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BANGALORE

Lead poisoning in children rising

EXPRESS NEWS SERVICE

Bangalore, Aug 6: Bangalore has shown an alarming rise in the number of lead-poisoning cases over the past few years, said Dr T Venkatesh, Director of National Referral Centre for Lead Poisoning in India on Monday.

He said this during a seminar in the City on - Lead Poisoning. He said the introduction of unleaded petrol led to a decrease in lead-poisoning cases among children below the age of 12 years in Mumbai and New Delhi, but Bangalore had shown an alarming increase, he said.

Venkatesh said these "trends" were the result of Mumbai and New Delhi introducing unleaded petrol much before Bangalore and the other metros.

A study by The George foun-

ndation, stated that in Mumbai, 76 per cent of children above the age of 12 years had a lead content that was more than the safe limit of 10 mg per 100 ml of blood.

The trends were bad in Kolkata, Chennai and Bangalore, where unleaded petrol was introduced only three years back.

The study showed that while only 40 per cent of Kolkata's children above 12 years had lead levels more than the safe limit, 56 per cent of children born in the last 12 years were above the danger level.

Bangalore had an increase from 16 per cent to 40 per cent. "12 years back, the vehicle population was not high. This explains the low percentage of children above 12 years with higher than safe limits of lead," he said.

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'Lead in paint on Ganesha idols harmful'

By Our Staff Reporter

BANGALORE, AUG. 6. This Ganesh Chaturthi, Bangaloreans better play safe with brightly-coloured Ganeshas. Immersing the idols of the benign God may symbolise true devotion, but the paint used on them can give His disciples lead poisoning.

As Dr. T. Venkatesh, Director of the National Referral Centre for Lead Poisoning in India (NRCLPI) here, puts it: "Lead gets into the body through the skin, hair and lungs." And, during the Ganesh festival, people immerse brightly-painted Ganeshas and polluted the water, he points out.

"Hair dyes, bright-coloured lipsticks and nail polishes, even the 'surma' which women apply, contain lead," he says. According to Mr. Venkatesh, one should not wrap food in newspapers as the ink used contains lead. Lead is also present in industrial wastes and paints.

Lead affects organs: Dr. Venkatesh says that in children, lead affects the brain and impairs all cognitive functions. But in adults, lead does not spare any organ.

He says the centre, which was formally launched on Monday at the St. John's National Academy of Health Sciences (SNAHS), started work some months ago and got over 200 blood samples every month. Some contained alarmingly high lead contents.

The centre, which is reportedly the first of its kind in South East Asia, aims at protecting people in both of these categories by evaluation and estimation of lead levels in blood.

Garlic is effective: He says that for treatment, the centre's clinicians use "chelators" to flush out the lead. "A chelator is a chemical that combines with lead and is excreted out of the body. But, chelation also uses up the body's resources of calcium, zinc and magnesium. Hence, it is better to use natural chelators such as garlic. Garlic is known to reduce the lead levels," he adds.

For more information, the centre, Department of Biochemistry and Biophysics, Robert Koch Bhavan, St. John's National Academy of Health Sciences, may be contacted (phone: 206 5058; website: www.leadpoison.net).

We should expect the best and the worst from mankind, as from the weather.

— Marquis De Vauvenargues



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THE TIMES OF INDIA

Bangalore, Tuesday, August 7, 2001 • Metro

Lead poisoning centre at St John's inaugurated

Times News Network

BANGALORE: The National Referral Center for Lead Poisoning in India was inaugurated on Monday at the St. John's Hospital premises.

The center, a joint undertaking of the St John's Hospital and The George Foundation will provide updated information on all aspects of lead poisoning through its website on www.leadpoison.net. It will also offer a referral and confirmatory lead testing service for blood samples received at the centre from anywhere in India.

According to its director Dr T.Venkatēsh: "We also try to disseminate relevant information on lead poisoning to government authorities, NGOs and clinicians treating lead poisoned cases."

The center will screen for lead poisoning, provide consultancy services to employees of lead based industries, maintain a national data base, organise training programmes and attempt to create awareness on lead poisoning.

(For details contact: National Referral Center for Lead Poisoning in India, St John's Hospital, Robert Koch Bhavan, John Nagara Post. Phone: 2065058.)

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MR CITIZEN

by RAMAMURTHY



With mobile schools in the City
there is no escape from home-
work, I guess!

Centre on lead poisoning set up in City

DH News Service

BANGALORE, Aug 6

A National Referral Centre for Lead Poisoning in India (NRCLPI), the first of its kind in the country, was launched in Bangalore today.

The centre, jointly set up by St John's National Academy of Health Sciences (SJNAHS) and The George Foundation (TGF), aims to serve as a centre for conducting blood tests for lead confirmation, and to create awareness among people at the national level.

Speaking to Deccan Herald, Dr Thomas M George, founder, TGF, said the centre in addition to offering referral and confirmatory lead testing service from blood samples received from anywhere in India, would disseminate relevant information on lead poisoning to government authorities, NGOs, clinicians treating lead poisoning cases and other institutions con-

cerned and create awareness among the general public through education, documentation and media communication.

Dr George is also a member of the National Committee for Prevention of Lead Poisoning in India, formed by the ministry of environment and forests. The committee comprises members of the Pollution Control Board.

He said prior to the national lead study conducted under

Lead is a slow killer which affects the intelligence quotient of those who consume it in any form, especially children.

"Project Lead Free" by TGF in 1996-1999, only isolated incidents of lead poisoning were documented and very little was known about the problem in India. The study concluded that over 50 per cent of the children below the age of 12 years in major Indian cities suffered from elevated levels of lead above 10 mcg/dL.

Dr Venkatesh, Department of Biochemistry, St John's Medical College, gave a presentation on the past, present and future of lead. He said the hazardous nature of lead, one of the earliest metals used, (8,000 years ago) is evident from the fact that it wiped out the Roman race.

The Romans used to drink wine in lead containers. He sought to substantiate his point by saying that lead was a slow killer which affected the intelligence quotient (IQ) of those who consume it in any form, especially children.

Dr Venkatesh further said it

was realised only recently that lead-based ill-effects from industrialisation ranging from headache, blood pressure, weakness, disturbed cognitive function were epidemic in nature. According to him, so far there has been no simple, sensitive, accurate, reliable and economically feasible blood lead testing methodology, a need which NRCLPI proposes to fulfill.

Vice chancellor of Rajiv Gandhi University of Health Sciences (RGUHS) Dr Chandrashekhar Shetty who inaugurated the centre said that lead problem should not be confined to mere community medicine but should be treated as a general health hazard, going by the alarming proportions the pollutant was assuming day by day. He said such an increasing hazard should be addressed on a war-footing basis. The centre has launched its website: www.leadpoison.net

concluded at 12:10 p.m.

Prior to the motion moved in favour of Mr Shankar, two motions were moved in favour of Dr M R Tanga (BJP) and Mr K B Shanappa (JD-U). Dr Tanga secured 14 votes in his favour and 50 against. Eight votes went in favour of Mr Shanappa and 48 votes against.

The election of Mr Shankar to the post of the chairman had almost become certain with the Opposition failing to field a consensus candidate. The Congress, which fell short of eight votes for a victory, did not take the risk of fielding a candidate. Also, the Congress, going by its "secular principles," did not want to support the BJP and the JD (U) which are partners of the NDA at the Centre. The JD (U) was very particular about fielding its candidate. However, the JD (S) and the BJP had no inclination to support the JD (U). Following this, supporting a candidate of the JD (unattached) became inevitable for the Congress and the JD (S), according to political observers.

The Congress and the JD (S),

Council Dy Chairman David Simeon congratulating Chairman B L Shankar (left) on Monday in Bangalore. DH photo

which were firm about supporting Mr Shankar, had issued a whip to its members. Meanwhile, at a breakfast meeting held at KPCC President and Horticulture Minister Allum Veerabhadrappa's residence this morning, it was decided that the party should support Mr Shankar. Chief Minister S M Krishna and a host of ministers, including Mr Mallikarjun Kharge, Mr D B Chandre Gowda, Mr D K Shiva Kumar and Ms Motamma, attended the breakfast meeting.

The observers indicated that Mr Shankar got 30 votes from the Congress, 13 from the JD (S), five from the JD (unattached) and one from an Independent.

