



Challenges of rural immunisation waste management

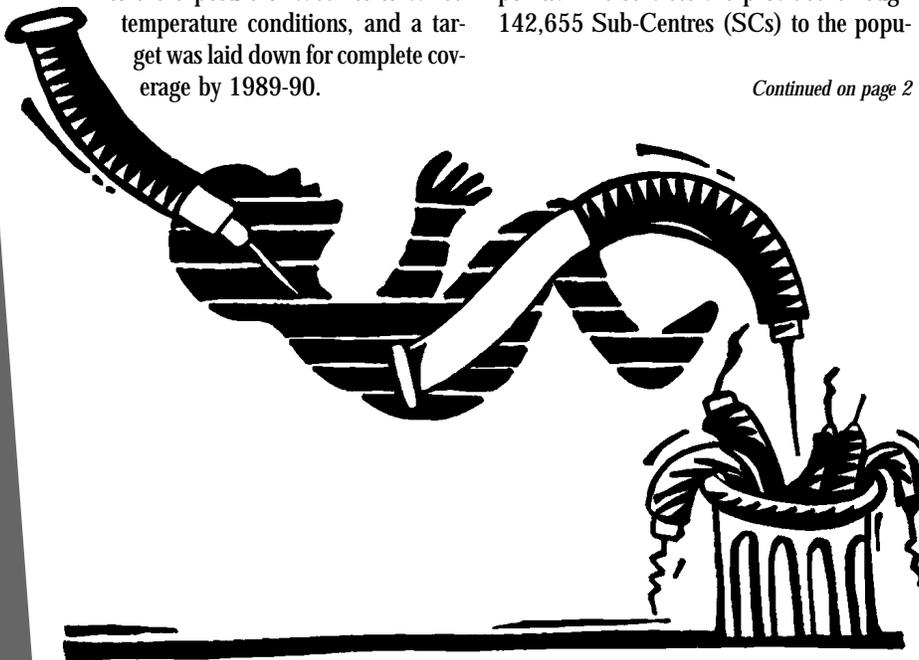
The immunisation programme in India goes back to the year 1978 when the Government of India (GOI) started the Expanded Programme of Immunisation (EPI). The programme is largely confined to the urban centres and has very limited reach in the rural areas.

Based on the learning from EPI, GOI launched a comprehensive universal immunisation programme in 1985. The programme focussed on control of mortality and morbidity from the six main diseases. This also emphasised on enhancement of indigenous vaccine production. For the first time, a cold chain was established to prevent the loss of potency – vaccines' ability to give protection against disease – over time, due to the exposure of vaccines to varied temperature conditions, and a target was laid down for complete coverage by 1989-90.

A further impetus came in 1992 with the setting up of a Technology Mission for Immunisation. This programme was brought into the Prime Minister's Office (PMO)'s 20-point programme and the coverage of infants of the age of 0-12 years was specifically monitored to reduce child mortality in the country. At present, the programme is covered under Reproductive and Child Health (RCH) II, which was made part of the National Rural Health Mission in the year 2005.

India has in total 593 districts that act as main administrative units for the programme. The Primary Healthcare Centres (PHCs) located in these districts, which total 23,109, act as last vaccine storage points. The services are provided through 142,655 Sub-Centres (SCs) to the popu-

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Environment is more than a 'cost'

IT IS TIME TO REALISE the ecological connect we are part of. Though much has been written on this issue, we do increasingly live like we are isolated from our larger environmental questions. For example, why is the food we eat getting more and more contaminated? Fresh evidence emerging from a three-year research project, which Toxics Link is a part of, is showing high levels of heavy metals transferred from irrigation water to vegetables. The water is treated effluent from the small-scale dyeing industry. Essentially, the coloured clothes we wear is leading to our eating contaminated food!

There are no mechanisms to deal with such an issue. In the new paradigm of economic development, everything needs to be 'costed'. How does one cost for a situation like this?

Currently, we would at best install an effluent treatment plant to take care of certain pollutants in the water and minimise their levels to that prescribed by a standard. However, many of the pollutants like heavy metals accumulate in soil to levels beyond any standard and are then taken up by the crop. That is the food that we will ultimately eat. On the other end, we could at most test the levels of heavy metals in the vegetables to find out if these exceed a certain limit. However, there is nothing more we can do, for there is no intervention being made to change the quality of the water used for irrigation, and both ends of the problem are treated as separate. A real-life situation like this one is quite a challenge when we look at environmental actions today, which are more piece-meal than comprehensive.

Many similar connections abound all around us. Toxic chemicals in plastics are released when these are disposed of or burnt. Mercury vapourises when we throw a broken thermometer in an incinerator. Button batteries leach when these are dumped into a landfill. The mercury and metals become air-borne or water-borne, deposit on the grass, are eaten by cows and become the glass of milk on our table. The cycle lands the toxins back into our bodies. Yet the environment is treated as separate from our lives and evaluated merely as a 'cost' in the process of development, when there is not enough clarity even about what is to be costed. We must go beyond only planting trees and learn to deepen our knowledge about the environment and our ecological connections. That is the first step to real change.

Ravi Agarwal

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lation living in 635,588 villages in the country (*source: Census of India, 2001*).

Dealing with the immunisation waste

The primary concern is to reach out to the nation's large cohort of 25 million births every year. Also, a significant percentage of injections used in the rural areas for immunisation are unsafe, and very low priority is placed on the disposal of immunisation waste, such as used syringes and needles. Lack of a support system for proper waste disposal at the lowest unit of healthcare services puts the burden on the Auxiliary Nurse Midwives (ANMs), who have the responsibility of collecting vaccines from PHCs, carrying it to the sites, mobilising children/mothers at the village level, sterilising the glass syringes and bringing back used syringes to the PHC.

From August 2005, GOI has introduced the use of auto disposable (AD) syringes in all its healthcare practices. The Central Pollution Control Board (CPCB) has finalised guidelines for the disposal of syringes and as per the information received from government agencies, the guidelines have been communicated to all concerned authorities.

Waste disposal practices of rural healthcare centres

According to the Infection Management and Environment Plan (IMEP) that provides guidelines for management of healthcare waste in rural areas, all basic infrastructure such as high-grade mechanical needle cutters should be provided in the PHCs and Community Health Centres (CHCs). It also states that the cut needle with hubs should be collected separately, disinfected and buried in specific needle pits at the respective PHCs/CHCs.

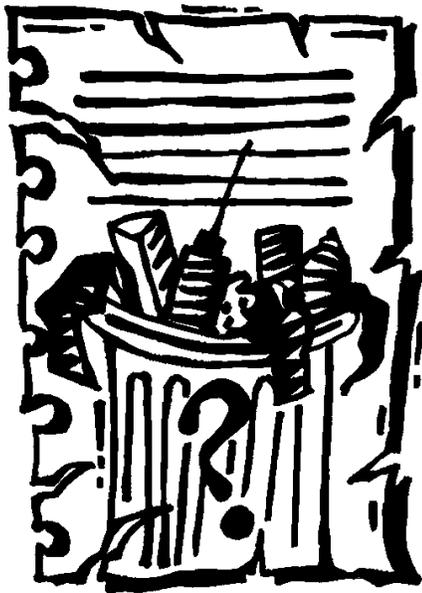
In the rural facilities of India, in general, it has been observed that the waste generated through immunisation is mixed with other bio-medical waste and is dumped in the backyards of the CHCs.

