

Editorial

by Anne Roberts

This issue of LEAD Action News coincides almost exactly with the twentieth anniversary of the genesis of The LEAD Group.

We begin with an article, in the form of question-and-answer, written by Dr Chrissie Pickin, Deputy Director of Public Health in Tasmania. Dr Pickin raises various objections to our last newsletter, LANv10n4, which was mainly devoted to the mining town of Rosebery.

Noela Whitton's article, written in 1993, but never published, is an interview with Elizabeth O'Brien, a founder and now President of The LEAD Group.

The next article, "What became of?" ... answers some of the questions posed by Michelle Calvert, arising out of Noela Whitton's article. Calvert is Vice-President of The LEAD Group, and was Education Officer at the time when The LEAD Group had full funding.

Next is my article on Elizabeth and The LEAD Group twenty years on, which attempts to pick out milestones in the 20-year history of The LEAD Group.

Elizabeth O'Brien has done an [18-year review](#) of The LEAD Group's aims and objectives, originally formulated in 1992. (See also the 2002 review of progress: [Ten Year Review of Objectives](#))

In our Letters section: "To and Fro," Susy Retnowati comments on a Report, "Lead poisoning in Indonesia," by Suherni. (The Report can be found at

www.lead.org.au/Lead_poisoning_in_Indonesia_20100905.pdf

www.lead.org.au/Keracunan_Timbal_di_Indonesia_20100916.pdf (In Indonesian.) There is an

extract from a letter by Professor Tony McMichael on lead in polar ice caps, and a long letter by Elizabeth O'Brien to the NHMRC, on re-setting the blood lead level goal.

- There are two articles which deal, in different ways, with the concept of "Peak Lead". (An expression with which you may not be familiar, but you will have heard of "Peak Oil.") The same concept, as proposed by Hubbert in 1956, applies – namely, "that after fossil fuel reserves ([oil reserves](#), coal reserves, and natural gas reserves) are discovered, 'production at first increases approximately exponentially, as more extraction commences and more efficient facilities are installed. At some point, a peak output is reached, and production begins declining until it approximates an exponential decline.' " [Wikipedia]
- Given the toxic potential of lead, one could perhaps imagine that it might be a good thing for lead production to have past its peak, but Gavin Mudd's article makes it clear that this is not so: "As grades decline, energy costs increase and so do greenhouse gas emissions and water requirements, plus more mine waste is produced such as tailings (rock remaining after lead-zinc extraction, normally some 80-90% of the ore), plus any waste rock produced from open cut or underground mines."

Ian Smith goes into the question of "Peak Food": "Our position is one of reducing fuel energy available for food transport (which will result ultimately in reduced food) and significant & increasing heavy metals contaminants in soils where we may grow our own vegetables."

Those living in the suburbs can supply some of their own food, whilst being aware of the possibility that the soil in their backyards is contaminated by lead for one reason or another. Smith ends on an uplifting note: "Undoing the globalisation years with an effective return to an efficient, localised food production system is a clear and present imperative. If ever you needed a better reason to get back to the garden, this is it. Just be sure the soil isn't suffering from past follies, so that you don't create more."

So, start digging, and, if you're lucky to have a local hardware shop (mine is about to close after more than 30 years, to be inevitably replaced by damned units, and more cars on the road - do I sound bitter?); if you have a local hardware shop, I say, support it. Diversity. It's one of the elements of sustainability.

Finally, in case you haven't quit smoking yet or, if you need ammunition to convince health departments to include lead information in their anti-smoking campaigns, check out the following conclusion [and graphic] of one of our most expansive and wide-ranging researchers, Robert Taylor, from his next factsheet – our 65th factsheet:

Cancer Patients Aid Association (CPAA) anti-smoking ceiling posters made for smoking areas - showing mourners at a funeral. Ad by Everest Brand Solutions, Mumbai, India

www.ineverest.com

(Source:

Advertising/Design

Goodness Blog by

Freddy Samuel,

www.frederiksamuel.com/blog/images/cpas.jpg

g 21/06/06.)



