Proposal Title: *Addressing Gaps for Policy Initiative towards Reduction of Mercury Contamination Sources in India in association with Indian Partner Organisations.*

Submitted to EEB – Follow up Project

Total Budget Proposed: 8000 Euros approx

Introduction

Mercury is a silvery white, odourless, highly volatile, metallic element, which is an extremely heavy liquid at room temperature. It is a highly toxic element that is found both naturally and as an introduced contaminant in the environment. It is found in trace quantities throughout the environment – rocks, soil and the oceans. Being an element, mercury never breaks down but persists in the environment, cycling through land, air and water and traveling beyond international borders. The dispersion of mercury into the environment is a major concern in the world today, especially in developing countries like India.

Mercury and its compounds have found various usages through the ages. Properties such as the ability to alloy with most metals, liquidity at room temperature, ease of vaporizing and freezing and electrical conductivity make mercury am important and very popular industrial metal.

Among its current 3000 industrial uses, its primary uses are in chlor alkali plants, thermometers, sphygmomanometer and other measurement instruments, electrical apparatus and switches, batteries, dental amalgam and in the formulation of various compounds. According to a recent study for the European Commission, nearly 3,700 metric tonnes of mercury are purchased around the world each year for various industrial purposes. This global mercury trade continues despite the fact that non-mercury-based alternatives are readily available for most current uses.

About Toxics Link

Toxics Link is an environmental NGO, dedicated to bringing toxics related information into the public domain, both relating to struggles and problems at the grassroots as well as global information to the local levels. We work with other groups around the country as well as internationally in an understanding that this will help bring the experience of the ground to the fore, and lead to a more meaningful articulation of issues. Toxics Link also engages in on-the ground work especially in areas of municipal, hazardous and medical waste management and food safety among others. Working in networks, utilising community outreach and education, policy analysis, research, training and program development, we work at the state and central levels to help create solutions, which are driven by the needs of people.

The war against toxics has led naturally to the battlefields of industry. Toxics Link has taken up the issue of trade in some of the most hazardous materials – mercury, asbestos, plastic,

for example. The underbelly of the Information Age – the vast quantities of electronic waste being generated – is another area of concern, which we have been focusing on. Our initiatives are on making rules and regulations more stringent; on making industry adhere to stipulated norms; on seeking accountability for gross violations; and on identifying and promoting the use of clean technologies, products and processes

Toxics Link's work on mercury

Toxics Link has been working actively on various issues related to hazardous waste and its illegal import into India. It has raised issues related to mercury, electronic wastes (e-waste); lead acid batteries, ship breaking, and the international waste trade.

Toxics Link strives for clean production technologies, monitoring the enforcement of existing regulations; and working in collaboration with civil society, industry and government to achieve the desired objective. Mercury is one such initiative.

- In September 2003, Toxics Link released its report 'Mercury in India: Toxic pathways'. The report was the first national level assessment of mercury in India. The report highlighted the status of mercury in India, focusing on usage, trade, environmental and health hazards, and related standards and legislations. The report exhorted the government and industry to realise the potential of mercury as a pollutant and health hazard.

- In July 2004, Toxics Link also came out with a first comprehensive report on the mercury usage in healthcare sector ' Lurking Menace- Mercury in the health-care sector'. This report, which included a study done on delhi hospitals and dentists, generated a lot of interest among the government as well as environmentalist. There were number of parliament queries based on the report. The finding, which highlighted the mercury menace, also attracted lot of media attention.

  Major finding from the report

  - 51 kgs of mercury released from amalgams each year in Delhi
  - Hospital with dental wing might be generating around 3 kgs of mercury waste
  - Disposal in drains, or with municipal/ incinerable waste
  - Very low awareness among the healthcare workers

- The report generated a lot of interest among hospitals in Delhi. As a result of the report and sensitization and awareness workshops by Toxics Link, some major hospitals in Delhi decided to phase out mercury:

  - St. Stephens' Hospital
  - Sir Gangaram Hospital
  - Max Devki Devi

- Holy Family

- Toxics Link organized a two day workshop on 6-7th April 2005 to bring together all the important stakeholders to present and discuss the status of mercury in the country and to work towards demand management and a phase out strategy for mercury.