Case study – CHC in Haryana

A case study has been conducted at a CHC located about 100 km from Delhi in the district of Rewari of Haryana. The routine immunisation in this CHC takes place on Wednesday and Thursday every week. The centre uses AD syringes; on an average, 80 syringes are used on a typical immunisation day. It was also found that a mechanical needle cutter is in use as per the guidelines and that a syringe disposable box has been provided in this facility.

But the centre lacks infrastructure support for the final disposal of the bio-medical waste. The current practice shows that the immunisation waste is collected in the backyard of the CHC and is subsequently burned. This burnt waste is collected for 15 to 20 days and is then disposed of, along with normal market and household waste, into the landfill sites located in the block. The cleaning staff stated that the syringe waste, which previously used to be sold to the local plastic recyclers, is now disposed of in the shallow pits behind the CHC.

The staff and ANM expressed ignorance about the proper management of the waste. They stated, "We started segregating the waste but the tractor of the ward committee does not collect it regularly. We asked the nurses what to do... they said burn it."



In the rural facilities of India, in general, the waste generated through immunisation is mixed with other bio-medical waste and dumped in the backyards of the CHCs

Suggested recommendations

There is a strong need for training on injection safety to be provided to ANMs at PHC and CHC level. The staff should also be provided with simple and illustrative Information, Education and Communication (IEC) materials for increased awareness on the dangers of waste mismanagement and proper waste disposal methods.

The CHCs are normally located at the Block level. At a deeper level, it is important to involve Ward Committees for transportation of waste from PHCs/SCs to CHCs/FRUs (First Referral Units) and further to the district level from where it should be taken to the centralised treatment facilities (CTFs) for proper disposal. The IMEP-RCH-II guidelines suggest that one CTF should cover all healthcare facilities within a 150-km radius.

The regulatory mechanism for the disposal of immunisation waste needs to be strengthened and there is a need for intensive monitoring at the CHC/PHC and SC levels in rural areas.

By **Prashant Pastore**

FEATURES

Wastewater irrigation and heavy metal contamination

One of the threats to food quality and safety in the peri-urban areas of India are heavy metals in effluents from industries and sewage treatment plants. Industries often cluster in these areas, where agricultural land use is dominant and farmers have little option other than to use this untreated or inadequately treated water for irrigation of food crops. In either case, heavy metal contamination of wastewater is extensive. To understand the effects of heavy metal contamination in irrigation water, a study is being conducted of which Toxics Link is a part. This project is being funded by the United Kingdom (UK) Department for International Development (DFID) with Dr Fiona Marshall of University of Sussex as the Project

Leader, and Ravi Agarwal, Toxics Link, Dr Madhoolika Agarwal, Banaras Hindu University (BHU), and Dr D.S. Bhupal, Delhi University (DU), as project partners.

Study sites

The city of Varanasi was chosen as the project site as it is an advanced agricultural as well as industrial centre. The main industries are engaged in manufacturing of metal products, chemicals, electrical apparatus, textiles, dyeing and printing.

The initial selection of case studies focussed on three areas of Varanasi:

▲ **Dinapur:** in the vicinity of the city's major sewage treatment plant.

▲ **Shivpur:** to the north-west of the city, close to Shivpur industrial area.

▲ **Lohta:** to the west of the city, close to industrial areas.

The crops tested are wheat, brinjal, tomato, spinach, amaranthus, okra, cauliflower, cabbage and radish. The heavy metals analysed are cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb), manganese (Mn), nickel (Ni) and zinc (Zn).

Objectives of the study

The main objectives of the study are as follows:

- ▲ To understand the seasonal industrial sources and extent of heavy metal contamination in irrigation water.
- ▲ To improve understanding of the relationships among heavy metals in irrigation water, accumulation of damaging levels in the edible portion of crops and implications for cropping methods and farming systems.
- ▲ To improve understanding of source-pollutant-impact relationships amongst stakeholders.
- ▲ To enhance awareness of appropriate technical methods for monitoring.
- ▲ To enhance health awareness amongst health professionals and the public at risk.
- ▲ To augment the social, economic, institutional and policy environment for effective implementation of appropriate measures for monitoring and control.



Wastewater drain passing by the agricultural land at Lohta, Varanasi.



Hazardous waste management in India

Hazardous wastes, generally, are discarded materials (liquids, solids or aerosols), which may cause harm to human beings, animals, plants or the environment unless treated and handled properly. Because of their dangerous characteristics (for example, toxicity, flammability, corrosiveness, etc), hazardous wastes demand special treatment so as not to peril our land, air and water. The major quantities of hazardous waste are generated by industries such as petrochemicals, pharmaceuticals, paints and dyes, fertilisers, textiles, etc.

Quantification of hazardous waste in India

An array of agencies, organisations and trade promotion councils have been concerned in quantifying the generation rates of hazardous waste at the states as well as national level. All their efforts have been at best crude and sketchy, because no reliable data have been forthcoming from the State Pollution Control Boards (SPCBs), the Central Pollution Control Board (CPCB), or from the Ministry of Environment and Forests (MoEF).

According to the MoEF, India generates 7.2 million tonnes of hazardous waste, of which 1.4 million tonnes is recyclable, 0.1 million tonnes is incinerable and 5.2 million tonnes is for disposal on land (MoEF, 2000). As per their information, there are 323 hazardous waste recycling units in the country, of which 303 units use indigenous raw material while 20 depend on imported recyclable waste.

Under the umbrella of the Supreme Court of India, a High Powered Committee was set up on May 5, 1997, during the hearing of a Public Interest Litigation (PIL) challenging the import of hazardous and toxic waste into the country. The data published by the High Powered Committee reports generation of 4.43 million tonnes of hazardous waste in India every year, of which 1.72 million tonnes is recyclable and 2.53 tonnes is for land disposal.

As per January 2006 data from CPCB, there are 26,569 hazwaste generating units in India and the quantity of hazardous waste generated is 4.46 million tonnes.

Key outputs so far

On analysis, cadmium, chromium, manganese and nickel have been found to exceed Food and Agriculture Organisation (FAO) standards for irrigation water quality. Cadmium, zinc, chromium and copper were found to exceed the European Union (EU) standards for soil and cadmium, lead and zinc were found to be more than the EU and United Kingdom (UK) standards for food quality.

It was observed that heavy metal contamination of crops was significantly higher at sites where farmers have been using wastewater for irrigation, as compared to those that are using 'clean' water. Controlled experimental studies confirmed the link between contaminated wastewater and contamination in crops. A range of agricultural measures for ameliorating the impact of contaminated wastewater is being investigated.

The project is also working with

Another example of a wastewater drain irrigating agricultural land at Shivpur, Varanasi (above); Effluent from nearby diesel locomotive workshop irrigating the farmlands at Lohta, Varanasi.

stakeholders to investigate the possibility of introducing appropriate low-cost monitoring techniques in the study areas. The project is exploring ways in which medical professionals, public health officers, farmers and the general public can be informed about the risks associated with wastewater irrigation and will assess means of supporting policy development in this area.

