun.
- **January 2006:** Attended the district conference of Rotary International in New Delhi.
- **January 2006:** Chief Guest at the award function Gramvikas Parithoshik – 2005 and Gram Sansthan Parithoshik — 2005 instituted by Development Support Centre, Ahmedabad.
- **January 2006:** Delivered a keynote address at the 10th Annual State of the World Symposium, Washington, DC, USA.
- **January 2006:** Attended the 6th National Conference on Science, Policy and the Environment: Energy for a Sustainable and Secure Future (NCSE) in Washington, DC, USA.
- **February–March 2006:** Attended UN-Habitat consultation meeting: Development of UN-Habitat's strategic focus on sustainable urbanisation, Nairobi.
- **March 2006:** Attended the keynote lecture by M S Swaminathan on Wildlife Wealth, Sensitive Index of Ecological Security, New Delhi.





## Financial Overview

# Statement of accounts: 2002-2003

Table 1: Balance sheet as on March 31, 2003

I. Sources of Funds	Rupees (in lakh)	
	March 31, 2003	March 31, 2002
Capital Fund	653.53	598.02
Corpus Fund	664.64	566.43
Project Fund	237.14	223.06
Reserves	21.81	14.08
<b>Total</b>	<b>1,577.12</b>	<b>1,401.59</b>
<b>II. Application of Funds</b>		
Fixed Assets - Net Block	289.67	293.34
<b>Investments</b>		
Corpus Investments	601.40	547.35
Other Investments	539.26	408.51
<b>Current Assets:</b> Advances / Sundry Debtors	91.87	83.70
Cash and Bank Balances	57.89	71.93
<b>Less: Current Liabilities and Provisions</b>		
Liabilities	(2.97)	(3.24)
<b>Total</b>	<b>1,577.12</b>	<b>1,401.59</b>

Table 2: Income and expenditure account for the year ended March 31, 2003

I. Income	Rupees (in lakh)	
	March 31, 2003	March 31, 2002
Project Grants	672.34	621.65
Sales	26.50	31.86
Other Income	104.60	96.80
<b>Total</b>	<b>803.44</b>	<b>750.31</b>
<b>II. Expenditure</b>		
Science & Environmental Information	112.91	78.89
Research & Advocacy	165.35	105.02
Environmental Education & Training	47.91	11.47
Environmental Resource Unit	52.20	55.68
Health & Environment (including laboratory)	22.91	25.08
Green Rating Project	37.40	32.95
State of Environment	15.38	9.61
<b>Sub - Total</b>	<b>454.06</b>	<b>318.70</b>
Programme Management & Development	52.84	61.30
Management Support	109.46	109.92
Depreciation	44.30	45.98
<b>Total</b>	<b>660.66</b>	<b>535.90</b>
<b>III. Excess of Income over Expenditure</b>	<b>142.78</b>	<b>214.41</b>

Table 3: Break-up of income (other than grant income)

I. Sales	Rupees (in lakh)	
	March 31, 2003	March 31, 2002
Publications	20.08	26.97
Audio-visual resources	3.22	1.37
Green File subscriptions	2.87	1.33
Other miscellaneous sales	0.33	2.19
<b>Sub - Total</b>	<b>26.50</b>	<b>31.86</b>
<b>II. Other Income</b>		
Interest income	96.08	90.47
Environmental services	4.81	3.48
Donations	0.14	1.17
Other Income	3.57	1.68
<b>Sub - Total</b>	<b>104.60</b>	<b>96.80</b>
<b>Total</b>	<b>131.10</b>	<b>128.66</b>



# Statement of accounts: 2003-2004

Table 1: Balance sheet as on March 31, 2004

I. Sources of Funds	Rupees (in lakh)	
	March 31, 2004	March 31, 2003
Capital Fund	753.41	653.33
Corpus Fund	730.40	664.64
Project Fund	350.97	237.14
Reserves	34.25	21.81
<b>Total</b>	<b>1,869.03</b>	<b>1,577.12</b>
<b>II. Application of Funds</b>		
Fixed Assets - Net Block	320.34	289.67
<b>Investments</b>		
Corpus Investments	652.51	601.40
Other Investments	554.99	539.26
<b>Current Assets:</b> Advances / Sundry Debtors	105.69	91.87
Cash and Bank Balances	267.42	57.89
<b>Less: Current Liabilities and Provisions</b>		
Liabilities	(31.92)	(2.97)
<b>Total</b>	<b>1,869.03</b>	<b>1,577.12</b>

Table 2: Income and expenditure account for the year ended March 31, 2004

I. Income	Rupees (in lakh)	
	March 31, 2004	March 31, 2003
Project Grants	726.76	672.34
Sales	30.71	26.50
Other Income	129.40	104.60
<b>Total</b>	<b>886.87</b>	<b>803.44</b>
<b>II. Expenditure</b>		
Science & Environmental Information	137.69	112.91
Research & Advocacy	89.27	165.35
Environmental Education & Training	49.34	47.91
Environmental Resource Unit	43.02	52.20
Health & Environment (including laboratory)	30.19	22.91
Green Rating Project	22.60	37.40
State of Environment	9.73	15.38
<b>Sub - Total</b>	<b>381.84</b>	<b>454.06</b>
Programme Management & Development	58.22	52.84
Management Support	129.08	109.46
Depreciation	39.51	44.30
<b>Total</b>	<b>608.65</b>	<b>660.66</b>
<b>III. Excess of Income over Expenditure</b>	<b>278.22</b>	<b>142.78</b>