- Delhi pollution control came up with a public notice on safe handling on mercury.

- WHO global policy on Mercury in healthcare in which it proposed to work in collaboration with countries through some strategic steps.

    - Develop mercury clean up and waste handling and storage procedures.
    - Increase efforts to reduce the number of unnecessary use of mercury equipment.
    - Support a ban for use of mercury containing devices and effectively promote the use of mercury free alternatives.
    - Support to countries in developing a national guidance manual for sound management of health-care mercury waste.

    - Report on the traditional usage of mercury focusing on Parad Shivlings
    - Photo documentation of two Chlor alkali plants.

Two studies, focusing on Mercury in School and Mercury in Informal sector, by our partner organizations DISHA and Chintan.

The Issue of Mercury

Health and Environmental Effects of Mercury

Mercury is toxic by ingestion, inhalation and skin absorption with acute and chronic exposure effects including central nervous system and kidney damage. Acute exposure includes nausea, blurred vision, painful breathing, excessive salivation and pneumonitis, while chronic or longer- term exposure includes memory disturbance, hypertension, vision problems, hallucinations, tremors and personality changes. The two properties that make mercury extremely unmanageable are bioaccumulation and bio-magnification. Because mercury can cross the blood-brain barrier, and because it can affect brain development, its effects are of special concern to pregnant or lactating women and young children.

The most common exposure routes involve food and diet. Additional exposures may be contributed through air and water, either directly or again through the route of food. The toxic effects of mercury depend on its chemical form and the route of exposure. Methyl mercury [CH_3Hg] is the most toxic form.

In the above context, Toxics Link's aim is to encourage the industries and governments (both at national and international level) to tackle the issue of mercury pollution more seriously through strong public awareness among all the stakeholders (government, industry, community), and through mercury reduction strategies, which are specific and implemented.

Existing Gaps

Mercury is not extracted in India; it is totally imported. In fact, India is one of the largest consumers of mercury in the world. About 170 tonnes of mercury was imported and consumed in the year 2004-05[1]. And this is probably an underestimation as there is a thriving illegal trade in the commodity.

Mercury finds a wide variety of application in India. Some of the major consumers of mercury in India are the chlor alkali industry, measuring instrument industry, chemical industry and lamps etc. Except some initiative from the chlor alkali industry, there has been hardly any attempt to phase out mercury from the industry. In most cases, even basic standards of occupational safety are not followed.

The healthcare industry is one of the glaring examples of mishandling of mercury. Healthcare uses mercury in many ways like in thermometer, sphygmomanometer, dental amalgam, chemicals etc. The scattered source combined with lack of awareness regarding mercury among the healthcare workers is of grave concern.

The coastal areas of India are significantly polluted with mercury and a high level of mercury is being detected in Indian fish, both saline and freshwater. Fish absorb methyl mercury from water as it passes over their gills and as they feed on aquatic organisms. Larger predator fish are exposed to higher levels of methyl mercury from their prey. Methyl mercury binds tightly to the proteins in fish tissue, including muscle. Nearly all fish contain trace amounts of methyl mercury, some more than others. In areas where there is industrial mercury pollution, the levels in the fish can be quite elevated. Cooking does not appreciably reduce the methyl mercury content of the fish.

The Minamata tragedy in Japan in 1950s and 1960s is the biggest case of mercury poisoning, where around 1,000 people were affected by mercury exposure. This was caused by consuming mercury-contaminated fish. To prevent such a tragedy from happening in India, people who eat fish need to be made aware of mercury contamination and its implications.

