

## **Lead poisoning: And how are the children? THINK GLOBALLY, ACT LOCALLY**

**Howard Mielke**

Good morning. “Muli bwanji?” In Chinynanga, this is the greeting in the area of Africa I lived as a Peace Corps Volunteer. Roughly translated it means, “And how are the children?” In US inner cities the children aren’t well. They have learning difficulties and serious behavior disorders.

### **UU Principles**

- **\* The inherent worth and dignity of every person;**
- Justice, equity and compassion in human relations;
- Acceptance of one another and encouragement to spiritual growth in our congregations;
- **\* A free and responsible search for truth and meaning;**
- The right of conscience and the use of the democratic process within our congregations and in society at large;
- **\* The goal of world community with peace, liberty, and justice for all;**
- **\* Respect for the interdependent web of all existence of which we are a part.**

The toxicity of lead has been known for many years. **Benjamin Franklin, after reflecting on personal experience and many discussions about lead and its relation to nervous disorders that dated back to 1726 in Europe and America, wrote in 1786: “You will see by it, that the Opinion of this mischievous Effect from Lead, is at least above Sixty Years old; and you will observe with Concern how long a useful Truth may be known, and exist, before it is generally receiv'd and practis'd on.”**

It is now known that the toxic effects of lead poisoning were also understood by the Greeks and Romans.

I draw on my personal experience to think globally and act locally on lead poisoning in society, and especially in New Orleans.

### **THINK GLOBALLY, ACT LOCALLY**

When my daughter Beverly became lead poisoned in 1983, I was shocked into focusing my life work on applied research on metal chemistry of urban environments. I followed Beverly during several days and took dust and soil samples at every place she visited. My major finding was that the sandbox at her childcare center was severely contaminated with lead. In cooperation with the childcare center owner, the sand was replaced and indoor/outdoor carpet was placed on the bare areas around the sandbox. Within weeks Beverly’s blood lead levels dropped below the guideline at that time. There are many consequences to lead poisoning.

Children’s sensitivity to lead dust is due to their hand-to-mouth behavior that is universal behavior among young children. It is also recognized that the neurotoxic impact of chronic early childhood lead exposure is associated with learning deficits, socialization failure and violent behavior.

Beverly’s childcare center was close to a major highway. After my experience with Beverly’s lead problem I had nightmares about the lead poisoning of all children from vehicle exhaust. This issue clearly required attention.

I need to back up nearly a decade to 1976 and the Baltimore beginnings of my urban research. The 1970’s scientific literature suggested that lead-based paint was the primary cause of lead contamination of soil. In Baltimore I expected that the pattern of lead in soil would be in synch with the pattern of the use of lead-based paints on homes. I found exactly the opposite of what I expected. In the inner-city where there were predominantly brick buildings, the garden soils were

severely contaminated with lead; in outer areas of Baltimore where the wood homes were coated with lead-based paint, the soils were much less contaminated. There must be another source of lead that was contaminating the inner-city. What was the source of the lead? I decided to investigate the amount of lead in gasoline. My search revealed that in the U.S., millions of tons of lead were being added to gasoline. Did vehicle exhaust of lead dust contaminate the soils? Did this source of lead dust have anything to do with the childhood lead poisoning epidemic in inner city Baltimore? My research provided convincing answers to these questions. My metals map of Baltimore garden soils is now recognized as pioneering research in urban geochemistry.

Thus, in 1983 when Beverly was exposed I was already well versed on the sources and toxic consequences of lead poisoning. I focused my attention on the amount of lead in gasoline and found that leaded gasoline made up over 90% of the atmospheric lead emissions in Minnesota.

I brought my findings and concerns to the attention of my representative in the Minnesota State Legislature. Local action began when the Minnesota Legislature became interested in the soil lead issue and decided they would prevent further lead contamination by banning the use of lead as an additive to gasoline in Minnesota. The legislature ran into a legal roadblock because it was against federal air pollution laws for any jurisdiction in the U.S. to regulate the kind and amount of additives to gasoline. Only Congress or the EPA could ban lead additives to gasoline. Thus, acting locally was not an option. To act locally required changes at the federal, or global level.

The Minnesota Legislature also tried to add a penny tax to gasoline to provide a cleanup fund to remedy accumulated lead in the inner cities of Minneapolis and St. Paul. On the day the new fuel tax bill was supposed to be signed into law by the Governor, the bill was killed by lobbyists paid for by the petroleum and lead industry. In frustration, the Minnesota Legislature petitioned Congress to ban leaded gasoline. A Senate hearing was set for June 22, 1984 and I was invited to testify to ban lead additives in gasoline on behalf of the children and citizens of Minnesota. There are consequences to deeper knowledge about the lead problem and to individuals who try to do what needs to be done. Taking on the lead issue is also taking on the CEO's and the boards of directors of some of the largest corporations in the world (GM, National Lead Industries, oil companies, etc.) whose primary interest is protecting stockholders and profits.