Table 3: Break-up of income (other than grant income)

I. Sales	Rupees (in lakh)	
	March 31, 2004	March 31, 2003
Publications	20.91	20.08
Audio-visual resources	7.16	3.22
Green File subscriptions	2.52	2.87
Other miscellaneous sales	0.12	0.33
<b>Sub - Total</b>	<b>30.71</b>	<b>26.50</b>
<b>II. Other Income</b>		
Interest income	113.66	96.08
Environmental services	12.97	4.81
Donations	0.25	0.14
Other Income	2.52	3.57
<b>Sub - Total</b>	<b>129.40</b>	<b>104.60</b>
<b>Total</b>	<b>160.11</b>	<b>131.10</b>





# Statement of accounts: 2004-2005

**Table 1: Balance sheet as on March 31, 2005**

I. Sources of Funds	Rupees (in lakh)	
	March 31, 2005	March 31, 2004
Capital Fund	991.67	753.41
Corpus Fund	791.84	730.40
Project Fund	339.73	350.97
Reserves	47.83	34.25
<b>Total</b>	<b>2,171.07</b>	<b>1,869.03</b>
<b>II. Application of Funds</b>		
Fixed Assets - Net Block	411.60	320.34
<b>Investments</b>		
Corpus Investments	756.42	652.51
Other Investments	613.10	554.99
<b>Current Assets:</b> Advances / Sundry Debtors	138.87	105.69
Cash and Bank Balances	297.27	267.42
<b>Less: Current Liabilities and Provisions</b>		
Liabilities	(46.19)	(31.92)
<b>Total</b>	<b>2,171.07</b>	<b>1,869.03</b>

**Table 2: Income and expenditure account for the year ended March 31, 2005**

I. Income	Rupees (in lakh)	
	March 31, 2005	March 31, 2004
Project Grants	750.63	726.76
Sales	67.83	30.71
Other Income	141.46	129.40
<b>Total</b>	<b>959.92</b>	<b>886.87</b>
<b>II. Expenditure</b>		
Science & Environmental Information	160.58	137.69
Research & Advocacy	72.90	89.27
Environmental Education & Training	64.95	49.34
Environmental Resource Unit	49.51	43.02
Health & Environment (including laboratory)	34.61	30.19
Green Rating Project	29.71	22.60
State of Environment	9.48	9.73
<b>Sub - Total</b>	<b>421.74</b>	<b>381.84</b>
Programme Management & Development	53.66	58.22
Management Support	111.46	129.08
Depreciation	47.97	39.51
<b>Total</b>	<b>634.83</b>	<b>608.65</b>
<b>III. Excess of Income over Expenditure</b>	<b>325.09</b>	<b>278.22</b>

**Table 3: Break-up of income (other than grant income)**

I. Sales	Rupees (in lakh)	
	March 31, 2005	March 31, 2004
Publications	17.62	20.91
Audio-visual resources	38.46	7.16
Green File subscriptions	10.60	2.52
Other miscellaneous sales	1.15	0.12
<b>Sub - Total</b>	<b>67.83</b>	<b>30.71</b>
<b>II. Other Income</b>		
Interest income	100.11	113.66
Environmental services	30.76	12.97
Donations	2.39	0.25
Other Income	8.20	2.52
<b>Sub - Total</b>	<b>141.46</b>	<b>129.40</b>
<b>Total</b>	<b>209.29</b>	<b>160.11</b>



# Statement of accounts: 2005-2006

**Table 1: Balance sheet as on March 31, 2006**

I. Sources of Funds	Rupees (in lakh)	
	March 31, 2006	March 31, 2005
Capital Fund	748.88	991.67
Corpus Fund	1,413.93	791.84
Project Fund	56.32	339.73
Reserves	50.95	47.83
<b>Total</b>	<b>2,270.08</b>	<b>2,171.07</b>
<b>II. Application of Funds</b>		
Fixed Assets - Net Block	480.80	411.60
<b>Investments</b>		
Corpus Investments	1,255.99	756.42
Other Investments	334.70	613.10
<b>Current Assets:</b>		
Advances / Sundry Debtors	158.41	138.87
Cash and Bank Balances	84.32	297.27
<b>Less: Current Liabilities and Provisions</b>		
Liabilities	(44.14)	(46.19)
<b>Total</b>	<b>2,270.08</b>	<b>2,171.07</b>

**Table 2: Income and expenditure account for the year ended March 31, 2006**

I. Income	Rupees (in lakh)	
	March 31, 2006	March 31, 2005
Project Grants	445.91	750.63
Sales	69.86	67.83
Other Income	166.09	141.46
<b>Total</b>	<b>681.86</b>	<b>959.92</b>
<b>II. Expenditure</b>		
Science & Environmental Information	143.76	160.58
Research & Advocacy	69.92	72.90
Environmental Education & Training	65.40	64.95
Environmental Resource Unit	49.26	49.51
Health & Environment (including laboratory)	40.18	34.61
Green Rating Project	26.64	29.71
State of Environment	19.06	9.48
<b>Sub - total</b>	<b>414.22</b>	<b>421.74</b>
Programme Management & Development	56.46	53.66
Management Support	113.92	111.46
Depreciation	66.17	47.97
<b>Total</b>	<b>650.77</b>	<b>634.83</b>
<b>III. Excess of Income over Expenditure</b>	<b>31.09</b>	<b>325.09</b>