The following is the party position in the 75-member Council: Congress 31 (Siddaraju from Maddur was expelled by the Congress on August 4); BJP 14; JD (S) 14; JD (U) 8, JD (unattached) 5.

Independents 2 and vacant 1.

Mr Shankar is the 24th full-time Chairman of the Legislative Council. The post had remained vacant for the last 13 months after the retirement of Mr D B Kalmankar of the Congress as the chairman. Deputy Chairman David Simeon presided over the Upper House from June 17, 2000 onwards.

Mr Shankar, soon after being declared elected, was conducted to the chair by Mr Narasiah and Mr Mohideen, Water Resources Minister H K Patil and Leader of the Opposition K H Srinivas.

Mr Shankar, who was elected MLC on May 14, 1998 from the assembly constituency, is due for retirement in May, 2004. He had served as minister for large and medium-scale industries in the J H Patel ministry. The newly elected chairman, who is an advocate and a coffee planter.

20. टिप्पणियां

(vi) क्या उद्योग ने उत्सर्जन/हस्ताक्षर
र. हेमराव के मानकों को पूरा करने के लिए पर्याप्त प्रदूषण
नियंत्रण प्रणाली/उपस्कर उपलब्ध कराये हैं। हां/नहीं

(vii) क्या उद्योग परिसंकटमय हां/नहीं
अपशिष्ट प्राधिकार में अभिक्रित शर्तों के अनुपालन में है।

(viii) क्या परिसंकटमय अपशिष्ट एकत्रण तथा उपचार, हां/नहीं
भंडारण और व्ययन प्रसुविधा (टी एस डी एफ) संतोषप्रद
रूप में कार्य कर रही है।

(ix) क्या ऐसी स्थितियां विद्यमान है या विद्यमान रहने की संभावना हैं, हां/नहीं
जिनमें सामग्रियों के हथालन/प्रसंस्करण से पर्यावरण पर तुरन्त अथवा
विलंबित प्रतिकूल प्रभाव पड़ेगा।

क्या ऐसी स्थितियां विद्यमान है या विद्यमान रहने की संभावना हैं, हां/नहीं
जिनमें सामग्री को हथालन/प्रसंस्करण, किसी भी साधन से अन्य सामग्री
की जैसे लोचेट—जिसमें इको-विषाणुता हो सकती है, प्राप्ति में सक्षम हो।

21. कोई अन्य जानकारी

(i)

(ii)

(iii)

तारीख

स्थान

हस्ताक्षर

नाम

पदनाम

[फा. सं. 23-5/98-एनएसएमडी]

बी. राजगोपालन, संयुक्त सचिव

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 24th May, 2000

S.O. 491(E).—The following draft of the Battery (Management and Handling) Rules 2000, which the Central Government proposes to make in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), are hereby published for information of all persons likely to be affected thereby; and notice is hereby given that the said draft rules shall be taken into consideration after the expiry of a period of sixty days from the date on which copies of the Gazette of India containing this notification are made available to the public;

Any person desirous of making any suggestion or objection in respect to the said draft rules may forward the same for consideration to the Central Government within the period so specified to the Secretary, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi- 110 003.

DRAFT RULES

1. Short Title and Commencement. -

(1) These rules may be called the **Batteries (Management and Handling) Rules, 2000.**

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Application. - These rules shall apply to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, re-smelter, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale and purchase of batteries.

3. Definitions. - In these rules, unless the context otherwise requires, -

(a) 'Act' - means the Environment (Protection) Act, 1986 (29 of 1986);

(b) 'assembler' - means a person who manufactures lead acid batteries by assembling various components;

(c) 'auction' - means bulk sale of used lead acid batteries by invitation of tenders/auction, contract or negotiation by individual(s), companies or Government Departments ;

(d) 'auctioneer' - means a person who auctions used Lead Acid Batteries;

(e) 'battery' - means lead acid battery which is a source of electrical energy and contains lead metal;

- (f) 'bulk consumer' – means a consumer, such as, Central or State Government, Departments like Railways, Defence, Power, Surface Transport and other Government and private institutions who directly buy lead acid batteries from the manufactures;
- (g) 'consumer' - means a person using lead acid battery;
- (h) 'dealer' - means a person who sells and receives lead acid batteries to and from the consumer/other dealers/retailers on behalf of the manufacturers, importers, assemblers and reconditioners;
- (i) 'importer' – means a person who imports new lead acid batteries in bulk;
- (j) 'manufacturer' - in relation to any factory manufacturing lead acid batteries means a person or Chief Executive Officer (CEO) of a company who has control over the affairs of the factory or the premises for sale and collection of lead acid batteries;
- (k) 'original equipment manufacturer (OEM)' - means manufacturer of equipment or product using lead acid batteries as a component;
- (l) 'reconditioner' - means a person involved in repairing of lead acid batteries for selling the same in the market;
- (m) 'recycler' - means a person who processes old or used lead acid batteries or other lead bearing materials for recovering lead;
- (n) 'registered recycler' - means an occupier registered with Ministry of Environment and Forests (MoEF) for reprocessing of lead acid batteries and/or lead bearing material;
- (o) 'State Boards' - means the concerned State Pollution Control Board or the Committee as the case may be;
- (p) 'used batteries' - means used, damaged and old lead acid batteries and parts thereof;

4. Responsibilities of manufacturer, importer, assembler and re-conditioner - It shall be the responsibility of each Manufacturer, Importer, Assembler and Re-conditioner to-

- (i) ensure that an equal number of batteries are collected back against new batteries sold;
- (ii) file a quarterly return of their sales and buy-back to the State Board in Form-I;
- (iii) set up collection centers at various places for collection of used batteries;
- (iv) ensure that used batteries collected are sent only to the authorised recyclers in the absence of in-house recycling facility;
- (v) ensure that necessary arrangements with dealers for safe transportation from collection centers to the premises of authorised recyclers or in-house recycling facilities are made;
- (vi) ensure that no damage to the environment occurs during transportation and reprocessing of used lead acid batteries;
- (vii) issue advertisements from time to time-

- (a) warning people of the hazards of lead;
 - (b) to return their used batteries only to the authorised dealers;
 - (c) about discounts offered; and
 - (d) addresses of dealers and collection points.
- (viii) use the international recycling sign on the Batteries except on imported batteries.
- (ix) buy recycled lead only from authorised recyclers;
- (x) enter into an agreement with the bulk consumers for return of all used batteries (excluding original equipment manufacturer batteries) to either the manufacturer or an authorised recycler, and
- (xi) bring to the notice of the State Board or the Ministry of Environment and Forests any violation by the dealers.

5. **Importer to furnish an undertaking** - Every importer shall furnish an undertaking in Form -II, to the Government of India in the Ministry of Environment and Forests before importing batteries in bulk that the equal number of used batteries shall be collected back and shall be sent to the authorised recyclers only.

6. **Responsibilities of dealer** -It shall be the responsibility of a dealer to-

- (i) give appropriate discount in lieu of receipt of used batteries to the consumer;
- (ii) ensure that an equal number of batteries are collected back against new batteries sold during each year ;
- (iii) file a quarterly return of his sales and buy-back to the manufacturer in Form- I,
- (iv) ensure safe transportation of collected batteries to the collection points or to the recyclers authorised by Ministry of Environment and Forests ;
- (v) ensure that no damage occurs to the environment during storage and transfer of batteries.

7. **Registration of recyclers and conditions for reprocessing**.- Each recycler shall

- (i) apply to the Ministry of Environment and Forests in Form-III and get himself registered for reprocessing of used batteries and parts thereof,
- (ii) store and reprocess the used batteries in a safe manner;
- (iii) dispose of the waste generated without causing damage to the environment;

- (iv) submit solid waste disposal plan to the State Board and obtain their approval;
- (v) submit annual returns as per the Hazardous Wastes (Management and Handling) Rules, 1989 as amended from time to time to the State Board.
- (vi) make available all records to the State Board for inspection;
- (vii) mark 'Recycled' on lead recovered by reprocessing;
- (viii) issue advertisements from time to time-
 - (a) warning people of the hazards of lead poisoning; and
 - (b) to return their used batteries only to the authorised dealers and the designated collection centers.