The findings of the study highlight the need for greater cross-sectoral and disciplinary coordination to understand the links between environmental pollution and food safety and to address the issues that arise in the context of the livelihoods of the poor.

By Abhay Kumar

Hazardous Waste (Management & Handling) Rules

The Government of India enacted the Hazardous Waste (Management & Handling) Rules in 1989 and amended them in 2000 and 2003 under the Environment (Protection) Act, 1986. The objective of the Hazardous Waste Rules is to put in place an effective mechanism to regulate the generation, collection, storage, transport, treatment and disposal of hazardous wastes, both indigenously generated and imported.

Current disposal facilities

In India, the threat from hazardous waste is inexorable due to the lack of proper disposal facilities and of a management policy. As a consequence, hazardous waste generated continues to be disposed of indiscriminately in the following ways:

- ▼ Along roadsides
- ▼ In low-lying areas
- ▼ Along with municipal refuse
- ▼ On river/canal beds
- ▼ In empty spaces within industrial estates

According to the CPCB, there are 10 Treatment, Storage and Disposal Facilities (TSDFs) existing in India at present for the treatment of hazardous wastes – one in Andhra Pradesh (at Dindigul), seven in Gujarat and two in Maharashtra (at Taloja and Trans Thane Creek, Navi Mumbai). More facilities are proposed to be set up in the states of West Bengal, Maharashtra, Karnataka, Tamil Nadu, Haryana and Punjab.

Possible constraints in hazardous waste management

The following constraints have been identified for lack of effective hazardous waste management (HWM) in India:

- ▼ Lack of inventories, data and land use regulations;
- ▼ Laws and regulations are often not focussed on HWM but on end-of-pipe treatment processes;
- ▼ Absence of public recognition of best practices;
- ▼ Lack of awareness at all levels;
- ▼ Absence of agency for making suitable technologies available to industries, especially small-scale industries;
- ▼ Inadequate funds to develop and implement HWM strategies;
- ▼ Lack of infrastructure facilities for analysis of hazardous wastes.

It can be concluded that current facilities indicate lack of information in the generation, storage, transport and disposal of hazardous waste and lack of cooperation between the communities and the SPCBs for its management. A common TSDF for management of industrial wastes generated is a useful option under such conditions. Waste minimisation at source is another possible way out. SPCB officials need to be trained to prepare waste inventories. More than anything else, a comprehensive environmental and social assessment of hazardous waste management operations is needed to curtail the impact of waste on human health and the ecosystem.

By **Amrita Bhattacharya**

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Freedom of free software

FREE SOFTWARE is the software that respects the freedom of the users. There are four essential freedoms. Freedom 0 is the freedom to run the programme, freedom 1 is the freedom to study the source code of the programme and change it to do what one wishes. This is the freedom to help oneself. Freedom 2 is the freedom to make copies of the programme and distribute it to others. This is called freedom to help one's neighbour. Freedom 3 is the freedom to publish a modified version of the programme for the use of everyone else. That is the freedom to help the community. GNU-Linux is the name of the free software operating system.

When software is not free, it is called as proprietary. This means that the users have to depend on the developer of the software for the programmes. Free software develops under the control of users. Even non-programmer users participate in this control by deciding which versions to use. Some programmer somewhere will change that, because he is free to do so and he will publish his modified version.

The specific most important measure is to switch to free software in schools at all levels, including universities. When schools decide between free software and proprietary software, they are deciding the future of the country, the future of the society. They are deciding to send millions of students either into freedom and self-reliance and capability, or into the domination and dependence of proprietary software.

Government should insist on using free software. This will help to create a market for support services for free software which will make easier for everyone else to switch.

By **Abhay Kumar**

Based on an interview of Richard Stallman
by Abhay Kumar in 2005.



“The Ridge is a vital recharge area and no construction should be allowed here” – Vikram Soni

IN RESPONSE TO A PIL filed by Citizens for the Preservation of Queries and Lake Wilderness (CPQLW) and the Ridge Bachao Andolan in January 2004, Supreme Court has put stay order on construction of Vasant Kunj mall complex located in the eco-fragile Delhi Ridge area till it receives an Environment Impact Assessment (EIA) report from the Ministry of Environment and Forests (MoEF). In this interview, Vikram Soni of CPQLW shares his experience of long fight to save the ‘green lungs’ of the capital.

▲ Please share with our readers your journey from the beginning of CPQLW to the landmark judgment of Supreme Court.

Mr Soni: I used to go to the Ridge area next to Vasant Vihar often for walking. One day we found that some people from Delhi Development Authority (DDA) with bulldozers were building a road from Vasant Kunj to Vasant Vihar and they were not aware of any permission for construction in the protected area. We sent a letter and photographs to the Conservator of Forests and filed these documents in Delhi High Court in 1995 and the Court immediately stopped the construction. After that nothing happened for a year.

Then in 1996, DDA announced tender for hotel and mall complex in the Ridge area of Vasant Kunj with much fanfare. We formed our organisation CPQLW as there are lots of quarries and lakes in this part of the Ridge and filed a PIL against the tender. In response to it, Justice Kuldeep Singh ruled setting up of Environment Impact Assessment Authority (EIAA), which would look into all the environmental aspects of this case and subsequent cases in National Capital Region (NCR). It was the first urban environmental regime in the country with members from Central Ground Water Board, Pollution Control Board, etc. This authority asked Geological Survey of India (GSI) to demarcated the Ridge area.

It was observed from GSI’s study that the entire area of DDA where they were building the malls and some area under Army fall under Ridge. Ridge area attracts mandatory protection from Master Plan 1961 and all the subsequent Master Plans have followed it. But even today the Ministry of Urban Development have not designated the area as protected. Central Ground Water Board designated the area as water recharging zone. All these things came together and the EIAA stopped all type of non-forest activities in the Ridge area. But in 1997, the Court under Justice Kirpal and Verma permitted construction in 92 hectares of land on subject to environmental laws being respected and environmental clearance is taken. The worst part is that they dismantled the EIAA.

Then in 1998, Army started building housing complexes. They were informed that the area falls under Ridge and were

given GSI map to verify it. But the construction did not stop and the issue was raised in Parliament. Meanwhile, DDA went ahead with their mall plan in spite of the fact that case was in Court. The construction started after October 2004 and in just two years about 30 per cent of that part of Ridge has been damaged. Now on May 1, 2006, the Supreme Court stayed construction of the mall.

▲ Who have been your partners in this case as well as on the issue of the Ridge?

Mr Soni: From the beginning, Deshdeep Sahadev has been my partner. Then we have Kuldeep Nayyar, the noted journalist and Justice Kuldeep Singh helping us in the PIL. Many people have also assisted us in the EIA that Deshdeep and I conducted. Subhash Chandra and Anupam Tiwari from IIT helped us with graphics and various aspects. Many people from NGO Forum like Ravi Agarwal of Toxics Link, Dunu Roy of Hazards Centre, members of Kalpavriksh have supported the cause and helped me in the issue. Slightly moving forward, Diwan Singh, Banjyoti Sharma, JNU student Ritu Pant have been helping me with the PIL. Then Brinda Karat is also taking the issue to the Ministry and the Parliament. We are also working with RWAs and their members have been helpful.

