



## EPR: A solution for the e-waste problem in India

To deal with the burgeoning waste problem, especially in the context of electronic waste, India needs to adopt effective strategies such as Extended Producer Responsibility. In this issue, Toxics Dispatch looks at the EPR concept, talks to its originator, Professor Thomas Lindqvist, and outlines a road map for its implementation

India has been going through a phase of accelerated industrial activities for the last two decades. The massive growth in terms of industrialisation and urbanisation has also led to a manifold increase in the quantity of waste generated. As the garbage pile gets bigger, diverse and the amount of toxins increases, it is no longer feasible to ignore this problem. Along with the traditional approaches to deal with this humungous problem, India needs to integrate modern and more efficient principles to tackle this toxic pile.

Extended Producer Responsibility (EPR) is one such emerging principle for

a new generation of pollution prevention policies that focus on product systems instead of production facilities. EPR imposes accountability to the producers, over the entire life cycle of products and packaging introduced in the market. It means that the responsibility of producers for their products is extended beyond the pre-sale stage to the post-consumer stage. The company must be concerned not only with manufacturing of the product and its functions, but also with what will become of the product at the end of its useful life.

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## Ecology in a silo

**C**limate change is now a critical issue the world is dealing with on a war footing. It has done a lot towards creating recognition that the actions we take even at an individual level have implications which are far reaching, and collectively have a global consequence. It also shows to us that we live in a very fragile ecological niche – in this case determined by a narrow band of temperature – and changing that alters our world in fundamental ways, including impacting cropping patterns, vegetation types, oceanic currents, weather patterns, glaciers melting and water levels. In fact energy balances are critical in shaping the living creatures of our planet.

However, it is less recognised that climate change also impacts other issues of pesticide use, vector control, waste disposal and food contamination. Temperature rise could impact disease burdens. A recent study, for example, found that temperature influences the toxic effects of chemicals on living beings, as does chemical exposure influence the temperature tolerance of an organism. Another study predicts the increase in diseases vectors, like malaria, owing to increase in water logged areas, which in turn use toxic chemicals like DDT for their control. A species of toxic moth was reported to have been moving steadily north to England from the Mediterranean because of global warming. Water level rises could bring contained hazardous pollutants into ecosystems from landfills and dumping sites along coastal areas. The issues are complex, unaddressed and interconnected.

It is not like lessons have been learnt, since we continue to take decisions today that will have impacts for decades. As an example, our growing reliance for new landfills and incineration as a means of waste disposal are bad news, both for carbon emissions as well as toxic releases like heavy metals and dioxins. On the other hand, it has been established that recycling and composting release the least amount of carbon, and they can also be safe from toxic releases. Despite this we are proposing significant amounts of investments in these technologies while we are yet to have a policy to promote recycling. While climate change points to the interconnected ecological realities of the world, it seems we are still living in a world view of silos.

*Ravi Agarwal*

*Continued from page 1*

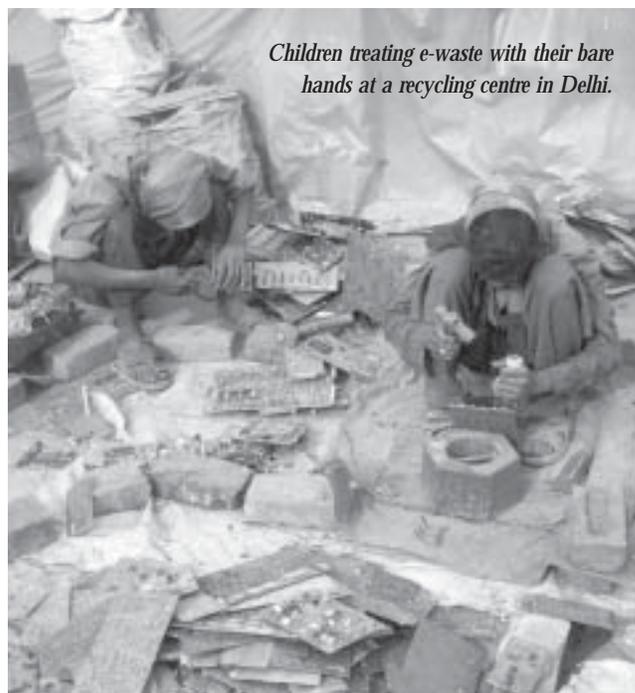
## The EPR principle

The term 'Extended Producer Responsibility (EPR)' was coined early in this decade by Thomas Lindhqvist, a Swedish Professor of Environmental Economics who defined EPR as the extension of the responsibility of producers for the environmental impacts of their products to the entire product life cycle, and especially for their take-back, recycling and disposal.

EPR extends the traditional environmental responsibilities that producers and distributors have previously been assigned (i.e. worker safety, prevention and treatment of environmental releases from production, financial and legal responsibilities for the sound management of production wastes) to include management at the post-consumer stage. The firms, which manufacture, import and/or sell products and does packaging, are required to be financially or physically responsible for disposal of such products in environmentally safe manner.

The firms must either take back spent/used products and manage them through reuse, recycling or in energy production, or delegate this responsibility to a third party. In this way, EPR shifts responsibility for waste from government to private industry, making it mandatory for producers, importers and sellers to internalise waste management costs in their product prices.

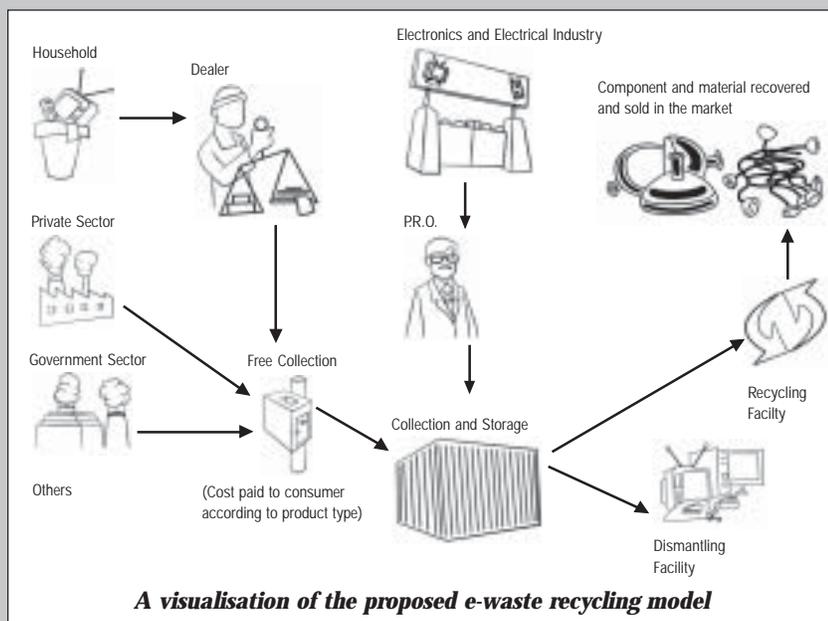
The aim of EPR is to encourage producers to prevent pollution and reduce resource and energy use in each stage of the product life cycle through changes in product design and process technology. This includes upstream impacts arising from the choice of materials and the manufacturing process to the downstream impacts from the use and disposal of products. Thus, responsibility for product is broadened beyond the emissions and effluents generated by the extraction or manufacturing processes to include the management of the product once it is discarded. EPR is based on



*Children treating e-waste with their bare hands at a recycling centre in Delhi.*

## Toxics Link proposes model for e-waste recycling with EPR as the over-riding principle

**THE PRINCIPLE** of Extended Producers' Responsibility or EPR has been found to be most appropriate and logical framework for finding solutions to waste arising from products. Toxics Link proposed an e-waste recycling system, which is modeled on the principle of EPR. The model requires the electrical and electronics industries, manufacturers, importers and assemblers, to come together to establish an organisation, conceptually a 'Producer Responsibility Organisation (PRO)'.



