



Toxics Link
for a toxics-free world

Project Report

School Based Awareness on Mercury Hazards
Intervention in schools under Government of Delhi

Submitted to
Department of Environment
Government of NCT of Delhi
Delhi



By

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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. We are also involved in a wider range of environmental issues in Delhi and outside as part of a coalition of non-governmental organizations.



Acknowledgement

The idea of conducting this project emerged with the growing concern on the hazards of mercury over last few years. This also came from the initiatives taken by the government of Delhi on the issue of mercury especially in health care sector.

Toxics Link is grateful to Department of Environment, Government of Delhi for recognizing the importance of conducting this awareness in schools of Delhi by supporting this project and providing all the necessary help for the successful completion of the activity.

Toxics Link is also grateful to all principals and teachers of the schools for their cooperation and active participation in sessions.

We are grateful to all community members who took off time to participate in the late evening awareness programmes.

A special thanks to the Eco School teachers of various schools and Dr B.C Sabata of Department of Environment for providing time-to-time inputs and support to the project team.

Last but not the least to all the members of Toxics Link for their continuous support and inputs.

Toxics Link
March 2009



Background

Mercury is a silvery liquid metal at room temperature. Mercury conducts electricity, expands uniformly with temperature and easily forms alloys with other metals. For this reason, it is used in many products found in homes and schools. Mercury is also an element that occurs naturally in the earth's surface. It does not degrade and is not destroyed by combustion. Instead, mercury changes into a vapor that can travel long distances when volatilized. Mercury cycles between soils, the atmosphere and surface waters. Its toxicity can endanger living organisms and produce adverse health effects in humans. Organic mercury, especially methyl mercury, can accumulate in tissue and increase its toxicity as it moves up the food chain.

Why is Mercury a Concern?

Mercury spills whether at home, school, and hospitals can be hazardous. Spilled mercury emits vapors over a long period of time. Mercury vapors are colorless, odorless and tasteless. Short-term exposure to a concentration of mercury or mercury vapors can lead to nausea, shortness of breath, bronchitis, migraine headaches, and fatigue. Long term exposure to mercury can result in damage to the nervous system, kidneys and liver; symptoms include shakiness, tremors, numbness in the fingers and toes, loss of muscle control, memory loss and kidney disease. Children, developing fetuses and women of childbearing age are the most at risk for mercury poisoning. Mercury should be handled carefully, especially around children. Mercury is a concern in the environment. Improper disposal of mercury-containing products is one way that mercury is released into the air, land and water.

Mercury easily enters its vapor form, and can travel long distances. Mercury that reaches lakes, rivers and streams can be converted into methyl mercury by organisms in the water. Methyl mercury builds up in wildlife tissue, especially in fish. As larger fish eat smaller fish, the mercury concentrates the farther it travels up the food chain. Methyl mercury can move up the food chain and create a risk for human consumption of fish. In many countries health agencies issued fish advisory for mercury for children under the age of six, pregnant women and women of childbearing age.



Role of Education and Schools in Environment Education

Education is a significant means to develop among individuals the ability of self-actualization and self-realization. One of the key processes in a child's development is his association and understanding of environment. It is the association with immediate surroundings and activities where a child learns most of the things. But over a long period of time our children are exposed to various activities which are harmful to themselves, environment and ecosystem, yet they adopt these practices without understanding their ill effects.

Recent decision by Delhi government on reduction of mercury from health care waste stream will be only successful if the larger awareness is conducted at various levels. Thus it is important to have such awareness in school level from where these students can act as catalyst of change at home and community level. These activities will address the current lack of understanding of hazards of mercury.

Over all Aim of the Project

The aim of this project is to create awareness and sensitize school children and teachers on harmful effects of mercury in 50 schools of Delhi.

The specific objectives of the proposed project are to:

1. Generate awareness on hazards of mercury in day-to-day life.
2. Train students spill management of mercury at home.
3. Motivate students to stop/prevent using mercury equipments at home.

School Mercury Programme

Method of Awareness

- Lecture-cum-discussion
- Story telling
- PowerPoint presentation
- Film screening
- IEC distribution



Process

The team of Toxics Link conducted lecture-based presentation discussion, screening of films on the usage and hazards of Mercury, animated film on spill management and participatory question answer session. The schools were also provided with specific Information and communication material on Mercury, which includes posters, handbills, and CD. The interactive nature sessions were proved to be effective and provided lot of discussion amongst students and teachers post every session.

