

**ONE DAY AWARENESS CUM WORKSHOP ON BIO-MEDICAL
WASTE MANAGEMENT AND MERURY PHASE OUT FROM THE
HEALTH CARE SECTOR IN MANIPUR**

13th September 2011
CLASSIC Hotel - Imphal

Jointly organized by: Institute of Social Research and Development (ISRD), Manipur Pollution Control Board (MPCB) and Toxics Link, New Delhi

Supported by: Swedish International Development Agency (SIDA).

Executive Summary: In Manipur, there are 575 Health Institution out of which 304 capacity in valley and 204 in hilly areas providing healthcare services to 2.7 million populations (2011 Census). And around 299 Kgs of bio medical waste generated in a day from these health settings. On the other hand, a 30 bedded CHC (Community Health Clinic) produces approx. 25 Kgs of Bio Medical Waste in a day. The United Nations Conference on the Environment and Development (UNCED) in 1992 led to the adoption of Agenda 21, which recommends a set of measures for waste management ranging from Handling Storage and Transportation of Bio- Medical Waste to Minimal safety requirements. In order to tackle BMW and ensure its safe disposal, the Ministry of Environment and Forest in 1998 formulated the Biomedical Waste (Management and Handling) Rules. This was followed by three amendments in March 2000 and June 2000 and September 2003. Seven year after the enforcement of these rules, no sign of any proper mechanism of disposing bio-medical wastes put in place in most of the hospitals in the country, including in the state of Manipur, serious apprehension has been raised on the possible health hazards from these bio- medical wastes that are being strewn around.

The system of managing bio-medical wastes in the Government Hospitals and RIMS (Regional Institute of Medical Science) one of the biggest health institute in the NE region, came to light that there has been no proper mechanism of disposing these bio-medical wastes in all these health institutions so far. The RIMS has been upgraded to the status of AIIMS but management of the bio-medical waste generated is not in conformity with the norms issued by the Manipur Pollution Control Board. Even as blood stained cottons and syringes are seen strewn around the roadside within the campus of the premier medical institution, these potentially harmful wastes are also being kept bundled together in open spaces in between wards. Most of these BMW from both Govt. and private setup has been dispose in the Lamphelpat area. There is possibility of surface water at Lamphelpat being contaminated with biomedical waste; particularly during rainy season is a very high chance of affecting human being/animals and environment at large. In spite of the best efforts made by concerned authorities, the problem still exist due to lack of adequate facilities like manpower, skills and knowledge among the different stakeholders. There is only one bio-medical treatment facility, autoclave or shredder machine in RIMS, which means for its own purpose itself beside due to uninterrupted power supply this facilities were not function properly.

Safe disposal of bio-medical waste is an issue of growing concern as it is one of the sources responsible for causing health hazards either directly or indirectly through contamination of soil, ground water, surface air and water, that hospitals and nursing homes in our state conveniently dump the infectious as well as toxic wastes from their establishments into drains or dumped within the premises without being incinerated or disposed off thereby causing a potential threat to human life and in the environments.

Waste management should start from domestic level and everyone should have awareness about bio-medical waste management. Improved technology for disposal of such waste is readily available like incinerators, autoclaves, hydro-claves, etc. But private and government hospital or nursing home in Manipur are not properly maintaining or installing such facilities.

With these above mention rationales ISRD is organizing one-day workshop on BMW management to sensitize among the service providers and other stakeholder in Manipur in collaboration with Toxic Link, India office.

Objective of the Program: To sensitize the general population including service provider about hazards of BMW management

Expected Outcomes:

- Accepting responsibility in controlling the pollution.
- Increase level of knowledge and skill for managing safe and systematic disposal of BMW.
- Treatment and disposal of BMW in a scientific and systematic manner so that adverse effects on human health and environment is reduce.

Target Audience:

- Stakeholders including officials from State Health Department/NRHM
- Environment and Ecology Departments
- Private Hospitals
- Manipur Pollution Control Board
- Representatives from Civil Society Organizations.

Proceeding of Workshop Report:

A one day workshop cum awareness on the theme - Bio-medical Waste Management and Mercury Phase out from the Health Sector in Manipur was held at Hotel Classic, Imphal on 13th of September 2011; which is jointly organized by the Manipur Pollution Control Board (MPCB), Toxics Link and Institute of Social Research and Development (ISRD) supported by Swedish International Development Agency (SIDA).

At the very outset of the workshop, in his welcome address **Mr. Satish Sinha, Associate Director, Toxics Link** thanks the Manipur Pollution Control Board and ISRD for partnering in the workshop and wishes to continuous to happen. He made introduction of Toxics Link as an environmental Organization working on waste management and environmental issues including electronic and municipal waste across the country as one of the pioneer non-governmental organization. He talks about the regulation relating to waste management regulatory act enforced since 1998-99 then on to regulations on bio-medical waste management since 2000 onwards. During the last 13 years period, hardly 50% to 60% waste has been managed as per data available. Only about 15% of the bio-medical waste is actually required to managed or else causing infections and hazardous to general populace. He also mentioned about what people talks about as their common challenges such as – No fund or lack of resources or tapping of resources, Training & capacity building, People's mindset or their attitudes e.g. how we educate doctors or not my problem but their problem and regulations etc.