This consortium will be responsible for the end-of-life disposal of products being manufactured by the individual companies. Their direct role in collection of the end-of-life equipments and in providing information to the consumers regarding take-back systems will be crucial and will fulfill the basic tenet of EPR. The PRO's further involvement in monitoring of the dismantling and recycling facilities (private entrepreneurs) can act as a driver for upstream changes (designed for environmental safety).

It is suggested that PRO operate as a non-profit organisation built on the ethos of Corporate Social Responsibility (CSR). The top management of the PRO should have representations from various sectors making it a truly multi-stakeholder organisation.

The nature of goods being classified as Waste Electrical and Electronic Equipments (WEEE), have an intrinsic material value and this value is key to the complete financial planning of this model. It is a globally accepted fact that e-waste has a material value assigned and all recyclers, big or small, procure electronic wastes at a price and then make profits by selling the recovered materials.

Toxics Link organised a round table meeting on February 21, 2007 in New Delhi with industries, government officials and organisations working on e-waste to discuss on the model (see box on page 4).

*(For more information on the proposed model, please read Into the future:*

*Managing e-waste for protecting lives and livelihoods, available at [www.toxicslink.org](http://www.toxicslink.org))*

the premise that the primary responsibility for waste generated during the production process (including extraction of raw materials) and after the product is discarded, is that of the producer of the product.

The long-term purpose of EPR is to encourage development of more environmentally friendly products that require less resources for manufacturing, contain fewer harmful substances and are easier to reuse/recycle. The ultimate goal is sustainable development through environmentally responsible product development and product recovery.

### How it all started

EPR was first initiated in Germany under its Packaging Ordinance of 1991. The country was then faced with a severe landfill shortage, with packaging waste amounting to about 30 per cent by weight and 50 per cent by volume of the nation's total municipal waste stream. Under this Ordinance, the so called Dual System (DSD - Duales System Deutschland AG) was established, where the producers of all kinds of packaged products were required to take back their packaging and be responsible for handling its packaging waste. Since then, the German EPR concept has subsequently spread to other European countries in many different forms.

In 1994, the European Commission developed a Packaging Waste Directive aimed to reduce packaging waste generation by 50 per cent throughout Europe by 2001, and recently passed legislation that will force electronic manufacturers to pay for the recycling and disposal of their products.

### EPR and E-waste

Electronics industry is the world's largest and fastest growing sector and as a consequence of this growth, combined with rapid product obsolescence, discarded electronics or the 'E-waste' is now the most rapidly growing waste problem in the world.

The current production of electronic products typically uses thousands of toxic chemicals, including solvents, gases, heavy metals and acids. It is a crisis not only of quantity but also a crisis born from toxic ingredients such as lead, mercury and cadmium, to name a few that possess both occupational and environmental health threats.

**Roundtable on 'Model E-Waste Management for India'**

**TOXICS LINK** organised a roundtable discussion on February 21, 2007 at PHD Chamber of Commerce and Industry, New Delhi to share a model for sound management of electronic waste in India. The meeting was attended by industries, recyclers, organisations working on e-waste and also policy makers.

Ravi Agarwal, Director Toxics Link, started the discussion with a presentation on 'E-waste- Solving the problem'. He pointed out the key challenges for ensuring proper e-waste management in the country – framing system for environmentally safe recycling and disposal methods, incorporating the existing informal sector into the system protecting their livelihood and installing safe market-driven system with the participation of all stakeholders specially industry.

The model was presented by Satish Sinha, Associate Director and Priti Mahesh, Programme Officer, Toxics Link. The model proposes establishment of 'Producer Responsibility Organisation (PRO)' by a consortium of the producers which will take the responsibility of the end-of-life disposal of products being manufactured or assembled by them.

The presentation was followed by discussion where the participants debated on the incorporation of informal recyclers to the PRO system, material flow in the system, benefits of the end-consumers and sustainability of the model.

The meeting ended with Ravi Agarwal expressing expectation that electronics industry would support the implementation of the model and will thus help the society to manage e-waste in better and environmentally sustainable manner.

Years of irresponsible manufacturing and disposal of electronic and electrical equipments across the globe has resulted in major environmental problems.

In view of the magnitude of the problem and the situation that emerges from it, there is an urgent need to have a suitable legislation on recycling of electronic and electric

waste. Any solution to this issue needs to be seen in the broader context of sustainable development. Some of the basic principle of the environmental justice such as 'precautionary principle' and 'polluter pays' should be the overriding factors to design solutions.

Extended Producers Responsibility is perceived to be the most appropriate framework that attempts to amalgamate all the enlisted principles of environmental justice and can effectively address the issue of e-waste. Since it not only looks at downstream solutions but also at upstream technology, it is most suited to deal with this kind of waste. By assigning responsibility of the end-of-life equipments to the producers (anybody who is putting such product in the market), this approach can not only effectively address management of e-waste but can also influence product design and thereby remove or minimise many toxic components like lead, mercury from the electronic and electrical equipments.

*By Priti Mahesh*



*Discarded computer hardware at an e-waste dump.*

**“EPR should be able to change the system”**

**PROFESSOR THOMAS LINDQVIST**, whose doctoral thesis on 'Extended Producer Responsibility (EPR) and Cleaner Production' presented the concept of EPR to the world spoke to *Sejuti Sarkar De* on the EPR principle, its impacts, shortfalls and future designs

**▲ How did the concept of EPR develop in your mind?**

**Prof Lindqvist:** In 1980s when I started working on environment management, I started meeting people working on recycling, waste management, etc. and I saw the problems of landfill, incinerator and detrimental effects of industrial waste. It helped me to realise that industries producing products cannot take over their responsibility from using cleaner raw materials for greener production. The industries cannot take care of everything but can have some concern and can undergo slight modifications that can be helpful for greener production. Within a short span of time, I apprehended that prevention has to be there. But who has the power of prevention? The answer was the producers. But how can they do it? Why should they do it? That's how everything came out.

Now, there were also other things happening at the same time. Though some standards were coming up but people, industries and municipalities were not happy with the waste management and recycling technologies available. That's when EPR came in. At that time, I was compiling environment management policies for Sweden. I had to give name to the methods, define each of them and that's when the term EPR was coined.

**▲ How would you define the term EPR?**

**Prof Lindqvist:** If I have to define

it in my own words I will say that it's fixing of some responsibilities. There are always some fallouts of the production which needs to be taken care of. So EPR is shifting of the responsibility of waste to other parts of the life cycle – to the producers level.

**▲ EPR has mainly been implemented in EU and OECD countries. How much has EPR helped them in cleaner production? Have producers become more responsible?**

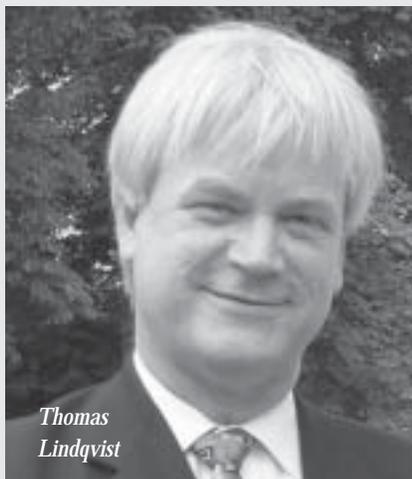
**Prof Lindqvist:** The first area where EPR was put into force was packaging. Now manufacturers have improved the packaging technology and less raw materials are used for it. In a country like Germany, where EPR was first implemented, packaging went down by about more than 10 per cent and fact is that if we see the graph of what would have happened if the EPR regulation was not there, then usage of plastic would have been 14 per cent more. That's how EPR has changed products.