8. **Responsibility of consumer or bulk consumer** - It shall be the responsibility of the consumer or bulk consumer to-

- (i) ensure that used batteries are not discarded in any other manner except by depositing it with the dealer, importer, assembler, authorised recycler, conditioner or at the designated collection centers;
- (ii) avail the discount provided by the dealer in lieu of used battery; and
- (iii) return all used batteries to the manufacturer or authorised recycler as per the provisions of buy-back agreement with the manufactures in case of bulk consumers.

9. **Auction**.- A person, who is responsible for auction shall-

- (i) ensure that used batteries are sold to the authorised recyclers only;
- (ii) file quarterly returns of their auctions to the State Boards in Form-I, and
- (iii) maintain a record of such auctions and make these available for inspection by the State Board.

10. **Monitoring and Compliance**.- It shall be the responsibility of the State Board to-

- (i) ensure compliance with the rules; and
- (ii) file an annual compliance status report to the Central Pollution Control Board, 15 days before the end of the calendar year.

(2) The Central Pollution Control Board shall compile and publish the data so received every year from the State Pollution Control Boards or the State Pollution Control Committees.

FORM -I
[see rule 4(iii), 6(iv) and 9(ii)]

FORM FOR FILING QUATERLY RETURNS OF BUY BACKS AND SALE OF LEAD
ACID BATTERIES AND LEAD SCRAP

1.	Name and address of the manufacturer/ importer / delar / reconitioner / assembler/ auctioneer / seller	
2.	Contact person	
3.	Number and Location of sales counters	
4.	Installed capacity to manufacture/sale/ Lead Acid Batteries	
5.	Total number of batteries sold during the -----(I,II,III and IV) quarter of the year -----	
6.	Name and location of the manucturer/Importer/Assembler/ Reconitioner/consumer from whom batteries purchased	
7.	Name and location of the designated collection point	
8.	Total number/quantity of batteries collected back	
9.	Name, address and locations at which collected betteries were sent	
9.	Transporter used for transporting used batteries	
10.	Quantity /number of batteries sent to	

Place-----

Date-----

Signature of the authorised person

FORM - III
(see rule 7 (i))

FORM FOR
REGISTRATION OF FACILITIES POSSESSING ENVIRONMENTALLY SOUND MANAGEMENT
PRACTICE FOR RECYCLING OF USED LEAD ACID BATTERIES AND LEAD SCRAP
{To be submitted in triplicate}

1.	Name & Address of the unit				
2.	Contact person with designation, Tel./Fax				
3.	Date of Commissioning				
4.	No. of Workers (including contract laborers)				
5.	Consent Validity	Air Act, 1981 Valid up to			
		Water Act, 1974 Valid up to			
6.	Authorisation under rule 5 of the Hazardous Waste (Management and Handling) Rules, 1989	Valid up to			
7.	Installed capacity (MTA)				
8.	Product Manufactured (Tones/year)	1998-99	1997-98	1996-97	
	Name:				
	(a)				
	(b)				
	(c)				
9.	Raw material consumption (Tones/year)	1998-99	1997-98	1996-97	
	Name:				
	(a)				
	(b)				
	(c)				
10.	Manufacturing Process	Please attach manufacturing process flow diagram for each product (s)			

11.	Water Consumption	Industrial	m ³ /day		
		Domestic	m ³ /day		
12.	Water Cess paid up to				
13.	Waste water generation	Industrial/Domestic			
	a. as per consent m ³ /day				
	b. actual m ³ /day (average of last three months)				
14.	Waste waters treatment (please provide flow diagram of the treatment scheme)	Industrial			
		Domestic			
15.	Waste water discharge	Quantity m ³ /day			
		Location			
		Analysis of treated waste water pH, BOD, COD, SS, O&G, Any other			
16.	Air Pollution Control				
	c. Please provide flow diagram for emission control system(s) installed for each process unit, utilities etc.				
	d. Details of facilities provided control of fugitive emission due to material handling, process, utilities etc.				
17.	Fuel Consumption				
18.	Stack emission monitoring results	S.Number	Name	Quantity	D/M
19.	Occupational safety and Health aspects	Please provide details of facilities provided			

20.	Remarks	
	(vi) Whether industry has provided adequate pollution control system/equipment to meet the standards of emission/effluent.	Yes/No.
	(vii) Whether industry is in compliance with conditions laid down in the Hazardous Waste Authorisation.	Yes/No.
	(viii) whether Hazardous Waste collection and Treatment, Storage and Disposal Facility (TSDF) are operating satisfactorily.	Yes/No.
	(ix) whether conditions exists or likely to exists of the material being handled/processed of posing immediate or delayed adverse impacts on the environment.	Yes/No.
	whether conditions exists or is likely to exists of the material being handled/ processed by any means capable of yielding another material e.g., leachate which may possess eco-toxicity.	Yes/No.
21.	Any other information:	
	i)	
	ii)	
	iii)	
Date: ... Place:		Signature Name Designation

[File No. 23-5/98-IISMD]

V. RAJAGOPALAN, Jr. Secy.

Table 1. Priority Items for Prevention and Treatment

No.	Item	Target Duration
1	Eliminate the use of leaded gasoline by all vehicles, both old and new, including two- and three-wheelers.	5 Yrs.
2	Establish laws that require industries to comply with set safe standards/levels for lead as they pertain to consumer products, work environments, and waste.	5 Yrs.
3	Monitor and ensure that lead in drinking water and milk supplies is within safe levels.	5 Yrs.
4	Discontinue the use of lead solder in pipes for public water supply, and replace them with safe materials where feasible.	5 Yrs.
5	Except in certain industrial uses, ban paint containing lead.	5 Yrs.
6	Prohibit the sale of food processing appliances, cooking utensils and food storage containers/pots that may leak lead.	5 Yrs.
7	Require day-care, pre-school, kindergarten and primary school classrooms to be as dust-free as possible before children arrive each day.	5 Yrs.
8	Train health care providers to diagnose lead poisoned cases, provide treatment where needed, and offer preventive steps to patients and families.	On-going
9	Increase awareness among the general population about lead poisoning, and provide information about day-to-day preventive measures.	On-going
10	Monitor lead levels in the environment, consumer products, and workplaces, including cottage industries, and ensure compliance of laws relating to lead.	On-going
11	Clean up highly lead-contaminated areas, including removal of topsoil for safe disposal.	15 Yrs.
12	Carry out periodic and selective screening for blood lead of individuals living or working in high-risk areas, and make available safe and effective orally administered chelating agents at affordable prices for cases where treatment is required.	On-going

Note: Target Duration reflects the time period within which the related item needs to be accomplished. However, continued monitoring and compliance must be assured beyond target duration.

National Referral Center for Lead Poisoning in India (NRCLPI)
A Joint Project of St. John's National Academy of Health Sciences & The George Foundation

“Around the world, exposure to excessive levels of lead in the environment, the home and the workplace impose immense costs with many millions of adults and children suffering adverse health effects and impaired intellectual development. Lead poisoning is a preventable environmental and public health hazard of global proportions.”

“The Global Dimensions of Lead Poisoning: An initial Analysis”
Alliance to End Childhood Lead Poisoning and
The Environmental Defense Fund. 1994.

Lead is the number one environmental poison amongst the toxic heavy metals all over the world causing serious health hazards to humans, especially to young children. Through aggressive implementation of prevention measures, most developed nations have been successful in reducing lead poisoning in their respective countries in the past two decades. Serious commitment followed up by adequate regulatory policies at the governmental level resulted in reducing or eliminating most of the lead pathways in developed countries. However, in a developing country like India, lead poisoning persists at a much bigger magnitude. Prior to the national lead study conducted under “*Project Lead Free*” by The George Foundation in 1996-1999, only isolated incidents of lead poisoning were documented and very little was known about the problem in India. This study concluded that over 50% of the children below the age of 12 years in major Indian cities suffer from elevated levels of lead above 10 mcg/dL. The *International Conference on Lead Poisoning* held in Bangalore in 1999 by The George Foundation elevated national awareness of this problem, and resulted in the initiation of several measures at the national level to address lead poisoning.

