

# Destroying Our Children's Brains with Lead in Air

by Dr. Naila Z. Khan

*We have been reading reports of extensive arsenic poisoning from drinking tube-well water in many districts of Bangladesh. It is being deemed as an environmental disaster. We now talk about lead poisoning and the long-term implications it has on the brains of many generations to come. Are we going to confront each of these issues as it hits the headlines?*

'PURE air' or 'nirmol pataash' should not contain any lead. And the amount of lead should be 'zero' in our blood. Studies in remote Amazonian rain forest have shown that the more man becomes 'civilised' the more contamination of the environment seems to be taking place. The curse of the petrol-run motor engine has been all-pervasive, especially in the ways that lead from petrol affects the brain development of children. For several decades, western countries have reported both acute and chronic neurological problems in children due to lead poisoning. These problems have now been practically eliminated due to the formulation and effectiveness of laws, such as the Clean Air Act in the USA. To put it simply, most western countries have banned leaded petrol. But a completely different and frightening scenario is unfolding for developing countries, as the race towards 'urbanisation', 'industrialisation' and 'replication of the western development paradigms' continues blindly and without thought about the consequences.

## Dhaka city: highest air lead content in the world

Dhaka city has the highest recorded environmental lead levels in the world. Air lead level is 463ng/m, especially during low-rainfall season, i.e. November to January. In comparison Mexico City, considered by many to be the most polluted city in the world, has an average 349 ng/m. Levels measured in other cities are: 360ng/m in Bombay, 333ng/m in Sydney, 230 ng/m in Santiago and 70ng/m in Los Angeles (M Khalequzaman, et al, 1997).

Is it a wonder then, reader, that we put masks on or cover our noses with handkerchiefs against the haze of petrol fumes whenever we are caught in a Dhaka city traffic? But a small baby cannot even resort to this small gesture. Also the pregnant mother with high lead levels transfers the lead inadvertently to the child growing inside the womb.

## WHO-advocated 'safe' lead levels in blood

The WHO cut-off point for 'safe' blood lead level is 25microgram/dl, above which a person might display evidences of lead poisoning. The situation

is even more acute for children, who are most vulnerable to lead poisoning, especially those who are malnourished and live in inner city slum areas. Chemicals which increase in the blood as a result of lead poisoning are highly neurotoxic, i.e. they cause damage to the brain and other parts of the nervous system; as well as causing some non-neurological symptoms such as severe anaemia. Recently the Centre for Disease Control (CDC) in the USA have lowered 'safe' levels to 10 microgram/dl, as symptoms of lead poisoning has been seen even with blood lead levels between 10 to 25 micrograms/dl. Most such symptoms have been related to children showing evidences of school failure, learning difficulties, behavioural problems etc. Compared to these findings in western countries, the scenario in Bangladesh today is frightening.

## Bangladesh: highest blood lead levels in the region

Average blood lead levels recorded in 93 randomly chosen rickshaw-pullers in Dhaka city was 53microgram/dl (CR Krishna Murti, P Viswanathan, 1991). In comparison, similar studies in cities in India produced the following results: Calcutta 12microgram/dl, Bangalore 20microgram/dl. The average person in Dhaka city is, thus, carrying twice as much lead in the blood as persons living in similar large cities in other countries in the region.

Despite such grave figures, no attempts have been made so far to ascertain what clinical and symptomatic effect this is having on the people of Bangladesh. We have reason to believe that millions of children, the most vulnerable population to be affected by lead toxicity, may be affected by lead intoxication, especially affecting their brains, and producing symptoms ranging from acute and chronic brain inflammation or encephalopathy, to behavioural problems, poor mental development and psychomotor delay.