If we look into the society, with EPR the recycling amount has gone up. Ofcourse, the amount of recycling is different for different EU and OECD countries. In fact, there are huge differences in recycling between countries of northern Europe – Scandinavian, Germany, etc. with Southern European countries like Italy and Spain. Though in all countries the recycling amount is more than before, in northern Europe it is about 17-19 per cent more.

In some of the other areas, it is difficult to measure because the system is in place for very little time. We have lot of recycling in some places but less change of products like that of newsprint, car tyres, compact discs, etc. Again, for some there has been change in products with recycling like cars, electrical devices, etc. Actually, from late 90s companies had anticipated that stricter EPR legislation will come and they had started changing their product from then on.

**▲ What shortfalls of EPR have you observed?**

**Prof Lindqvist:** I will talk of packaging first. Number of countries have concluded that EPR is too difficult to implement. If we compare Sweden and Germany, we will see that Germany has much more



Thomas  
Lindqvist

stricter packaging rules while in Sweden we are still searching market for it.

I want not only collect-back of the products by producers and recycle them but I want the companies to change. In fact, it is more difficult to recycle than to change the products. Then you have also to create demand for the recycled products formed. That's a failure in the system.

A big failure when we come to e-waste is that the countries in Europe are losing to give incentives for changing the products. It all depends on how do you respond to the problem - individually or collectively. Till now, I will say EPR has not been able to change the system.

**▲ With India drafting WEEE legislations, where EPR has not been given its due importance, what changes do you think are required to implement EPR at the policy level?**

**Prof Lindqvist:** If you want to implement EPR properly in the country, there must be government support for it. The government and policy makers must be convinced of the solution and its implementation. But I feel, at this moment the Indian policy makers are not sure about how to solve it. Also, I feel the companies are still not ready to pay but for EPR someone has to pay. Also, with EPR the products can become more expensive.

But what I have seen so far, e-waste is a big problem in India with which you cannot play in the backyard. It is a problem that needs attention. So in countries like

India, we need to explain all these to one who will decide the policies and one who will pay for it. I think we are all looking for changes when India would be a developed country. So in future India may have developed economy and responsible manufacturers.

**▲ Packaging, electric and electronic equipments, vehicles and batteries – till now EPR has been implemented strongly in these four sectors. What are in store for EPR in future?**

**Prof Lindqvist:** There are areas like chemicals and newsprint where EPR can play a bigger role. For chemicals, the recent REACH legislation has disappointed the environmental community in Europe. The proposed format was much stronger and large compromises have been done. But yes, EPR can enforce the manufacturers to give out more information on the chemicals used and make them more responsible for their products.

**▲ Personally, as the person who gave the concept to the world, are you satisfied with the performance of EPR?**

**Prof Lindqvist:** On the positive side, I think the concept is quite nice and decent. Every member country of European Union (EU) has implemented it in some way or other. Beside Europe, all traditionally developed countries like Canada, Japan, Korea, Taiwan with of course the exception of US have been inspired by the EPR principle.

But then if we look at individual systems, I often feel political consciousness and clear strategies are clearly missing in some places. So its sort of a mixed bag reaction for me. Overall, it has been nice to see how a small idea has developed and grown and has effected positively in some ways.

*Prof Lindqvist currently teaches at The International Institute for Industrial Environmental Economics at Lund University, Sweden*

## FEATURES

### Waste – a problem in islands

The unique environmental characteristics of islands – such as relative isolation, limited availability of land space and paucity of human and financial resources, limit the range of possible options for the sound management of waste. In addition to these, the islands generally face lack of adequate infrastructure for proper waste management. Also, the sensitivity of the ecosystems, the pollution of underground water and the costly transport of the recyclables to the mainland where collection centres are located make waste management a difficult and expensive affair in the islands.

In these conditions, it is important to know the focus area of interventions for the development of waste management strategy in the island scenario. It is important to spell out a holistic solid waste management strategy keeping in mind the geographical, social and economic factors of the islands.

#### Post-tsunami waste management in Andaman and Nicobar Islands

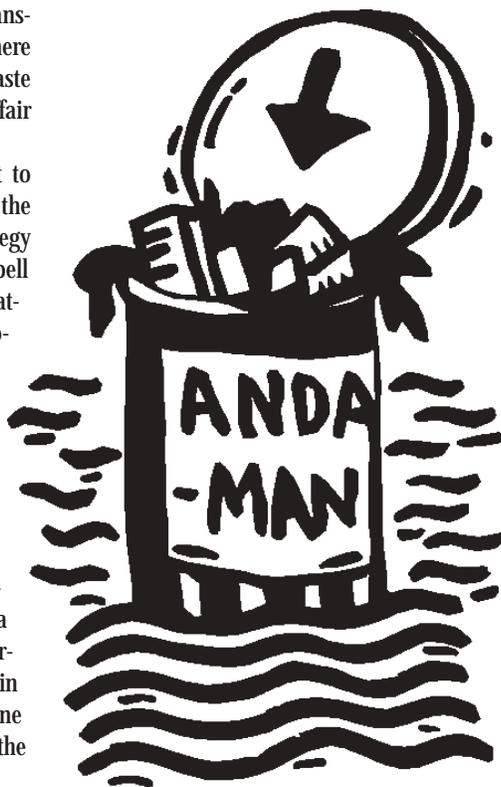
With the view to understand the existing scenario of solid waste and the disposal mechanism of the waste in the islands, Toxics Link and Oxfam India Trust, conducted an assessment in different islands of Andaman and Nicobar in March 2006. The assessment was done in both the rural and urban areas of the islands.

Before the tsunami disaster of December 26, 2004, there was no proper system of managing the waste in the islands. The habitations were located in scattered manner. So though the generation of waste was more or less the same as present, the visibility of waste was less. The open dumping and burning of waste were the common methods of waste disposal.

In the post-tsunami scenario, the people were settled in shelters, which have brought in the colony concept in the area. This has posed the problem of waste similar to urban dwellings. Because of lack of awareness and non-existence of suitable methods,

the communities still adopt to open dumping, burning and drain it out into the sea for disposing of the waste. The increased use of plastic bags, bottles and cups resulted in huge generation of waste and lead to unhygienic situation in the area.

The types of waste that are of great concern include papers, plastics, tins and cans, iron pieces and wet waste. The average per household waste generation was assessed to be approximately 700-800 gram per day of which average biodegradable (wet waste) generation is 250-300 gram and non-biodegradable (dry waste) waste is 350-450 gram per day per household.



Because of less awareness of the harmful impacts of the poor waste management and lack of support from administration, inhabitants of the islands are compelled to live in an unhygienic environment. The most serious problems that require immediate attention include littering and illegal disposal, lack of facilities, inadequate services and social discomfort (bad odour, bad appearance, etc.). This is to be noticed very carefully that the population living in the shelters post-tsunami, primarily used to live in rural dwellings and so not much accustomed to urban set-up.