**Table 3: Break-up of income (other than grant income)**

I. Sales	Rupees (in lakh)	
	March 31, 2006	March 31, 2005
Publications	24.78	17.62
Audio-visual resources	32.47	38.46
Green File subscriptions	12.43	10.60
Other miscellaneous sales	0.18	1.15
<b>Sub - Total</b>	<b>69.86</b>	<b>67.83</b>
<b>II. Other Income</b>		
Interest income	103.10	100.11
Environmental services	57.56	30.76
Donations	3.41	2.39
Other Income	2.02	8.20
<b>Sub - Total</b>	<b>166.09</b>	<b>141.46</b>
<b>Total</b>	<b>235.95</b>	<b>209.29</b>





## Our donors

---

We are grateful to the following donors for supporting the Centre's programmes during 2002–2006:

---

### Institutional grants

- Swedish International Development Cooperation Agency, (SIDA), New Delhi
- Evangelischer Entwicklungsdienst e.V. E V (EED), Bonn, Germany

### Programme grants

- DanChurch Aid, New Delhi
- Delegation of the European Commission in India, New Delhi
- The Ford Foundation, New Delhi
- The Ministry of Environment and Forests, New Delhi
- The Rockefeller Foundation, New York, USA
- Royal Danish Embassy, New Delhi
- Sir Dorabji Tata Trust, Mumbai
- United Nations Children's Fund, New Delhi
- Global Water Partnership, The Hague, Netherlands
- Heinrich Boell Foundation, Bonn, Germany
- The Norwegian Agency for Development Cooperation, New Delhi

### Project grants

- The United States Asia Environment Partnership Programme
- Mellemfolkeligt Samvirke, (MS), Denmark
- Television Trust for the Environment, Colombo, Sri Lanka
- Embassy of Luxembourg, DCS
- Wallace Global Fund

---

### Corpus/Endowment grants

- Sir Ratan Tata Trust, Mumbai

### Awards

This period saw receipts of moneys as part of awards granted to CSE for its programmes, which have been transferred to its corpus. The Siri Ram Washeshran Devi Bhatia Memorial Charitable Trust awarded CSE Rs 50,000 for its work on pesticide campaign. CSE's film, *Waterworks India*, won an award at the Vatavaran 2003 Film Festival, which carried a cash award of Rs 25,000. The Rotary Eco Foundation Award was given to Sunita Narain, director, CSE, for her leadership of CSE's water harvesting programme in Delhi. It carried a cash award of Rs 50,000. In the 2005, CSE received the Stockholm Water Prize, which carried a cash prize of US \$1,50,000.

### Donation

- CSE received donations from Dinesh Parakh from Canada and Rolf Sorenson from Norway

### Donations received under Section 35(AC) for CSE's water harvesting programme

- Sukriti Vidyut Udyog Pvt Ltd.
- Pharmachine India
- Concept Engineering Company, Mumbai
- G I Singhania Trust, Mumbai



## CSE'S executive board (31.3.2006)

*Representatives of civil society and industry, financial experts and academicians are on CSE's board.*

### M S SWAMINATHAN – chairperson

Best known as the leader of the green revolution in India. His pioneering work has earned him several awards, both national and international, the Padma Shri, the Padma Bhushan, the Padma Vibhushan, the Ramon Magsaysay Award, the World Food Prize, the Tyler Environment Award, to name a few. He has held several distinguished positions, including Director-General of the Indian Council of Agricultural Research and of the International Rice Research Institute.



### SUNITA NARAIN – director

Has been with CSE for more than 19 years. She has worked both to analyse and study the relationship between environment and development and to create public consciousness about the need for sustainable development. Her research interests range from global democracy, with a special focus on climate change to the need for local democracy where she has worked on forest-related resource management and water issues. She serves on the boards of different organisations and on governmental committees.

### B D DIKSHIT – treasurer

One of the founder members, he has a doctorate in Economics and has been the chairman and managing director of Union Bank of India and deputy managing director of State Bank of India, the largest commercial bank of India. A consultant with the World Bank and the Asian Development Bank in Manila he serves on the boards of several companies as a nominee of government of India.



### VIKRAM LAL – member

Former chairman of the Eicher Group, one of India's leading tractor manufacturing companies, he raised it to great heights to make it a leading commercial vehicles manufacturer. He is also well known for institutionalising systems that facilitated a decentralised management culture to take root in his company. He is currently associated with non-profit organisations like the World Wildlife Fund, Common Cause, the National Council for Applied Economic Research.

### B G VERGHESE – member

He has served as the editor of two leading national dailies, *Hindustan Times* and *The Indian Express*. A recipient of the Magsaysay Award for journalism in 1975, he is a member of the Press Council of India and of the Prasar Bharati Board, India's newly-reconstituted broadcasting corporation. He has been appointed as the information consultant to the defence minister. Currently associated with the Centre for Policy Research, New Delhi, he works on issues of water management.



### ELA BHATT – member

Inspired by Mahatma Gandhi, she founded the Self Employed Women's Association (SEWA) in 1971 as a union for women working in marginal occupations. A recipient of several awards, notable being the Ramon Magsaysay Award, the Padma Shree, Padma Bhushan, the Right Livelihood Award for 'Changing the Human Environment' and the CARE Humanitarian Award. She recently received the Asia Society Award (Builder of bridges between Asians and Americans).