In India there are 255 centralized treatment plants/facilities as compare to number of health care delivery settings both at government and private. Therefore, one can learn and share the benefits of low budget waste management options, recycling and other technologies, which is adopted/practiced across the country. He once gain thanks all the invitees, medical professionals, media and NGO representatives for sparing their time for the workshop.



Mr. Minaketan Singh, Senior Environmental Engineer, MPCB gave his keynote address saying such awareness-generating workshop is the first of its kind in Manipur and Manipur Pollution Control Board is only extending technical support without money. He admits that MPCB has no medical experts though present strength of their staff has been rendering public services, trainings and oversees regulatory issues. MPCB is the statutory body to issue certificate and permission as per central pollution control board norms

to run and manage private clinic or laboratories in the state. He appealed to all that we should minimize blame game each other instead healthy discussion on how best we can precede the plan to address pollution and hazards that emerge out of the bio-medical waste and safe disposal.

Talking on the solid waste management, some NGOs are working together with MPCB and as such 80% of the bio-medical waste management has been achieved. He also mentioned the need for collaborative and coordinated efforts of Municipal Corporation, financial institutes and MPCB in addressing the issues of different wastes e.g. liquid, air, solid and biomedical waste including human anatomy.

Mr. N. Raghumani Singh, Chairman Imphal Municipal

Council, in his inaugural speech mentioned that biomedical waste management is very much related with Municipal council and need for closely working with. He continues saying there are complaints and feedback from general public about bio-medical waste in the form of liquid, solid and chemicals which is generated from the government hospitals, private clinics and laboratories in Manipur. He reminds that collection, burying and proper disposal of syringes and needles or blades used for shavings including expired



medicines has to be managed properly to prevent unwanted infections. Mr. Chairman focused his speech on the regulatory enforcements to check and control dos and don'ts as per government rules and violation of such regulations should be punished in view of protecting mankind from diseases.

Inaugural session concluded with vote of thanks by Mr. Bangkim Ch. Executive Director, ISRD, Imphal.

Technical session starts after 10 minutes tea break.

Session - 1: Mr. Minaketan Singh, SEE, MPCB on 'Status of Bio-medical Waste Management in the region' – Citing an example of fundamental rights, even a child cannot be borne if the hospital or clinic is suspected to be polluted but theory and practice has some kind of differences in their nature if we look at the priority.



(Bio-medical waste disposal)

His slides updates on the general profiles of the state in regards to bio-medical waste management. According to him, the State has altogether more than 500 (five hundred) Primary Health Care Institutions, 1 Central Hospital (RIMS), 1 State Level Hospital (J.N. Hospital) as referral centre, 7 (Seven) District Hospitals and private hospitals. Other Drug de-addiction centre, T.B. centers, Leprosy Control Unit and STD clinics are functioning in the State.

Authorization status of Manipur Pollution Control Board:

Sl. No	Particulars	HCU's
01	Total no. of hospital	657
02	Total number of authorization granted	55
03	Total number of authorization under process	4
04	Total number of defaulters	598

Inventory: There are about 105 private health care units / institutions identified so far and another 635 government health facilities including 8 districts hospitals, 16 no's of CHCs, 72 no's of PHSCs, 420 no's of sub centre, 20 no's of dispensaries one 300 bedded JN hospital & two 100 bedded hospital locating at the heart of the Imphal town and Churachandpur district are functioning and expected number of private health care units may go even higher.

Observation:

- Lack of awareness amongst the medical staff, resident as well as public
- Lack of strict enforcement of the Rules.
- Lack of trained medical staff.
- Lack of inadequate treatment facilities.
- Financial constraint particularly small scale HCUs.

Since MPCB is the authority to provide certificate, certain rules are followed prior to authorization to hospitals and private clinics or nursing homes or diagnostic laboratories such facilities. First one year is observe as the trial phase and certify particular facility and every three years they need to renew their certification after complying with the norms and regulations as circulated by the MPCB. Actually how much bio-medical waste produced per unit per hospitals or clinics is not yet known. Recently a form is circulated to all the stakeholders to fill it and comply with till we may not be able to say or plan exactly for actions to be taken up. Appreciating the local art of pollution control if not scientifically proved; is also important to note, for instance noise pollution control using mud wall and other fabrics etc. Regarding centralized treatment plant, acquisition of land processes/compensation etc. delays the target and hence recently; the Manipur state is in the process of installing centralized incinerator at Lamdeng Khunou under Imphal West district where construction of compound wall is underway. Planning and Development Authority (PDA) is looking after the construction works but we cannot say the time period of completion.

Sooner than his deliberation is over, there were questions raised from the audiences:

- 1) Mr. Basanta Kumar - comments about the unexplored sites of bio-medical wastes and their disposal especially by the NGOs working on Injecting drug users projects covering around 40 thousand of IDU population with a frequency of 2-3 needles and syringes use daily per head. Vulnerability of HIV and HCV is extremely high amongst IDUs. Around 52 NGOs not only distributing syringes and needles but also providing primary health care and management of abscess or wounds related with drug injections. This scenario is beyond the purview and concern of bio-medical waste, safe disposal as well as control of infections at the site.
- 2) Dr. Achou Singh, owner of a mid level laboratory raised issues that are locally facing by all. He added that rules are known to all but there is also impracticality such as power supply and even the drinking water is scarce in the state, so what could be the interim measures to keep going proper management of BMW in a laboratory.
- 3) Dr. Dhabali, MD, Babina Healthcare & Hospitality Industries asked the MPCB on having a centralized treatment plant/disposal plant in the state.