Municipal solid waste management is a part of public health and sanitation and is entrusted to the municipal body for execution. Post-tsunami, the systems are assuming larger importance due to population explosion in municipal areas of Andaman and Nicobar Islands. Port Blair Municipal Council is still struggling to find out the sustainable environment friendly method of disposal of biodegradable as well as non-biodegradable wastes.

In Port Blair municipal area, neither door-to-door collection nor segregation of waste is happening anywhere at any level. The residents themselves dump the non-segregated waste into the common collection point on the roadside, which is free to access to the stray animals. This waste mainly includes the kitchen waste, PET bottles and plastic bags which are transported to municipal dumping ground, twice or thrice a week.

In the dumping yards, the municipal workers sort out some recyclables and rest of it including, polyphene bags and the healthcare waste goes to the sanitary dumping ground. Since there are no recycling unit in the islands, the recyclables like hard plastic, iron scrap and other metals are transported to the mainland for further recycling.

#### Prevention is the key!

Both rural and urban areas of Andaman and Nicobar Islands need awareness and strong support from government for proper waste management. Prevention and recycling are the fundamental principles of solid waste management.

In order to prevent the sea and islands being polluted, the government must enforce the ban on the use of polythene bags in the region.

Composting of organic waste may be one of the possible solutions in rural dwellings. The recyclables could be transported to Port Blair from the rural area for further recycling, with the infrastructural support of the government.

NGOs and environmental institutes should be involved in the awareness generation, capacity building of stakeholders and dissemination of technical know-how about waste management.

By *Mohammad Tariq*

## POPs – A paradigm of slow poison

By *Paromita Chakraborty*

The production and release of vast quantities of novel synthetic chemicals over the past 75 years has proved to be a great global experiment. By 1962, Rachel Carson documented the growing burden of DDT contamination in her book 'Silent Spring', which detailed the devastating impact of persistent pesticides on wildlife and warned about hazards to human health. Ironically, chemicals that were developed to control disease, increase food production, and improve the standard of living are, in fact, a threat to biodiversity and human health. Because the risk from these originally well-intentioned chemicals outweighs their benefits, their continued use is no longer warranted.

Persistent Organic Pollutants (POPs) are globally distributed through the environment and are of great concern due to their persistence, carcinogenicity and endocrine-disrupting effects. The atmosphere can be considered as a mobile phase for the long-range transport of POPs toward the polar regions, where cold condensation of POPs to the ocean occurs. In addition to primary sources, the atmosphere receives input of POPs via evaporation processes from soil and the ocean, which occurs intensively in tropical regions. The tropical regions of Asia are considered to be a prime source of many POPs of strategic geographical importance due to their extensive use and associated global atmospheric dispersion.

### Source of POPs

Primary emissions of POPs to the atmosphere have changed over the decades, particularly after the establishment of international regulations on reducing emissions. However, there is mounting evidence that POPs are still widely used in developing countries of tropical regions, where the enormous usage of DDTs and HCHs in India and China in recent decades is likely to act as a long-term source to the atmosphere.

For example, the pesticide Dicofol is manufactured in China and contains DDT

compounds as impurities of unknown content. In the past, PCBs were mainly used as dielectric fluids in transformers and large capacitors, as plasticiser in sealants, heat exchange fluid, hydraulic lubricants, cutting oil and paints. PCB production in most countries was banned in the 1970s and 1980s, but the ship-breaking industry in India and Bangladesh continues to be a major emission source of PCBs to the Indian Ocean, with up to 0.25-0.8 metric tons of PCBs generated per scrapped merchant ship.

### Analysis of POPs in human breast milk

During the past few decades, numerous investigations on pollution of POPs such as polychlorinated dibenzo-*p*-dioxins (PCDDs), dibenzofurans (PCDFs), biphenyls (PCBs) and organochlorine insecticides in human breast milk have been conducted in various countries with a view to assessing risks for infants. As a result, in developed countries, it was found that levels of POPs in human breast milk have decreased in recent decades.

In Asian developing countries, however, information on POPs, especially dioxins and related compounds (DRCs) such as PCDDs, PCDFs, and coplanar PCBs (co-PCBs), in human breast milk is limited.

To elucidate the contamination status of POPs in human breast milk and its impact on the health of infants, samples were collected from the dumping sites and control sites in Kolkata and survey was carried out in nearby villages.

### Results of the analysed breast milk samples

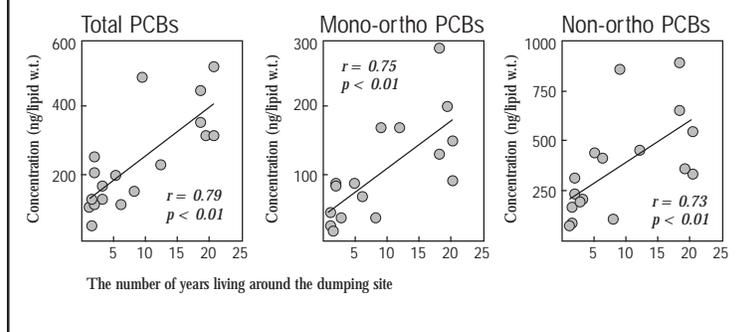
Concentrations of non- and mono-ortho polychlorinated biphenyls (PCBs) in human breast milk from the dumping site were significantly higher than those from control site, whereas no significant different level

was shown for dibenzodioxins (PCDDs) and furans (PCDFs). In addition, significant higher concentrations of total PCBs were also observed in dumping site milk than control site.

These results indicate that pollution sources of PCBs are present in Kolkata dumping site, possibly which leach out from dumped electric equipments with old transformers and capacitors, and the residents around there have been exposed to relatively high levels of PCBs. Interestingly, concentrations of total and dioxin-like PCBs in dumping site milk significantly increased with the number of years living there (Fig. 1), supporting exposure to these contaminants derived from the dumping site.

Furthermore, concentrations of chlor-

Figure: Relationship between the number of years living around the dumping site and concentrations of dioxin-like and total PCBs in human breast milk from Kolkata dumping site.



dane compounds (CHLs) in dumping site milk were significantly higher than those in control site milk, implying sporadic usage for public health purposes. On the other hand, concentrations of HCHs and HCB were significantly higher in control site than dumping site milk. Because the control site investigated in this study was an active agricultural area, these organochlorine insecticides may be still used in this region.

To understand the magnitude of exposure to PCBs by infants, daily intake (DI) was estimated from the levels of these contaminants in human breast milk observed in this study, based on the assumption that an infant ingests 700 ml milk per day and the weight of an infant is 5 kg.

Investigation on POPs pollution in human breast milk from the open dumping sites

## Case studies in Khanaberia dump site

**THE VILLAGE** at the bosom of the dumping ground is West Khanaberia. Two major cases highlighting the effect of the area on human body was observed in a village at the bottom of the dumping ground in West Khanaberia and the breast milk samples were collected for further scientific analysis.

Parboti Prasad Roy is the woman who resides just amidst the dumpsite. Her first son born before she shifted to the place is a healthy normal child. Her second son who was born in the dumpsite village has viable skin disease right from his birth. He was found to

suffer badly with painful irritation of the effected areas on his body. Dark patches, swelled up dermal layers with itching sensation were remarkable features observed.

The cause of the disease may be due to the fact that the immunity power has not developed in this child unlike other children whose parents are long resident of this place.

In another case the child looks like a normal female child but her two thumbs is boneless. The parents reside at the vicinity of the core dumping ground.

of municipal wastes in various parts of India showed that mean concentrations of toxic equivalent values (TEQs) are comparatively higher on global comparison. It can be anticipated that the pollution caused by PCBs may increase further and hence levels of these contaminants in human breast milk, especially in the residents around the dumping sites, may also increase in the future, because the release of POPs is not controlled by strict regulations in India.