## Lead poisoning presenting as developmental delay in Dhaka Shishu Hospital (DSH)

The Child Development Centre or Shishu Bikash Kendro (SBK) of DSH is mandated to see children with a range of acute and chronic neurological problems, developmental delay and disabilities. 80% come from very low-income poor families, over half of them living in urban slums and the other half in rural areas. 'Non-specific delay' is a common diagnosis for the children for whom no underlying specific cause can be found. Almost 20% of children are given this diagnosis; most of whom have a combination of 'risk-factors' to account for the delay, i.e. generalized malnutrition, specific micronutrient or vitamin deficiencies for iron, zinc, iodine, calcium, Vitamins A, D, C, etc. Till recently lead poisoning was not a feature in the list of probable causes. We have stumbled upon it almost accidentally.

## How do we suspect lead toxicity?

Lead deposits in the ends of long bones and gives rise to a typical opacity in these areas called 'lead lines'. We have been seeing these suspicious 'lead lines' in many of our neurologically impaired children. Recently, following up on these suspicions, some children's blood was sent to the Chemistry Department of Dhaka University and also to the Atomic Energy Centre, Dhaka, for estimation of blood lead levels. Results obtained from these tests in our laboratory are alarming. All the children had extremely high and toxic blood lead levels, ranging from 90microgram/dl to more than 200microgram/dl.

We are alarmed for several reasons. Firstly, we cannot even begin to gauge the extent of the problems such high lead levels are producing on the brains of infants and children. Very sick children having convulsions, encephalitis, and other acute neurological problems may represent one end of this spectrum.

These are 'overt' symptoms that a clinician, once alerted, may identify. However, most effects of lead are more 'covert'. Poor IQ levels, extremely difficult behavioural problems and learning difficulties, which may produce school failure and high levels of school 'drop-out' rates, are common findings amongst the majority of lead poisoned children.

The identification and treatment of these children may be beyond the scope of any health institution, or for that matter, that of any public health agency. One simply has to then 'sacrifice the generation'. Do we have the right to do so? These children have been poisoned by short-sighted policies of the state, and have the right to demand proper diagnosis and treatment. Secondly, the treatment of lead toxicity is both extremely expensive and extremely hazardous. That brings us back to the only way we have to resolve the problem, i.e. prevention. So the only remedy is to eliminate lead from the environment of the child. It is actually the most achievable goal for us, requiring very specific intervention.

## A holistic solution is required

We have been reading reports of extensive arsenic poisoning from drinking tube-well water in many districts of Bangladesh. It is being deemed as an environmental disaster. We now talk about lead poisoning and the long-term implications it has on the brains of many generations to come. Are we going to confront each of these issues as it hits the headlines? Piece-meal solutions for fighting malnutrition has not worked. One capsule of high potency Vit A capsule cannot be the alternative to a balanced meal for the child. We need to put all our minds and national resources together to find comprehensive solutions. The following are some suggested solutions:

1. Ban leaded petrol from all vehicular emissions. Ironically, Bangladesh imports unleaded petrol but ADDS LEAD to

it, as this is the only method in which lead can be 'refined' in the only oil refinery of the country.

2. Form a holistic and comprehensive environmental policy involving all concerned ministries, including the Ministry of Health. Involve as many academic and democratic institutions as possible, such as the Bangladesh Paediatric Association, the Bangladesh College of Physicians and Surgeons and the Bangladesh Medical Association.

3. Alert physicians to the various problems that the children as well as adult population may suffer as a result of various types of deficiencies and poisonings.

4. Establish multi-disciplinary Child Development and Neurology Services in all national hospitals of the country, similar to the Child Development Centre in DSH involving doctors, psychologists, therapists, social workers etc. It is an achievable task. Similar services has now been set up in Chittagong Shishu Hospital.

5. Conduct multi-centre epidemiological studies for ascertaining the extent of the problem. A caveat for service-providing professionals is not to become a 'lead' person, or a 'zinc' person, or an 'iodine' person, but hold a holistic view about the social and environmental risk-factors in our country when seeing children, or even adults. Otherwise a lot of sparse resources of the family might be spent on unnecessary investigations and treatment.

6. Advocate balanced diet or 'shushum khaddo' for our children, instead of speaking piece-meal about this vitamin or that mineral. It is from the ingestion of 'shushum khaddo' that rich people's children are 'cushioned' from the effects of most deficiencies or poisonings, whilst poor people's children bear the brunt. The same applies for the effects of lead poisoning, i.e. it is more prevalent in inner city poorer children who have very little access to balanced food in their diets.