The National Centre for Lead Poisoning in India is a non-profit joint undertaking of St. John's National Academy of Health Sciences, and The George Foundation, both of Banaglore. NRCLPI will carry out the following activities:

- Provide updated information on all aspects of lead poisoning through its website: www.leadpoison.net.
- Offer a referral and confirmatory lead testing service for blood samples received at the Centre from anywhere in India.
- Disseminate relevant information on lead poisoning to government authorities, NGOs, clinicians treating lead poisoned cases and other institutions concerned, and create awareness among the general public through education, documentation and media communication.

(More follows)

In carrying out the above functions, NRCLPI will concentrate on the following:

1. Screen for lead poisoning by evaluating blood lead levels using established international standards and protocols.
2. Provide consultancy services to employees of lead based industries in evaluating, monitoring and eliminating workplace lead poisoning.
3. Maintain a national database of lead poison levels in different segments of the population, and disseminate information pertaining to the current status of the problem to all concerned governmental agencies and other institutions.
4. Provide adequate information to clinicians treating cases of lead poisoning.
5. Organize training programs for healthcare organizations on prevention and early detection of lead poisoning cases.
6. Make policy recommendations on reduction and prevention of lead poisoning to the government for national implementation.
7. Create awareness among the public through the media, publications and outreach programs.
8. Assist researchers and academicians involved in research activities in the field of toxicology with special reference to lead.

A developing country like India can tackle this serious, but preventable environmental health hazard through proper awareness and prevention measures. NRCLPI will function both as a referral centre as well as a clearing-house for updated information on lead poisoning from various sources – research organizations, academicians, governmental and international agencies, industries, and the general public. It is our belief that with better communication and networking among the various concerned parties, the hazard of lead poisoning can be better handled, and significant reductions in blood lead levels can be achieved among the general population in the coming decade.

You can help reduce lead exposure in India and other developing countries by sharing your experience with others. We are asking you to kindly forward, by email or fax, information on the launch of our new web site www.leadpoison.net to professionals you know to have an interest in reducing children's exposure to this toxic metal. Furthermore, we are offering all those with lead poisoning expertise the opportunity to contribute articles, research papers and relevant news to www.leadpoison.net on a regular basis. Your contribution to the site will make it a valuable tool for anyone in India and other developing countries committed to preventing lead poisoning. When you log onto the site, there will be simple directions on how you can participate in sharing your knowledge with others.

For further information, please contact:

National Referral Center for Lead Poisoning in India

St. John's National Academy of Health Sciences

Robert Koch Bhavan

John Nagara Post

Bangalore 560 034, India

Tel.: 080-206 5058 Fax: 080-5520 777

E-mail: nrclpi@leadpoison.net

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

ನಂ. 6,7,8 ಮತ್ತು 9ನೇ ಅಂತಸ್ತು, ಸುಭಾಷ್ ಚಂದ್ರ ಬೋಸ್ ಕಟ್ಟಡ
ಮಹಾತ್ಮಗಾಂಧಿ ರಸ್ತೆ, ಬೆಂಗಳೂರು - 560 001.

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ವಿಷಯಕ್ಕೆ ಸೀಸ
(LEAD POISONING)

ವಿಷಯಕ್ತ ಸೀಸ

ನಮ್ಮ ಪರಿಸರದಲ್ಲಿ ಸೀಸ ಸರ್ವವ್ಯಾಪ್ತಿ. ಗಾಳಿಯಲ್ಲಿ, ನೀರಿನಲ್ಲಿ, ಮಣ್ಣಿನಲ್ಲಿ ಮತ್ತು ಆಹಾರ ಪದಾರ್ಥಗಳಲ್ಲಿ ಇದು ಬೆರೆತಿರುತ್ತದೆ. ಇದು ವಾತಾವರಣದಲ್ಲಿ ಬಹಳ ಕಾಲದ ವರೆಗೆ ಸ್ಥಿರವಾಗಿದ್ದು ತನ್ನ ಪರಿಣಾಮವನ್ನು ಬೀರುತ್ತಿರುತ್ತದೆ. ರಕ್ತದಲ್ಲಿ ಕಂಡು ಬರುವ ಸೀಸದ ಅಂಶ. ಪರಿಸರ ಮಾಲಿನ್ಯವನ್ನು ಸೂಚಿಸುತ್ತದೆ. ಸೀಸದಿಂದಾಗುವ ದುಷ್ಪರಿಣಾಮಗಳು ಶಾಶ್ವತವಾದುದು ಹಾಗೂ ಇದು ಮಕ್ಕಳ ಮೇಲೆ ಅಗಾಧ ಪರಿಣಾಮ ಬೀರುತ್ತದೆ.

ಮೂಲಗಳು :

- ವಿದ್ಯುತ್ ಉತ್ಪಾದನಾ ಘಟಕಗಳು, ಕುಲುಮೆಗಳು, ವಾಹನಗಳನ್ನು ರಿಪೇರಿ ಮಾಡುವ ಸ್ಥಳಗಳು, ಗಣಿಗಳು ಮತ್ತಿತರ ಕೈಗಾರಿಕೆಗಳಿಂದಾಗುವ ಮಾಲಿನ್ಯ.
- ಸೀಸವುಳ್ಳ ಪೆಟ್ರೋಲ್ ಬಳಸುವ ವಾಹನಗಳ ಹೊಗೆ.
- ಕಟ್ಟಡಗಳ ಅಸುರಕ್ಷಿತ ನಾಶ ಮತ್ತು ರಿಪೇರಿ ಕೆಲಸ.
- ಕಲ್ಲಿದ್ದಲು ಮತ್ತು ಮರಗಳ ಸುಡುವಿಕೆಯಿಂದ ಹೊರ ಹೊಮ್ಮುವ ಹೊಗೆ

ಸೀಸವುಳ್ಳ ಗ್ರಾಹಕ ವಸ್ತುಗಳು :

- ಹಳೆ ಆಟಕೆಗಳು, ಬೆಸುಗೆ ಹಾಕಿದ ಲೋಹಗಳು
- ಬಣ್ಣ ಹಾಕಿದ ಆಭರಣಗಳು ಮತ್ತು ಗುಂಡಿಗಳು
- ಕೆಲವು ಆಯುರ್ವೇದ ಮತ್ತು ಭಾರತೀಯ ಔಷಧ ಮತ್ತು ಚಿಕಿತ್ಸಾ ಪದ್ಧತಿಗಳು
- ಸೌಂದರ್ಯ ವರ್ಧಕಗಳಾದ ಕಾಜಲ್, ಮೆಹಂದಿ, ಕೂದಲಿನ ಬಣ್ಣಗಳು ಮತ್ತು ಸೌಂದರ್ಯ ಚಿಕಿತ್ಸೆಗಳು.

ವಿಷಯಕ್ತ ಸೀಸದಿಂದ ನಿಮ್ಮ ಮಗುವನ್ನು ರಕ್ಷಿಸಲು ಏಳು ವಿಧಾನಗಳು

- ಸೀಸ, ರಕ್ತ ಹೀನತೆಯನ್ನು ಉಂಟು ಮಾಡುತ್ತದೆ. ಇದು ಗರ್ಭಿಣಿ ಹೆಂಗಸರ ಮೇಲೆ ದುಷ್ಪರಿಣಾಮ ಬೀರುತ್ತದೆ ಆದ್ದರಿಂದ ಅವರನ್ನು ಸೀಸದಿಂದ ರಕ್ಷಿಸಿ.
- ಸೀಸ, ಮಕ್ಕಳ ಮೇಲೆ ಅಗಾಧ ಪರಿಣಾಮ ಬೀರುತ್ತದೆ. ಬೆಳೆಯುವ ಮಕ್ಕಳ ಕಲಿಯುವಿಕೆ ಮತ್ತು ನಡತೆಯಲ್ಲಿ ಇದು ಸಮಸ್ಯೆ ಉಂಟು ಮಾಡುತ್ತದೆ. ಆದ್ದರಿಂದ ಮಕ್ಕಳನ್ನು ಸೀಸಯುಕ್ತ ಪರಿಸರದಿಂದ ದೂರವಿಡಿ.
- ಮಗುವಿಗೆ ಒಂದು ಮತ್ತು ಎರಡು ವಯಸ್ಸಿನಲ್ಲಿ, ರಕ್ತದಲ್ಲಿನ ಸೀಸದ ಪ್ರಮಾಣವನ್ನು ಪರೀಕ್ಷಿಸಿ.
- ಮನೆ ರಿಪೇರಿ ಮಾಡುವಾಗ ಬರುವ ಹಳೆ ಬಣ್ಣದ ಧೂಳಿನಿಂದ ಮಕ್ಕಳನ್ನು ರಕ್ಷಿಸಿ.
- ಮನೆಯನ್ನು ಗುಡಿಸಿ, ನೀರಿನಿಂದ ಸಾರಿಸಿ, ಮನೆಯಲ್ಲಿ ಸೇರುವ ಧೂಳಿನ ಕಣಗಳನ್ನು ನಿರ್ಮೂಲನ ಮಾಡಿ.