*Paromita is a Research Scholar in The Chinese Academy of Sciences, Guangzhou, representing India on a collaborative project on POPs*

## Waste management in London focusses on recycling

By Alison Purdy

Britain, like many other countries, is struggling to cope with the sheer volume of waste it creates. Each year England and Wales produce over 100 million tonnes of waste and the figure is increasing at a rate of 3 per cent annually. The available space in the landfill sites is rapidly filling up increasingly pressing on the issue of finding a solution for the huge heap of waste.

Despite government's efforts to reduce the environmental impact of the nation's waste, there has not been much success. The main problem is that Britain has a poor record of recycling. In 2004-5 households in England recycled only one-fifth of their waste, which may seem good in Indian condition but it is one of the lowest rates in Europe. The majority of the waste is still dumped in landfill.

Local municipal councils are responsible for the collection and disposal of household waste. Each household is provided with a green wheelie bin, which is emptied once a week by a mechanised council truck. Households are also provided with a blue recycling box for plastics and glass and a recycling bag for paper and cardboard. A separate truck does weekly rounds picking up the recycling left outside the homes.

This service is paid through council tax – a tax levied at local level according to the value of property. Southwark neighbourhood in south London, area in which I reside, produces 137,000 tonnes of municipal waste annually which is the equivalent of nearly one tonne per household. Of this 104,000 tonnes comprise of household waste.

All households are encouraged by municipality to minimise their waste by



recycling as much of it as possible, but still there is a long way to go. Southwark, for example, in 2004 recycled just 10 per cent of its waste and about 62 per cent of waste was sent to landfill while the remaining 28 per cent was incinerated to produce energy.

The long-term aim of the municipal council is to eliminate the concept of waste by recycling or composting 49 per cent of the waste produced and using 73 per cent of the remaining waste as fuel.

The main problem in achieving this aim is the general apathy of the people towards recycling. Currently there is no incentive for people to recycle their waste so most choose to throw it in the bin.

The only hope is that the government is looking at the possibility of allowing councils to charge residents for the amount of waste they throw away (without recycling) for dumping in landfills.

Similar systems have proved successful in increasing recycling rates and cutting the amount of waste being sent to landfill in other European countries such as Belgium, which recycles more than 70 per cent of its household waste. In Belgium residents pay a separate annual waste fee according to the weight and volume of the waste they leave for collection and the keenest recyclers are rewarded with a lower final bill.

*Alison is a London-based journalist, currently volunteering with Toxics Link*

## UPDATES

### COMMUNITIES AND WASTE

#### Partnership project on SWM launched nationwide

**T**oxics Link has identified six project partners across the country for the Ford Foundation assisted project 'Addressing gaps in community engagements for solid waste management in India for up scaling people's participation in solid waste management'. The objective of the project, as its title suggests, is to look forward to a sustainable solution of solid waste problem in India by engaging the communities at large.

Toxics Link from its experiences at the various levels, has observed higher impact in solid waste management through networking and involvement of like-minded groups for effective implementation. Each of the six partners has their own agendas with the aim to fulfill the common objectives of the project. This will also help to bring in the different regional perspectives and experiences into a common pool.

#### The partners' interventions

*North Eastern Educational and Development Societies (NEEDS):* Based in Shillong, NEEDS is one of the pioneers to raise the issue of solid waste management in North-East India. Under the project, it

will carry out activities for improving handling and treatment of solid waste in municipal and non-municipal areas of Shillong.

*Chintan Environmental Research and Action Group (CHINTAN):* CHINTAN is a Delhi based NGO largely working on the waste pickers. The objective of their intervention is to avail the emerging opportunities to build a replicable, equitable and self-sustaining model of service delivery for local and ward level waste management in NCR, Delhi.

*Exnora Green Cross (EGC):* Exnora Green Cross under the leadership of C. Srinivasan is looking forward to open a zero waste management training centre at Vellore in Tamil Nadu with the aim to replicate similar type of institutions in other parts of the country.

*Nab Bharat Jagrti Kendra (NBJK):* NBJK, based in Ranchi, has gained expertise in waste management field through promoting new innovative interventions in Jharkhand. Under this project, it would emulate similar intervention in Patna, Bihar by enhancing impacts through need based initiatives.

*Society for Direct Initiatives for Social and Health Action (DISHA):* DISHA has played a critical role in the national and state level policy interventions in solid waste management. The activity undertaken by DISHA is to campaign for environment friendly community based municipal solid waste management in Hooghly municipal-



Workshop of NEEDS in Shillong.

ity of West Bengal.

*Stree Mukti Sanghathana (SMS):* SMS of Mumbai is one of the oldest known organisations working on the various issues involving solid waste management. Through this project, they want to create an environmental entrepreneurship programme for waste pickers in Navi Mumbai.

#### Organisational development workshop

Under the mandate of the project, special focus has been given on the organisational development of the partner organisations with the purpose of building institutional capacities, future leadership and enhanced skills of the partner organisations. Two workshops have been planned for these partners with the help of the external agency.

The first workshop has been conducted at Delhi from April 22-25. All partners made presentations on their interventions in the workshop. The SWOT analysis of the organisations was the main feature of this workshop.

Another aspects, which has been emphasised in the project, is the cross learning activities among the partners. The purpose is to share the experiences and wider understanding of ground-based realities on solid waste management. These activities will open the scope of new innovative interventions among the partners.

By Piyush Mohapatra



Organisational Developmental workshop in Delhi.

## Moving towards a clean Bawana

**T**oxics Link works closely with the issues related to toxics and waste and believes in participatory approach for the sustainability of the solid waste management programme, which includes door-to-door waste collection, segregation of waste and composting under the ownership of community.

With an objective of developing a demonstrable community based solid waste management model in low income community of resettlement colony of Bawana through capacity building and awareness raising amongst stakeholders which can be replicated to the other blocks as well, Toxics Link initiated the intervention with 2000 households of block B and D of the colony in November 2005.

Bawana being a lower income group (LIG) community, the generation of solid waste is much low compared to the middle

and higher income group communities. It was observed that generation of household waste was approx 300-400 g/HH/day with a very low amount of recyclables. The total generation of waste from the 2000 HHs was estimated as 219 - 292 tonne per annum. Each household generated approximately 3 kg of recyclable per month, which is sold to the *kabadiwala* directly for making the money.

Before the intervention began, there was no system of door-to-door collection in the area. People were not aware about the dry and wet waste and segregation of waste. Also, the community was not aware of the harmful impact of the littering of the waste.

The wet waste and other non-recyclables were disposed off in the open plots, street corners and the drains that made the area filthy and unhygienic and also provided a breeding ground for the insects. During the initiation of the project, there was no municipal *dhalao* for the storage of the garbage and normally the waste was stored openly in the roadside by the municipal workers and collected once in 10-15 days.

To seek the maximum possible community involvement for the sustainability of the solid waste management, Toxics Link adopted the participatory approach and with this view the strategies were as follows:

- ▲ Invoke the active participation of influential and key persons of the community;
- ▲ Awareness raising amongst the stakeholders;
- ▲ Generating a sense of ownership pro-

gramme amongst waste collectors and the residents;

- ▲ Initiation of door-to-door waste collection and segregation of waste at source;
- ▲ Capacity building of waste collectors;
- ▲ Provide occupational safety measures to the waste collectors;
- ▲ Linkage development between the Municipality and community for the frequent cleaning of *dhalao*s and drains.