The students were made to think about situation, which may lead to possible spills at household, hospitals, and science laboratories. And they were told about spill clean up procedures.

The session also covers specific health impacts of mercury, which occur in various forms. Like, short-term exposure of mercury vapour may cause nausea, shortness of breath, bronchitis, migraine headaches and fatigue. And long-term exposure may lead to damage to the nervous system, kidneys and liver. The exposed person may have the symptoms like tremors, numbness in the fingers and toes, loss of muscle control, memory loss and kidney disease.

After every session students take oath to get rid of mercury from their lives by taking action at home, school and society.



Pledge by students in Meniben Patel BM. Sarvodya Kanya Vidyalaya, Shahadra



Coverage

The awareness project started in July 2008 and has covered 50 schools covering 9159 students (Boys – 3189 and Girls - 5710 and 260 teachers have been reached through various sessions on Mercury.

S. No.	Date	Name of the School	Number of Participants			Total participants	Duration (Hour)
			Boys	Girls	Teacher		
1.	11-7-08	Govt. Girls Sr. Sec. School No. 1, Madipur Delhi	—	270	12	282	1.45
2.	14-7-08	Mani Ben Patel B. M. Sarvodya Kanya Vidyalaya, G. T. Road, Shahadra, Delhi-110032	—	295	8	303	1.35
3.	14-7-08	Govt. Boys Sr. Sec. School J&K Block, Dilshad Garden, Delhi-110095	450	— —	10	460	1.30
4.	15-7-08	Govt. Girls Sr. Sec. School, SU-Block, Peetampura, Delhi-110088	—	250	3	253	1.30
5.	15-7-08	Shaheed Captain Anuj Nayyar Sarvodya Bal Vidyalaya, No. 2, B-Block Janakpuri, New Delhi-110058	362	— —	5	367	1.15
6.	18-7-08	Govt. Girls Sr. Secondary School No. 1 Shakurpur, Delhi-110034	—	85	5	90	1.20
7.	18-7-08	Govt. Boys Secondary School, J. J. Colony Raghuvver Nagar, New Delhi-110027	241	— —	4	245	1.15
8.	22-7-08	Govt. Girls Sr. Secondary School, No. 2 Gandhi Nagar, New Delhi-110031	—	50	3	53	1.30
9.	22-7-08	Rajkiya Sarvodya Bal Vidyalaya, Patpargang, Delhi-110091	100	— —	5	105	1.30
10.	24-7-08	Govt. Boys Secondary School, Naraina, 2nd shift, New Delhi-110028	184	— —	7	191	2.30
11.	1-8-08	Govt. Girls Senior. Secondary School, No. 3 Palam Enclave, New Delhi-110045	—	101	4	105	1.45



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12.	1-8-08	Govt. Boys Senior Secondary School No. 3, Palam Enclave New Delhi=110045	150	— —	4	154	1.25
13.	6-8-08	Govt. Girls Senior Secondary School, Andrews Ganj, New Delhi	—	400	14	414	1.30
14.	7-8-08	Govt. Sarvodaya Kanya Vidyalaya No,2 Kalkaji, New Delhi-110019	—	298	6	304	1.45
15.	11-8-08	Rani Jhansi Sarvodaya Kanya Vidyalay, Railway Colony, New Delhi	—	75	3	78	1.30
16.	12-8-08	Rajkiya Sarvodya Kanya Vidyalaya, No. 2 Jama Masjid, Delhi-110006	—	88	2	90	1.20
17.	12-8-08	Govt. Boys Senior Secondary School Mandoli, Delhi-110093	200	— —	5	205	1.30
18.	13-8-08	Govt. Co-Education Secondary School, Bara Hindu Rao, Delhi 110006	100	— —	2	102	1.25
19.	18-8-08	Govt. Co-Education Senior Secondary School, Village Kangan, Hori, New Delhi-110071	100	100	3	203	3.00 Two sessions
20.	20-8-08	Janki Devi Rajkiya Sarvodaya Kanya Vidyalaya, Pocket-2, Mayur Vihar Phase-1 New Delhi	—	105	3	108	1.30
21.	26-8-08	Govt. Girls Senior Secondary School No. 3, Sarojini Nagar, New Delhi	—	263	7	270	1.40
22.	27-8-08	Govt. Girls Secondary School Pataudi House, Dariya Garj, Delhi-110002	—	150	3	153	1.30
23.	4-9-08	Rajkiya Sarvodaya Kanya Vidyalaya, Moti bagh-1 New Delhi	—	258	8	266	1.35
24.	5-9-08	Arya Girls Senior Secondary School, Regarpura, Karol Bagh New Delhi-110005	—	300	10	310	1.20
25.	9-9-08	Govt. Girls Senior Secondary School, A-block Saraswati Vihar Delhi-110034	—	285	8	293	1.45
26.	25-9-08	Govt. Girls Sr. Sec. School, No 3, Roop Nagar, Delhi-110007	—	252	4	256	1.50