By certain estimations, the arguable potential release of mercury into India's environment could currently be anywhere between 172.5– 200 tonnes every year[2], and these figures exclude releases from other fossil fuels. This amount represents a grave danger for the country.

Though some small initiatives have been taken up in the country, but it lacks concrete direction from the all concerned because of following factors:

1. Lack of public awareness in the country
2. Low priority by the government.

From http://dgft.delhi.nic.in/- Source The Directorate General of Commercial Intelligence and Statistics (DGCI&S), Kolkata, under the Ministry of Commerce, Government of India.

[2] Source: Down to Earth (Green Rating Project, CSE)

3. Low acknowledgement by concerned industries

Addressing the Gaps

The aim of this project is to deal with these existing gaps by addressing the community, industry and the government. These studies will further help in advocating and creating a case for mercury elimination and reduction in usage from the country. The studies will be carried out in partnership with organisation of mercury network formed in 2005. The study outcome will be used to carry out advocacy through networking.

Partner Agencies

1. **DISHA**: Since 1995, **Society for Direct Initiative for Social and Health Action** (DISHA), based in Kolkata, West Bengal, has been active on different issues concerning Environment, Social Health and Human Rights in the state of West Bengal in India. Some experienced committed health professionals, public health engineers, human rights activists and social activists formed the organisation. DISHA has rich experience of developing successful networks, campaigns and policy level interventions. It conducts a project 'Documentation-Network-Newsletter' to highlight the environmental activism of east and north-east India. Considering the almost secluded nature of this region, documentation of the environmental activities taking place in the region, building coordination among them and disseminate through various forums. *DISHA* is a founder member of Waste Not Asia, which later became a constituent of GAIA (Global Alliance for Incinerator Alternatives). Since 1996 *DISHA* has been organising public campaign and delivering watchdog function for safe management of medical waste. *DISHA* is a member of the international network *HCWH – (Health Care Without Harm)* and a founder member of *HuMAN (Health and Us – Medical Waste Action Network)* - a national network. *DISHA* is working to develop a network of organizations active on medical waste in East and North-East India.

2. **Goa Desc (Gos Development Society):** The organization is part of Toxics Link network and is actively involved in research, documentation, education and solidarity at community based level. Goa Desc has done extensive environment education among the communities in the state of Goa. The organization is actively involved with the consumer awareness and has done awareness work with the health care persons. At present the organization is running a Resource Centre for awareness on various issues. Goa Desc has developed active network in Goa.

Proposed Studies in the Project

A. Study on the mercury management systems in Chlor alkali Plants and creating awareness
By Toxics Link

Chlor-alkali production is the manufacturing of caustic soda and chlorine. India's chlor-alkali industry is small in comparison with the rest of the world's production, but it still uses the

outdated mercury cell technology. Though mercury cell process is being phased out in this industry, there has been hardly any information regarding the way the mercury is being phased out or recycled in these cases. Also, there are no reports on the occupational safety norms, handling and disposal methods followed in the plants that are still using this ancient technology. The survey of the chlor alkali plants plans to deal with this angle and study the ground situation.

According to the Alkali Manufacturers Association of India, there are at present 32 chlor-alkali unit functioning in the country with a total installed capacity of 2.07 million metric tones per annum as on March 2005. Membrane cell process accounts for 82% of the total production while mercury cell accounts for nearly 28%. Of the 32 manufacturing units, 7 units are completely based on the mercury cell processes, 4 units have both mercury and membrane cell processes. In other words there are still 11 units that are, wholly of partly, using the mercury cell process.

The study on Chlor alkali industry plants will include survey of four plants; two plants that have already shifted to the membrane technology and two plants that are still using mercury will be covered under this. There will be one to one interviews with the management as well as the staff to determine the situation.

The main objectives of this study are

- To find out the phase out plan from the existing mercury cell process based chlor alkali industry in India.
- To document the existing mercury management plan of the newly converted membrane cell based plants.
- To document the current practices in the mercury using chlor alkali plants.