ನಾವು ಉಪಯೋಗಿಸುವ ನೀರನ್ನು ಶುದ್ಧವಾಗಿಡೋಣ

- ರಾಸಾಯನಿಕಗಳಿಂದ
- ಬಣ್ಣ ಲೇಪಿತ ಆಟಕೆಗಳು ಮತ್ತು ಇತರ ಸಾಮಗ್ರಿಗಳಿಂದ
- ಕ್ರಿಮಿನಾಶಕಗಳು ಮತ್ತು ಕೀಟನಾಶಕಗಳಿಂದ
- ಬಣ್ಣಗಳಿಂದ

ನಾವು ಆಹಾರವನ್ನು ಸೇವಿಸುವ ಮುನ್ನ ಅದರಲ್ಲಿ ಬಳಸಿರುವ ರಕ್ಷಕ ದ್ರವ್ಯಗಳು, ಅದನ್ನು ತಯಾರಿಸಲು ಬಳಸಿದ ವಸ್ತುಗಳು ಹಾಗೂ ಸಂಗ್ರಹಣಾ ವಿಧಾನವನ್ನು ತಿಳಿದುಕೊಳ್ಳಬೇಕು.

ಮೇಲಿನ ಎಲ್ಲಾ ಅಂಶಗಳನ್ನು ಗಮನದಲ್ಲಿಟ್ಟುಕೊಂಡರೆ, ಸೀಸದಿಂದ ಉಂಟಾಗುವ ಹಾನಿಯನ್ನು ತಡೆಗಟ್ಟಲು ಸಾಧ್ಯವಾಗುತ್ತದೆ. - ಇದು ಸಾಧ್ಯ

ನಿಸರ್ಗದೊಡನೆ ಸೌಹಾರ್ದತೆಯಿಂದ ಇದ್ದರೆ ಮಾತ್ರ, ನಮ್ಮ ಪರಿಸರವನ್ನು ಸಂರಕ್ಷಿಸಬಹುದು.

LEAD POISONING

Lead is universally present in our environment. It can be found in air, water, soil and various food items. It has a long environmental persistence and effect. The presence of blood lead is the indication of environmental pollution and the damage caused by lead is permanent.

SOURCES

- Industrial pollution from power stations, incinerators, car repair sites, mines, smelters, etc.
- Exhaust emissions from the use of leaded petrol.
- Unsafe renovations & demolitions of buildings.
- Emissions from burning of wood and coal.

CONSUMER PRODUCTS CONTAINING LEAD

- Old toys, soliders
- Painted jewellery, buttons, etc.
- Certain Ayurvedic & Indian systems of medicines & remedies.
- Cosmetics including surma, henna, hair dyes & cosmetic treatments.

- ಮಕ್ಕಳು ಊಟ ಮಾಡುವ ಮೊದಲು ಕೈಗಳನ್ನು ಸರಿಯಾಗಿ ತೊಳೆಸಿ.

ಇದನ್ನು ನೆನಪಿನಲ್ಲಿಡಿ :

- ದೇಶದ ಮುಖ್ಯ ನಗರಗಳಲ್ಲಿ 12 ವರ್ಷಕ್ಕಿಂತ ಕಡಿಮೆ ವಯಸ್ಸಿನ ಶೇಕಡಾ 51.3 ಮಕ್ಕಳ ರಕ್ತದಲ್ಲಿ ಸೀಸದ ಮಟ್ಟ $10\mu\text{g}/100\text{ml}$ ಗಿಂತ ಅಧಿಕವಾಗಿರುವುದು ಕಂಡು ಬಂದಿದೆ. (ಜಾರ್ಜ್ ಫೌಂಡೇಷನ್ ಅಧ್ಯಯನ ವರದಿ Feb-1999).
- ದಿನ ನಿತ್ಯ ಜೀವನದಲ್ಲಿ ಸೀಸದ ಅವಶ್ಯಕತೆ ಮತ್ತು ಉಪಯೋಗ ಇಲ್ಲದಿದ್ದರೂ ಕೂಡ ಸೀಸವನ್ನು ನಾವು ನಿಯಮಿತವಾಗಿ ಉಪಯೋಗಿಸುತ್ತಿದ್ದೇವೆ.
- ವಿಷಯುಕ್ತ ಸೀಸಕ್ಕೆ ಸುಲಭವಾಗಿ ಗುರಿಯಾಗುವ ಮಾನವನ ಅಂಗಗಳು - ಮೆದುಳು, ಮೂತ್ರಪಿಂಡ, ಪುನರುತ್ಪತ್ತಿ ವ್ಯವಸ್ಥೆ, ಕೆಂಪು ರಕ್ತ ಕಣಗಳು, ಜೀರ್ಣಾಂಗಗಳು, ನರಮಂಡಲ, ಮಾಂಸಖಂಡ, ಮೂಳೆಗಳು ಮತ್ತು ಕೀಲುಗಳು.
- ಸೀಸವು ನಮಗೆ ಅರಿವಿಲ್ಲದಂತೆ ನಮ್ಮ ಮೇಲೆ ದುಷ್ಪರಿಣಾಮ ಬೀರುತ್ತದೆ ಮತ್ತು ಈ ಪರಿಣಾಮಗಳು ಶಾಶ್ವತವಾದುದು.
- ದೇಹದಲ್ಲಿರುವ ಸೀಸದ ಶೇಕಡಾ 90ರಷ್ಟು ಪ್ರಮಾಣ ಮೂಳೆಗಳಲ್ಲಿ ಇದ್ದು ಅನೇಕ ವರ್ಷಗಳವರೆಗೆ ಪರಿಣಾಮ ಬೀರುತ್ತಿರುತ್ತದೆ.
- ಗರ್ಭಿಣಿ ಹೆಂಗಸು ತನ್ನ ಬೆಳೆಯುತ್ತಿರುವ ಮಗುವಿಗೆ ಸೀಸವನ್ನು ವರ್ಗಾಯಿಸಬಲ್ಲಳು.

ವಿಷಯುಕ್ತ ಸೀಸದ ದುಷ್ಪರಿಣಾಮದ ಗುಣಲಕ್ಷಣಗಳು.

- | | |
|---|----------------------------------|
| ● ತಲೆನೋವು | ● ಧೈರ್ಯಗುಂದುವಿಕೆ |
| ● ನಿರಾಸಕ್ತಿ, ಕೆಲಸದಲ್ಲಿ ಹೊಂದಾಣಿಕೆ ಇಲ್ಲದಿರುವುದು | ● ಆಲಸ್ಯ |
| ● ತಲೆ ಮತ್ತು ಕೈಗಳ ನಡುಕ | ● ಬಲಹೀನತೆ |
| ● ಜ್ವರ ಪಕ ಶಕ್ತಿಯ ಕುಂದುವಿಕೆ | ● ಹೊಟ್ಟೆನೋವು |
| ● ನಿದ್ರಾಹೀನತೆ | ● ಮಲ ಬದ್ಧತೆ |
| ● ಕಿರಿಕಿರಿ ಮತ್ತು ನರದೌರ್ಬಲ್ಯ | ● ತೂಕ ಕಡಿಮೆಯಾಗುವಿಕೆ |
| ● ಬಾಯಿಯಲ್ಲಿ ಲೋಹದ ಸ್ವಾದ | ● ಮಾಂಸಖಂಡ ಮತ್ತು ಮೂಳೆ ಕೀಲುಗಳ ನೋವು |
| ● ಗರ್ಭದಲ್ಲಿ ತೊಂದರೆಗಳು | ● ರಕ್ತ ಹೀನತೆ |
| ● ಹಸಿವು ನಾಶ | ● ಅತಿ ರಕ್ತದೊತ್ತಡ |
| ● ವಾಂತಿ | ● ಮೂತ್ರಪಿಂಡ ವೈಫಲ್ಯ |
| ● ತಲೆತಿರುಗುವಿಕೆ | ● ಏಕಾಗ್ರತೆಯಲ್ಲಿ ಕ್ಷೀಣತೆ |