The hearing room at the capital in Washington, D.C. was crowded and chaotic. I had trouble delivering my written materials to the Press table. When I was offered assistance I gave my materials to an unknown person who said they would take them to the Press table. The person turned out to be a lawyer representing the Ethyl Corporation who, instead of properly delivering my documents to the press, took them out of the hearing room. I was furious but could not do anything about it. My testimony was halted by my irate Senator who accused me of not supporting the Senate version of the legislation. This was true but the Senate version of the bill postponed the ban for over a decade into the late 1990's. When I returned to my seat I was terribly distressed because I felt I had not done enough for the cause for children by banning lead additives. The next person to testify was a representative of Ashland Oil Co. It seemed hopeless. But, to my utter amazement, he threw down his prepared testimony and stated that his company agreed with me. Ashland oil had invested millions of dollars to produce unleaded gasoline; and because leaded gasoline remained in the marketplace his company was losing millions each month to mothball unleaded fuel refining capacity. The monetary losses by the oil company, not the plight of children, won the argument at the Senate hearing on that June day.

The outcome of the hearing was that lead was banned as an additive to gasoline on January 1, 1986. Between 1982 (before the ban) and 1988 (after the ban) the number of lead poisoned children dropped by nearly 90% from 15 million per year to less than 1 million per year. However, although

there has been a steady decline in blood lead, the scientific understanding about its neurotoxic effects on the human brain are noted at evermore decreasing lead exposures. This is not a new idea. It was eloquently expressed in 1980 by geochemist, Clair Patterson in a National Academy of Sciences report entitled "Lead in the Human Environment."

**"Extrapolating from present information, it ... seems probable, ... that it will be shown in the future that average American adults experience a variety of significant physiological and intellectual dysfunctions caused by long-term chronic lead insult to their bodies and minds which results from excess exposures to industrial lead that are five hundred-fold above natural levels of lead exposure, and that such dysfunctions on this massive scale may have significantly influenced the course of American history."**

In 1989 I moved to New Orleans for an environmental toxicology position in the College of Pharmacy of Xavier University. I reestablished my environmental chemistry and mapping activities and the results of my work continue to demonstrate the horrible price of lead poisoning of the children of New Orleans. Pre-Katrina there were a number of communities where half of the children were lead poisoned. Learning deficits and violence are indicators of the severe impact that lead exposure has on the human population. The estimated annual costs of poisoning are at least \$76 million in New Orleans. The map of New Orleans soil lead shown on the program is essentially the same as the blood lead map and the learning achievement deficit map. All indicators are in the same direction. High lead in the environment results in high lead in children's blood and low school achievement scores.

What local actions can be taken to prevent the continuation of excessive lead exposure by children in New Orleans? New Orleans has abundant clean, low metal mud eroding from some of the most fertile lands on the planet and carried by the Mississippi River as sediments at the rate of 300 tons per minute. It accumulates in the Bonnet Carré Spillway and is regularly dredged and wasted. I conducted a successful pilot project to cover contaminated soils with clean river mud.

A couple of years ago, I was invited to present my urban soil contamination research to the Norwegian EPA. The New Orleans research that I conducted and published over the past 20 years provided the scientific basis to establish Norway's National Clean Soil Program. The program focuses on soil cleanup at children's daycare centers, elementary schools and playgrounds.