▲ How are the new construction activities like that of mall, hotels, etc affecting the ecology of Delhi Ridge?

Mr Soni: The Ridge is a vital recharge area and no construction should be allowed here. The EIAA have designated the area as forest. The construction has been continued in the area literally



filling up the water bodies. There are 14-15 water bodies in the area where migratory birds visit every year. Next to the buildings, there are thick jungles like that of Sariska which are being cut down. There are flora and fauna of Schedule-1 category in the Ridge area which should be protected with utmost care.

▲ How will it affect the people of the area?

Mr Soni: The malls are not only taking up the water just by construction but they are also destroying a huge catchment area. The Ridge area recharges most of the water withdrawn by the people residing in Vasant Kunj and adjoining areas. These areas are highly dependant on groundwater. The area where the mall is coming up is the main recharge area and these sources are being destroyed. Also, a rich source of oxygen has now been affected. The Community now is going to ask for some justice on it.

▲ In what ways have you involved the people of the Vasant Kunj and Mahipalpur area in your movement?

Mr Soni: It's not my movement. It is people's movement. People have joined the movement by themselves. The Gram Sabhas of area like Mahipalpur were concerned as the area used to be dense forest. People are usually more concerned over water than on general environmental issues. We have not planned our movement as such. This Supreme Court judgment has come as almost astrological – anything can happen any time.

If the Ministry of Urban Development and Supreme Court realise the problem and take steps to replenish the damage done in the area and correct the Master Plan then all such construction activities have to be stopped. My hope lies in the fact that the Supreme Court has finally stopped the construction activities. I am hoping that some sense and sensibility will finally win the game. But there is no guarantee to it.

▲ How will the Supreme Court order affect the construction boom that Delhi and its neighbouring areas are experiencing?

Mr Soni: We want the revival of the EIAA – an independent authority not set up by any Ministry. It would be like Environment Rights Commission. Public hearings should be done under an independent body. Each

“Public hearings should be done under an independent body [like an Environment Rights Commission]. Each project should be honestly and impersonally be looked upon by them. They should look after the fact that growth and development does not affect environmental conservation. All of Delhi's natural heritage should be protected.”

project should be honestly and impersonally be looked upon by them. They should look after the fact that growth and development does not affect environmental conservation. All of Delhi's natural heritage should be protected.

▲ In one hand we have the pressure of huge population and in the other hand there is the issue of conservation. How can these two counteractive issues be handled at the same time?

Mr Soni: Population is definitely an issue. In Delhi, in addition to Yamuna water, about 30-40 per cent of water is imported from Beas and Ganga. Also, the amount of groundwater taken out is much more than the recharged amount. I don't think we can consider getting any more additional water. We have calculated in an article published in 2003 that Delhi's carrying capacity even with one-third imported water is about 8 million people. We are already 16 million people. So somewhere the population has to be stopped and move out.

Actually more than the population pressure is the market pressure. All the people are busy grabbing the land even if they are high priced. The developers should take care of the fact that we have 55 percent jhuggies in place of 5 per cent as told in the Master Plan. This is the situation and most people don't know about it. The sad part is that people don't have even time to think about it.

▲ What role, according to you, the Government bodies should play for the protection of the Ridge?

Mr Soni: All the authorities like Central Ground Water Board, Geological Survey of India, Bhure Lal Committee, EIAA, Delhi Pollution Control Committee and the Supreme Court - all has ordered to stop construction in the Ridge area. The Ministry of Environment and Forests at the Centre and the Department of Environment of Delhi has been asked to ensure that no construction take place. But the construction has not stopped. Ministry of Urban Development has been repeatedly told that the Ridge is a part of the Master Plan and it should be treated like protected area. The Government bodies like DDA who are responsible for the conservation of the area are doing the damage. Army has also continued their construction activities in the Ridge area.

▲ How are you planning to carry out your movement in the future?

Mr Soni: We are hoping that more people will join us. We along with other organisations then can demand complete stoppage in construction activities in this protected area. We need support for that. The construction of Army has to be stopped and the water bodies to be preserved.

At the present stage, construction of mall has been stopped for two months and a half. Now we are campaigning to make sure it does not start again. We have been trying to do this for the last 20 years and our campaign will continue.

By Sejuti Sarkar De



COMMUNITIES AND WASTE

Toxics Link initiates solid waste management in urban resettlement block of Bawana

Poverty in India has been the focus of many policies and programmes since India attained independence. The strategies undergone various shifts and changes in the last forty years but nothing could really halt

From top: A typical house structure in Bawana; the current waste disposal mechanism; open dumping is a hazard for communities, especially children.



the growth of poverty in the country. It is generally seen that poor localities could not make pace with the adjoining better off localities in terms of service delivery and standard of living.

In this regard and also to achieve one of the most important Millennium Development Goals (MDG1), Government of India and UNDP has developed strategies for urban poor which have been implemented in six localities of urban Delhi. These localities are resettlement colonies located in different parts of Delhi. The project addresses measures to ensure a better quality of life for individuals that permit them to realise their human potential in terms of accessing services and raise their standard of living. The project is covering the themes of health, women empowerment, livelihood, solid waste management, etc through different agencies to come up with strategy for the urban poor.

In Bawana, Toxics Link has taken the task of implementation under the theme of solid waste management. The resettlement colony of Bawana is located in North-West Delhi around 32 Km. from the main city. The colony was set up in April 2004. The communities are resettled mainly from slums of Yamuna Pushta, R. K. Puram and Vasant Kunj. The total number of households is 6500 with an average household size of 5-7 persons.

The waste management in the locality is currently absent and community perceived it as low priority as they are engaged in struggle to meet their basic needs of livelihood and housing.

Toxics Link has adopted the strategy of information, mobilisation and empowerment of communities with rights based approach in its waste management programme.

The strategy is also to develop a service delivery model, which is owned and managed by the community in partnership with Municipal Corporation of Delhi (MCD) and local bodies.

The learning from the project will form part of the larger planning process and will help in devising the strategy for the urban poor in the country.

By Prashant Pastore

Spirit of Earth Day 2006

Just how many of us know how Earth Day came about? April 22, 2006 marks the 36th anniversary of the Earth Day celebration. Co-founder of the Earth Day, U.S. Senator Gaylord Nelson said this day started based on the model of anti-Vietnam War demonstrations called 'teach-ins' which were very common in college campuses during 1970s. College campuses were used to educate youth on anti-war news and messages. With the world becoming polluted and difficult to live in, a day was devoted for the environment where every citizen on earth takes one's time out to share concerns about the harm human activities are causing to the environment.

Since then, educational places have been actively involved in observing the Earth Day. Under Clean Campus Programme for schools, Toxics Link celebrated Earth Day at Sister Nivedita School in Defence Colony where painting competition was organized for students of Standard VI to VIII. A film on e-waste was also screened aiming at generating awareness on overall issue of waste in the school. A total of 50 students participated in the competition while students of Standard VI to XI were present for the film.



School students participate in the Earth Day painting competition.

Teachers play a crucial role in disseminating awareness amongst the students. In order to build knowledge and skills on current environmental issues, Manav Sthali School located at Rajinder Nagar, organised a workshop for teachers on the Earth Day where Toxics Link was also invited as resource speaker.