ನೀವು ಸೀಸ ಆಧಾರಿತ ಕೈಗಾರಿಕೆಯಲ್ಲಿ ಕೆಲಸ ಮಾಡುವವರಾದರೆ

- ಸೀಸದ ಪ್ರಮಾಣವನ್ನು ಎಲ್ಲಾ ಸ್ಥಳಗಳಲ್ಲೂ ಪರಿವೀಕ್ಷಿಸುವುದು
- ಈ ಪರಿವೀಕ್ಷಣೆಯನ್ನು ಸೀಸದ ದುಪ್ಪರಿಣಾಮಕ್ಕೆ ಹೆಚ್ಚಾಗಿ ಗುರಿಯಾಗುವ ಪ್ರಾತಿನಿಧಿಕ ಸಂಖ್ಯೆಯ ಕೆಲಸಗಾರರ ಮೇಲೆ ಮಾಡಬೇಕು.
- ಪರಿವೀಕ್ಷಣೆಯನ್ನು ವೈಯಕ್ತಿಕ ವಾಯು ಸಂಗ್ರಹ ಸಾಧನದ ಸಹಾಯದಿಂದ ಮಾಡಬೇಕು.
- ಪ್ರಾಥಮಿಕ ಪರಿವೀಕ್ಷಣೆಯಲ್ಲಿ ಸೀಸದ ಪ್ರಮಾಣವು $30\mu\text{g}/\text{m}^3$ ಗಿಂತ ಅಧಿಕವಾಗಿದ್ದರೆ ಅದನ್ನು ಕಡಿಮೆಗೊಳಿಸಲು ಈ ಕೆಳಗಿನ ಕ್ರಮಗಳನ್ನು ತೆಗೆದುಕೊಳ್ಳಬೇಕು.
 - ವಾಯು ಪರಿವೀಕ್ಷಣೆಯ ಕಾರ್ಯವನ್ನು ಹಮ್ಮಿಕೊಳ್ಳುವುದು
 - ಸೀಸಕ್ಕೆ ಗುರಿಯಾಗುವುದರಿಂದ ಉಂಟಾಗುವ ದುಪ್ಪರಿಣಾಮಗಳ ಬಗ್ಗೆ ಸರಿಯಾದ ತರಬೇತಿ
 - ಕೆಲಸಗಾರರಿಗೆ ವೈದ್ಯಕೀಯ ಸೌಲಭ್ಯ, ಅಗತ್ಯವಿದ್ದಲ್ಲಿ ವೇತನ ಕಡಿತವಿಲ್ಲದೆ ಸೀಸವನ್ನು ವೈದ್ಯಕೀಯವಾಗಿ ತೆಗೆಯುವುದು.
 - ಕೆಲಸಗಾರರಿಗೆ ಸೀಸ ಆಧಾರಿತ ಕೆಲಸವಹಿಸುವ ಮುನ್ನ ಅವರಿಗೆ ಅದರ ದುಪ್ಪರಿಣಾಮಗಳ ಬಗ್ಗೆ ಸೂಕ್ತ ತಿಳುವಳಿಕೆ ಕೊಟ್ಟಿರಬೇಕು.

ರಕ್ತದಲ್ಲಿ ಸೀಸದ ಪ್ರಮಾಣವನ್ನು ಪರಿವೀಕ್ಷಿಸಿಕೊಂಡ ಕೆಲಸಗಾರನಿಗೆ ಪರಿವೀಕ್ಷೆಯ ಐದು ದಿನಗಳೊಳಗೆ ಫಲಿತಾಂಶವನ್ನು ಬರವಣಿಗೆಯ ರೂಪದಲ್ಲಿ ಒದಗಿಸಬೇಕು. ಸೀಸವು ನಿಗದಿತ ಪ್ರಮಾಣಕ್ಕಿಂತ ಅಧಿಕವಾಗಿದ್ದಲ್ಲಿ ಮುಂದೆ ತೆಗೆದುಕೊಳ್ಳಬೇಕಾದ ಕ್ರಮಗಳ ಬಗ್ಗೆ ವರದಿಯಲ್ಲಿ ತಿಳಿಸಿರಬೇಕು.

ಸೀಸದ ಕಣಗಳು ಕೆಲಸಗಾರರ ಬಟ್ಟೆ, ದೇಹ ಅಲ್ಲದೆ ಗಾಳಿಯಲ್ಲೂ ಕೂಡ ಸೇರಿರಬಹುದೆಂದು ಮಾರ್ಗದರ್ಶನ ಕೊಡಬೇಕು.

ಕೆಲಸಗಾರರ ಮೂಲಕ ಸೀಸದ ಕಣಗಳು ಮನೆಯನ್ನು ಸೇರಿ, ಮನೆಯ ಇತರ ಸದಸ್ಯರಿಗೆ ಹಾನಿಯುಂಟು ಮಾಡುತ್ತದೆ.

ಎಲ್ಲಾ ಕೆಲಸಗಾರರಿಗೂ ಸುರಕ್ಷತೆಯ ಬಗ್ಗೆ ವಿಶೇಷ ತರಬೇತಿ ನೀಡಬೇಕು.

ಎಲ್ಲಾ ಕೆಲಸಗಾರರಿಗೂ ನಿಯಮಿತವಾಗಿ ವೈದ್ಯಕೀಯ ಸೌಲಭ್ಯವನ್ನು ಒದಗಿಸಬೇಕು.

ದುರ್ದೈವವಶಾತ್ ಕೆಲವು ಚಟುವಟಿಕೆಗಳಿಂದ
ನಮಗರಿವಿಲ್ಲದಂತೆ ಸೀಸಕ್ಕೆ ಗುರಿಯಾಗಬಹುದು
ಮತ್ತು ಇದು ಆರೋಗ್ಯಕ್ಕೆ ಮಾರಕವಾಗಬಹುದು.

ನಾವು ಉಸಿರಾಡುವ ಗಾಳಿಯನ್ನು ಸ್ವಚ್ಛವಾಗಿದೋಣ

- ವಾಹನಗಳ ಹೊಗೆಯನ್ನು ನಿಯಂತ್ರಿಸಿ
- ತ್ಯಾಜ್ಯ ವಸ್ತುಗಳನ್ನು ಸುಡದೇ ಇರುವ ಮೂಲಕ
- ಕೈಗಾರಿಕಾ ಅನಿಲ ಮತ್ತು ಏರೋಸಾಲ್‌ಗಳನ್ನು ನಿಯಂತ್ರಿಸುವುದರಿಂದ
- ಪರಿಸರ ಸ್ನೇಹಮಯಿ ಶೀತಕಯಂತ್ರಗಳನ್ನು ಉಪಯೋಗಿಸುವುದರಿಂದ

ನಾವು ಉಪಯೋಗಿಸುವ ನೀರನ್ನು ಶುದ್ಧವಾಗಿಡೋಣ

- ರಾಸಾಯನಿಕಗಳಿಂದ
- ಬಣ್ಣ ಲೇಪಿತ ಆಟಕೆಗಳು ಮತ್ತು ಇತರ ಸಾಮಗ್ರಿಗಳಿಂದ
- ಕ್ರಿಮಿನಾಶಕಗಳು ಮತ್ತು ಕೀಟನಾಶಕಗಳಿಂದ
- ಬಣ್ಣಗಳಿಂದ

ನಾವು ಆಹಾರವನ್ನು ಸೇವಿಸುವ ಮುನ್ನ ಅದರಲ್ಲಿ ಬಳಸಿರುವ ರಕ್ಷಕ ದ್ರವ್ಯಗಳು, ಅದನ್ನು ತಯಾರಿಸಲು ಬಳಸಿದ ವಸ್ತುಗಳು ಹಾಗೂ ಸಂಗ್ರಹಣಾ ವಿಧಾನವನ್ನು ತಿಳಿದುಕೊಳ್ಳಬೇಕು.