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27.	23-10-08	Govt. Girls Sr. Sec. School No. 3, Kalkaji, New Delhi-110019	—	298	4	302	2.00
28.	24-10-08	Govt. Girls Sr. Sec. School, Chashama Building, Balli Maran Delhi	—	60	2	62	1.45
29.	4-11-08	Govt. Co. Edu. Sr. Sec. School A-6, Paschim Vihar, Delhi-110063	90	110	10	210	2.00
30.	4-11-08	Govt. Boys Sr. Sec. School, S. P. Road, Nangloi, Delhi	110	— —	4	114	1.30
31.	14-11-08	Govt. Girls. Sr. Sec. School, AP-Block, Shalimar Bagh, Delhi-110088	—	115	2	117	1.45
32.	13-1-09	Govt. Boys Sr. Sec. School, Jungpura, New Delhi-110014	400	— —	6	406	2.00
33.	13-1-09	Govt.Boys Sr.Sec. School, Block-13, Geeta Colony, Delhi-110031	100	— —	6	106	1.45
34.	16-1-09	Sister Nividita Sarvodya Kanya Vidyalaya, A-Block Defence Colony, New Delhi-110024	—	160	3	163	1.50
35.	19-1-09	Sarvodya Kanya Vidyalaya, Adarsh Nagar, Delhi-110033	—	100	2	102	1.45
36.	20-1-09	Govt. Co. Edu. Sr. Sec. School, C-Block Sultanpuri, Delhi-110086	100	140	5	245	2.40
37.	23-1-09	Govt. Girls. Sec. School, No. 2 D-Block, Janakpuri, New Delhi-110058	—	198	6	204	2.30
38.	28-1-09	Govt. Boys Sr. Sec. School, No. 1, Shakti Nagar, Delhi-11007	160	— —	3	163	1.35
39.	29-1-09	Kamla Nehru Sarovdaya Kanya Vidyalaya, Jungpura, New Delhi-110014	15	235	9	259	1.45
40.	6-2-09	Govt. Girls Sec. School, East Park Road, Karol Bagh, New Delhi-110005	—	95	4	99	1.45
41.	6-2-09	Govt. Girls Sr. Sec. School, Pahar Ganj, New delhi-110055, (Hari Vardi Wala)	—	100	10	110	1.55
42.	10-2-09	Govt. Girls Secondary School, BC-Block, Sultanpuri, Delhi-110086	—	54	7	61	1.45



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43.	10-2-09	Govt. Sarvodaya Kanya Vidyalaya, U-Block, Mangolpuri, Delhi-110086	—	50	6	56	1.40
44.	11-2-09	Govt. Sarvodaya Kanya Vidyalaya, Alipur, Delhi-110036	—	120	5	125	2.00
45.	11-2-09	Govt. Boys Sr. Sec. School, Alipur, Delhi-110036	100	— —	4	104	1.40
46.	18-2-09	Govt. Girls Sr. Sec. School, No. 1, East of Kailash, New Delhi-110065	—	150	5	155	1.50
47.	24-2-09	Sarvodaya Kanya Vidyalaya, No. 2, Tagore Garden, New Delhi-110027	—	100	2	102	1.45
48.	24-2-09	Govt. Boys Sr. Sec. School, Bindapur. New Delhi-110059	110	— —	2	112	2.00
49.	25-2-09	Govt. Boys Sr. Sec. School, No. 2, Badarpur, New Delhi-110044	57	— —	2	59	1.50
50.	26-2-09	Govt. Boys Sr. Sec. School, No. 1, Kidwai Nagar, New Delhi-110023	60	— —	3	63	1.50
Total			3189	571 0	260	9159	



Feedback from schools

Mrs Meera Yadav (Eco Teacher) of Govt. Sr. Sec. School. No.3 Palam Enclave quoted “The awareness programme about the harmful effects of mercury on health & environment was really an eye opener for students. The topic was very effectively communicated with students. Toxics Link work is highly appreciable. Students are highly benefited with the programme. We look forward to many more such programme in our school”.