“In summary tobacco smoking has clear impacts on cancer risk, cardiovascular problems and neurocognitive development. Lead plays a clear and major role in cardiovascular problems and less easy to quantify role in neurocognitive or behavioral problems, partially because these can cover such a wide range. It plays a definite though probably not decisive role in smoking-related carcinogenesis, predominantly through the radiation released by the radioactive lead in cigarettes (Pb-210) as it decays to Polonium within the lung. Tobacco smoking increases lead toxicity both by the absorption of lead through the lung and by accelerating the release of lead from the bones. It restricts the body's reaction to lead toxicity by restricting the availability of key vitamins. The overall effect of smoking is to increase both the body's lead burden and exacerbate lead's impact.”

Tasmania's Department of Health and Human Services' Dr Chrissie Pickin replies to the contents of [LEAD Action News volume 10 number 4](#)

*By Dr Chrissie Pickin, Deputy Director, Public Health, Dept of Health & Human Services (DHHS)
Tasmania. Edited by Anne Roberts*

[Editor's note: The questions, as well as the answers, were written by Dr Pickin and her colleagues (with a few slight changes by the Ed.). Dr Pickin has been invited to guest edit the next issue of the newsletter and The LEAD Group President has been engaged in correspondence with Dr Pickin about some statements in this article. The LEAD Group, through LAN Editor-in-Chief, will invite further contributions in subsequent newsletters regarding claims and counter claims. There is a suggestion, in some articles in LAN vol 10 no. 4, that government-appointed experts do not have the necessary background. The LEAD Group is not in a position to adjudicate between the claim in the following article that, though some residents do appear to be sick, it's not due to heavy metals, and the reverse claim, asserted in LAN vol 10 no. 4, that their sickness is due to heavy metals. The LEAD Group began as a community-based group established to campaign on lead and health. It quickly became an environmental health NGO, offering free advice and information on the subject. We are not connected to industry, nor do we represent any government department. Our sympathies may naturally lie with community groups, but it would be counter-productive as well as unethical to suppress the truth. Therefore we maintain, in the case of Rosebery, that what is at issue is the facts, insofar as they can be ascertained.]

Dr Pickin, who are you, what is your role, and why have you agreed to answer questions about the claims of a group of Rosebery residents?

I am the deputy director of public health in Tasmania and the executive director of the Public and Environmental Health Service which has led the investigation into claims by a group of Rosebery residents that they have been poisoned by heavy metals. I arrived in Tasmania in November 2008 and was asked to lead the investigation into these complaints. I am originally from the UK and was brought up in a small coal mining town. I wanted to be interviewed for the newsletter, as, although I have respect for a lot of the work of the LEAD organisation, I was shocked and concerned at the misinterpretations and inaccuracies in the last edition "Heavy Metal Poisoning in an Australian Town – the View from the Trenches" I therefore felt it was important to contribute to this publication to ensure the public record is accurate.

What are the inaccuracies that concern you most?

The most important one is the repeated reference to "poisoned Rosebery Residents" and even the title containing the phrase "Heavy Metal Poisoning". Three independent national toxicological experts from Victoria and WA have confirmed that none of the concerned residents have any clinical evidence of poisoning. In addition they all concur that there is no evidence of them having absorbed metals at any level likely to cause harm- alone or in combination. So there is no proven poisoning in Rosebery despite the previous article unfortunately stating that this is as fact. www.dhhs.tas.gov.au/_data/assets/pdf_file/0014/61403/Dr_Braitbergs_report_FINAL_POST_REVIEW_-_for_summarising_and_pdfing.pdf

www.dhhs.tas.gov.au/_data/assets/pdf_file/0013/61402/Frank_Daly_report_Rosebery_23022010_-_summary_for_pdf_version.pdf

But what about the diagnoses made by Dr Ernst?