While it is a fact that innumerable efforts are going on to save this planet from destruction, observing such a day actually helps in keeping the spirit and hope shine.

By N. Linthoi

Stockholm Convention Conference adopts decisions on DDT and financial issues

The second Conference of the Parties (COP-2) to the Stockholm Convention on Persistent Organic Pollutants (POPs) has adopted a number of key decisions on issues such as DDT and the financial mechanism. The meeting, which was held from May 1-5, 2006, in Geneva, Switzerland, drew over 450 participants. COP-2 considered several reports on activities within the Convention's mandate and adopted 18 decisions on, *inter alia*, DDT, exemptions, financial resources and mechanisms, implementation plans, technical assistance, synergies and effectiveness evaluation. In particular, key issues at COP-2 included the first review of the effectiveness of the financial mechanism of the Convention and a process to enable evaluation of the effectiveness of the Convention at COP-4 in 2009. With the adoption of these decisions, COP-2 was widely perceived to have moved the process closer to the goal of eliminating or reducing the release of POPs into the environment.

Side events focus on synergies

How the Stockholm Convention's National Implementation Plans (NIPs) might be used to simultaneously support the Basel, Rotterdam and Stockholm Conventions was the focus of a side event held during the COP-2. The UN Environment Programme's Division on Environmental Con-

ventions and the Geneva Environment Network organised a side event on May 4, 2006. The event was chaired by Franz Perrez of Switzerland, who explained that the three chemicals conventions on Prior Informed Consent (PIC), POPs and hazardous wastes face many similar challenges and obstacles as they pursue their individual, but related, mandates. Panelist Jérôme Karimumuryango of Burundi described his country's efforts to integrate the three conventions at the national level. He emphasised that limited human and financial resources made the exploitation of synergies at the national level a virtual necessity.

A second speaker, Tarek Eid Mohamed of Egypt presented the country's integrated database for the national data on the three Multilateral Environmental Agreements (MEA's). He described the institutional challenges of ensuring collaboration and information flow amongst the three convention teams and stated that synergy is not a one-time event but an ongoing process. Craig Boljkovac of the United Nations Institute for Training and Research (UNITAR), discussed the approach that the organisation has pursued in supporting a wide range of countries in their efforts to develop NIPs. He also offered some lessons learned about the institutional challenges of building collaborative processes and teams and suggested how these challenges could be met.

Food for thought

Environmental health and indigenous rights groups from around the world served chocolate and soft drinks to Stockholm Convention delegates to symbolise widespread contamination of common foods to highlight the urgency of immediate action under an international toxics treaty. Chocolate, soft drinks, butter, milk and eggs, in studies from around the world, have been found to contain POPs. In an open letter to delegates, the participating NGOs urged officials to move rapidly to phase out POPs and hazardous chemicals.

By *Upasana Choudhry*

Reaching the end of IPEP

Increased awareness, enhanced capacities and expanded interests among the civil society groups on issues concerning Persistent Organic Pollutants (POPs) – these points best summarise the impact of the International POPs Elimination Project (IPEP) in the South Asia region.

Based on the premise that non-governmental organizations (NGOs) have an important role to play in helping civil society better understand POPs; provide governments with important policy and information inputs contributing to implementing the Stockholm Convention and help build public support and secure commitments to ensure that appropriate measures to reduce and eliminate POPs, the International POPs Elimination Network (IPEN) in May 2004 launched a two-year project titled 'Fostering Effective Civil Society Participation in the Stockholm Convention on Persistent Organic Pollutants', which is generally referred to as the International POPs Elimination Project or IPEP.



Panel discussion at the Capacity Building Workshop on POPs in Delhi.

The project was implemented in partnership with the United Nations Industrial Development Organisation (UNIDO) and the United Nations Environment Programme (UNEP) with core funding from the Global Environment Facility (GEF). It was coordinated through eight NGO-based 'regional hubs'. Toxics Link was designated as the regional hub for South Asia.

Over the two year period, 35 activities focussing on POPs were implemented in five countries across the South Asia region: four in Bangladesh, 13 in India, nine in Nepal, four in Pakistan and four in Sri Lanka. The global tally stands at an impressive 282 activities in 61 countries. The





Clockwise from top left: Study on contamination of eggs by POPs; awareness poster on POPs in Nepali; participants at a National Awareness Workshop on POPs in Sri Lanka; information booklet on POPs published by DISHA, India; and logo of 'Hello Zindagi-Alvida POPs' Campaign in India.

outcome has far exceeded expectations.

These activities ranged from preparation and dissemination of information and policy documents on POPs, public awareness activities and campaigns, workshops, trainings and other capacity building activities for civil society organisations. Besides, NGOs also contributed to the National Implementation Plan (NIP) development activities in their respective countries.

The direct outcome of the project are the information documents including the Country Situation Reports highlighting the status of POPs in the country and the reports documenting the various POPs hotspots. These reports serve as useful reference documents on the issue.

Awareness raising activities too had a significant role given the fact that there was a very low level of awareness on the issue. These activities targeted a wide spectrum of population including the government officials, students, teachers, journalists, farmers, civil society groups, women, workers, hospital staff and community at large. Awareness materials in several local languages and focusing on specific issue of POPs have been produced. An information sheet and a booklet in Nepali, posters

in both English and Nepali, a short video on hotspots in Nepali, a booklet and posters on POPs in Sinhalese, a booklet on POPs in Bangla, and a campaigner's hand-

book in English are some of the examples. Most importantly, the project resulted in capacity building of NGOs on the issue of POPs. Capacity building workshops were organised at various levels aimed at creating awareness about POPs among the civil society groups and building their capacities as effective stakeholders in implementation of the Stockholm Convention. Efforts have also led to the emergence of civil society networks on the issue at both national and regional levels in addition to an expanded network at the global level.

The project may have come to an end, but the momentum built over the last two years would continue for a long time contributing to the reduction and elimination of POPs not only from the region but globally as well.

By Upasana Choudhry

TOXICS FREE HEALTHCARE

Training for IGNOU's certificate course on healthcare waste management

To address the problems posed by the negligent disposal of bio-medical waste in the South Asian countries, Indira Gandhi National Open University (IGNOU) in collaboration with World Health Organisation's South East Asian Regional Office (SEARO) has developed a six month certificate programme in healthcare waste management.

The diploma course is an innovative programme based on self-learning instructional materials with multimedia and face-to-face counseling support. The beneficiaries of the programme are the doctors, nurses, paramedics, health managers and other professional workers.

The first batch of students attended a week's training in April 2006 at St. Stephen's hospital, Tis Hazari, Delhi. A half-day training session was conducted by Toxics Link, invited as guest trainers, on alternative treatment technologies for medical waste management and rural waste disposal options with focus on immunisation waste disposal.

The batch comprises of seventeen healthcare staffs from various disciplines ranging from medicine, dentistry, microbiology, laboratory medicine, etc from various hospitals of Delhi. Various queries on incinerators and standards for treatment in autoclaves were raised in the session. The session also included a discussion on mercury hazards and spill management.

This programme will not only sensitise the learners about healthcare waste management but will also equip them with skills to manage the waste safely and effectively.