Mr. M/K. Tyagi of Govt. Boys. Sr. Sec. School, Mandoli also quotes “Students of our school will definitely will get benefit of this knowledge and will share this information among other students also. Such programme should be arranged in the schools in future also.

‘The program was very relevant and useful. Students learnt about the various methods & procedures for disposing of mercury, as mercury is a silent killer. The program was very well explained to the school’s students by the representative of the Toxics Link.’ Seema Khetrapal PGT Physics, G. G. Sr. Sec. School Saraswati Vihar.

‘Toxics Link organized the mercury awareness program in the school with the support of Dept. of Environment. Delhi Govt. This program has been proved very useful in creating awareness amongst the school’s students and teachers about the hazards of mercury exposure to health and environment. We use mercury in many instruments & appliances in our home and hospitals etc. What we should do save our health & environment was clearly explained by the organization.’ Madhurima Saxena TGT Rajkiya Sarvodya Kanya Vidyalaya, Moti Bagh-1

‘Pryavaran se sambandhit bachcho aur adhyapikaon ko yeh program dikhaya gaya, jo vakai mein itna achchha tha ki hum kah sakte hain ki adhyapikaon ko bhi is bare mein pata nahi tha. Paare se sambandhit karyakaram humein bahut achchha aur gyanvardhak laga. Yeh gyan hum apne bachcho aur societiyon ke program mein batayengi. Hum



Toxics Link aur Bhagidari ka dhanyavad karte hain.’ Neelam Devgab, Yoga teacher, G. G. S. School, Pataudi House, Dariya Ganj.

‘It is a very informative programme giving the knowledge which is very essential for all of us. A very relevant short film and the explanation was very simple & lucid.’ Sangeeta Budhiraja, TGT teacher, Janki Devi Rajkiya Sarvodya Kanya Vidyalaya, Pkt-II, Mayur Vihar Phase-I

‘The presentation by Mr. Vinod Kumar Sharma on the topic “Mercury about effects on our life” was very good, effective & valuable for the students. Students of this school will definitely get benefit of this knowledge and will share this amongst other students. Such programme should be organized in the schools in future also. I hearted by appreciate this programme. ’M. K. Tyagi, TGT Science, G. B. Sr. Sec. School, Mandoli

‘Presentation on mercury (Hg) given by Mr. Vinod was very informative, interactive and effective. Study material was very good. These material were given to the students individually which was a very good approach to make understand them.’ Manoj Rajpoot, TGT Science, Rani Jhansi Sarvodya Kanya Vidyalaya, Railway Colony, Tughlakabad’.

Distribution of IEC

Distribution of IEC:-

S. No.	Name of IEC	Quantity
1.	Posters of Mercury Mams	1808
2.	Segregation Posters on SWM	3650
3.	Handbill on Mercury	41000
4	CDs of the Hg film	100

Mercury Awareness Sessions in Pictures



Presentation in Govt. Girls Sr. Sec. School No. 3 Palam Enclave



Govt. Boys Sec. School, Narayana



Encourage the student by principal in Govt. Girls Sr. Sec. School No. 3 Palam Enclave



Presentation in Govt. Boys Sr. Sec. School No. 3 Palam Enclave



Asking a question by a student of Govt. Girls Sr. Sec. School No.1 Madipur



Govt. Girls Sr. Sec. School, Andrews Ganj



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Govt. Girls Sr. Sec. School, Andrews Ganj



Govt. Co-Edu. Sr. Sec. School, Kangan Hori



Govt. Girs Sr. Sec. School, No.2, Gandhi Nagar



Janki Devi Sarvodaya Kanya Vidyalaya, Mayur Vihar



Presentation in Rani Jhansi Sarvodya Kanya Vidyalaya,
Tughlakabad



Govt. Girls Sr. Sec. School, No. 3 Sarojini Nagar



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Govt. Girls Sr. Sec. School, Pataudi House, Dariya Ganj.