I know that Dr Ernst was trying to help these residents when he made these diagnoses. The two clinical toxicologists who reviewed Dr Ernst's diagnoses disagreed with his diagnoses and expressed concerns about his methodology including that he did not verify the reported symptoms; he used an inappropriate, unvalidated questionnaire that may have 'prompted' patients, he did not physically examine the patients nor did they all receive follow up with appropriate investigations.

These concerned residents do appear to be ill – so what else is causing their symptoms?

Yes, some of these people are clearly unwell and it is vital that they receive the care they need. Obviously it is not possible for me to speak about individual cases because of medical confidentiality. Contrary to what was said in the previous newsletter, four out of the five original concerned residents were fully investigated by consultant physicians with the fifth refusing medical assessment. Through the good offices of Dr Ernst, a small number of others have been referred for further assessment and in some cases other conditions – unrelated to heavy metal exposure - have been identified. It is vitally important to us that these people receive the care they need and we have continued to try to facilitate that through close liaison with their GPs and Dr Ernst.

But the newsletter showed the results of bio-monitoring tests that showed high levels of arsenic, cadmium and copper in the urine or blood of these residents. Surely that's not normal?

I understand that results like these can appear very alarming but actually they can be completely normal. A non-toxic form of arsenic called arsenobetaine is found in the urine of people who have eaten certain foods e.g. fish or seafood; cadmium is increased in the blood of smokers and blood copper can be raised during pregnancy and if someone is taking the oral contraceptive pill or hormone replacement therapy. All the elevated bio-monitoring results from these residents have been assessed and found not to be indicators of environmental heavy metal poisoning.

[www.dhhs.tas.gov.au/ data/assets/pdf file/0003/56334/exec summary for release.pdf](http://www.dhhs.tas.gov.au/data/assets/pdf_file/0003/56334/exec_summary_for_release.pdf)

[www.dhhs.tas.gov.au/ data/assets/pdf file/0013/61402/Frank Daly report Rosebery 23022010 - summary for pdf version.pdf](http://www.dhhs.tas.gov.au/data/assets/pdf_file/0013/61402/Frank_Daly_report_Rosebery_23022010_summary_for_pdf_version.pdf)

[www.dhhs.tas.gov.au/ data/assets/pdf file/0014/61403/Dr Braitbergs report FINAL POST REVIEW - for summarising and pdfing.pdf](http://www.dhhs.tas.gov.au/data/assets/pdf_file/0014/61403/Dr_Braitbergs_report_FINAL_POST_REVIEW_for_summarising_and_pdfing.pdf)

Surely something's going on- what about the high levels of cancer in the area that the newsletter reported?

Actually, despite what the newsletter said there isn't a higher rate of cancer in the Rosebery area. The latest report of the Cancer Registry shows that the standardised cancer rates for the West Coast Council (the local government area in which Rosebery sits) are exactly what would be expected for the local population.

But there are high levels of heavy metals in the area?

Yes that's true. The Rosebery mine is one of the oldest in Tasmania and the area is naturally highly mineralised. It's worth remembering that in the early days the ore body was only found on the surface as there wasn't the sophisticated exploration equipment we have today. So yes, it has always been known that Rosebery has high levels of lead in the soil in some parts of the town. But the latest newsletter gave a false impression of how widespread and high these were. It indicated only the highest levels found in one spot, not the averages and not adjusted for bio-accessibility (the amount available to be absorbed by the human body). An interesting issue is that the high levels are very variable and patchy- where some areas, some backyards, some parts of backyards have elevated levels but these are side by side with areas, backyards and parts of backyards that

have low levels. This probably comes from the fact that we know that in the past waste rock from this and other mines was brought in to the town and used as “fill”.

High levels mean high risk so it's inevitable that harm will be caused by lead surely?