### WILLIAM BISSELL – member

The managing director of FabIndia, a company that has made a signal contribution in popularising handlooms, nationally and internationally, he is deeply interested in issues of environment and sustainable development. Bissell is the managing trustee of the Bhadurajun Artisan Trust, which runs schools in Rajasthan to bring quality education to the artisanal families living in rural areas.



### G N GUPTA – member

Joined the board in 1998. He is part of the core group that provides guidance on institutional development issues, particularly those concerning finance. As a member of the Indian Revenue Service, he has held several key positions in the revenue department of the Ministry of Finance. He served as the Chairman of the Central Board of Direct Taxes, India's highest tax making body, and also as a Director in the Planning Commission. He serves on the board of several companies.

### VIRENDRA KUMAR – member

Former professor of botany at Zakir Husain College, New Delhi, he is an ardent environmentalist and expert on Himalayan flora and fauna. He has been instrumental in providing valuable information on the bio-resources found in the Himalaya and the impact of environmental degradation on this fragile ecosystem. He has given several talks on this subject.





# K R Narayanan

*Former President K R Narayanan, the patron of CSE, was a strong supporter of the green movement*

Some people can rebel outside the system; most conform within the system. Few people can be true to themselves when they are in power. But very few — almost none — can revolt from within and remain true to others, when in highest power. It is not that they don't want to. They can't because of the sheer weight and scale of the office they hold in government. They can't because they are not K R Narayanan, our former President who passed away this last week.

You will be surprised when I write this. K R Narayanan will not fit your image of the strident, card-holding, revolutionary leader. Instead you will remember him for what he was — the erudite, compassionate, graceful politician, who knew his mind. You will remember him for his integrity and for his reluctance to play the power game. You will remember him fondly and dearly for all this and more.

I remember him for all this and even more. I remember him for making the system 'bend' to make space for issues, people, ideas and what was right. He did this in his own style; giving of little of himself to what he believed in. Most importantly, he did this not by standing against the system, but by standing with the system. He was the ultimate subversive: he made power good.

In the mid-1990s, he was already vice-president, living in the distant and security laden areas of Delhi. My colleague Anil Agarwal, of whom he was very fond, asked if he would release a book on air pollution. Sounds innocuous, does it not. After all, this is what all leaders are expected to do — launch books, shows, seminars and cut ribbons and lay foundation stones for bridges, buildings and blocks.

But this was not one of 'those' events. The book was titled *Slow Murder*; it indicted the most powerful industrialists in the country for producing vehicles that killed people slowly but surely; it demanded change with stridency of an angry rebel. This was also the time when Delhi was choking on the spit of its vehicles; but it was the time when nobody cared.

K R Narayanan not only agreed to release the book, he agreed to do it from his own palatial and powerful vice-presidential house. In one stroke, the profile

of the concern changed. It became acceptable. It became powerful.

Later, Anil went back to K R Narayanan — this time in the grandeur and silence of the President's house to request him to inaugurate the workshop on traditional water harvesting. Again, you will say: so what is new. What was different was that this was the time when water harvesting was the small fad of small people. K R Narayanan agreed to inaugurate the meeting to give away awards to these small people — the unsung engineers and water managers of rural India; he agreed publicly to learn

from this knowledge so that the most powerful house in the country would adopt their humble science. He agreed in the meeting that "he would do water harvesting in Rashtrapathi Bhawan (the President's Estate), provided his bureaucracy would allow him". And he did. My fondest memory is of him, inspecting the rainwater harvesting recharge wells of the President's Estate, accompanied by his bewildered but respectful government engineers.

Still later, he agreed enthusiastically, to visit the still unknown villagers who had brought their river to life by rainwater harvesting. His visit to Alwar to award Bhaonta-Kolyala village brought with it the pomp of the state — the governor, chief minister and others trekking to the river to see the water that gave it life.

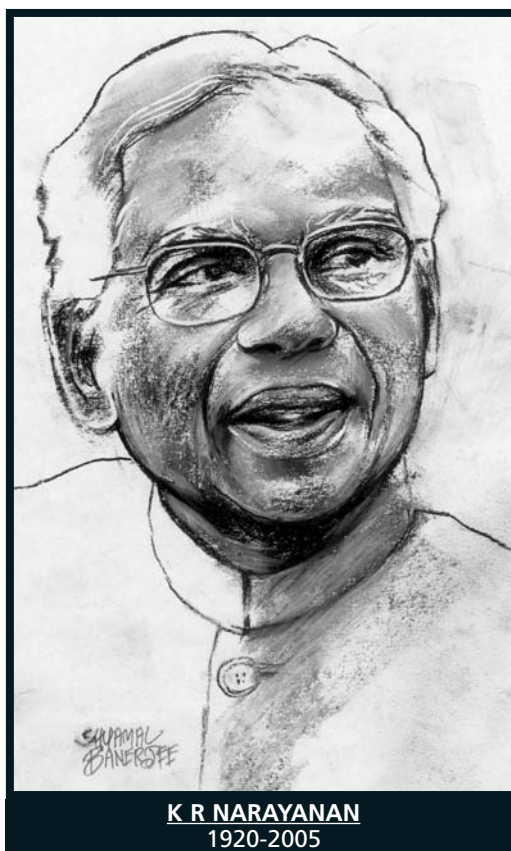
We should remember how he admonished the government of the need to build an inclusive and just society. How he spoke of the need to account for people displaced by dams or devas-

tated by mining. He did this, not when he was out of power or in retirement — as most do — but when he was holding the reigns of India's highest office. Today, we need this voice of authority and reason more than ever, as we hurtle towards growth, which can be all we want it to be: divisive and destructive or bring prosperity for all.