By Yamini Sharma

NATIONAL NEWS**Environment policy draft under wraps**

Leading environmentalists in the country and the Ministry of Environment and Forests (MoEF) are at loggerheads over the revised and final draft of the National Environment Policy (NEP), which is not being made available for public scrutiny. The MoEF has marked the revised and final draft of the NEP as a 'secret' document, which is in the process of being put up before the Prime Minister and the Union

Cabinet for approval.

Meanwhile, environmentalist and member of the Campaign for Environment Justice-India (CEJ-I), Ashish Kothari of the Kalpavriksh group pointed out that environmentalists in the country have no way of making sure that the MoEF, as promised, has incorporated views of the environmentalists in the draft policy. In the interest of transparent governance, CEJ-I has urged Prime Minister Manmohan Singh to make the revised draft public, to allocate sufficient resources for its dissemination and encourage widespread public debate on its contents before it is finalised.

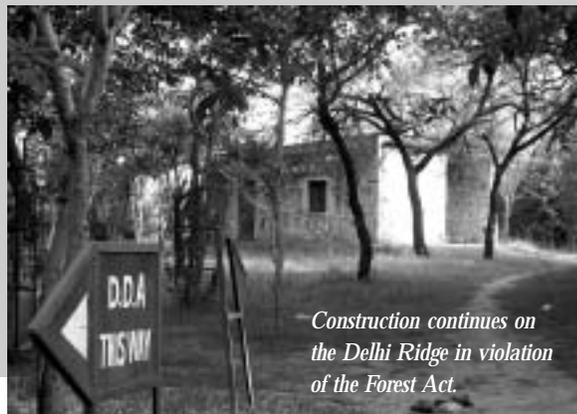
Source: The Times of India

RWAs against malls in Ridge forest areas

THE GROWING 'MALL CULTURE' is destroying the already depleting Ridge forest cover in Delhi. The Delhi Development Authority might have given clearance for construction of malls in the Vasant Kunj areas but residents and gram sabhas of the areas are up in arms against the construction.

The Residents Welfare Associations (RWAs) of Vasant Vihar, Vasant Kunj, Munirka and the gram sabhas of Mahipalpur, Basant Gaon and Munirka village have submitted a memorandum with the Union Ministry of Environment and Forests seeking to halt any sort of construction in the Ridge area as it falls in the Aravalli hill area and enjoys protection under the Forest Conservation Act. It is mandatory that public opinion be sought on such major issues but till date there has been no public hearing.

Source: The Asian Age



Construction continues on the Delhi Ridge in violation of the Forest Act.

New plan to clean the Yamuna

Pollution in the Yamuna river.

A NEW PLAN TO CLEAN the Yamuna river was unveiled on April 11, 2006. The new plan is called 'Mission Mode'. It has a 'Mission Statement' and talks of the need to hire a 'Mission Director'. Setting December 2015 as the deadline for its completion, the 'Mission Statement' ensures time-bound completion of the project. Sources in the Government said the Delhi Cabinet was likely to give its nod to the proposal. It would also be placed before the Supreme Court for approval in a case in which Delhi Government has been directed to file its reply. Notably, the State Government has already spent around Rs 1,500 crore in the last 15 years for cleaning the river.

Source: Hindustan Times

E-waste? Dump them safe

An IT solutions company WeP Peripherals in collaboration with Saahas, an NGO has initiated recycling programme in Bangalore to dispose used batteries, floppies and CDs. Bangalore generates about 4 lakhs dry cell batteries and several thousand CDs and floppies every month and they contain toxic materials that reach the soil and contaminate the groundwater when dumped in landfills. This gets into the food chain and affects the consumer's health. The recycling is done by E-Parisara, an author-



ised recycling centre, which follows a systematic method of crushing, shredding and powdering the used electronic material. WeP Peripherals have also adopted a unique 'Green' approach, which re-manufactures products such as used toner cartridges.

Source: Deccan Herald

INTERNATIONAL NEWS

Swiss proposal to merge Secretariats rejected

A Swiss proposal to improve coordination in the fight against dangerous chemicals has failed to win enough support at the international Conference of Parties to the Stockholm Convention on Persistent Organic Pollutants (POPs) in Geneva. The Swiss were hoping to convince other countries to appoint a single in-

dividual to take charge of the three Secretariats dealing with chemicals, pesticides and hazardous waste. These administer the Rotterdam, Stockholm and Basel Conventions, respectively.

Switzerland became the second industrialised nation to submit a national implementation plan in accordance with the Stockholm Convention. Switzerland has already complied with its obligations under the Convention and has banned the sale and use of ten POPs. The remaining two POPs on the list – dioxins and furans – could not be prohibited.

Source: www.swissinfo.org

Hong Kong to test for pesticides in imported veggies

HONG KONG HAS SAID that it would tighten its quality control on imported vegetables after an investigation by Greenpeace found alarming levels of pesticides and toxins in vegetables sold in two major supermarkets of ParknShop and Wellcome. The environmental group found excessive levels of banned chemicals, including DDT, in about 17 of the 55 vegetables, including tomatoes, watercress and some Chinese veggies, picked for testing.

Carrie Yau, the Secretary for Health, Welfare and Food Department of the Hong Kong Government, said that the government would collect samples of the vegetables at all levels, including import, wholesale and retail and test them for chemicals and pesticides. Warning has been issued to all vegetable suppliers reconfirming and reminding them of the importance of stringent adherence to the current Hong Kong standard and sourcing only from approved farms and supply sources.

Source: www.earthtimes.org



Derry hospital gets rid of mercury

Derry-Parkland Medical Centre in USA has been honoured for making the facility mercury free. The hospital received the 'Making Medicine Mercury Free Award' from the Hospitals for a Healthy Environment, a partnership of the U.S. Environmental Protection Agency, American Hospital Association, the American Nurses Association and Health Care Without Harm.

Source: www.unionleader.com

EU agrees battery recycling law

The European Union has agreed the text of a law that will make recycling of batteries obligatory from 2008. The directive will ban batteries with more than a trace of the toxic chemicals cadmium or mercury. It says that a quarter of all

used batteries must be collected by 2012 and by 2016 at least half of them must be recycled. It also says all batteries must be clearly labelled to show how long they will last, from 2009 onwards. The directive calls for collection points to be established where consumers can hand in used batteries – including those from toys, computers or mobile phones and obliges shops to collect them from consumers at no extra cost. "The EU gives high priority to make sure that batteries no longer cause health and environmental problems due to the heavy metals they contain," said Environment Commissioner Stavros Dimas.

Source: news.bbc.co.uk



European Union set to ban new mercury thermometers

THE EUROPEAN UNION has tabled a plan to ban new mercury thermometers in an effort to minimise the serious health risks that the highly toxic heavy metal poses to human, wildlife and ecosystems. The directive will stop marketing and use of mercury in all thermometers and in other measuring devices such as barometers and manometers.

As a result of the ban, the European Commission expects only a slow decline in environmental releases since there is more mercury in existing equipments than the amount added each year through new sales. But it has promised to study possible separate measures dealing with the stock.

EVENTS

Regional workshop in Bhopal

To initiate a public discourse on the challenges presented by bio-medical and municipal waste management, Toxics Link in collaboration with Academy of Management and Administration, Bhopal organised a workshop on February 24-25, 2006 in Bhopal. The workshop witnessed a participation of 86 individuals representing government, NGOs, professionals and practitioners on waste management of the participating states of Madhya Pradesh, Chattisgarh and Orissa.