- 4) Mr. Joy Khuman, Labor Union enquired if there is any routine check up by the MPCB to sort out general waste and bio-medical wastes.

Mr. Minaketan gave his response to the questions asked. He nodded showing his acceptance about the facts of BMW management in the NGOs site.

He replied to the concern of Dr. Achou as many of the laboratories and private hospitals have already established long before any rules was enforced, however, he still advised that laboratories and private hospitals should have their own plants and waste disposal system.

Replying to Dr. Th. Dhabali, he confirms that Manipur state has plans to install centralized waste disposal plants and appointments of manpower. Planning and Development Authority already started construction of walls at Lamdeng Khunou occupying an area of 130 acres land but time taken no one can say.

Answering to Mr. Joy, he said MPCB is responsible for check and monitor waste disposal works at all levels, quarterly reports are the only monitoring indicators. He further mentioned that lack of awareness and training is essential.

Second - 2: Dr. Dhabali, MD Babina Health Care & Hospitality Industries Pvt. Ltd. Topic on - "Bio-Medial Waste - Challenges in Management in Manipur Context."

Bio-medical wastes:

- Generated during diagnosis & treatment
- Includes general waste, infectious waste, radio-active waste & toxic chemical
- Potentially hazardous
- Non-infectious general waste - 80-85%
- Infectious waste - 10%
- Other hazardous waste - 5%
- Mixing of general with infectious waste
- Proper segregation important
- Segregation at the point of waste generation



Major Challenges:

- Lack of segregation practices
- Mushrooming of clinics often unregistered aggravating the problem
- Open burning by clinics, dispensaries & some hospitals
- Incinerators are old and poorly maintained
- Poor legislative measures/standards, poor implementation
- Public ignorance of the law
- Recycling and reusing medical waste items

Challenges in Waste Management

- Significant quantities of waste
- Increasing Population/patients
- Increasing Healthcare centers
- Increase of biomedical waste
- Proper disposal –
 - A great challenge to,
 - Healthcare Management
 - Regulatory body
- Lack of space & location for installation of Incinerator, shredder etc.
- Lack of proper land for disposal of treated waste
- Financial constraint & economic viability, particularly small scale healthcare units
- Lack of proper education and training of healthcare staff



(Ignorance but earning at the cost of health hazards & vulnerability)

How to meet the future challenges?

- Regulatory body should enforce legal provisions
- Make healthcare establishments legally responsible
- Formulate policy based on "Reduce, Reuse, recover & dispose"
- Encourage manufacture of medical products that have less impact on environment
- Encourage to use non-disposable items such as stainless steel tray
- Disposal of disposable items - a serious problem.
- Encourage Private sector to enter waste management sector.
- Appropriate Education & Training
- Commitment of staff & Management of healthcare establishments
- Implementation within effective policy and legislative framework

Way ahead:

- There can be a Public- Private partnership
- Common treatment and disposal facility (CBWTF) - most suitable
- Overcomes difficulties faced by individual healthcare establishments
- Meets statutory requirements
- Collect, transport, treat and dispose

Concluding remark:

In order to address and meet the future challenges in Manipur context, "Biomedical Waste Management rules" has to be adopted in letter & spirit.

Regulator and Regulated should jointly evolve strategies and action plans from time to time to meet the challenges.

Session – 3: Implementing Waste Management System in Hospital” by Dr. Ragini Kumari, Toxics Link

Quick recap of biomedical waste management and handling rule – I Draft Rules in India–1995

Final Rules in 1998, 2 amendments and 3 guidelines

Evolution of alternate treatment technologies and shift from incineration

What is this concern for?

- Infectious waste (solid and liquid)
- Sharps waste
- Cytotoxic waste
- Pharmaceutical waste
- Radioactive waste
- Chemicals and disinfectants
- Pressurized containers

**Environmental regulations:**

- Environment Protection Act, 1986
- BMW Rules 1998
- Municipal Waste (Management and Handling) Rules, 2000
- Atomic Energy Act
- Hazardous Wastes (Management & Handling) Rules, 1989
- E-Waste Rules
- Batteries (M&H) Rules 2001
- Manufacture, Storage and Import of Hazardous Chemicals rules, 1989

Project plan-To set up waste management:

Stage1 – Inputs,

- Knowledge of the infrastructure of the hospital/hospital layout
- Existing waste management practices
- Waste survey in the hospital
- Formation of waste management committee
- Procurement of waste treatment equipment
- Setting up of Model Ward

Stage 2 -

- Training of staff
- Installation of the waste management system
- Regular training and awareness for the hospital employees
- Monitoring the system

Flow chart of the work plan:

Survey -

- Meeting with the heads of all departments
- Forming a waste management committee
- Rounds of wards to see the functioning
- Creating a model ward
- Suggest equipment procurement
- Formal training for the nursing staff
- Implementing the system throughout the Hospital

Waste management committee:

- Director and Medical Superintendent
- Infection Control Committee head
- Representative from Purchase Department
- Nursing Supervisor
- Housekeeping Supervisor
- Representative from Personnel Department

Waste management policy: Each hospital should have policy that describes -

- Steps taken to comply with the Rules
- Waste categorization
- Staff's training content and status
- Policy adopted on segregation, collection, transport and storage of waste
- Names and duties of waste management committee members
- Immunization status of staff
- Format of accident reporting and follow ups
- Overall monitoring formats of the system

Occupational safety and health plan: a step towards safety:

- Requisite training
- Protective gear-should ensure safety, should be well fitting and easy to use, to ensure usage
- Safe work practices
- Administrative controls
- Immunizations
- Monitoring and evaluation of work practices

Setting up a model ward:

- Choosing a ward
- Imparting training to all its staff
- Implementing the system: segregation of waste, disinfection of infected plastic waste and sharps management
- Monitoring and suggesting corrective measures
- Implementing the system in the entire hospital

Components of hospital waste management:

- Training and awareness of hospital staff
- Initiating segregation of waste
- Disinfection and mutilation
- Secure storage and transportation of waste
- Sharps and hazardous waste management
- Final treatment and disposal
- Monitoring of the system

Segregation:

- Different types of waste should be collected separately
- Should be done at the point of generation
- Different colored bins used to make it easy
- Segregation ensures occupational & health safety
- Segregation also reduces the cost of treatment and disposal

Disinfections and mutilation:**Disinfections**

- Chemical disinfection: bleach is a good disinfectant
- WHO recommended concentration 1% solution (10gms of bleach in 1 liter water) for 30 minutes

Mutilation

- Mutilation to avoid illegal reuse

Collection:

Some thumb rules for collection:

- Designate different people for collection of each type of waste
- Collection time preferably different
- Collection bins properly labeled and different for each category
- Collection in closed containers
- Trolleys to be provided for movement

Protective gear is a must during collection

Storage: Rules prohibit storage of waste beyond 48 hrs

Storage site:

- Should have proper warning in front
- Should be accessible by vehicles
- Should not be accessible to animals or visitors
- Should be covered and lockable
- The surface should be cleanable and Proper drainage outlet

Transportation:

- Avoid patient/crowded areas
- Avoid using lifts meant for patients and/or movement of sterile equipment
- Selection of time important-Select time of minimum movement (Not while doctors are on rounds; Not during visiting hour)
- Waste bags should be sealed or tied properly
- Hazardous and non-hazardous waste should be carried in separate vehicles

Problems faced:

- Doing the initial trainings at the work place
- Changing the attitude of the staff- the initial attitude can be really cold but over the time they appreciate the system
- Deciding the equipment for waste management: every place has its own needs and thus procurement can be difficult. Start working on equipment immediately after waste audit and before training

She deliberated upon the national scenario of waste management in hospitals. Even PIL was filed for motivation to change in system of waste disposal and management which are safe and hazard free environment around the hospital locality.

She also mentioned that Toxics Link was recognized by the government of India for bringing improved technology in bio-medical waste management. State government has funds for bio-medial waste management. In India about 27% of the sample states has earmarked budget for management of biomedical waste and its disposal.

Over the presentations made by the resource persons, few questions arises on as to what measures could rectify incineration process of Regional Institute of Medical Sciences (Imphal) for a regular functioning of it even though to some extent NGOs (Labor Union) have been associating in waste management and disposal of it so far.

Another hit question was on who is to control the regulatory Act/rules in Manipur? (Joy Khuman)

Dr. Dhabali responded that rules and regulation has to be enforced by the Manipur Pollution Control Board as an ultimate authority. Legal action should be taken up to break the pre-contemplation stage of mindset. For a long term solution, he further opined that a centralized treatment plant for waste disposal is a must in the state.

Session – 4: Dr. Sudhukar Vira, Senior Medical Officer of Sir Ganga Ram Hospital, Delhi on the topic – “Lessons Learn in Bio-medial Waste Management at a Tertiary Care Hospital”. After brief history and profile of the hospital he continues sharing the audiences with slides,

Essential Prerequisites-waste management:

- Awareness
- Motivation
- Training
- Back up technologies
- Safety of Waste Handlers
- Safe Transportation
- Team Effort



Mile Stone:

- 1990 Biomedical waste
- 1996 Red / Black
- 1999 Yellow / Blue / Black
- 2001 Rolling trophy
- 2006 Introduction Digital Thermometers
- 2006 Bridgeable bags
- 2007 Welchi BP apparatus
- 2008 Heine BP apparatus

Having Policies and procedures Manual:

- Hygiene and Hand washing procedures
- Use protective clothing and equipment
- Safe handling and transport of pathology specimens
- Handling and cleaning of contaminated linen
- Handling and disposal of clinical and related waste
- Handling and disposal of sharps
- Management of sharps injuries

Having Hospital Infection Control Committee:

- Policies are implemented under the supervision of HICC. The constitution of which is as follows:
- Chairman - Dr K P Jain
- Secretary - Dr C. Wattal
- Members - Dr N Kaul (DM) and one faculty member from each department, Medical, Surgery, Cardiac, Nephro, NNU, ICU etc.
- Nursing Superintendent

Collection of BMW: Operational Aspects

- Ideally by a centralized sanitation gang with supervisor
- The timings should be fixed
- Periodicity should be at least once / day
- Bags should be tied when 3/4th full
- Proper documentation & labeling – mandatory
- Co-ordination between generators and collector of BMW

Trolies use for BIO-MEDICAL WASTE:



Environment Monitoring Programme:

- Energy Management
- Water Management
- Fuel Management
- Environment Management

E.T.P. (Effluent Treatment Plant)



- **Eco-friendly refrigerant in Chillers**

New chillers are installed and we are using eco-friendly refrigerant and old chillers, window / split AC will be phased out very soon.