This is why I cried at his death: a good man who made us all good has gone. We are poorer, much poorer at this loss.

— Sunita Narain

— Reprinted from Down To Earth August 15, 2005





# Kamla Chowdhry

*Kamla Chowdhry played a critical role in furthering the environmental movement in the country*

In the death of Kamla Chowdhry, CSE has lost a very dear well wisher. A staunch Gandhian and a firm believer in the doctrine of non-violence, she was a champion of the cause of the poor and the marginalised in society. She always maintained what Gandhi believed in; that nature's resources were sufficient to meet all the needs of humans but not sufficient to cater to their greed. Life for her meant viewing the world through the window provided by Gandhian thought and belief.

Widowed at an early age; and at a time when widows in India lived a life of seclusion, Kamla Chowdhry decided to defy tradition and contribute meaningfully to the development of the nation. She went on to play a key role in establishing and developing several premier institutions of India such as the Indian Institute of Management (IIM), Ahmedabad, the Institute of Rural Management in Anand (IRMA), the National Wastelands Development Board (NWDB), the National Foundation of India (NFI) and several others.

During her life she played a critical role in the environmental movement of the country. She was a strong advocate of issues close to the core of CSE's activities, issues relating to poverty and its link with ecological degradation. As a result most of her work — towards the latter part of her life — focussed on land degradation and setting up of institutional mechanisms to evolve strategies to ensure the participation of the rural poor in poverty alleviation programmes.

When the time came to set up the Centre for Science and Environment in New Delhi, CSE's founder director Anil Agarwal, who had then just returned to the country from the UK, contacted her for advice. As one of the founder members of CSE, she also served as chairperson of the institution for several years.

Kamla Chowdhry had a wide variety of professional experiences; as a visiting professor at the Harvard Business School, a member of the World Bank's Advisory Committee on Environment and Sustainable Development; a member of the World Commission on Forestry and Sustainable Development; a professor at the Indian Institute of Management, Ahmedabad (1962-1972) and consultant to the Atomic Energy Commission,

Indian Space Organisation, and several private and public sector organisations (1962-1972). She was a programme advisor for the Public Planning and Management Committee of The Ford Foundation (1973-1983). She advised the then prime minister Rajiv Gandhi on the establishment of the National Wastelands Development Board, and was the head of the Board during its initial period (1985-1988).

As a co-chair of the Global Peace Initiative of Women, Kamla Chowdhry worked to build institutions of rural management and was involved with environmental concerns related to degraded lands, deforestation, and watershed management. She was also a member of UN Secretary-General Kofi Annan's Eminent Persons Advisory Group for Sustainable Development in preparation for Rio+10 and a co-chair of the Earth Charter Initiative.

She served on the board of several institutions and companies and even captains of industry took advice from her. Her work was not confined to India and she was on the body of several international organisations like the Food Security World Commission, the World Earth Forum and the Advisory Panel on Food Security World Commission on Environment and Development to name a few.

Kamla Chowdhry, was the founder of the Vikram Sarabhai Foundation and worked passionately for women's rights and empowerment.

She continued to be a board member of CSE and despite all her other work provided invaluable support to many of CSE's endeavours over



**KAMLA CHOWDHRY**  
1920-2006

the years.

She died following a prolonged battle with cancer, and left behind an endowment of Rs 50 lakh in her will for CSE, for its work on water and sanitation issues.

For someone who had been with us right from the very beginning in all our work she was very much a part of the journey we undertook at CSE. More importantly she could understand the organisation's soul, giving us the support that makes CSE possible even today.

Her death has left behind a void as she was always a pillar of support for CSE.

She will be very dearly missed.