## **ACT LOCALLY**

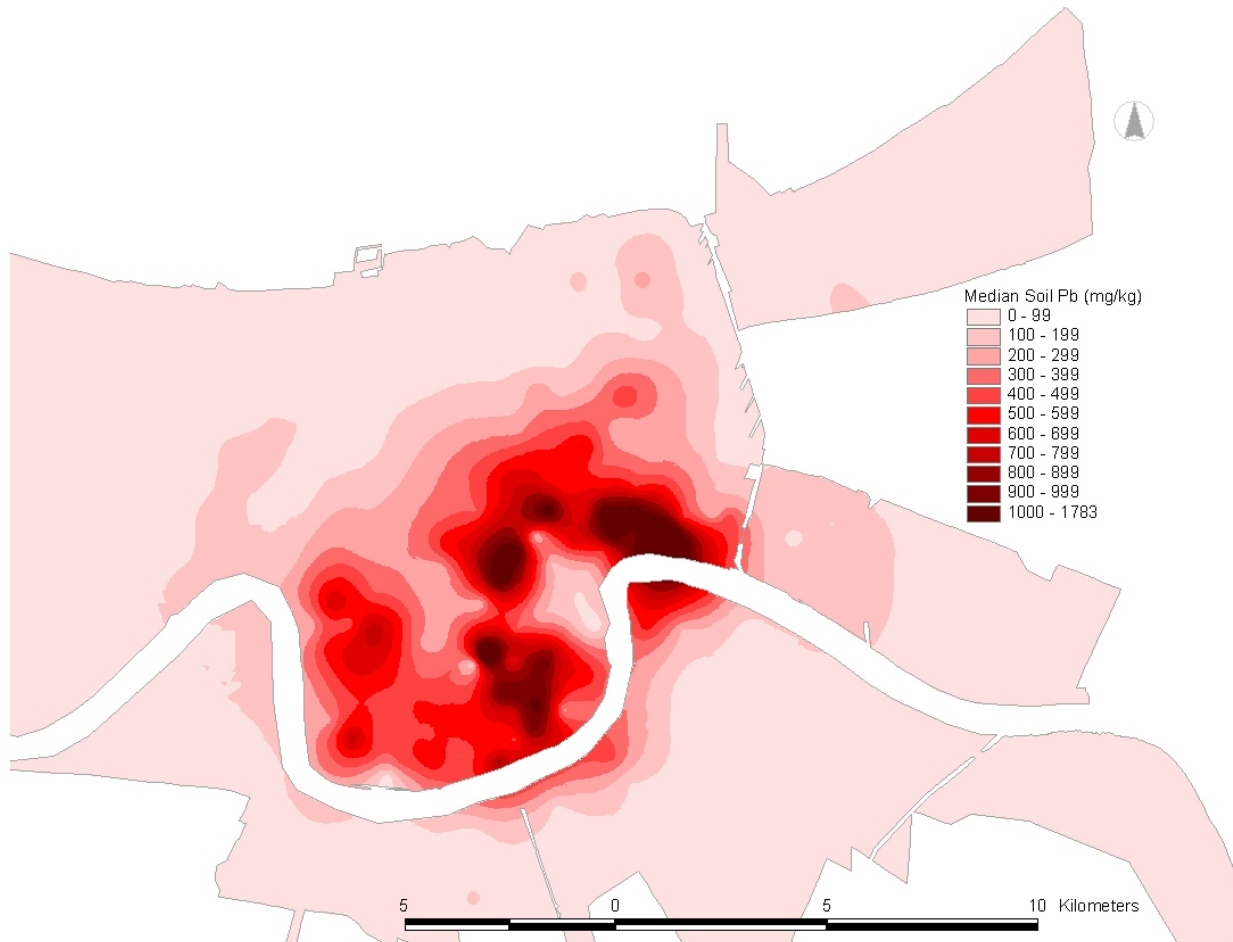
It is now time for the research conducted on the lead contamination of New Orleans to benefit the children of New Orleans. It is the responsibility of adults to make sure that play environments are safe for children. Young children have no possibility of creating lead safe environments for themselves. Tina and I have a "shovel-ready plan" for a "Lead-safe Lots for Tots" and lead education program at childcare centers in New Orleans. The purpose of this green collar project is to change the map for the youngest children living in the high lead areas of the city (see the map on the order of service cover) and reduce the amount of lead poisoning during the most vulnerable stage of development. We are seeking resources to undertake a program to tackle the rampant lead poisoning in New Orleans, and we welcome all assistance to establish this program. As my colleagues in Norway say, "If a community is not safe for children then it is not safe for anyone." There are many ways to make the environment safer for children.

Another program to improve the environment for children of New Orleans is the Fundred Project by conceptual artist Mel Chin. To raise interest about the plight of New Orleans children, he is taking the issue to school art classes across the nation. His team is currently gathering 3 million Fundred dollar bills drawn by children that he plans to deliver to the steps of Congress for the

purpose of exchanging 300 million Fundred for a \$300 million program to deliver clean soil and cover the most contaminated communities of our city.

Many people are contributing to set precedence for the nation by promoting action during the renewal of New Orleans to make this city a more environmentally healthy, just and humane society. If we accomplish this task we can reply to the African greeting “Muli Bwanji – and how are the children?” with the response “Indili bweno,” the children are healthy and full of life.

**I end with a final quote of Rene Dubos, French-American microbiologist, author of a maxim THINK GLOBALLY, ACT LOCALLY. “The problem [of lead poisoning] is so well defined, so neatly packaged, with both causes and cures known, that if we don't end this social crime, our society deserves all the disasters that have been forecast for it.”**



**Map of Lead in New Orleans Soil lead, blood lead and school achievement are all strongly correlated with each other. The higher the soil lead in a community, the higher the blood lead of the children living in the community, and the lower their 4<sup>th</sup> grade school achievement scores.**

**Airborne Lead Reduction Act of 1984.**  
Hearing before the Committee on  
Environment and Public Works.  
United States Senate, Ninety-Eighth  
Congress, Second Session on S.2609.  
A Bill to Amend the Clean Air Act With  
Regard to Mobile Source Emission Control.  
June 22, 1984.