Even in the event of quick immediate actions, we may have to bear the consequences of such man-made disasters like lead poisoning for many generations to come.

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# The Philosophy of Approach

by A M M Aabad

*Sen's five minimum points of approach for the possible alleviation of physical and economic poverty is a simplification for ready-made and quick mundane applications. The classical theories were sort of floating straws as pointers to deeper and richer meaning of life, to be lived and contemplated upon.*

PROF Amartya Sen, appearing in the recent BTV talk programme, gave some indirect indication how he approached an issue. He was baited during the interview to provide one liners to the economic problems of Bangladesh and available optional prescriptions to possible solutions. The latter are quite elusive in the under-developed countries trying to come up when shown the stick or flag of Human Rights — the right to live decently even at the minimum level of sustenance, when left out of the reckoning, or brought in as for bestowing marginal favours.

The beat of the drum is different by the power mongers: unsolicited service to the poor and the down-trodden in the allusive form of creating or providing options to available entitlements. First, where to sit, then comes the question of providing a stool.

Sen, having dabbled with hypotheses and theories all his life, would not respond to short-cut solutions, and repeatedly pointed out that life was more complicated than compartmentalised solutions. Mathematical notations looked elegant on paper, but not in black and white; that is, when applied with dirty hands on virgin soil. The integrated output of development is more than the sum of the different units; just like a married couple is more than two, or a symbol where duality becomes united, as in the yin-yang principle.

The integrated processes in nature are beyond the thinking capability of the created human mind. As macrocosm is reflected in microcosm, a miniature model is exposed for human study in the form of the complex functioning of the human body, which is the receptacle of something more than mere anatomy and physiology. The thinking and decision-making processes are still vast mysteries to the human experts, as also the effect of the mind on the body, although there are popular theories about cancer, and other modern ailments.

Economics is part of the study of the 'economy of life', a vast integration of all the sciences. The approach to physics changed with the partial unravelling of (the then) peculiar behaviour of minute particles of matter, and the space probes are extending the frontiers of knowledge (some findings are still classified).

New terms are being coined such as 'hyperspace', and the latest trend is to study the implications of chaos conditions, found in nature — order in disorder, and the creation of matter from 'nothing'. Recent discoveries in the behaviour of holography are throwing new light on residual memory configurations and the possible existence of 'akashic records' in space, rather than inside the brain or in inside the 'mind'.

Divine creativity is beyond human ken, but scientists extend the frontiers of knowledge progressively, and not sporadically. There is nothing 'accidental' or 'lucky' in the progress of human knowledge, as new information and data have to ap-

pear in proper sequence for integrated use and for further discoveries or inventions by the human mind.

Sen's five minimum points of approach for the possible alleviation of physical and economic poverty is a simplification for ready-made and quick mundane applications. The classical theories were sort of floating straws as pointers to deeper and richer meaning of life, to be lived and contemplated upon. Higher truths are revealed in small doses, and that too to too few minds; for proper assimilation, before mass dispensation. Mystics and saints have roles to play, for from the maddening crowd's ignoble strife.

Minds like Sen's are noticed as late as in 1998. The focus is on the child; the mother is unobtrusive in the background — the umbilical link. The initial approach to any issue has to be philosophical. Once the philosophy is right, the details will unfold automatically and fit the jig-saw puzzles.

Short-lived solutions (time-scale of the greenhouse effect) are violations of Nature. Modern economics is a product of the human mind, therefore liable to be fallible.

Human civilisations have waxed and waned, based on the basic human concepts. First the concept, then the process, then the product (for the service), before it is time to relax and look around — once Sen's 'entitlements' are in place, just to cite an example. Thank you, Amartya Sen, for the patience to wait.