Day 1: Bio-medical waste management

The first day of the workshop was dedicated to bio-medical waste management. The day started with a welcome address by Professor H.M. Mishra of the Academy. He was followed by Ravi Agarwal, Director, Toxics Link, who pointed out the direct relation between the human health and the environment. The Chief Guest of the day was Dr. Ashok Sharma, Additional Director, Directorate of Health and Family Welfare, GoMP. Satish Sinha, Chief Programme Coordinator of Toxics Link, pro-

vided the vote of thanks.

The inaugural session was followed by technical session chaired by Dr K.V Pandya, Director of Jawaharlal Nehru Cancer Hospital, Bhopal. The first presentation by Ravi Agarwal encompassed the Bio-medical Waste Management and Handling Rules and provided a global perspective. Dr. D.K Soni from the Zonal Office of CPCB, Bhopal presented the responsibilities of the Municipal body, SPCB and CPCB regarding the management of bio-medical waste.

The major recommendations that emerged from the first day's discussion were that the location of clinics and small health-care establishments in residential areas should be done with due care, scrutiny and safeguards so that the health of the larger community is not affected and identification of few hospitals for pilot projects to develop model waste management facilities.

Day 2: Municipal solid waste management

Second day of the workshop was dedicated to the issue of municipal solid waste and its management. To begin with, Prof. H.M. Mishra of the Academy gave a comprehensive background of the aggravating problem of solid waste specifically focusing

on the situation in Bhopal.

The first technical session started with presentation on Municipal Solid Wastes (Handling and Management) Rules, 2000 by Satish Sinha. Then Dr S.N.Patro, Orissa Environmental Society presented a case study of municipal solid waste management in Puri. He discussed about a MSW treatment plant project set up by Orissa Environment Programme (Indo-Norwegian Cooperation), which receives only 20 MT of waste as compared to the actual capacity of 100 MT of the plant due to the lack of seriousness of the municipality and public awareness. The second technical session was chaired by Sunil Sood, Mayor Bhopal. He appreciated the efforts of the organising groups for flagging off the important issue of waste management and raising the level of awareness of the participants.

The recommendations emerging from second day discussions were that the efficacy of decentralised municipal waste management should be stressed and community should be mobilised to get involved in the programme. Emphasis should also be given on enhancing awareness of public and the municipality employees and creating market linkages for the organic compost prepared from municipal solid waste.

A SMILE can change the world

SMILE (STUDENTS INITIATIVE FOR LEARNING THROUGH EXPOSURE)

facilitated by Pravah, a NGO based in Delhi, aims at building leadership among youth for social change. Through the programme 'Suno Dilli – A call for change', SMILE volunteers are highlighting the issues around urban living. They are reaching out to their peers and to the public at large.

The culmination event held on February 27, 2006, at the Arts Faculty, North Campus of Delhi University brought together a gamut of musical and theatrical performances, a photo exhibition, experience sharing, poetry and a creative outbursts of tile and T-shirt painting to bring forth the joy of understanding and sharing of citizenship responsibility.

SMILE volunteers, under this campaign, have organised film screenings, musical and theatrical performances both on- and off-stage to showcase their learning and highlight the issues that concern them. The infectious quality of their spirit should reach the millions of urban youth of India to translate the campaign into a movement.



By Pragya Majumder Young citizens sign up for the 'Suno Dilli' Campaign.

Regional workshop in Mumbai

Toxics Link and the Tata Institute of Social Sciences (TISS) organised a regional workshop 'Safe Management of Bio-medical and Municipal Solid Wastes: From Policy to Practice' on May 23-24, 2006 at the Conference Room of TISS, Mumbai. The objective of the workshop was to bring together a range of governmental and non-governmental actors on a common platform to address the challenge of operationalising the national policies on bio-medical and solid wastes.

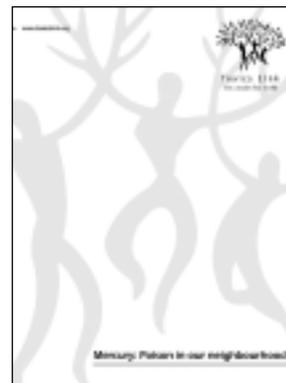
This workshop focused on the Western Region, namely the states of Maharashtra, Gujarat and Goa. Approximately, 75 participants from relevant government departments, State Pollution Control Boards, local governance bodies, medical establishments, environmental groups, citizens' forums and research institutions participated in the two-day workshop.

Dr. S Parasuraman, Director of Tata Institute of Social Sciences, welcomed the gathering. Ravi Agarwal, Director of Toxics Link, justified the need of the workshop and flagged the issue of unregulated waste management in India. The keynote address was delivered by Subrat Ratho, Additional Mu-

nicipal Commissioner (City), Brihan Mumbai Municipal Corporation. He informed the gathering on the efforts of the municipality and government and the future plans to manage waste. It was followed by Open Forum where queries were mostly on training on bio-medical waste management and segregation of wastes.

In Session 2 there were presentations from Tata Memorial Hospital, on people's participation in bio-medical waste management and centralised facility of Surat. The Session 3 concentrated on mercury. It was followed by Group Discussions on mercury, centralised bio-medical waste facilities and on ensuring compliance with safe bio-medical waste management practices.

Day 2 started with an Open Session on municipal solid waste management. An important observation that came up in the Session is that figures with respect to cost per tonne for solid waste management are misleading as resources are often concentrated in areas where there is citizen/political pressure for effective municipal services. This session was followed by a stint of group work on ensuring compliance and effective monitoring, primary segregation and privatisation. The workshop concluded with discussion on collective action on environmental issues.



Release of report on mercury

Toxics Link conducted four studies across the country along with partners to gather information on various issues connected with the usage and hazards of mercury. The report of the study was released in a workshop 'Creating Networks and Information for Mercury Policy in India and Europe' held on June 22 at India International Centre, New Delhi.

The discussion was initiated by Ravi Agarwal, Director, Toxics Link, who touched upon some international conversations currently ongoing in various fora. He added that India is the second largest consumer of mercury next to China. India has no specific regulation on mercury trade and it can be imported through open general licence. The European Union has banned the use of mercury thermometers but is still the largest exporter of mercury to India.

Sasanka Dev of DISHA gave presentation on the study on mercury usage and the risk involved in the laboratories of schools and colleges of Kolkata. Another partner organisation Chintan presented the study on trade of mercury in informal sector carried out in the waste markets of Delhi. Toxics Link conducted studies on the trade of mercury in India focusing on the import situation and also on the traditional use of mercury with a case study on the 'Parad Shivling' at Siddha Ashram in Ujjain, Madhya Pradesh. The lab tests on samples of Parad revealed that it is an amalgam of tin and mercury rather than that of silver as claimed and also showed signs of mercury leaching in milk.

The workshop was successful in attracting the attention of the people towards the hazards of this little known lethal metal.

By *Sejuti Sarkar De*

Release of book on air pollution in cities

One of the biggest challenges confronting cities today is the problem of air pollution from automobiles. People's dependence on automobiles has continued to grow, adversely affecting the urban environment and the health of the people.