- **Rain water harvesting**

Two new rains harvesting well are constructed to tap the rain water which will increase the ground water level.

- **Solar water heating system in new buildings**

New 3nos. x5000 LPD solar water heating system are installed at the roof top of the new building and total capacity of the solar water system is becomes 31000 liter per day.



- **PNG to be used in Boiler and Kitchen** - Lisioning with M/s Indraprastha Gas is in process and by 2010 they will provide the connections and we will use PNG in Boiler & Kitchen in place of HSD
- **Disposal of CFL tubes** -We are exploring the possibility of disposal of CFL tube with the manufactures under the buy-back scheme so that these can be disposed as per the DPCC norms.
- **Disposal of used oil** -The used oil from DG sets, compressors, etc. are disposed as per norms of DPCC and the same is handed over the authorized dealer of DPCC for recycling after treatment.
- **Disposal of E-waste** -We are exploring the possibility of disposal of E-waste with the manufactures under the buy-back scheme and venders are already taken these items.
- **Mercury free** We have already phased out mercury based thermometers and also under planning of phasing out BP instruments in installments.
- **Plastic bags** - We are in the process of replacing plastic bags for giving reports to paper bags.
- **Reduction of papers** - All the staffs are instructed to use papers on both sides and also planning to communicate inter departmentally through e-mails to reduce the consumption of papers.
- **Disposal of biomedical waste** - Biomedical waste generated is disposed as per DPCC norms in their respective bags.



He stretches on the values added due to waste recycle materials should be recognized as an additional income than total wastage.

Session -5: Mercury Phase Out from HealthCare Sector by Dr. Ragini Kumari, Toxics Links:

She stretched upon the extreme harmful effects due to mercury which are prevalent in the health care setting as well as our surroundings. Mercury products used in commodities/products we are in use in daily lives but ignorant about it. As almost all the health care delivery settings had started phasing out use of mercury such as thermometer, sphygmomanometer etc. Bio accumulation of mercury crosses the national as well international boundaries causing harmful in many ways. Bio-magnification, leading to mercury pollution in sea/ponds which is absorbed by fish and other living being acts as a bridge to transport mercury to human beings if consumed. Different forms of methyl mercury is absorbed by the present trend of food yields are normally reached to human without realizing any harms or ignorant about it. Metal mercury forms might be inhaled through touching it and especially pregnant mothers their fetus and children are most at risks.

Toxics Link-Programme Areas:

- **Toxics Free Health Care - Mercury phase out, medical waste**
- **Chemicals and Health - Heavy metals, POPs, food safety**
- **Clean Industry - E-Waste, nuclear waste, mercury waste**

Is linked with Information and communication such as Media, Website, newsletter, library, database

Mercury: (Forms)

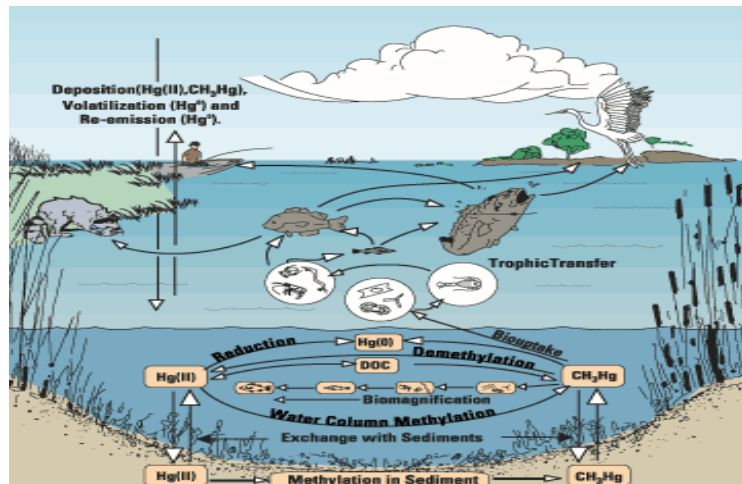
- Metallic (silvery metal),
- Non-metallic (Mercuric and particulate)
- Organic (methyl mercury)

Problems

- Neuro and a Nephro-toxicant
- Transcontinental and global transport
- Bio-accumulates
- Bio-magnifies
- Cannot be destroyed
- Passes the placental, the blood-brain and the skin barrier
- susceptible – foetus, the newborn, pregnant mothers and young children