# Report Outlines Dynamics of Continuing Pandemic

AIDS has been with us for almost 20 years, and has moved out from the shadows firmly into the mainstream of global health, and economic, concerns. As Gemini News Service reports, the latest statistics show signs of stabilisation in some parts of the world — but in the most afflicted areas financial and social barriers mean the picture is still bleak. Mangai Balasegaram writes from London.

IT has been almost two decades since doctors in a Los Angeles hospital picked up a fatal disease that was ravaging the human immune system, yet the human onslaught of AIDS has still not abated.

Despite the enormous scientific and social progress made in the field — the virus and its modes of transmission have long been identified; breakthrough drugs to fight the disease have been discovered; the best prevention methods have been studied in detail — the burden of AIDS still weighs heavily on humanity.

There are 10 per cent more infected people worldwide since a year ago, according to estimates released for World AIDS Day on December 1 last released by the Joint UN Programme on HIV and AIDS (UNAIDS).

"The epidemic hasn't lost any of its steam," UNAIDS director Peter Piot told a press conference in London. This year, says UNAIDS, an average of 16,000 people were infected every day — or 11 people a minute — and half of them were young people, aged between 15 to 24 years.

Women now account for 43 per cent of all infected people over 15 and, as a consequence, 10 per cent of new infections are among children infected from their mothers.

Tragically, 90 per cent of those infected have no idea they

are carrying HIV, the Human Immunodeficiency Virus, and may thus transmit it unknowingly.

But the burden of AIDS is not equally balanced around the globe. Indeed, it rests almost exclusively on the developing world, which is home to 95 per cent of all those infected. In particular, sub-Saharan Africa bears the brunt of the disease, with 70 per cent of all cases. This year, there were an average of 5,500 funerals per day in Africa.

While the epidemic is acute in Africa and rapidly rising in Asia, it has been controlled in Western Europe and Australia — although not yet stopped. These regions have also seen a fall in deaths from AIDS due to the arrival two years ago of protease inhibitor drugs which can seemingly beat HIV in the bloodstream back to undetectable levels.

The fact that these drugs are prohibitively expensive for most people in the developing world again reinforces the fact that AIDS is a disease of unequals.

Indeed, even in North America and Western Europe, the disease is limited to pockets within the populations — ethnic minorities, drug users and homosexual men.

Why are some areas and some countries so much more affected?

Clearly the shape and scale of the disease has nothing to do with biology — because stopping the transmission of HIV involves nothing very scientific — but from dynamics related to society.

Poverty is evidently a factor that fuels the epidemic. Poor countries may be less able to afford to test their blood supply and have mass awareness campaigns.

And certainly, in most countries, it is the poor who are affected most — they are invariably less educated and less able to afford the regular use of condoms or treatment for sexually transmitted diseases (STDs).

STDs can greatly increase the risk of HIV infection by several times. Furthermore, an STD indicates someone having unsafe sex — and therefore a potential HIV infection.

War and armed conflicts, as do movement of peoples, also generate fertile conditions for the spread of HIV.

But all these reasons still don't provide a complete answer to the pattern of the pandemic. They don't explain why some countries are doing relatively well or at least better than before, such as Thailand, Uganda and Northern Tanzania. Sen-

gal has also maintained low infection rates at two per cent.

One of the most important factors, said Piot, was "political commitment at the highest level." Many governments have simply not been committed enough.

Also, there has simply been a reluctance to deal with the problem, particularly because it usually involves commercial sex and drug use — activities that are often clandestine and illegal.

Even when drug users or sex workers and their clients may be the most at risk or at the centre of the local epidemic, governments may still be unwilling to deal with them.

Indeed, they may prefer arresting or criminalising those involved rather than embarking on proven prevention programmes — namely education, condom promotion, provision of sterile injecting equipment and drug treatment programmes such as methadone.

The United States, for example, has long been resisting programmes for drug users such as needle exchange. Indeed, it was only quite recently that UNAIDS started to directly support programmes for injecting drug users (IDUs). Efforts are now being directed towards Eastern Europe, where an explosion of HIV is occurring among IDUs.