Purposely, Toxics Link conducted an assessment-cum-awareness survey about the waste management in the community. With the aim of mobilising the community and to get more community participation, the door-to-door meetings, lane meetings, community meetings, street plays and rallies were conducted. Community participated in large numbers through out the period of intervention.

In order to get active involvement of the stakeholders, the local Self Help Groups (SHGs), influential community people, youths, school children, waste collectors and municipal sanitation staff of the area were also trained about the waste management. Toxics Link has also been strengthening linkage with Municipality sanitation staff so that cleaning of *dhalao*s and drainage could take place on regular basis.

After continuous efforts of Toxics Link, the door-to-door waste collection system was initiated in 1500 out of 2000 households. People have now become more aware of the benefits of the waste management and have started to consider the waste management as the need of the community.

Cleaning of drains was also the major problem in the community because of the unplanned construction of the drains at the time of resettlement. In the view of getting more community participation in the programme, the cleaning of drains was taken up on the priority basis. As a result of the awareness programme, the streets and drains in the project area are cleaner.

Door-to-door collection and cleaning of drains are taken care by the private waste collectors. Majority of the people in the community have participated in the programme through labour and also paying monthly fees. The revenue generation through it contributes to the monthly salary of the workers which has helped in livelihood generation of three youths in the community.

By **Mohammad Tariq**



*Mass awareness activities in Bawana.*

## Workshop on wastewater irrigation in Varanasi

The project on 'Contaminated Irrigation water and food safety' is near completion in India. A workshop 'Citizens' forum to discuss the health threats from wastewater irrigation in Varanasi' for dissemination and policy advocacy on wastewater irrigation issues was held on April 3, 2007 at IMA Hall in Varanasi.

The workshop was organised in partnerships with Indian Medical Association (IMA), Varanasi Branch and FRIENDS, an NGO working in Varanasi. The workshop was well attended with more than sixty participants representing government, medical fraternity, academia, civil society, Panchayati Raj Institutions, Rotary Club and others expressing their outrage on the whole range of issues brought forth by this project.

The workshop began with a brief welcome note from the President, IMA, Varanasi branch, followed by a brief overview of the project activities by Ganesh Pangare. Dr. Madhoolika Agarwal of Benaras Hindu University (BHU) shared the lab findings of food contamination from wastewater irrigation including the source-contamination map and Dr. Abhay Kumar of Toxics Link shared the outcomes of health survey with focus on heavy metal impacts.

Dr. Rana Gopal Singh presented on various impacts of heavy metals on health with a focus on kidney functioning. He also dwelt on how Indian traditional medicinal system uses some heavy metals impacts thereof.

The presentations evoked sharp responses from participants. The debate started with one of the participants pointing that inaccessibility of safe drinking water is a greater concern than the wastewater irrigation and its various implications. At this point, organisers intervened and said that while drinking water is an important concern, there is no point in pitting one against the other.

One of the doctors present in the workshop lamented the fact that water, whether drinking water or wastewater, is among the least priority areas for political parties. It is a sorry state of affairs that even now there is



*Panelists of the wastewater workshop in Varanasi.*

no law or policy on groundwater and drinking water and it is a mere point of academic discussion. He also said that lack of coordination between various organisations and sectors is most appalling.

A professor from BHU then added that the need for political approaches is fine but that cannot replace individual's contributions and doctors would have a major role to play in this regard. He also emphasised on the need for judicial interventions. President of IMA then remarked that teamwork is required and clinical study should be done to gather more evidence to which the doctors were also in agreement.

Vinod Maurya, head of Dinapur Panchayat gave a passionate speech on the problems that the community is facing today due to the sewage treatment plant in Dinapur. He said that the plant was supposed to be situated 5 kms. away from the village but it was constructed right in the middle of village. He added that there is a running instruction from the district magistrate that STP officials would meet with village representatives every two months on the problems that they are facing and would take possible remedial actions but such meeting never happened.

A representative from UP Jal Nigam then countered him saying that their plant is meant to treat only domestic and municip-

pal sewage and if industrial waste is mixed with it then much cannot be done and other governmental departments and agencies must look into it.

It was agreed by all the participants present in the workshop to hold a meeting in Dinapur after two months to further highlight the problem and make ways for a sustainable solution.

Dr. Chitravansh of Prayas Foundation was of the opinion that execution of the plan was the main shortcoming of any policy implementation. Shakti of Shambunath Research Foundation felt that lack of clarity on how to take the study findings to next stage was most conspicuous in the discussions and urged all to come prepared in the next meeting.

The CMO, Varanasi felt that the issues raised in the workshop were pertinent. He added that safe drinking water is an important issue and linked to it is the issue of re-use of wastewater. For this it is extremely important that domestic wastewater is separated from industrial wastewater at source itself. The IMA President also spoke in similar vein.

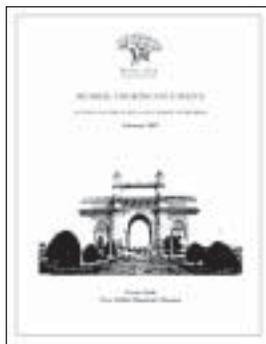
Dr. Sanjay Rai, Secretary, IMA ended the workshop with a vote of thanks to all the participants.

*By Abhay Kumar*

## CLEAN INDUSTRY

### Release of Mumbai e-waste study report

A recent study by Toxics Link has revealed that the commercial capital of India, Mumbai, is the leading generator of electronic waste in the country. The city alone generates about 19,000 tonnes of e-waste annually. Mumbai, being a port city, it also receives a good amount of e-waste through imports. The most worrying part is the rate of generation of e-waste in Mumbai, which is higher in comparison to the other metro cities of India.



The report 'Mumbai: Choking on e-waste' on the status of e-waste in Mumbai highlights the economic extremities and rampant urban poverty prevalent in Mumbai as the main reason to encourage the processing of old and discarded electronic products - a dangerous and booming 'cottage' industry

for a substantial population of recyclers, waste dealers and middlemen. These processing possess a very serious threat to the environment as well as human health.

India generates about 150,000 tonnes of e-waste annually of which 12 per cent comes from Mumbai. Most of the waste finds its way into the informal sector. In India, at present, only two or three formal alternative set-ups are present which are not sufficient for processing this huge amount of waste. The trend is likely to increase manifold in proportion to the growth in the consumption of electronic products as well as the high rate of obsolescence as depicted in the report.

It is much more expensive in the developed countries to recycle or dispose off electronic waste, as there are many more environmental safeguards that have to be addressed while handling hazardous waste. The report substantiates that cheap labour and crude recycling methods, along with absence of any regulation on import, have made India a favoured destination for dumping of e-waste by the developed world.

By **Kishore Wankhade**

## EEJP

### EEJP awardees for 2007-08

**ENVIRONMENTAL EQUITY** and Justice Partnership (EEJP) is an initiative of the Just Environment Charitable Trust set up in 2004 with the aim of helping groups and individuals foster lasting improvement in the area of environmental justice by catalysing grassroots initiatives, triggering new imagination and perspectives, encouraging crossover linkages and providing greater opportunities to connect to the environmental thinking.

The programme has two major components - one is environmental small grants (ESG) for grassroot interventions by organisations and the other is the fellowship programme (EF) for individuals. Under this programme, the grants have been awarded in three grant cycles beginning from the year 2005.

For the year 2007-08, about 450 applications were received from across the country for these two programmes. Finally, 24 proposals had been selected after the careful evaluation and assessment of the applications. From these, 11 NGOs had been awarded the ESG and rest 13 individuals had been awarded with the EF.