Certainly there is a potential lead hazard in Rosebery. But lead in the soil can only cause harm if it gets into the body and is absorbed at a level that causes damage to organs. However we have been monitoring the situation for many years and the indications are that little is entering the body or being absorbed. A recent review of all blood lead tests on Rosebery residents (www.dhhs.tas.gov.au/data/assets/pdf_file/0016/61405/Blood_Lead_Levels_in_Rosebery_fact_sheet.pdf) has identified that in the period from 1st January 2008 to the end of April 2010, 504 adults (392 men and 112 women) and 29 children from Rosebery were tested for lead exposure. The majority of this testing obviously relates to the occupational testing of miners. The mean lead level of all adults was 7.5 µg/dL (and over half have 6µg/dL or under). The range was 1 µg/dL to 30 µg/dL. 116 had blood leads, in at least one point in time blood leads, over 10 µg/dL but 111 of these were known to be occupationally exposed. For adult females the mean was 2.9µg/dL with one above 10 µg/dL (known to be occupationally exposed). For 29 children (age range 3 months to 15 years) the mean blood level was 3.0µg/dL. This result includes the results of two children whose property was contaminated following a concentrate spill. If we exclude the average of their results the mean is reduced to 2.6µg/dL For the 13 children under 6 the average was 2.9µg/dL. In a survey of under 6 years olds carried out in 1998 the mean blood level in children was 7.04µg/dL – meaning that average blood lead in Rosebery young children appears to have fallen by 59% in the last decade.

There are many Australian mining areas which would strive to have these levels of community results. In Rosebery the results of these tests should come as reassuring news. However there are still some people in our at risk group (1 child and 7 women of childbearing age) above 5 µg/dL so we want people to know that we are not content to leave this issue without further attention – we want the individual and average levels to be even lower.

What is a safe level of lead?

I guess it's fair to say that there is no acknowledged safe level and that the lower the better. In August 2009, the NHMRC made the following [RECOMMENDATIONS](#):

- All Australians should have a blood lead level below 10 µg/dL (micrograms per decilitre).
- All children's exposure to lead should be minimised.
- All women are advised to minimise their exposure to lead both before and during pregnancy and also while breastfeeding.

In Tasmania lead levels above 10µg/dL in those not known to be occupationally exposed to lead are notifiable by the pathology laboratory.

(www.dhhs.tas.gov.au/data/assets/pdf_file/0003/53319/Notifiable_Diseases_Guideline_FINAL_Feb_2010.pdf)

The Public and Environmental Health Service thoroughly investigates anybody without known occupational exposure with a blood lead above this level. We aim to have all children and women of child bearing age at a level of 5 µg/dL or below. We appear to be well on the way to achieving that in Rosebery.

If you say any absorption isn't safe what does that imply for the residents of Rosebery?

Our aim is to reduce exposure and absorption to an absolute minimum for everyone, but particularly pregnant women and young children. Unfortunately in this modern age we all have been exposed to lead in our lives. For most of us this has come about through our past exposure

to lead in petrol, lead in old paint and lead through hobbies. For people in mining areas there is an additional potential hazard of lead ingestion through dust. Many of the strategies to reduce exposure and absorption are the same for all – public information and education on how to avoid lead, good hygiene, maintaining a diet rich in calcium, iron and vitamin C. In a mining area where the risk of exposure is potentially higher we need to make sure that these strategies are implemented comprehensively and that the momentum is maintained.

What about the two children who did have high lead levels?

Yes this occurred following a concentrate spill in 2008 and the subsequent contamination of their property. DHHS has learned from past incidents in other areas and made sure that the family were removed and the property remediated promptly. This incident was contained to this property. If we had had similar concerns about any residents during this investigation we would have acted in the same way.

So humans may be OK but what about the pets? The stories in the last newsletter were heart rendering.

Yes they were and as the daughter of a vet I know how much pets mean to people. As part of the investigation we have spoken with local vets who have reported no cluster of unexplained illness in the area. It is unfortunate that the pets in the stories were not seen by a vet as their symptoms are suggestive of other illness which could have been treated or at least their pain palliated. DHHS has released fact sheets on looking after pets in mining areas which includes advice such as ensuring pets are not encouraged to roll in dirt, ensuring that dogs and cats are bathed often and that pet bedding is cleaned regularly. Lawns can be very effective in minimising pet and human exposure to soil. Also it's important to ensure pets have access to clean drinking water and are kept well hydrated so they aren't tempted to drink seepage water.