But even the most sincere government efforts may not be enough. What may be required is an upheaval of age-old ideas held by men. A briefing issued by Panos, a London-based non-governmental organisation, for World AIDS Day this year concludes that men are at the heart of the problem.

Men are the driving force because "they have more sexual partners than women and because they tend to control the frequency of intercourse."

"It is men's behaviour which determines how quickly, and to whom, the virus is transmitted," the report notes. Indeed it adds: "Without men, there would be no AIDS epidemic."

"Men's behavior is strongly influenced by perceptions of masculinity. Most cultures expect men to be sexually active... Attitudes towards risk-taking lead many men to reject condoms as unmasculine or consider sexually transmitted infections as no more than an inconvenience," the report says.

These same attitudes also lead to experimentation and addiction to drugs, the report says, adding four out of five injecting drug users are men.

The writer is a Malaysian journalist, formerly with The Star of Malaysia.

# "Women Know How to Manage Better"

Involvement of women is on your priority list, Why?

The women in the villages are involved in three basic things — water, fuel and fodder. Along with agriculture, one of the basic goals of watershed development programmes is to help in improving the life of women in villages. It is essential to involve them in something which is a part of their everyday life... empowerment of women is necessary to build up their confidence and give them a sense of financial security. Also, I feel women know how to manage better with minimum resources.

## Did you face any problems while involving the women in the work?

We did face some problems. The villages in those parts are very patriarchal. The women do not have any role in decision-making. Their lives are confined to doing the daily chores and living behind the veil. So in that kind of an atmosphere, getting them out of the house proved difficult.

A lot of people, from politicians and bureaucrats to sarpanches (village chiefs), tried to discourage us. Once a sarpanch from some other village came and threatened the women in a village where they were actively involved in the development programme. The women kept silent the first

*Smita Ghate was assistant collector in Madhya Pradesh's Sagar district from January 1997 to January 1998. She was transferred for taking a proactive stand on the participation of women in rural development programmes. She was also actively involved in the Rajiv Gandhi Mission for Watershed Development. In an interview to Kazimuddin Ahmed, Ghate narrates her experience while working in the villages of Madhya Pradesh*

time. But the next time these men came, they were beaten up by the women. However, after the success of the programme, people have stopped pointing fingers.

## What steps did you take to make the women self-sufficient and financially secure?

We made the women participate in all watershed programmes and enrolled them in the watershed committees. Our first goal was to make them financially independent. We did this by helping them earn money and then saving it. We sponsored nursery development programmes in their own homes. They would tend to the plants which would be sold later to the committee itself. We persuaded them to save money and then forced the banks to collect the money from them. Now, at least, they have some savings and they can use it for their own or their family's welfare.

fare. This also reduced their dependence on the local money lender.

Then we stressed on sanitation facilities. We encouraged the people to have a sanitation system. Initially, the people were not very enthusiastic about it. But they soon understood and started giving importance to it.

## Which agencies have facilitated, encouraged or helped you in your effort?

Firstly, the Rajiv Gandhi Watershed Development Mission itself is very flexible. This flexibility allowed us to work without the old government procedures. This was a government project with a difference. As implementation officers at the local level, we were given the right to take decisions. Then the army and the National Cadet Corps also helped us a lot. The fact that my own boss gave us the space to exper-

iment with new schemes was a major help. And later, of course, the villagers showed enthusiasm and that doubled the pace of work.

## What has been the outcome of these women getting involved in development projects?

The results have been overwhelming. The women acquired a tremendous amount of confidence. They even became better in the technical aspects of the watershed development programmes than most of those involved. And the regeneration of women, both economically and socially, I feel, has been a major success. It has also narrowed the gap between the various castes. Another important aspect is that the bureaucracy has been sensitised. The chief minister later commented, "Yeh mahila jagriti ki ek abdhut misal hai" (It is an extraordinary example of the awakening of women).

# Hunger Strikers Set New Record in Rio

by Mario Osava

FIVE Chileans, two Argentinians and a Brazilian serving time in Brazil for the kidnapping of a prominent local businessman reached the 37th day of a hunger strike on December 22, making their fast the longest in Brazilian history.