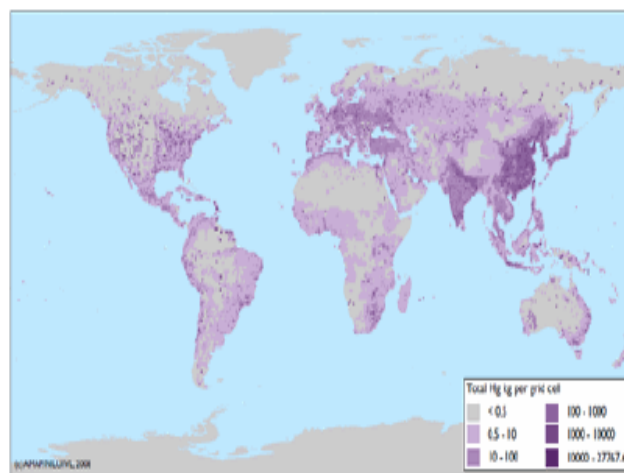
Mercury (Hg)-cycle in nature



Exposure to Mercury:

- Pathways- Inhalation, touch, food
- Breathing vapor in air from spills, incinerators, and industries that burn mercury containing fuel
- Eating fish, rice with contaminated with methyl mercury Release of mercury from dental and medical services
- From a pregnant / nursing mother to the child

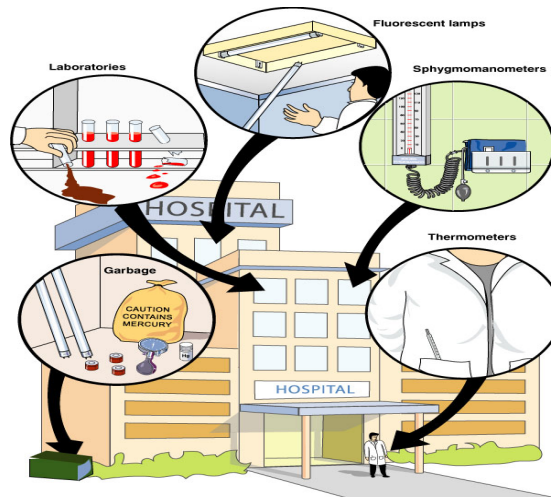
Global anthropogenic mercury emission:



(Source: United Nations Environment Programme Global Atmospheric Mercury Assessment: Sources, Emissions and Transport, 2008, using 2005 data)

Mercury in health-care:

- Thermometers
- Sphygmomanometers
- Dental amalgam
- Gastrointestinal tubes
- Laboratory chemicals
- Pharmaceutical products
- Electrical applications
- Waste incineration & open burning



Hg-phase out in India

Role of NGOs

Action taken from the Government

Bottlenecks in the phase-out

Global brief about the movement

Key Studies in India

- Lurking Menace: Mercury in Health Care-2003-4
- Mercury: Poison in our neighborhood a compilation of five studies across the country 2005-6
- Mercury in Hospital Ambient Air: Staffs and Patients at risk-2006-7
- Moving towards Mercury Free Health Care, In India, 2010
- Estimation of mercury usage and release from health care sector in India, 2010-11

Movement So Far in India...! First report – Lurking Menace (2004)

- Approximately 3kg of mercury released
- Questions raised in parliament
- Five Hospitals in Delhi take steps to curb mercury use
- Release of public notice by DPCC in 2005
- Ambient air data (2007) showed high levels of mercury present in hospitals indoor air
- Delhi almost in the stage of complete phase-out of Hg-equipments
- TNPCB Notice to 233 health care facility to have mercury management system in place
- Persistent follow up with the Government agencies
- Mercury Policy by Delhi Government in 2007
- Mercury Policy by Central Government in 2010
- HDMC-Office order passed in 2010 for the alternate

Key findings: Mercury release from Delhi hospitals:

- Mercury released by a medium sized hospital with a dental wing is approximately 3 kg per year
- Delhi alone generating 51 kgs of Hg from amalgams each year.
- An average sized hospital in Delhi may record a breakage rate of 70therms/ month
- Each calibration needs ~20g to add in the Hg-sphygmamometers glass column.

Findings of study “Mercury in hospital indoor Air: Staff and Patients at Risk” - Dangerous levels of Hg found in the indoor air of 2 hospitals-exposures to health care staff and visitors

- ✓ The most Susceptible population- especially the **new born** in the maternity ward being astonishingly **exposed to 5 times higher levels of Hg** than the permissible limit.
- ✓ **12-15 times higher levels** of Hg than the permissible limit in **storage, calibration room** and **dental wing**.

Questions raised in the Lok Sabha & Its Impact:

- Year 2003, Lok Sabha Question No. 4380: Whether the Government is aware of the UNEP report that mercury is causing various deformities
- Year: 2004 Lok Sabha Question No.443: Whether the Government is aware that silver fillings used for bridging the gap in the tooth can cause deadly side-effects.
- Year 2004, Lok Sabha Question No. 1671: Whether the Government is aware that capital is facing mercury poisoning threat.
- Year 2004, Lok Sabha Question No. 333: Whether the Government hospitals are disposing mercury waste, causing diseases and pollution
- Year 2005, Lok Sabha Question No. 6819: Whether it is a fact that mercury equipment in hospitals may cause serious health problem.
- Year 2005, Lok Sabha Question No. 1793: Whether the Central Pollution Control Board (CPCB) has instructed mercury segregation for granting authorization.