# Staff at CSE (31.3.2006)

---

## **DIRECTOR**

Sunita Narain

## **Director's office**

S Sudha

Jainamma George

Santhosh Kumar P

## **RESEARCH AND ADVOCACY**

### **Right to Clean Air**

Anumita Roy Chowdhury

Chirag D Shah

Priyanka Chandola

Vivek Chattopadhyaya

### **Jal Swaraj**

R K Srinivasan

Suresh Babu S V

Salahuddin Saify

Bharat Lal Seth

### **Industry and Environment**

Chandra Bhushan

Monali Zeya

Sujit Kumar Singh

Nivit Kumar Yadav

Radhika Krishnan

### **Pollution Monitoring**

#### **Laboratory**

H B Mathur

Sapna Johnson

Avinash Kumar

Nirmali Saikia

## **ENVIRONMENTAL COMMUNICATION**

### **Science and**

#### **Environment Reportage**

Pradip Saha

D M Nair

### **News team**

Sopan Joshi

T V Jayan

Vibha Varshney

Kushal Pal Singh Yadav

Nitin Sethi

Nidhi Jamwal

Ritu Gupta

Padmaparna Ghosh

Kirtiman Awasthi

Sourav Mishra

### **Copy team**

Suhit Kumar Sen

Atul Sharma

Kaushik Dasgupta

Aloysius Lazarus

Snigdha Das

Indrajit Bose

Shubha Kishore

### **Art and Design**

Mridul Kishore

Tamal Basu

Debojyoti Kundu

Shyamal Banerjee

### **Website**

Shams Kazi

Rajendra Rawat

## **RESEARCH & PUBLICATION**

Pratap Pandey

Vasudha Kuthiala

## **EDUCATION AND TRAINING**

### **Anil Agarwal Green College**

Aditya Batra

K V Raghavan

### **Environment Education**

Sumita Dasgupta

Shankar Musafir

### **Media Resource Centre**

Souparno Banerjee

Shachi Chaturvedi

## **ENVIRONMENT INFORMATION DISSEMINATION**

### **Sales and Despatch**

A K Acharjee

K C R Raja

Biju Joseph

### **Database**

Vikas Khanna

Madhu K P

## **ENVIRONMENTAL RESOURCES UNIT**

Kiran Pandey

### **Audio Visual team**

Amit Shankar

Ashwani Kumar Sinha

Anil Kumar

## **Books, Documents and Journals team**

K M Sheeja

Susan Chacko

Kabita Shankara Narayanan

D S Thapliyal

## **Newspaper and Newsmagazines team**

Madhumita Paul

Bharti Kalra

Bindulekha E V

Sarika Saxena

K Sahasranamam

## **PROGRAMME MANAGEMENT AND ADMINISTRATION**

Jagdeep Gupta

### **Administration**

J K Sharma

Dharm Singh Bains

Suresh Kumar

Keshar Singh

Ashish Giri

### **Programme Management**

Anil G.

Rajeev Betne

Sudeshna Saha

### **Production**

R Arokia Raj

Shri Krishan

Surender Singh

Kripal Singh

Gundhar Das

## **INSTITUTIONAL DEVELOPMENT**

Gita Kavarana

### **Board and Funding**

Anuradha Chatterji

Surendran T T

### **Accounts & Finance**

Sharat Trehan

Anupam Verma

Pankaj Kumar Chaudhuri

Sushma Malik

## **INFORMATION TECHNOLOGY**

Saroj Kumar Sahoo

K S L Srinivasan



# AGENDAUNLIMITED

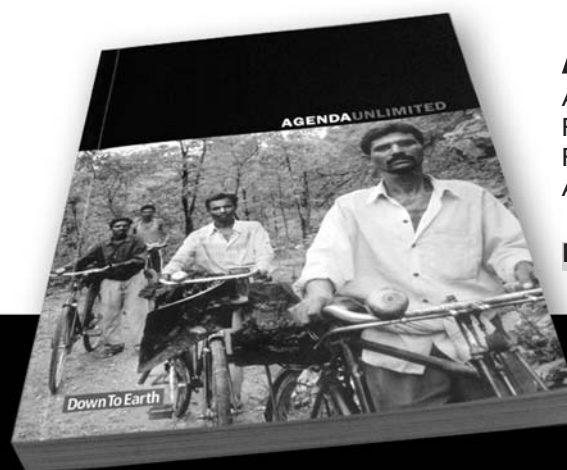
A book that captures the heart and soul of the real India...

The Centre for Science and Environment and the Society for Environmental Communications have great pleasure in presenting to you Agenda Unlimited... In this new India the Agenda is for Change, and it is Unlimited...

It makes you understand better the psyche of the average Indian of the current generation.

This book gives an idea of the potent force that India has been generating in the last decade, and illustrates the "how and why" of this dynamism that is promising to propel India into the league of developed nations.

Why not be **part** of the **Change** that is happening?



## AGENDAUNLIMITED

A compendium of such stories.  
Reported over 12 years.  
From across India.  
ALL IN ONE BOOK

Buy online <http://csestore.cse.org.in>

Price:  
Rs 490  
US \$29



Contact: Sales & Despatch Department  
**CENTRE FOR SCIENCE AND ENVIRONMENT**  
41, Tughlakabad Institutional Area, New Delhi-110 062  
Ph: 91-11 29955124/6110/6394/6399; Fax: 91-11-29955879  
Website: [www.cseindia.org](http://www.cseindia.org); E-mail: [cseorder@cseindia.org](mailto:cseorder@cseindia.org)

**ORDER NOW...**

**YES! I WANT TO GET 'AGENDA UNLIMITED'**

Cost	No. of copies	Total Cost
490/- per copy, US \$29		

Name: Mr/Ms \_\_\_\_\_ Designation \_\_\_\_\_

Institution \_\_\_\_\_ Address: ☐ Office ☐ Residence \_\_\_\_\_

State: \_\_\_\_\_ Country: \_\_\_\_\_

Pin Code       Phone: Off ☐ Res ☐ \_\_\_\_\_ Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

I wish to pay by ☐ MO ☐ Cheque/Demand draft (add Rs 15 for outstation/non-Delhi cheque) DD/Cheque No       Dated \_\_\_\_\_

payable to **Centre for Science and Environment**. Credit Card: ☐ Amex DBC Code\*     ☐ Visa ☐ MasterCard ☐ Diners Rs \_\_\_\_\_

Credit Card No                 Valid till       Date of Birth \_\_\_\_\_

\*\*Card Verification Value No     Date \_\_\_\_\_

\*Four digits on the top of the card number; \*\*Last three digits on the reverse of credit card

Signature \_\_\_\_\_

Please fill this form and mail or fax to: Sales & Despatch Department, **Centre for Science and Environment**,  
41, Tughlakabad Institutional Area, New Delhi-110062 Ph: 91-11-2995 5124 / 6394 Fax: 91-11-2995 5879 Email: [cseorder@cseindia.org](mailto:cseorder@cseindia.org)

**Note:** Order will be executed on realisation of your remittance. Please allow 4-6 weeks for us to process your order.





# CSE Films on Environment

## New Release:



### **The Rain Catchers: A Practical Guide to Solve Your Water Problems**

38 minutes, VHS/VCD, Rs. 750 / US \$25 & DVD Rs 950 / US \$32

Catch rain where it falls. This is the unambiguous message that The Rain Catchers, a training and awareness video on urban rainwater harvesting, carries. The video is an easy-to-use resource guide. It answers all the key questions - such as what is urban rainwater harvesting and how it is done - and goes further to look at policy dimensions, products and technologies and maintenance issues across a range of geoclimatic zones in India.