The eight fasters are now in serious risk of dying, according to the doctors attending them. They have already been admitted to the Clinicas Hospital in Sao Paulo, and the three weakest are receiving mineral salts to prevent cardiovascular damages.

The group's leader, Argentinian national Humberto Paz, has already lost more than 20 kgs, while the rest have shed upwards of 14 kgs. Nevertheless, they are threatening to suspend the consumption of water, and say they will continue fasting until the government addresses their demands.

"Without freedom the fast will not end," said Breno Altman, spokesman for the group

and the head of a committee fighting for the prisoners' release in Sao Paulo, Brazil's largest city.

Only a decision by President Fernando Henrique Cardoso could prevent death by starvation, because a legal solution would take too long, according to Altman and Paz.

The hunger strikers, who have the support of not only the committee but also a number of human rights groups, are demanding deportation as a form of release for the foreign nationals and a pardon for Brazilian citizen Raimundo Rosello Costa Freire.

The hunger strike has already broken the nation record of 36 days set in 1972 by a group of political prisoners who were fasting to avoid being transferred to other prisons and dispersed. At that time, the country was in the grips of a military dictatorship.

The eight kidnappers have

been in prison in Sao Paulo since late 1989, when they gave themselves up to police, after the house where they were holding hostage Abilio Diniz, the owner of Pan de Azucar — Brazil's top chain of supermarkets — was discovered.

The kidnapping was staged to obtain funds for the guerrillas of El Salvador. The kidnappers, who had links with Chile's Movement of the Revolutionary Left (MIR), demanded a 30-million-dollar ransom.

Two other members of the group, a Canadian couple, were transferred to their country last month. But the Chilean and Argentinian prisoners cannot be transferred as bilateral accords on that procedure are still pending parliamentary approval.

The courts consider the eight fasters common criminals, despite the political motives underlying the kidnapping. Sentenced to 26 and 28-year terms, and with nine already com-

pleted, the kidnappers should be eligible for day release under which they would only return to the prison to sleep at night or probation.

But the courts have denied them that right, arguing that it does not apply to foreigners without work permits.

At the Southern Cone Common Market (Mercosur) summit held two weeks ago in Rio de Janeiro, Chilean Foreign Minister Jose Miguel Insulza charged that the denial of that right entailed discrimination against foreigners. During the gathering, Insulza met with local authorities to come up with alternatives to the release of the Chilean prisoners.

No one convicted in Brazil of a kidnapping which did not lead to death has ever been treated with such inflexibility, argue both Insulza and the prisoners' lawyers. The Brazilian, Costa Freire, was also denied legal benefits due to his links

with the others.

The courts are now deciding whether to reduce the sentences to between 15 and 18 years, which would make the refusal of probation even less justifiable. But the legal proceedings are long and involved, and will be delayed by the legal recess that lasts until February.

President Cardoso drew fire from the Sao Paulo courts when he blamed them two weeks ago for delaying the decisions that would allow the kidnappers to be released on probation.

The fasters, however, pin the responsibility on Cardoso, arguing that only a "political decision" could prevent a fatal outcome to the hunger strike — a possibility that is beginning to worry the government.

The group of prisoners is comprised of militants of radical leftist groups, some of which had already been defeated when the kidnapping was carried out

in solidarity with the Salvadoran left.

In December 1989, on the eve of presidential elections in Brazil, Humberto Paz recognised the kidnapping as an error.

The operation hurt the chances of leftist presidential candidate Luiz Inacio da Silva, a former metal-worker defeated by Fernando Collor de Mello — who was impeached in 1992 on corruption charges.

The current hunger strike is Paz's third. He first fasted while a political prisoner in Argentina. Last April the eight kidnappers called off a 16-day hunger strike upon receiving promises for a legal solution to their demands for day release.

But authorities' failure to comply with that pledge triggered the new hunger strike and the decision to continue fasting until death or release through deportation and pardon.

— IPS/APB