Public Notice Issued by DELHI POLLUTION CONTROL BOARD:

Kind Attention: All Hospitals, Nursing Homes & HealthCare Facilities in NCT of Delhi

Considering the adverse effects of Mercury Waste on the Environment, it has been decided that All Hospitals, Nursing Homes & Health Care Facilities in NCT of Delhi shall provide Template (A set of Declarations , Format given below) for Commitment to minimize / eliminate mercury containing waste .The Declarations have to be signed by the Head / Medical Superintendent / Director of the Health Care Establishments/ Institutions and displayed widely at various prominent locations in the Health Care Establishment. This is to be treated as a condition of authorization under the Bio Medical Waste (Management and Handling) Rules, 1998, as amended to Date. We formally declare our commitment to mercury reduction.



WHEREAS mercury is an elemental substance, that once released into the environment, easily and rapidly changes form to several organic and inorganic states that transfer from soil to air to water and back again;

WHEREAS the organic form of mercury, methyl mercury, bio accumulates in aquatic ecosystems to magnify concentrations in animal tissue in increasing degrees up to 250,000 times;

WHEREAS methyl mercury, the most toxic form of mercury, can affect the reproductive efforts of top predators in aquatic environments;

WHEREAS the neurotoxin effects of high levels of methyl mercury poisoning in humans has been established, and low-level doses of methyl mercury consumption can potentially effect human health, especially that of a fetus;

WHEREAS elemental mercury is a highly toxic substance which can vaporize easily and cause both acute and chronic health effects including severe respiratory irritation and damage to the central nervous system;

WHEREAS mercury has been identified internationally as a toxic substance of concern, and mercury contamination has led to fish consumption advisories in many countries,

WHEREAS the majority of mercury entering water bodies come from anthropogenic sources and one-quarter of these emissions is the result of the purposeful use of mercury;

WHEREAS mercury is used widely in consumer and industrial products, where, in most cases, alternative, mercury-free products are available;

WHEREAS pollution prevention or product substitution is a progressive approach to protecting the environment that eliminates or minimizes the generation of mercury-bearing waste, making it one of the most favorable strategies for maintaining a clean environment;

WHEREAS pollution prevention for mercury can help environmental conditions, as well as protect the health and safety of workers;

WHEREAS we here by declare to adopt safe mercury handling Standard International Procedure so as to collect, store the mercury spilled in a suitable container without affecting the occupational health, or environment.

WHEREAS recognizing mercury minimization as an active opportunity to improve the environment of Delhi, we, the undersigned, do hereby declare our intent to be a mercury minimization participant.

Issued in Public Interest by: DELHI POLLUTION CONTROL COMMITTEE, Department of Environment, Govt. of NCT, Delhi - 4th Floor, ISBT Building, Kashmere Gate - Delhi - 6.

Issues with Phase out-India:

- Cost
 - Import Duty (reduced from 36% to 10%, at par with Hg)
 - Increased market size also linked with price reduction
- Standardization
 - Working with BIS, W&M Depts. Drugs
 - Central Drugs Standard Control Organization
- Storage
 - CPCB working out a National Guideline, UNEP, GEF

Global Movement at a Glance:

- UNEP Global Mercury Assessment 2001/2
- WHO policy paper 2005
- WMA resolution 2008
- WHO/UNEP/HCW global partnership 2008 (70% reduction by 2017)
- Manila 2011 declaration on mercury free healthcare
- Legal Globally binding treaty upcoming 2013
- The members of the United Nations Environmental Program (UNEP) have agreed to draw up a global mercury treaty. It aims on a legally binding treaty to curb mercury use and emissions. INC 1 held in 2010. INC II in Jan. 2011.

World Health Organization (WHO), 2005 Policy paper on Mercury in Health Care

- High contribution and associated occupational & health hazards
 - Short term strategy
 - Medium term strategy: efforts to reduce the number of mercury equipments.
 - Long term strategy: ban for use of mercury containing devices and promote use of mercury free alternatives.

WMA, 2008:

- The World Medical Association (WMA) unanimously passed a resolution in 2008, calling for the phase-out of mercury use in the health care sector.
- Delegates said hospitals and medical facilities should switch to non-mercury alternatives.
(Source: <http://www.noharm.org/details.cfm?ID=2077&type=document>)

Legal Binding of Mercury 201:

- First Intergovernmental Negotiating Committee (INC - 1) on Mercury, 7-11 June, 2010 at Sweden.
- 2nd INC – January China, Japan
- Ban on the export of elemental mercury and specified mercury compounds.
- Scheduled phase out of the manufacturing of certain mercury products
- Regulation for the export/import of mercury or mercury-added products
- Storage facility development.

Internationally practices:

- EU legislation: forbids use of mercury thermometers, barometers and blood pressure meters from the 3 April 2009.
- Sweden banned mercury partially in 1990s and banned all use of mercury in the country beginning on June 1, 2009; it even applies to mercury amalgams used in dentistry.

Success Stories:

Global Policies:

- The World Health Organization issued a [policy paper in 2005](#)
- The World Medical Association passed a [resolution in 2008](#)

Regional Policies: The [European Union](#) has banned mercury thermometers for home and health care use beginning in 2008. The EU is considering a similar ban on sphygmomanometers. Bans of Mercury export and now moving towards products.