Govt. Sarvodya Kanya Vidyalaya, Kalkaji



Sarvodya Kanya Vidyalaya, Moti Bagh-1



Pledge by students in Meniben Patel BM. Sarvodya Kanya Vidyalaya, Shahadra



Arya Girls Sr. Sec. School, Ragarpura, Karol Bagh on teacher's day



Govt. Boys Sr. Sec. School, J & K block Dilshad Garden



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Govt. Girls Sr. Sec. School, SU-block Pitampura



Govt. Boys Sec. School, J. J. Colony, Raghuveer Nagar



Issue raise by a student in Shaheed Cap. Anuj Nayar Sr. Sec. School, Janakpuri



Govt. Boys Sec. School, J. J. Colony, Raghuveer Nagar



Govt. Girls Sr. Sec. School, No.1, Shakurpur



Govt. Girls Sr. Sec. School, A-block,, Saraswati Vihar



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Govt. Boys Sr. Sec. School, Jungpura



Govt. Gils Sec. School, East Park Road, Karol Bagh



St. Nividita Sarvodaya Knaya Vidyalaya,
Defence Colony.



Govt. Girls SR. Sec. School, Paharganj



Kamla Nehru Sarvodaya Kanya Vidyalaya, Jungpura



Govt. Sarvodaya Kanya Vidyalaya, U-Block
Mangolpuri



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Govt. Girls Sec. School, BC-Block, Sultanpuri



Govt. Boys Sr. Sec. School, Alipur



Govt. Boys Sr. Sec. School, No. 1, Shakti Nagar



Presentation in Govt. Sarvodaya Kanya Vidyalaya,
Alipur



Mercury Awareness Program in the Communities

Purpose and Objective of the Activity: To spread awareness and sensitization about hazardous of mercury in the community

Method & Process of Awareness

Apart from the schools, the Mercury Awareness Programme was also carried out in the communities. Seeking the maximum participation of the people the, local leaders, local NGO, influential persons and key person of the community were contacted. The lecture cum discussion, screening of films on the usage and hazards of Mercury, animated film on spill management and participatory question answer session were the key methods used for disseminating the information. The Information and communication material on Mercury was also distributed; such as posters and handbills. A total of more than 4000 handbills were distributed in the six communities. The specific health impacts of mercury, which occur in various forms, like, short-term exposure of mercury vapour may cause nausea, shortness of breath, bronchitis, migraine headaches and fatigue, were also discussed. However, long-term exposure may lead to damage to the nervous system, kidneys and liver. The possible symptoms among the mercury person i.e., tremors, numbness in the fingers and toes, loss of muscle control, memory loss and kidney disease were also discussed with the communities.

Coverage of the activities:

S. No.	Date	Timing	Venue	No. Of Programs	Number of Participants		
					Male	Female	Total
1	27-3-09	6.30pm to 9.0pm	Janta Jeevan Camp, Tigri	2	120-130	145-155	265-285
2.	28-3-09	7.0pm to 10.0pm	Molarband, Gautampuri	2	240-250	185-195	425-445
3.	31-3-09	7.0pm to 10.0pm	Rohini Sector-20	2	190-200	110-120	300-320
Total				6	550-580	440-470	990-1050



Mercury Awareness Sessions in the Communities in Pictures



Awareness Program in Gautampuri



Awareness program in Tigri



Awareness program in Rohini Sec-20



Lessons from mercury awareness programme in school & communities

- Power Point Presentation in Hindi helps the students to know about the mercury hazards
- Most of them know about thermometers & sphygmomanometer only
- During the session, they asked questions immediately.
- It is observed that Girls are comparatively more keen to know about and have more queries than that of boys
- Students usually listen carefully about this new emerging issue
- Normally the students do not know about the placenta. And the impact of Mercury on placental barriers.
- Most questions were related that what they would do with mercury after manage spill in the container
- Vice- Principal has promised us to show the film class by class because they have laptop, projectors & Screen in the school.
- Vice principal proposed to the eco-club teacher for taking extra session with the students on 9th & 10th standards
- They wanted the alternatives of all the products of mercury.
- Eco-club teacher instructed the students that they would write a page on mercury. The best presentation will be presented on in the assembly talk
- If there had conference room or hall then we would have shown the better presentation
- Community people asked questions about the safe disposal method of mercury containing household things like CFL, tub lights etc.
- Community people also discuss the other household's waste and their safe disposal. It shows that there is a need of awareness programme about the household waste.