But what about the dolphins – it would be tragic if such beautiful creatures were being harmed by heavy metals?

Yes it would, but there isn't any evidence that they are. Monash University in Melbourne investigated the deaths of the dolphins reported on page 24 of the last newsletter. Autopsies concluded that heavy metals are not implicated in the deaths.

You say that you want to get blood leads in children even lower. How are you going to do that?

The fall over the last decade has been achieved by an ongoing community information campaign run by the mine owners plus information from DHHS. One of the concerned residents has complained that when she first arrived in Rosebery she started to plant vegetables and her neighbours explained to her that she would need to bring in clean soil and raise the beds in which the vegetables should be grown. We see this as a good thing and a sign of the success of the community information campaign – with the community taking responsibility to inform newcomers. The recent investigations have allowed us to renew our efforts in Rosebery and recently we have increased our work with the local schools and the Community House to support and inform the community on how to protect themselves and their families when living in a mining area. In addition the mine owners MMG and the Tasmanian EPA have been working to further improve the management of dust at the mine site. This will help to reduce airborne exposure and dust deposition even more.

So some good has come of these complaints?

Yes I believe it has. Although there have been harms too – the inaccurate reports and widespread media coverage of the allegations have led to house prices dropping. Some local residents have reported being unable to access loans. It has affected tourism and thus the income of many people. The whole situation has been unnecessarily stressful to the wider community. However,

with the formation of the Community Reference Group we have been able to correct misinformation and keep the broader community informed and engaged. The wider community should be assured that visiting Rosebery is a safe and rewarding thing to do. There is so much more to say about life and work in Rosebery- the new mine owners are in the process of the largest environmental survey in Australia (and possibly even internationally) and the strong inter-sectoral and community links that have been forged could serve as a model for others. As a way of continuing to keep the wider community informed about these and other important issues related to lead in Rosebery (including the issue of synergistic effects of metals) the LEAD organisation has agreed to allow us to guest edit the next newsletter to explain these in more detail.

Liz: as persistent as lead - Snapshot of Elizabeth O'Brien's lead campaign 3 years into the campaign

By Noela Whitton, a freelance journalist who has written for the New York Times, who interviewed Elizabeth O'Brien at the Community Lead Information Centre in her home in inner Sydney in November 1993.

(This article, written in 1993, has never been previously published)

Andy Warhol said everyone is entitled to fifteen minutes of fame.

Elizabeth O'Brien has been spinning out her entitlement in thirty second grabs on TV and radio since 1991.

And she plans to keep appearing till 2031, if that's how long it takes,

warning of the dangers of lead poisoning,

advising parents and educating the community on lead abatement, convincing governments of the need for proactive leadership, and

challenging industry (oil refiners and other manufacturers who use lead), to consider all environmental, health and economic aspects of the problem.

This interview was arranged for a Monday, when her youngest son is at Day Care – so she can take phone calls, attend meetings, etc,- and the two older boys are usually at school. Her eight year old met me at the door, explaining this was a “pupil free day”, so he and his five year old brother were at home. I arrived in the middle of a discussion about pocket money, and mister five year old, who'd lost some of his that week for a misdemeanour, said, with surprising wisdom, as he pocketed the balance. “My mother works for the whole world and she doesn't even get any money.”

Elizabeth O'Brien, Lobbyist and National Coordinator of the Lead Education and Abatement Design Group, a recently incorporated entity, known as The LEAD Group, Inc., works up to 18 hours a day, often six days a week, from her own house, which is also the headquarters of The Community Lead Information Centre (CLIC). The office manager, David, comes in four or five days every week and works non-stop, *and he doesn't get any money either*. The collective expertise of The LEAD Group's Technical Advisory Board is also provided on a voluntary basis. Likewise, the Committee, the Working Groups, part-time volunteers, and colleagues from other environmental groups.