Concluding of workshop: Mr. Satish, Associate Director, Toxics Link and also moderating the sessions asked openly all the participants as well as hinted on to important points in terms of creating awareness also possible ways as to why Manipur state not taken up proper waste management and disposal plans in the interest of larger public health perspective. He also mentioned if needed training program may be organized either inviting trainees to Delhi or organize here at Imphal. Later he handed over rest of the day to present recommendations or resolutions of the day-long workshop. Dr. Ragini Kumari suggest to clearly mentioned roles & responsibilities of different stakeholders in the workshop. It was unanimously decided to further discuss with the initiative of ISRD inviting relevant stakeholders of Manipur.



The deliberations although new to some of the participants there were few resourceful and proactive participants in the workshop and after discussing in length and collating the points, following recommendation was made initially to begin with future course of actions:

Recommendation:

1. To explore, identify mechanism to strengthen existing regulation/rules of BMW management through mobilization and scaling up awareness level about the hazards of bio-medical waste, safe management and systemic disposal in the general masses.
2. To assess the gaps, challenges and aspirations pertaining to management and disposal of BMW.
3. To develop advocacy strategies and action plan.
4. Center stage of PPP approaches to empower and enhance capacity for effective responses to BMW management safe and systemic disposal. (Model site establishment).
5. Installation of a central treatment plant/disposal is the priority to long-term solution to BMW management.
6. Define roles & scope of different stakeholders.
7. Follow up actions will be done by the Institute of Social Research and Development in-association with Toxic link, New Delhi.

Participants list:

Sl. No.	Name	Address	Institution/ Organisation	Designation
1.	T.Leikhendra Singh	Thangmeiband	CRED	Secretary
2.	Th. Chinglembi Devi	Nagamapal	RIMS	Nursing Superintendent
3	L. Homenjoy Singh	Lamphel	MPCB	E.O.
4	N. Ragumani Singh	Keishampat	Imphal Municipal Council	Chairperson
5	Dr. S.Balakumari Devi	Lamphelpat	C.M.O. Office, I/w	CMO
6	Dr. K.AK Singh	IMC	Imphal Municipal Council	Public Health Officer
7	B. Gunindro Sharma	Thangmeiband	TACDEF	Secretary
8	N. maniketan	Sagolband	MPCB	SEE
9	L. Miranjan Singh	Khurai	Social Worker	-
10	K. Basanta Kumar Singh	Kwakeithel	Consultant	-
11	Geetanjali Naorem	Langol View Clinic	Langol View Clinic	H.R.
12	Kh.Sanjit Singh	Langol View Clinic	Langol View Clinic	Mkt. Manager
13	W.Dimple	Koirengei	Catholic Medical Centre	PRO
14	Martha Thapa	Koirengei	Catholic Medical Centre	Staff Nurse
15	W.Mathang Singh	Lamphelpat	Suba Hospital	Accountant
16	Dhanabanta	Keishampat	POKNAPHAM NEWS	Reporter
17	L.Premjit Singh	Singjamei	KWAMS	Propietor
18	S.Ramananda Singh	Pishumthong	Eastern Diagonstic Centre	Sr. Lab Tech
19	A. Umakanta	Keishamthong	Eastern Diagonstic Centre	Lab Supervisor
20	Ksh. Dinesh	North AOC	Raj Polyclinic, North AOC	G.M.
21	Dr. Monota	Porompat	CMO- I/E	CMO
22	Ch.Nabakumar	Khurai	ISTV News	Reporter
23	Ajit	Khurai	ISTV News	Reporter
24	P. Landhoni Devi	Khurai	JNIMS	Sr. Staff Nurse
25	Dante Sharma	Khoyathong	N.E. News	Reporter
26	Dr. N.A. Singh	Singjamei	Mona LAB	Proprietor
27	W. Anthony	Sagolband	MPCB	Staff
28	N.Dineshwor	Keishampat	MPCB	Staff
29	S. Aruna Devi		Sangai Express	Reporter

30	Dr. H.Wanglensana	Naoremthong	Rural Health Organisation	M.O.
31	Md. Tajenddin	Minuthong Hatta	Public Hospital	M.D.
32	S. Sanjoy Singh		AADARSH LAB	G.G.
33	N. Robin Singh	Pureilomba Khonangmakhong	Nine Maroodyan	Care Taker
34	H.Tomba Singh		Imphal Hospital	Care Taker
35	Th.Basan Singh		Imphal Hospital	Asst. Waste Manager
36	M.Brojen Meitei	North AOC	Maipakpi Maternity	Asst. Supervisor
37	Ratan N.	Chingmathak	DDK	Reporter
38	N.Rebecca		CMC Hospital	Nurse
39	Sister Betty Sabastians		CMC Hospital	Nurse
40	Ms. Purnima		CMC Hospital	Nurse
41	M. Bangajit		MPCB	AEE
42	T. Umananda Sharma		MPCB	S.C.
43	Ch. Bangkim Singh	Sega Road	ISRD	Executive Director
44	K.Birjit Singh	Nganapi Thong	ISRD	Program Director
45	Ksh.Dinesh Singh	Lamsang	ISRD	Secretary
46	Th.Deben Singh	Nambol	ISRD	President
47	M.Nolani Devi	Sagolband	ISRD	Treasurer