ಮೇಲಿನ ಎಲ್ಲಾ ಅಂಶಗಳನ್ನು ಗಮನದಲ್ಲಿಟ್ಟುಕೊಂಡರೆ, ಸೀಸದಿಂದ ಉಂಟಾಗುವ ಹಾನಿಯನ್ನು ತಡೆಗಟ್ಟಲು ಸಾಧ್ಯವಾಗುತ್ತದೆ. - ಇದು ಸಾಧ್ಯ

ನಿಸರ್ಗದೊಡನೆ ಸೌಹಾರ್ದತೆಯಿಂದ ಇದ್ದರೆ ಮಾತ್ರ ನಮ್ಮ ಪರಿಸರವನ್ನು ಸಂರಕ್ಷಿಸಬಹುದು.

LEAD POISONING

Lead is universally present in our environment. It can be found in air, water, soil and various food items. It has a long environmental persistence and effect. The presence of blood lead is the indication of environmental pollution and the damage caused by lead is permanent.

SOURCES

- Industrial pollution from power stations, incinerators, car repair sites, mines, smelters, etc.
- Exhaust emissions from the use of leaded petrol.
- Unsafe renovations & demolitions of buildings.
- Emissions from burning of wood and coal.

CONSUMER PRODUCTS CONTAINING LEAD

- Old toys, soliders
- Painted jewellery, buttons, etc.
- Certain Ayurvedic & Indian systems of medicines & remedies.
- Cosmetics including surma, henna, hair dyes & cosmetic treatments.

- * Shaking of hands & head
- * Memory loss
- * Sleeplessness
- * Irritability, Nervousness
- * Problems during Pregnancy
- * Loss of appetite
- * Nausea
- * Dizziness
- * Feeling depressed
- * Persistent fatigue
- * Weakness
- * Stomach aches
- * Constipation
- * Weight Loss
- * Muscle, bone joint aches
- * Anemia
- * High Blood Pressure
- * Damage of Kidney
- * Loss of concentration.

IF YOU ARE AN EMPLOYER IN A LEAD BASED INDUSTRY :

- All areas of possible lead exposure must be monitored to determine level of lead.
- This measurement must be done with a representative number of employees who have the risk of being exposed to lead.
- Measurement has to be done using personal air samplers.
- If the lead content in initial air monitoring is above $30\mu\text{g}/\text{m}^3$ appropriate action has to be taken which include.
 - * Establishment of air monitoring programme
 - * Appropriate training related to lead exposure.
 - * Medical surveillance for workers, including medical lead removal if needed, without loss of pay or benefits.

Before assigning a job to any body that will expose him or her to lead, he or she must be made aware of the risk.

Employee who is tested for the level of his blood lead must be notified in writing, with in 5 days of the lab results. The written notification must include a plan of action if exposure is above the Permissible Exposure Limit (PEL).

Employees should also be advised that lead particles and dust could get in to the air, or onto the employee's clothes and body.

Employees can inadvertently expose their families to "take home" lead and family members may get affected.

Special training should be provided on safety aspects to all employees.
Medical Care on regular basis is to be provided to all employees.

LET US NOT POLLUTE THE AIR WE BREATHE

- With our vehicular exhaust,
- By burning urban waste,
- With Industrial gases, aerosols,
- Using Poor refrigerating systems

LET US NOT CONTAMINATE WATER WE USE

- With chemicals
- By dumping painted toys and other objects.
- Dyes
- With pesticides and insecticides

LET US CONSUME FOOD ONLY WHEN WE ARE SURE ABOUT

- Preservations used
- Storage Procedure
- Contents

***UNFORTUNATELY SOME ACTIVITIES
CAN EXPOSE YOU TO LEAD AND
YOU WOULDN'T EVEN KNOW IT...
AND THAT COULD EFFECT YOUR HEALTH SEVERLY***

***"LET US LIVE IN HARMONY WITH NATURE
BY KEEPING OUR ENVIRONMENT SAFE TO LIVE"***

***WITH THE ABOVE CONCERN WE CAN KEEP AWAY
FROM THE ILL EFFECTS OF LEAD - IT IS POSSIBLE.***

Courtesy : Dr. T. Venkatesh, Director NFC for Lead Poisoning in India
(A Joint Project of St. John's National Academy of Health Sciences and the George Foundation)

'Lead poisoning second deadly scourge'

E-8A.6

Seema Singh

BANGALORE: Nothing could be more encouraging for George Foundation, host of the largest-ever international conference on lead poisoning, than a message from Prime Minister A.B. Vajpayee recognising "lead poisoning as the second deadly scourge after AIDS".

In a statement to the foundation on the eve of the conference, which begins here on Monday, Mr Vajpayee said, "Lead poisoning is qualitatively affecting the living conditions of thousands of our countrymen.

Statistics indicate that lead pollution in our environment has reached alarming levels and the government has taken the first step to eliminate this potent hazard by making lead-free petrol mandatory for use by all automobiles."

Indicating that Delhi was the city worst-affected by lead pollution in India, the prime mover of the lead-free project and founder of George Foundation, Abraham George, said it was the largest ever study undertaken in the world, with over 22,000

samples drawn from seven cities.

The cities include Bangalore, Calcutta, Delhi, Mumbai and Chennai.

"Preliminary indications point towards a national crisis in the making if we do not act swiftly. A hundred million urban children and pregnant women are affected in India, the cost of which will become prohibitively high very soon," Mr George said.

Stressing the significance of the conference, which will have 80 scientists from 20 countries, Mr Abraham said the study was comprehensive enough for the government to take action.

"We do not want the government to carry out any study for the next five years. Besides, the government cannot solve the problem. It only needs to prioritise the issue.

There are various agencies involved, including educational institutions, hospitals, non-government organisations, ministries and oil companies, which need to put their acts together," Mr George observed.



Abraham George

Lamenting the lack of awareness about lead poisoning, which studies have shown can badly affect the IQ level of children (for every 10 microgram increase of lead in blood levels, there is a 5.8 per cent decline in IQ). Mr George cited the examples of the developed countries which undertook a lead eradication programme quite early.

"The USA has been able to bring down lead poisoning by 95 per cent in 35 years. But we are starting today, if we are starting," he said.

On the level of awareness there, Mr George said, "Maximum lawsuits in New York City are filed against landlords because children are adversely affected by old paints containing lead."

The purpose of the conference is to bring out a blueprint for a national policy on screening and measurement, prevention, health effects and treatment methodologies.

The white paper would be prepared by the foundation, based on deliberations at the conference, and a panel of experts both from the USA and India, Mr George said.

The whitepaper is expected to be released in a couple of months, he added.

Besides being the founder of George Foundation, Mr Abraham George is the vice-chairman of SunGard Treasury Systems, a unit of an American software company, SunGard Data Systems.



Silent Killer

Lead poisoning assumes alarming proportions in India

Do you think that little tot of yours is a prodigy? If so, kindly keep the kid indoors. And when you take him or her outdoor, make sure an air mask is firmly in place. Because there lurks an invisible enemy — a poison called lead. Every breath the child inhales is polluted with lead.

A recent countrywide survey has shown that more than 34 per cent of children below the age of 12, living in six major cities across the country, are suffering from high levels of lead poisoning (*see box*).

"I would put the danger of lead poisoning right next to the threat posed by AIDS," says Dr T. Venkatesh, head of the biophysics department at the St John's Medical Hospital, Bangalore. "Children absorb lead five to six times faster than adults do. And the damage it causes in a growing child is enormous. I would say an entire generation is being affected," observes Venkatesh, who supervised the two-year study called

'Project Lead-Free'.

Some fear that the problem is bound to worsen. "With vehicular congestion increasing in the cities, with more and more flight of people from the rural to urban areas, and with increasing child labour, a larger segment of the population is going to be exposed to and suffer from lead poisoning," says Dr Padmanabhan P. Nair, professor of public health at John Hopkins University.

Lead, once ingested, gets deposited in soft tissues like brain, kidney and liver and irretrievably damages these organs. Although it doesn't manifest itself, lead poisoning does cause severe anaemia and lowers a child's learning capabilities for life (a World Bank report says lead poisoning can impair a child's IQ by six per cent). Lead can harm even the foetus since it easily crosses the placental barrier.

The internationally-accepted level of lead in blood is less than ten microgrammes per decilitre (MG/DC). The Indian study, which tested a cross section of

22,000 people in seven cities for lead poisoning, found that more than 26 per cent of the population — including the 34 per cent of children less than 12 years — had more than ten MG/DC of lead in their blood.