In 1990 a biographical note on E. O'Brien might have read: B.Sc (Uni of Syd), keen botanist, singer, artist, bush-walker, former teacher, married, mother of two, post-graduate degrees in Health Education, author of one children's book, (with material for dozens more in hand), plans to complete a Masters and perhaps a PhD.



**Photo: Elizabeth O'Brien and 3 ½ yr old son Harrison (16/4/1994).
Photographer: Steven Siewert / FAIRFAXPHOTOS.COM.**

Then along came Harry (photo at left). Real name Harrison, a blonde cherub with big blue eyes, whom Elizabeth calls a “truly joyous little person.” When Elizabeth was pregnant with Harry, she and her husband had started looking for a larger house. The one they wanted just happened to be adjacent to a lead flashings foundry.

“We thought it might be wise to have the soil tested.” She said.

“Analysis of 3 soil samples revealed that dirt from the lawn contained nearly 20 times the Environmental Protection Authority’s maximum recommended level of lead in soil for domestic premises. We decided not to buy the house, and asked the EPA what they intended to do about the lead contaminated site, and the possibility that the foundry was causing the pollution. The EPA, having no funds, asked the owners of the foundry to pay for the investigation.

“Seven months later, after having moved to an adjacent suburb, and while at a nursing mothers’ meeting, I met the woman who was just about to move into the

contaminated premises with her family. Was I responsible for telling her not to let the baby play in the dangerously contaminated dirt? Just in case the EPA took too long in responding to my letter asking them this, I told her myself.

“Then, for the fifth time, I asked the EPA for the results of soil tests commissioned by the lead foundry owners. The results were inconclusive. The cause of the lead contamination in the area could have been peeling paint or paint which had been sandblasted or scraped off walls and allowed to settle in the gardens. The fallout from leaded petrol was also a possible contributing factor as well as leaking underground leaded petrol tanks.

“The EPA, having no power to do anything else, advised us that blood testing for lead levels in the children’s blood was the essential next step. I hesitated for two months before subjecting my baby to the trauma of a blood test. We had, after all, moved a kilometre away from the foundry. I finally succumbed because, a week before his first birthday, I saw some dirt on Harry’s chin when he came in from the garden.

“The results were devastating. Harry, whose result was included along with 100 other children in a Central & South Sydney pilot study, had the second highest blood lead level of all, a reading of 31 µg/dL (micrograms per decilitre) – the highest was 33. At that time the accepted maximum ‘safe’ level in Australia was 25 µg/dL, and in the USA in 1991, the goal had been reduced to 10 µg/dL.”

Take another look at Harry and try not to think of the neurotoxins (nerve poisons) coursing through his veins. Ask yourself if your child, or your grandchild, is at risk? The South Australian Health Department estimates that as many as half a million Australian pre-schoolers have too much lead in their blood, that is, more than 10 µg/dL.

“Because of Harry’s dangerously high level, we were offered free advice from a wonderful lead-knowledgeable paediatrician called Dr Garth Alperstein, an environmental survey of our property, and a unique offer of isotope studies by Professor Brian Gulson to determine the source of the lead. Friends whose children had lower levels than Harry’s, opted for moving away from the inner city at once.”

“Why didn’t you?”

“Since we’d moved so recently, we had no resources to move again. I’ve often regretted not moving. On the other hand I know I would’ve regretted not taking this opportunity to help so many people, and begin my work for the environment. And the damage had already been done to Harry.

“With the nurturing of lawn and new topsoil, throwing out the carpets and replacing them with cork tiles, placing wet towels as mats at front and back doors, constant cleaning of floors and washing of linen, and strict hygiene, Harry’s blood lead level dropped over the next six months to 15.7 µg/dL. Zero is the only ‘safe’ level, so we had a long way to go.