Pages 44-46.

**STATEMENT OF DR. HOWARD W. MIELKE, DEPARTMENT OF GEOGRAPHY, MACALESTER COLLEGE, AND MEMBER OF THE LEAD COALITION OF MINNESOTA**

Dr. MIELKE. Thank you very much, Mr. Chairman. I am Howard Mielke. I am a teacher, a researcher, a parent, an urban citizen. I represent the Lead Coalition. I appreciate the opportunity to appear before this committee to discuss our understanding of the seriousness of the lead problem.

The Lead Coalition is an organization that represents a number of civic and environmental groups and individual citizens in Min-

nesota. The group formed when it became clear that the need for a low-lead environment for our children was not being met. We are parents and adults who speak for the children in our society who cannot speak for themselves.

I will summarize my statement by making three points concerning lead in the city, urban lead and children, and the urgency for acting immediately to ban the major aerosol source of lead: leaded gasoline.

My first point is that the current combination of public highways and the use of leaded gasoline causes an accumulation of lead in the heart of our major cities. I have with me some soil samples from play areas in Minneapolis in an inner-city community called Cedar Riverside. But these soils could be from Manchester, VT; Boise, ID; Seattle, WA; Dallas, TX; or Fargo, ND—every major city in the United States.

The samples came from a densely populated area, an urban community that has very high traffic flows through it. And in the appendix to my statement I compare these samples from Cedar Riverside with some samples that were collected around a community with a lead-producing plant, also in Minneapolis.

The State of Minnesota cited the lead plant because it was contributing too high an air emission to the environment. Yet when you look at the ambient environmental lead levels, you find that the inner city has twice the levels as were found in the neighborhood of the lead plant.

Why has this happened? In Minnesota we have around 10,000 pounds of lead aerosols from secondary smelters and producers per year which is being controlled by the State.

By comparison, motor vehicles emit 2 million pounds of lead aerosols in Minnesota per year. These aerosols are subject to Federal laws and the State and municipalities are prohibited from doing anything about them.

Minneapolis receives about 300,000 pounds of lead aerosols per year from vehicle exhaust. The amount of lead aerosols in Minnesota—and in fact, 28 other States—increased in 1983 as a result of changes in Federal standards. The increase in Minnesota was 15 to 20 percent.

So who is being protected by the present law and the present standards? In Minnesota, we can do something about lead aerosols emitted from secondary smelters, which are very small, but we can't do anything about the enormous emissions from the major source, lead aerosols from gasoline.

My second point concerns 300,000 pounds of lead aerosol dust per year affect the people of the city.

Senator STAFFORD. You have about 1 minute remaining.

Mr. MIELKE. Not all people are equally sensitive. Children are the major victims. And it turns out that very small amounts tenths of grams—of this soil from play areas of Minneapolis can potentially create serious health problems to children who regularly play in these soils and suck their thumbs.

All children are vulnerable to exposure, and one of the situations we find, for example, is that children love parades. On June 2, my family and I went to a parade along Grand Avenue, which is a very heavily traveled avenue. The children sit on the curbside, and

watch the floats go by. Candy and bubblegum one thrown from the floats. And thus we find children with very sticky fingers sitting on the curb with their hands constantly going back and forth, between their mouths and the ground. The soil lead levels of Grand Avenue are on the order of 500 to 1,000 parts per million.

So what we start out with as fun and frolic, ends up being a tragic situation where children are being exposed to lead aerosols that have accumulated in the city.

My third point is that because children are most sensitive to lead during the first years of life, waiting 4 more years to ban leaded gasoline will expose another generation of children to excessive lead levels. Since the learning ability of thousands of children and future citizens are being decreased by lead, there is some urgency to acting sooner.

Senator STAFFORD. Could you summarize quickly?

Mr. MIELKE. Yes. In summary, I want to say that the city has a serious design flaw that causes lead to accumulate in it; that the major source of new lead aerosols are leaded gasoline; that Federal law prohibits States and cities from controlling these lead sources; that children, urban children are at the greatest risk; that as a result of the excessive exposure to lead, children are being robbed of a major resource, their health and their mental abilities; that there seems to be no engineering or economic justification to keep lead in gasoline.

The needs of the children of our society should take precedence in order to have a bright future. And with that, I would close my statement.

Senator STAFFORD. Thank you. Thank you very much, Dr. Mielke.



*Thanks, Howard -  
with your help  
we're "getting  
the lead out!"  
Steve Deeninger 12/5*