### **Waterworks India: Four Engineers and A Manager (Also available in Hindi)**

22 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Meet five 'ordinary' people, who have kept the intricate traditional science of water management alive from the modern onslaught. The camera moves from the remote cold

desert of Leh to Rajasthan and then to far south in Kerala and Tamil Nadu. It introduces the technique and social management practices governing community water management.



### **Arvari**

14 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

A major people's movement in rural Rajasthan has revived the river Arvari and its tributaries. Water management techniques have completely changed the landscape and lives in this once-denuded region. A dried up river has

come back to life through a revolutionary movement, regenerating community and society.



### **Harvest Of Rain (Also available in Hindi)**

48 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Dedicated to India's traditional water harvesting systems. One of the basic principles of water management is simplicity itself - conserve water where it falls. But we tend to chase hydraulic nightmares: big dams and

canals. An age-old wisdom lies forgotten. The camera wanders through Uttar Pradesh, Rajasthan and Tamil Nadu, recording the profound science of the people.



### **Thar - Secrets Of The Desert (Also available in Hindi)**

52 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Watch the diverse social and cultural practices which enabled large populations to survive in the harsh Indian desert environment. The villages of Thar, in Rajasthan, have amazing

systems of water harvesting. Similarly, the desert farmer has devised an ingenious system to grow and maintain sources of fodder.



### **The Village Republic**

50 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Sukhomajri in the Siwalik; Ralegaon Siddhi in the Deccan Plateau; Seed in Aravali; and Penchgani in Baripada; are not just names of a few Indian villages, but of the true temples of modern India. They have dared to take control of

their environment into their own hands and change their economic fate. These village republics depict that environmental management, in rural India, is a matter of giving power to the people to manage their natural resources.



### **The Living Word**

32 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Environmentalism Anil Agarwal and noted Danish journalist and writer Knud Vilby discuss the issue of air pollution, governance and how we move ahead. 7500 people die every year because of air pollution. How do policy makers

look at this problem? Do they stress on ecology, or on economy? Development in a poor country, like India, is not cheap. The film records the initial stages of CSE's Right To Clean Air campaign.



### **The Spirits of Forest**

23 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Sacred groves are found throughout the breadth and length of India and their purpose is to manage and protect forests in the name of God. If they are to remain, two things need to be practiced - local community control must be

strengthened and not weakened; secondly we have to rebuild faith in the wealth that our forests provide.



### **Life Under Wildlife**

23 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Looks at the conflict between man and animal. The traditional inheritors of the forests are evicted and 'rehabilitated' to inhospitable terrains, all in the name of protecting the wildlife! A case study of the situation

in the Nagarhole National Park in Karnataka and the Rajaji National Park in UP.



### **Wrath of Nature**

84 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

In this three part series, environmentalist Anil Agarwal presents the problems of India's increasing susceptibility to floods and droughts and seeks to understand the impact of degradation of the environment on this

problem. Part I explores the increase in flood affected areas in India and analyses the Himalayan floods. Part II looks at the increased incidents of droughts in India and the conditions which are responsible for it. It also explores the question about deforestation and its impact on rainfall. Part III presents an agenda for change and shows how the country can combat the growing problems of drought and flood.



### **Bandits And The Backhanders**

23 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

Degradation of values translates into degradation of nature. In a corrupt system, people lose respect for values. With large scale corruption in the natural resource management, people lose respect for nature.

The film takes viewers to look at irrational policies (not based on scientific understanding, but on vested interests) in management of rivers, floods, forests, and urban planning; and highlights the results of such distorted practices.



### **Smog Inc.**

26 minutes, VHS/VCD, Rs 750 / US \$25 & DVD Rs 950 / US \$32

While we chase the American dream of a car for everyone, we pay a heavy price with health disorders. Cities across India are choking from vehicle exhaust. A classic documentary that takes an incisive look at the science and

politics of vehicular pollution.



## Managing Water



### **Making Water Everybody's Business: Practice & Policy of Water Harvesting**

*Edited by: Anil Agarwal, Sunita Narain & Indira Khurana*

This report provides in-depth analysis of traditional practices, technologies, policy issues and the work of governments and NGOs. (Pages 456)  
PB: Rs 490 / US \$22

### **Fourth Citizens Report (SOE-4): Dying Wisdom**

*Edited by: Anil Agarwal, Sunita Narain*

This report provides a comprehensive overview of India's millennia-old traditions of rainwater harvesting. Triggered a nationwide interest in community-based water management. **Also available in Hindi.** (Pages 404) PB: Rs 390/US \$14, Hindi Rs 290/US \$12

### **Third Citizens' Report (SOE-3): Floods, Flood Plains & Environmental Myths**

*Edited by: Anil Agarwal, Sunita Narain*

This report remains one of the few chronicles of the ecological change taking place in the Indo-Gangetic plains — India's most densely populated area. (Pages 167) PB: Rs 190 / US \$10