“We still don’t know if the original reading of 31 µg/dL was an acute short term level, or an enduring level for Harry. Or how much effect his lead exposure would have on his IQ, his hearing development, his stature, his vitamin D metabolism, his memory, speed of reflexes, attention span, etc. No one had all the answers and these questions were being asked by hundreds of concerned parents, so I thought I had better find out for myself.”

And find out for herself she did. The office, formerly their large sunny bedroom, includes a comprehensive library on lead, and the students who use it claim there is nothing to match it in their universities.

Collecting information was only the first step. A strategy had to be planned, In November 1991 the fledgling LEAD Group organised the first meeting between representatives of the environment protection and health departments, local government, lead industry and the local community.

“At the meeting I handed out a list of a few hundred questions about lead, for which, at that time, we had very few answers. All the stakeholders were there. If we were clever there would be minimum buckpassing and maximum cooperation.”

“You’d had experience as a lobbyist?”

“Certainly not. I knew nothing about politics. Nothing. Not even the names of health ministers, or leaders of environmental groups. I was so naïve, I believed my insistence in dealing only in facts would give me an advantage. I attacked the problem as I would any other, writing down everything I needed to know, continuously, daily. I kept lists of all informants. I started a library, and coordinated the best experts across a range of fields. These people are now our twelve-person Technical Advisory Board. We still need a petrol refining expert to join the team. Can he hear my cry for help?

“In March 1992 our public meeting at the Ashfield Town Hall was televised on the ABC’s *The 7.30 Report*. This ensured that a local blood lead level survey we had lobbied for, went ahead.”

“Was that your first connection with the media?”

“No. I began at the local level. Zdenka Vaughan at *The Glebe and Western Weekly* was the first reporter I worked with. And my contacts at *The Age, The Australian, TV news, ABC Radio, and The*

7.30 Report are wonderful. We couldn't function without them. After talking with Ray Martin on *The Midday Show* our membership increase was most gratifying.

"By July 1992 we'd worked out our aims and objectives, the structure of the organisation and the proposed strategy for achieving the objectives. As a coordinator, I always try to convince the person who has the good idea to follow through with it. I also keep a list of the good ideas.

"It was about this time we realised that simply to raise the level of community concern about lead was not enough. We had a duty to provide others with the kind of information that had helped us to find out our children's blood lead levels and to reduce them. This was the beginning of our telephone counselling service, our parent information nights, and talks to community groups. We now take calls from all over Australia.

"Herbert Needleman, American toxicologist and the world's foremost lead researcher whose work shows the link between lead and IQ loss, and behaviour, and kidney and brain damage, etc., says 'If a government puts its mind to eliminating lead poisoning it would take ten years.' So in 1992, we formulated a ten year plan."

"Most media emphasis seems to have been on leaded petrol?"

"Yes. We decided to focus media attention on one aspect only i.e., the urgent need to phase out leaded petrol. A date for this should be set with the utmost urgency. We have had one great success. We've managed to convince the government to lower the acceptable blood level from 25 µg/dL to 10 µg/dL".

"I've heard of a number of people who have moved house entirely due to the efforts of The LEAD Group? Do you have any figures on this?"

"No precise number, but I know the majority of parents whose children had a blood lead level above 20 µg/dL, and a large number whose children were around 15 µg/dL, have moved house. We know of one case where the family moved after a reading just above 7 µg/dL."

"When do you do your own housework?"

"Usually between putting the children to bed and 11pm. Then I often work till 3 or 4am, in the office."

"Do you ever wake up in the morning and think: I can't go on like this?"

"Never. The job has to be done."

"What does your husband think of the hours you work?"

"He feels as strongly as I do that this is a totally worthwhile undertaking. The fact I am not contributing one cent to the family finances, and that he is underwriting the whole exercise, does not give either of us any joy. I couldn't give my life to a cause like this without his support. And the boys are wonderful, too. They call me a toxic crusader."

"Recent news of the education programme on lead abatement to begin in February 1993, must give you some joy."

"Of course. That's another success. The information support for such a programme is already here at our Lead Information Centre. In fact, we could easily move to a public Lead Information Centre, with government funding, since we are running the existing programme on members' fees and voluntary labour. I could go to work, like other people do, and bring home a pay cheque...."