The awardees are spread across the various parts of the country in diversified geographical locations from Nalbari in Assam to Kangra Valley in Himachal Pradesh and from Gujarat to Tamil Nadu. The activities undertaken by these grantees are various cross cutting issues related to environment from the baseline surveys to providing sustainable means for income generation of marginalised communities.

For more information about the activities please log on to the website: [www.eejp.org](http://www.eejp.org)

By **Piyush Mohapatra**

### Environment Day Celebrations

**E-WASTE** is the most critical waste disposal issue of the twenty-first century. The presence of lead, mercury, brominated flame-retardants, and chromium, along with other hazardous chemicals in the Electronic and Electrical Equipments (EEE), may lead to severe negative health effects if not disposed off properly. Compounding this problem is the lack of awareness among various stakeholders, specially consumers, about the toxins contained in EEE, and the associated risks of air, water and soil contamination caused by improper recycling of the equipment at the end of its life.

Toxics Link attempted to address this gap by observing an E-waste awareness week around the Environmental day on June 5. A number of activities were organised for dissemination of information on the issue among citizens in Delhi, Chennai and Mumbai. An animation film was screened in multiplexes across Delhi to inform the youth about the emerging problem of e-waste. Stickers and flyers were also distributed to increase awareness levels of the general public. A public lecture organised during this week in Delhi also highlighted the problem and brought forward the viewpoints of various stakeholders, including the industry and government. Meetings with Resident's Welfare Associations were held for strengthening their understanding of the issue. The print and electronic media too highlighted the issue well. Public events were also held in Mumbai with various partner NGOs to reach out to various sections of the community.

## EVENTS

### Regional workshop at Ranchi

Toxics Link, New Delhi in partnership with Nav Bharat Jagriti Kendra, Ranchi organised a two-day Regional Workshop on Bio-Medical and Solid Waste Management: Perspective and Challenges covering the states of Jharkhand, Bihar and Eastern U.P at Hotel Ashok, Ranchi on February 8-9, 2007.

The workshop was attended by 87 participants including representatives of governments, Municipal Corporation, NGOs and renowned medical practitioners from government., semi-government and private hospitals, including National Vice-President of Indian Medical Association, Member Secretary of Jharkhand Pollution Control Board. The workshop was planned with a focus on technical, open sessions and group work.

The participant in the workshop has expressed their opinion that there is a serious lack of information among people of the area on both bio-medical and solid waste management. The implementation on ground lacked coordination between different departments, hence reflects poor compliance in all three states.

As recommendations, participants viewed that there is a need for a dedicated awareness campaign with the use of IEC material on these specific issues. Adequate training to waste monitors and managers is required for effective segregation, transportation and disposal. The State Pollution Control Boards should immediately start

### Students briefed on Sunderban ecology in Kolkata

TOXICS LINK organised lecture on 'Sunderban Biosphere Reserve - Threats and Management Strategies' in collaboration with Indian Institute of Social Welfare and Business Management (IISWBM) on February 15 in Kolkata.

It started with the welcome of the guests and brief introduction of lecture by Toxics Link. The keynote address was delivered by Atanu K Raha, Addl PCCF, Government of West Bengal. He explained the bio-resources - flora and fauna of Sunderban through pictorial presentation and also briefed the audience on management strategies adopted for its conservation.

The keynote address was followed by screening of the film 'A Green Agony' on the effects of local and global environmental factors on the ecology of Sunderban. The film helped to set the mood of the panel discussion.

The panelists were Pradip Vyas, Jt Director, Sunderban Biosphere Reserve; S. Bandyopadhyay, DFO; Shakti Banerjee, State



Panelists discussing ecological diversity of Sunderban.

Director, WWF and discussion was moderated by Dr. K. Agarwal of IISWBM.

The panelists explained the unique mangrove eco-system and ecological threats that the area is facing. They explained the threats faced by 8 million people living in Sunderban and what measures should be taken to save them.

The lecture ended with interesting discussion with the audience. The lecture was well attended by students of IISWBM and Calcutta University and NGOs working in Sunderban.

information dissemination to health departments.

Environmental groups from the State also suggested the use of RTI for receiving any information from these departments on their efforts and compliance rate. The workshop also brought out the need for secured landfill sites in the states of Bihar and Jharkhand. The authorisation by municipalities should effectively be monitored and more proactive role has been called for from the Pollution Control Boards in this respect.

### Forthcoming events

#### International Conference on Sustainable Solid Waste Management

The Centre for Environmental Studies, Anna University, Chennai in association with Asian Institute of Technology Pathumthani, Thailand is organising this international conference from September 5-7, 2007 in Chennai. The major objectives of the conference are to disseminate the findings of Asian Regional Research Programme on Sustainable Landfill Management in India. The delegates will discuss the lessons learnt from national and international waste management projects and identify the barriers in the implementation of the policies in Asia. For more on the event, visit [www.swlf.ait.ac.th/ICSSWM.htm](http://www.swlf.ait.ac.th/ICSSWM.htm)



Opening session of Ranchi workshop.

**NATIONAL NEWS****India generates 146,000 tonnes of e-waste**

As many as 146,000 tonnes of e-waste are generated per year in India, the Lok Sabha was informed by the then Forest and Environment Minister A Raja. He added that about 29,000 tonnes of e-wastes are generated alone in the four metropolitan cities of Delhi, Mumbai, Chennai and Kolkata.

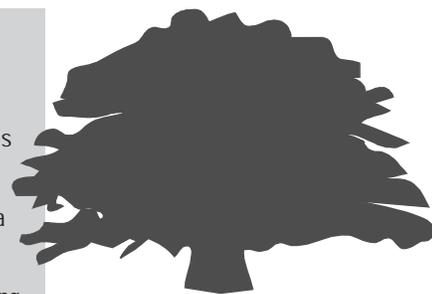
Raja said there are more than 3,500 units engaged in electronic production. This consist of 11 central public sector units with 31 manufacturing establishments, 46 units in state public sector, about 500 units in organised private sector and more than 2,900 units in small scale sector in the country. He informed that the Central Pollution Control Board (CPCB) has undertaken a study for the preparation of 'Guideline document for environmentally sound recycling of e-waste'.

Source: Hindustan Times

**Environment Ministry gives green signal for Commonwealth Games village**

Clearing the uncertainty over the Delhi Development Authority's (DDA's) plans to construct the Commonwealth Games village on the Yamuna river bed, the Environment Ministry has given a green signal to the project. However, DDA has been asked to adhere to 'a few environment-friendly norms' while constructing the village spread over 55 hectares of land.

Source: zeenews.com

**Authority to be set up to end rampant tree felling in Delhi**

The Chief Minister of Delhi, Ms. Sheila Dikshit has decided to set up tree authority and monitoring committee with environmentalists and government officials on board to stop rampant felling of trees in the name of development at a meeting on April 10, 2007 with members of 'Trees for Delhi'.

The authority will ascertain requests from developers who require trees to be felled for construction works. The CM has asked the environmentalists to draw up a list of names for the authority. 'Trees for Delhi' is an environmental forum set up to protest razing of thousand of trees to make way for future developments in the Capital.

Source: Hindustan Times

**Protests in Gujarat against Bhopal toxic waste disposal**

Environmentalists in Gujarat are protesting against the State Government's decision to allow the incineration of 360 tonnes of toxic waste of the Union Carbide plant of Bhopal at a solid waste disposal site.