"This study has shown that a majority of Indian children in the cities will never learn fully for their entire lives. They will remain underachievers. Besides, children affected by lead poisoning are seven times more likely to drop out of school," says Dr Joel Schwartz, who teaches environmental epidemiology at the Harvard School Of Public Health. "The statistics are alarming but steps should be taken to see that this does not end in a tragedy."

While adults discharge the lead in their blood through fluids, it is different in the case of children. Their growing bodies need iron, the lack of which causes anaemia. "Anaemia causes greater absorption of lead and lead causes greater anaemia," warns Dr Venkatesh.

The main source of lead pollution in India is petrol. According to the government's deadline, all vehicles in the country are to use only unleaded petrol from April 2000 in order to reduce lead poisoning

"It is a vicious cycle. At lower levels, it is easy to control the effects of lead poisoning by taking enough environmental protection."

Children absorb lead through the air, by sucking their thumbs, chewing on pencils, crayons, etc. Some children also lick flakes of wall paint because it tastes sweet. But even a small flake of wall paint can contain up to 200 mg of lead.

Research has shown that, in general, the main sources of lead poisoning are soldered cans and cooking vessels, lead-based paints, plumbing systems containing lead and some forms of traditional medicines. Lead is also contained in some items like *surma*, hair dye, a few brands of Chawanprash, haldi, etc. The immersion of colourful Ganesha and Durga idols causes lead pollution of water bodies since the paints contain high levels of lead.

In India, however, as in other developing countries, the main source of lead pollution is petrol. Though a national emission standard for lead and other pol-

lutants has been fixed at the level of 0.56 gram per litre, the exhaust from automobiles using leaded petrol in the major cities is far in excess of the prescribed limit.

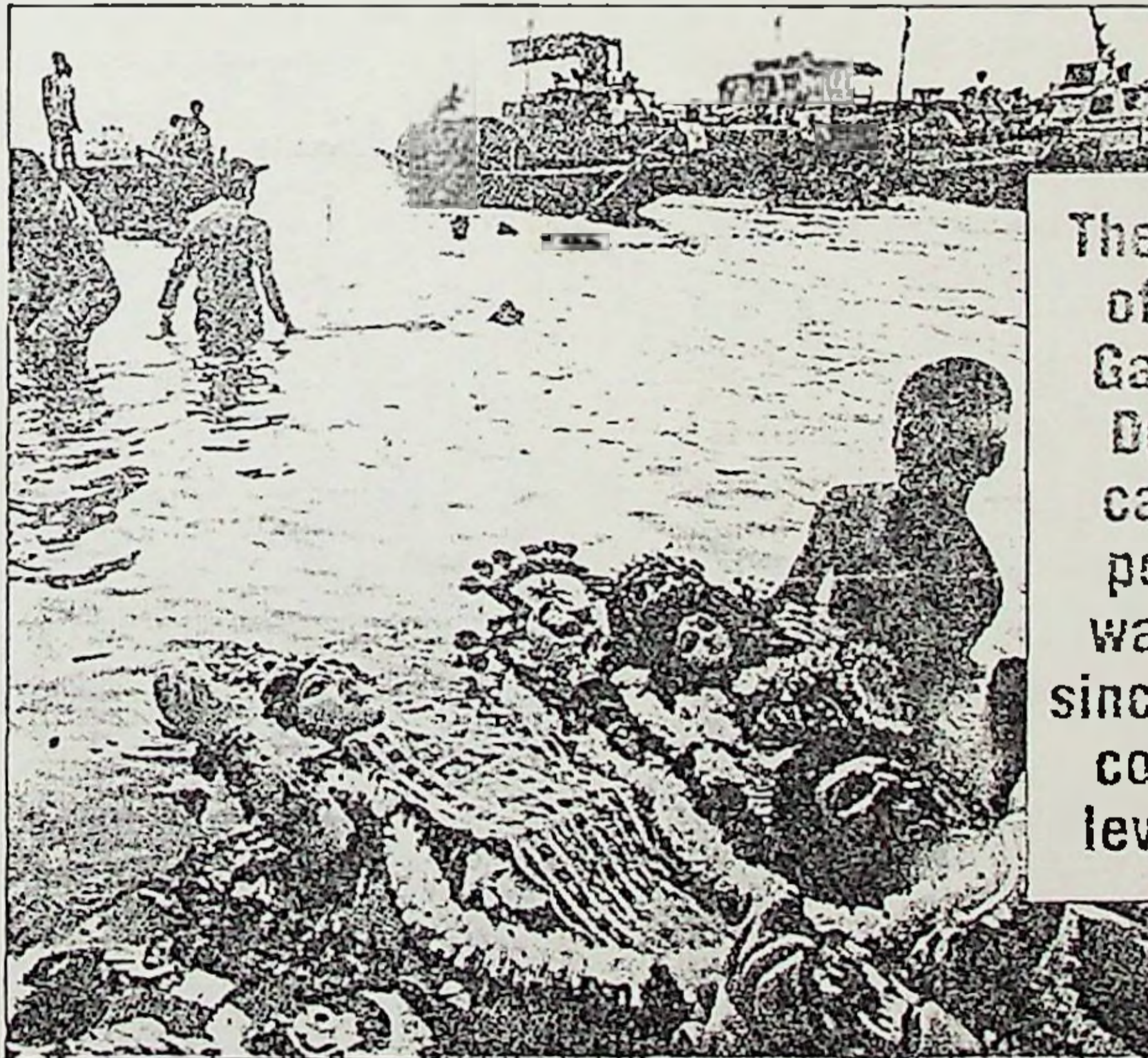
For instance, restrictions have been in force in Delhi for over a year regarding use of unleaded petrol. Yet, the city recorded the highest rate of lead emission: 259 tonnes. But where enforcement of the law is more strict, such as in developed countries, a decrease in vehicular traffic has shown a drop in lead levels in blood.

Will the compulsory use of unleaded petrol clear the noxious fumes enveloping our cities? "That is one way," says Dr H.N. Saiyed, director of the

Ahmedabad-based National Institute Of Occupational Health. "Our studies have shown that rural children have as high a rate of lead poisoning as urban children. The answer lies in ridding our environment of sources of lead poisoning."

At an international conference on prevention and treatment of lead poisoning held in Bangalore recently, some suggestions were made for finding creative solutions which are country-specific and economically feasible.

"One of the problems facing India is curbing of illicit liquor," says Dr Saiyed. "The government spends enormous amount of money and manpower in fighting this. Instead, the answer would



The immersion of colourful Ganesha and Durga idols causes lead pollution of water bodies since the paints contain high levels of lead

YOUNG AND VULNERABLE

Children are most susceptible to lead poisoning

Over 22,000 people across seven cities were tested over two years under the 'project lead-free' programme undertaken by the George Foundation, based in Bangalore. Though the study included adults like pregnant women, workers in the battery and paint industry who are exposed to lead, and traffic policemen, the focus of the study was children. Among those tested were toddlers, slum children, child labourers, and school children in both low and high income groups.

The cities in which the tests were conducted were Delhi, Bombay, Madras, Calcutta, Hyderabad, Bangalore and Vellore. The findings were alarming, to say the least. The percentage of children below the age of 12 with more than ten microgrammes per decilitre of lead in their blood, in the various cities, was as follows: Delhi (64.38); Bombay (29.33); Madras (61.33); Calcutta (57.36); Hyderabad (34.78); Bangalore (31.18). (Statistics for Vellore are not available yet.) Among those above 12 years of age, 26.53 per cent were found to have lead-levels in blood higher than 10 microgrammes/decilitre.

be to convert brewing of liquor into a cooperative endeavour and go in for oxygenated fuel. If even 30 per cent of fuel can come from alcohol, the government will save an estimated 20 per cent of its outlay on import of petroleum products.

Such changes requiring policy alterations may take a while. For now, however, the answer perhaps lies in switching over to unleaded petrol. According to the government's deadline, all vehicles in the country are supposed to use only unleaded petrol from April 2000 with the aim of reducing lead pollution.

But then, haven't we always been generous in making laws and become slack when it comes to implementing them? •

Gauri Lankesh/Bangalore