B. Mercury in Healthcare –Preparing a Status Report for Goa
Partner Agency: Goa Desc

Mercury is widely used in the healthcare industry. The project plants to address one of the major users, i.e. the healthcare industry by documenting the mercury usage, spillage and its handling practices in the healthcare and assessing the existing awareness on the mercury hazards among health care workers. The study will be conducted in the Indian state of Goa, in partnership with local environmental group Goa Desc Centre. This study will help in capacity building of the local consumer groups in raising this issue and creating awareness among the health institutions and general public.

The main objectives of this campaign based study are

1. To document mercury usage in the healthcare sector in Goa. Also study the existing procedures for handling and disposing mercury waste in hospitals and dental clinics in Goa.

2. To study the current awareness level of the healthcare staff regarding mercury.

3. To promote awareness about safe handling and eco-friendly methods of disposal of mercury.

4. To train local consumer groups to be watchdogs in the process.

This three-month project will generate area specific information, which will help in taking this important issue forward in Goa. The media highlighting is expected to not only create awareness among the healthcare workers, but will also bring the issue in public eye. The project also plants to facilitate the formation of a small core group, with all stakeholders, that can chart the future course of action.

C. Study on Mercury Contamination in Fish

Partner: DISHA

West Bengal has a long history of industries capable of releasing mercury in the environment. Mining, coal fired production processes including thermal power stations, direct discharges of industrial, municipal and medical waste – all are present here. As such there is a felt need of undertaking a Fish Testing Study for mercury contamination covering the pollution prone spots.

Studies have been undertaken in India to measure the extent of mercury contamination in fish. But these studies are generally with educational or research institutions and are yet to enter the domain of environmental activists and/or concerned people. As such there is a need to bring out a collection of such studies for the environmental activists and concerned people.

Also so far there has not been any campaign literature on mercury hazards in Bengali language. This is affecting the development of awareness regarding mercury among the environmental activists in West Bengal. These awareness materials will also help in taking this information to the neighboring country Bangladesh, which is also a fish eating community.

This project will seek to address following objectives –

1. To quantify and assess the level of mercury in fish in selected pollution prone areas in West Bengal.

2. To assess the level and extent of mercury contamination in fish in India as found in different studies undertaken in the matter.

3. To publish a resource handbook on mercury hazards in Bengali language to help develop awareness among the activists and concerned people.

D. National Level Consultation Meeting

The three studies and reports will be followed up by a **national level consultation** for the formation of mercury reduction policy in India.

The meeting plans to bring together all the stakeholders from around the country and discuss the way forward.

E. Contribution to the European/Global Campaign:

Toxics Link will actively participate in the global and European campaign on mercury. To achieve this the project will undertake following activities:

a. Will contact European Embassies and countries to push for restriction and ban of export of mercury to India.
b. Through the NGO network will create pressure in for the UNEP 2007 for globally binding treaty.
c. Participate and actively contribute by providing data and facts about the country in EU conference at Brussels in October 2006.
d. The organization will participate actively in ongoing European campaign as when it is required and called for or if requested in view of the work towards EU mercury export ban.

Expected outputs:

1. Three study report
2. Organise National level consultation
3. Suggested national level mercury reduction guideline
4. Participation in EU /Global Campaign on Mercury

The studies would be worked out in partnership with Toxics Link, where other experts for consultation will be involved for analysis of scientific data.

Estimated Budget

Project component	**Budget (in Rs)**	**in Euros**
1. Chlor alkali Plant study	Rs 1.25 lakh	
2. Documentation on mercury in Health Care……	Rs 0.81 lakh	
3. Scientific study on mercury contamination on fish	Rs 1.50 lakh	
4. One national level consultative meeting	Rs 1.00 lakh	
Total budget	Rs 4.56 lakh	