### **Tanks of South India**

*Edited by: Prof A Vaidyanathan*

This book analyses the variations between and within tanks — in the distribution of water to different segments of the command and in productivity. (Pages 178) PB: Rs 490 / US \$14

### **Wastewater Recycling Manual for Urban Areas with case studies**

A comprehensive documentation of localised community-level approaches in urban wastewater management. (Pages 52)  
PB: Rs 250 / US \$20

### **Water Harvesters' Manual for Urban Areas**

This manual is built out of CSE's experience in providing technical advice to implement rainwater harvesting in the urban context. **Available in English, Hindi, Marathi, Tamil and Telugu.** (Pages 35) PB: Rs 100 / US \$8

## Down To Earth Books



### **Body burden: Health and Environment in India**

A degraded environment brings with it a set of health problems — some new and some, which have posed a challenge over the years. Presenting Body Burden, a compilation of reports from *Down To Earth* on the health impacts of environmental pollution in India. (Pages 344) PB: Rs 390 / US \$31

### **Agenda Unlimited**

Across India, people have taken their destinies into their hands — Improving their future. A compendium of such stories. Reported over 12 years. (Pages 288) PB: Rs 490 / US \$29

### **Survival Primer – Down To Earth Special Issue**

Contains prominent articles collated from 200 issues of science and environment fortnightly, *Down To Earth*, from 1992 onwards. (Pages 240) PB: Rs 290 / US \$10

## State of India's Environment



### **Fifth Citizens' Report (SOE-5)**

*Edited by: Anil Agarwal, Sunita Narain and Srabani Sen*

This report documents the extraordinary initiatives in the rural sector and the crisis the urban sector faces. (Pages: Part I-440; Part II-256)  
PB: Rs 590 / US \$33

### **Second Citizens' Report (SOE-2)**

*Edited by: Anil Agarwal, Sunita Narain*

This report describes major environmental changes in India. It's a balance sheet of India's resources and focuses attention on the effect of ecological degradation on the poor. (Pages 393)  
PB: Rs 290 / US \$12

### **First Citizens' Report (SOE-1)**

*Edited by: Anil Agarwal, Ravi Chopra & Kalpana Sharma*

This report analyses the little understood relationship between development and environment, the impact of environmental degradation on individual, social groups, tribals and nomads. (Pages 192) PB: Rs 190 / US \$10

## Global Environmental Negotiations (GEN)



### **GEN-2: Poles Apart**

*Edited by: Anil Agarwal, Sunita Narain, Anju Sharma & Achila Imchen*

The second in the series this book includes updates on the issues dealt within the first report, Green Politics. This report has also new chapters on five conventions and institutions, and updates on issues covered in the first report. (Pages 441)

PB: Rs 690 / US \$33

### **GEN-1: Green Politics**

*Edited by: Anil Agarwal, Sunita Narain, Anju Sharma*

This book provides a close analysis of important environment related conventions and institutions from their origins, and demystifies the politics of 'saving the environment'. (Pages 409)  
PB: Rs 590 / US \$31

## Green Rating Project



### **Concrete Facts – The life cycle of the Indian cement industry**

A state of the art compilation of facts on the Indian cement industry. It assesses its environmental, economic and social performance by covering issues ranging from raw material sourcing to technology and finally benchmarks the performance of 38 Indian cement plants with the global best practises. (Pages 164)

PB: Rs 3,000 / US \$90

### **All About Paper – Green Rating of Pulp & Paper Industry**

A comprehensive Life Cycle Analysis (LCA) approach for assessing the environmental performance of pulp and paper industry in various phases of life cycle ranging from raw material sourcing to pollution generation and control. (Pages 344) PB: Rs 5,000/US \$125

### **Mileage – Green Rating of Indian Automobile Industry**

In-depth Life Cycle Analysis of the environmental performance of major players in the Indian automobile sector. Also analyses technological issues, comparative analysis of best practices with global players and recommends future outlook. (Pages 238)  
PB: Rs 490 / US \$18

### **Environmental Rating of Indian Caustic-Chlorine Industry**

An exhaustive life cycle analysis of players in the Indian caustic chlorine sector and its impact on environment. (Pages 334)  
PB: Rs 2999/US \$90

## Air Pollution



### **The LEAPFROG FACTOR – Clearing the air in Asian cities**

Captures 10 years of action, impacts and learning to address the complex air pollution challenge in Asia. This book is a survival guide for Asian cities trying to steer their way out of the pollution haze. (Pages 448)  
PB: Rs 590 / US \$35

## Environment Education



### **Green Schools Programme Manual**

This manual is designed as a self-learning and assessment tool so that teachers can work with students to audit their use of natural resources and to experiment with environment friendly practices. (Pages 78)  
PB: Rs 125 / US \$10

**Note:** HB – Hardback and PB – Paperback. Prices include postage and delivery charges.



**Centre for Science and Environment**

41, Tughlakabad Institutional Area, New Delhi - 110 062 India

Tel: 91-11-2995 5124/6110/6394/6399 Fax: 91-11-2995 5879

Email: pub@cseindia.org Website: www.cseindia.org



*leaves of important  
survival trees of india*

MAHUA

ALDER

OAK

KHEJDI

PALMYRA



**Centre for Science and Environment**

41, Tughlakabad Institutional Area, New Delhi 110062

**Tel:** 29955124, 29956110, 29956394, 29956399 **Fax:** 29955879

**Email:** [cse@cseindia.org](mailto:cse@cseindia.org) **Website:** [www.cseindia.org](http://www.cseindia.org)