Delhi would have been reeling under a pollution load of 38 per cent more particulates if CNG had not been introduced in the city ten years back. Delhi's air is cleaner today but the situation is not so bright in the small, non-metro Indian cities across the country. The small towns across India is facing rise in air pollution caused by an explosion in the number of vehicles. As many as 57 per cent of the cities monitored in the country have critical particulate matters levels in their air.

These research findings were published in the form of a book 'The Leapfrog Fac-

tor: Clearing the air in Asian cities' by New Delhi based NGO Centre for Science and Environment (CSE). The book was released by Chief Minister of Delhi, Shiela Dikshit on April 19 at WWF Auditorium in New Delhi.

Speaking at the occasion, Anumita Roychowdhury, Associate Director, CSE stressed on the fact that public transport, bicycles and pedestrian facilities used by the vast urban majority, especially the urban poor have remain neglected. The personal transport like cars and two-wheelers take up nearly 90 per cent of the road space but carry less number of people and also pollute excessively. So a major solution to the problem of vehicular pollution in cities is to develop the public transport so that people can manage their mobility by restraining cars. This message was passed on to the Chief Minister who promised to give a new look to transport structure of Delhi before the Commonwealth Games of 2010.

Environment Centre, Andhra Pradesh

Founded in 1992, Environment Centre has been shaped into an interpretation centre engaged with public policy on environment and development on the one hand and practical intervention in its outreach programmes and activism on the other.

Some of their works centre on issues like indigenous medicine, study of folk and tribal culture, relief and rehabilitation work, environment education in schools, conservation of coastal eco-systems and traditional fishermen, conservation of bird habitat and others.

Environment Centre plays an activist role where environmental and developmental issues are involved. It has filed Public Interest Litigations (PIL) to save Kolleru lake, one of the Asia's biggest fresh water lakes and migratory bird habitats. It also fought a legal battle against the State Government of Andhra Pradesh to prevent it from setting up hydrocarbon terminal on Hope Island, a part of the rich mangrove sanctuary. It also organises summer classes on ecology for school students.



The work proposed under Environmental Equity and Justice Partnership (EEJP) by Environment Centre is to initiate a **Campaign against proposed ship-breaking units (SBUs) at Kakinada coast, Andhra Pradesh**. Kakinada is a shallow water beach. The six-month project seeks to create an intense awareness about the hazards of ship-breaking units among the fishing communities and mobilise them to protest against the proposed units at Kakinada coast. This activity becomes significant in light of the intent expressed by the State Government to permit SBUs in the area.

Under the said project, Environment Centre has been working towards creating awareness among fishing communities in 20 villages located between Tuni and Kakinada.

Some of the specific activities proposed in the project include:

- ▲ Meetings in all fishing villages near the site;
- ▲ Formation of pressure groups among the fishing communities;
- ▲ Publication of booklet and pamphlets in Telugu for dissemination of information on the existing units at Alang;
- ▲ Mobilising other stakeholders;
- ▲ Media campaign;
- ▲ Lobbying with officials at the district and state levels.

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EEJP awardees for 2006-07

Environmental Equity and Justice Partnership (EEJP) successfully concluded another round of grants. Over 400 applications from across the country were received for the two programmes – Environmental Small Grants (ESG) and Environmental Fellowship (EF). Twenty of the proposals have been finalised for support during 2006-07, including grants to nine NGOs under ESG and fellowships to 11 individuals under the EF programme. Details of the recipients are available on the EEJP website at www.eejp.org. Applications for the next round of grants – for 2007-08 – will be invited after August 2006. Information can be obtained from the website or by writing to the EEJP Coordinator at upasana@eejp.org

RESOURCES

PUBLICATIONS

THE POLITICS AND POETICS OF WATER

Author: Lyla Mehta

Publisher: Orient Longman

Publishing date: 2005

The book focuses on the sociology and political ecology of water scarcity in Kutch, western India and exposes the social and power relations underlying water crises. It charts the various axes of difference in the village such as caste, gender and wealth and analyses local water management strategies and their links with local knowledge, institutions and relations. The author examines the strategies and practices

employed by farmers and herders to deal with scarcity and drought-intrinsic features of life in Kutch and scan the relationship among migration, declining rainfall and overgrazing with water scarcity. The book traces the role of the State in water resource management and analyses the consequences of State directed interventions such as drought relief programmes and irrigation scheme in water scarce area like Kutch.

WATER PERSPECTIVES, ISSUES, CONCERNS

Author: Ramaswamy R. Iyer

Publisher: Sage Publications

Publishing date: 2003

The book summarises the provisions relating to water in the Indian Constitution, the need for amendments for resolving inter-state river

water disputes and recommended solutions. It discusses in detail the Water Policy adopted in 2002. The book gives an overview on the framework of laws, policies, institutions and procedures within which large dam projects should be undertaken in India, with a critique on the Supreme Court's judgement on the Narmada Bachao Andolan's writ petition on the Sardar Sarovar Project. It illustrates the Treaties between India and its neighbours – the Indus Treaty with Pakistan, the Mahakali Treaty with Nepal and the Ganges Treaty with Bangladesh. It diagnoses past weaknesses and failures in relation to water resource management and prescribes objectives for future.

FILMS

LANDSCAPE FOR RAINWATER

Duration: 26 minutes

Language: English

Produced by: Anouchka Kine of Architecture & Development

The film shows the rainwater harvesting system in the late 15th and early 16th century's archaeological site in Hampi, Karnataka. It shows ruins of tanks, water channels and aqueduct and explicitly shows how Indian people succeeded in using a passive and complex system so that rainwater was sufficient for their water needs. Dr. Halkatti, Superintendent Archeologist in Bangalore narrates how in Hampi series of inter-connected water tanks have been used for collecting the runoff from mountains and



A still from the film
'Landscape for Rainwater'

storing it in several tanks and banks. Experts view that there is a huge opportunity to learn from the traditional systems used in Hampi for groundwater recharging, water management and storage.

CITY FARMING

Duration: 17 minutes

Language: English/Marathi with English sub-titles

Produced by: Centre for Education and Documentation

Synopsis: The film captures the process of growing foods and vegetables in balcony from the solid waste generated from our day-to-day household. Dr. R.T. Doshi, retired agricultural economist, explains the methods of city farming and the cost involved with it. The farming methodology is fast spreading in and around Pune. Garbage and kitchen waste, flowers from temples is the input and the output is getting organic food for the entire family. Garbage and waste are natural resources and it generates awareness among the young generation by creating source segregation in houses.

For more information on any resource mentioned here, contact info@toxicslink.org

Resources compiled by Shoba



etoxicsgroup

Toxics Link coordinates an electronic discussion group for sharing and disseminating information on toxic wastes and its management. If you would like to join the group, please e-mail us at info@toxicslink.org

If you have suggestions or require information, please contact:

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*Toxics Link is an initiative of the
Just Environment Charitable Trust*

Quotes from the Earth

Quotes from the Earth is a compilation of films on the themes of Hunger, Water and Survival. Films can be borrowed for screening against a nominal security deposit.

Entries are invited for the forthcoming film festival on November 3-5, 2006.

View the details at www.toxicslink.org/filmfestival/.