The Gujarat Pollution Control Board has given the green signal for burning toxic chemicals lying in the pesticide plant of Union Carbide. The chemicals will be burnt at Ankleshwar-based Bharuch Enviro Infrastructure Limited (BEIL).

NGOs working for protection of the environment, such as the Centre for Environment, Society and Community, the Environment Protection Society and the Save Narmada Water Committee, have threatened to launch an agitation if Gujarat is converted into a dumping ground for hazardous chemicals. They dashed off letters to the Chief Minister Narendra Modi as well as the federal government to lodge their protest.

The green activists see the possibility of an environmental hazard during transportation and disposal of the waste.

Source: Khaleej Times

**India to press for stricter norms on ship-breaking**

**INDIA REFUSES TO BE** a dump yard for hazardous ships. During the inter-sessional working group meeting at the International Maritime Organisation (IMO) in London, India put forth this point across to world players in the sector. IMO is in the process of framing guidelines 'Draft International Convention for the Safe and Environmentally Sound Recycling of Ships' for the ship-breaking industry. After recent controversies involving French warship Clemenceau and Norwegian Blue Lady, India insisted that if a ship-breaking yard does not have the facility to treat a particular kind of hazardous waste contained in a ship headed for recycling, the onus of removing the hazardous waste should lie with the flag state. India has already sent its comments to IMO seeking that responsibilities of ship-owners and administrators of the flag state whose ships proceed for recycling be fixed. The Gujarat Maritime Board, that manages the Alang Ship Breaking Yard, also pushed this demand.

Source: The Economic Times

## PROFILE

### PEPUS

**P**aryavaran Evam Prodyogiki Utthan Samiti (PEPUS) was established in 1990. With head office in Allahabad, it operates in remote area of Varanasi (now Chandauli), Allahabad and Pratapgarh districts of UP. Target group of PEPUS primarily comprises of people of backward class, tribals and women from the downtrodden sections of the society.

The motto of the organisation is 'sustainable development through participatory approach'. The organisation is working for empowering dalit and tribal community, improving their livelihood facilities through training on improved agricultural practices, empowerment of women by strengthening the self help groups and promoting primary education specially among girl child and women. It also helps the panchayats to strengthen their partnership with people for responsive local self-governance.

As an organisation, it believes that there should be self-reliance among all the sections of society for development.

PEPUS has been working in Kaurihar block of Allahabad district on an alternative type of brick kiln named as 'Vertical Shaft Brick Kiln (VSBK)', which have 70 per cent less pollution as compared to normal brick kiln. Under this programme, efforts were made to provide facilities to firemen families through participatory technology development.

With the support from Environmental Equity and Justice partnership (EEJP), PEPUS aimed to make people sensitised about the serious environmental hazards because of traditional brick kiln and promoted establishment of eco-friendly VSBK. The project focused on awareness generation through meetings, trainings, campaigns, workshops, etc.

Under the programme, PEPUS provided information to the Panchayat about the air pollution absorber plants



*Village-level meeting organised by Paryavaran Evam Prodyogiki Utthan Samiti.*

and supplied them with the plants for plantation. It also organised three block level workshops with the brick kiln owners and stakeholders of the area and one district level workshop with the government officials of State Pollution Control Board (SPCB) and Zilla Panchayat.

They organised one-day training of the farmers on bio-technique to revive agricultural land which they have given for moulding of bricks and presently no cultivation can be done there. PEPUS also organised technical training for firemen, master firemen and brick owners to upgrade their skill, providing information on health hazards and to provide information about the improvement of traditional brick kilns for making it more environment friendly. A bicycle rally was organised and posters and pamphlets were distributed for mass awareness on the issue.

One of the major achievements of the programme was the formation of a federation called 'Bhattaha Parivar Vikas Sewa Sangathan (BPVSS)'. Community has become more aware of the pollution caused by brick kiln and during discussion they provided a number of alternative solutions to the problem.

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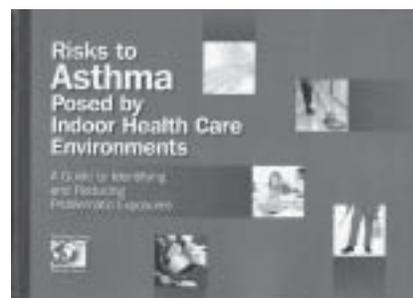
## RESOURCES

### PUBLICATIONS

#### RISKS TO ASTHMA POSED BY INDOOR HEALTH CARE ENVIRONMENTS

Published by: Health Care Without Harm

Publishing Date: Autumn 2006



An accumulation of evidence has supported the concern that some substances typically found in healthcare facilities can be asthamagens or triggers asthma. Certain steps can readily be taken to mitigate risks due to these harmful exposures. The guide focused on eleven key agents of concern with respect to their properties and sources as potential risk factors for asthma like formaldehyde, sphygmomanometers, catheters, etc. and then gave the alternative practices and products available that can decrease the potential harm. One of the main purposes of this guide is to encourage and assist the healthcare institutions in understanding the probable danger and suggest measures for eliminating these exposures.

#### SILENT INVADERS

Edited by: Miriam Jacobs and Barbara Dinham

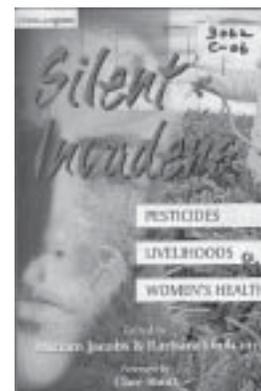
Publisher: Orient Longman

Publishing date: 2004

The book *Silent Invaders: Pesticides, Livelihoods and Women's Health* with

foreword by Clare Short is a

compilation of studies from all



continents on how the pesticides have affected the lives and livelihoods of women. The toxic impacts of pesticides on individual users, communities and environment have been well documented but scientific studies of gender impacts of pesticides have started very recently. Women are often the poorest in rural societies and their limited access to medical care lead to more casualties. The book documents the voices of women themselves on the lethal exposure and their demands for change.

## FILMS

### POPS – THE UNTOLD STORY

**Duration:** 10 minutes

**Language:** English and Hindi

**Produced by:** Toxics Link with support from UNEP and IPEN

Persistent Organic Pollutants or POPs, as they are commonly called, are carbon containing chemical compounds that, to a varying degree, resist photochemical, biological and chemical degradation and are capable of long-range trans-boundary atmospheric transport. The Stockholm Convention has identified 12 such pollutants collectively called 'The Dirty Dozen' and has suggested measures for their reduction and elimination. Toxics Link has recently produced an awareness generating film on POPs which documents their toxic characteristics, and their adverse effects on human beings, birds and wildlife. The live-action film also outlines the possible prevention measures that can be adopted.



### E-WASTE IS FLOODING THE EARTH

**Duration:** 2 minutes 12 seconds

**Language:** English and Hindi

**Produced by:** Toxics Link

E-waste is the latest buzzword in the world of toxics. The increasing use of electronic products and their shorter utility time have brought in this new kind of waste of twenty-first century. Toxics Link has been working actively on the issue trying to bring policy level changes to deal with the issue effectively. This animation film has been produced with the intention of making manufacturers and common people aware of the danger and how by adopting recycling and take-back methods this waste can be managed.

*For more information on any resource mentioned here, contact [info@toxicslink.org](mailto:info@toxicslink.org)*



## etoxics group

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](mailto: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*

## TOXICS ALERT

**An environment news bulletin**

Visit <http://enews.toxicslink.org>, for our monthly e-newsletter on environment related news, policy level interventions and events on toxicity and its management. You can also subscribe to it to receive it updates via e-mail.