"Have you had any corporate sponsorship? Any help from the companies who did the damage in the first place?"

"No. In parts of the United States paint and petrol companies are taxed and revenue goes to cleaning up the damage. But we've had one donation of \$5,000 from the NRMA, a photocopier from Canon, a fax machine from Xerox and some smaller donations and corporate subscriptions. Otherwise we depend on our members' fees."

"Where does your membership come from?"

"A wide range of people. First, parents who need initial advice and counselling often join, and subscribe to our *LEAD Action News* newsletter; and a second group, who do not need our advice, aware that their fees will bring help to those who can't afford the \$30 membership fee. However, we don't refuse anyone who phones for help. You can't measure everything in terms of money, of course. Advice from people like Theresa Gordon, Herbert Beauchamp, Dr Kate Short, Dr Chloë Mason and Naomi Segal and the professionals on our Advisory Board like Professors Chris Winder and Geoffrey Duggin, is of incalculable value. Without them we could not function."

I looked at this young woman across the table, as though seeing her for the first time, amazed at her courage and determination. While we talked Elizabeth had taken seven phone calls, attended the children, emptied and refilled the dryer, fixed morning tea, put on a load of washing, and resumed mid-sentence every time.

She had four meetings that week, she said, but that's not surprising since she's on fifteen committees, one international, the rest local, state or federal. The phone rang again, so I let myself out. David was working on the computer in the office. The boys, laughing at a video of Mr Bean in the living room, called out "You should watch this - Mr Bean is very funny." The joyous little person wouldn't be home till 6, with his father.

My heart was heavy for my lovely daughter, Elizabeth O'Brien, and for Harrison, my grandson, and for parents and grandparents of children whose bodies are host to a heavy metal and whose capacity to lead a full life is under threat.

Questions arising from Noela Whitton's article

Some aspects of The LEAD Group, 20 years on

Questions posed by Michelle Calvert, Vice-President of The LEAD Group. She was Education Officer at the time when The LEAD Group had full funding.

Question: What is the connection, if any, between The LEAD Group, and the NSW Environment Protection Authority (EPA)?

Answer: The EPA is a very good source of references for her to answer inquiries about regulations, pollution licences, etc. She rings environment line 131555 regularly.

"The EPA is now called Department of Environment, Climate Change and Water (DECCW) and, unfortunately they have cut down the lead information on their website to only their most basic fact sheet, and removed their still useful booklets and fact sheets which we helped them to write. They said they don't have staff who know the topic well enough to answer queries which might arise. Roughly 40% of the enquiries to the Global Lead Advice and Support Service (GLASS) still come from NSW, so it might be concluded that the public sometimes has no choice but to ring The LEAD Group for help – with no funding from DECCW."

When Harry was first found to be lead-poisoned, free advice was available from "*a wonderful lead-knowledgeable paediatrician called Dr Garth Alperstein.*"

Question: is he retired now? If so, who has taken his place? **Answer:** Yes, retired. The most knowledgeable paediatrician on the subject is Dr Paul Knight, of Westmead Hospital.

They were offered "*a unique offer of isotope studies by Professor Brian Gulson*"

Question: Is he retired now? **Answer:** Yes.

Question: What is Harry (Harrison) doing now – long term effects?

Answer: Once Elizabeth realised her children had been exposed to lead and needed extra encouragement in reading and writing, she spent hours reading to them and finding ways to teach them new words and revise the ones they'd already learned. She wrote little books of words and pictures, including photos of themselves, to help them to learn to read before they went to school.

Harry is now in second year at Sydney University, and is doing fine, a tribute to his parents' work in removing the sources of lead in the house, and his mother's early intervention in his education. Genetically, he was to be expected to have the IQ that could take him to university, but will have lost some IQ points due to his exposure to lead, and now also has increased risk of heart attack and stroke. Elizabeth is very pleased that all three sons are fanatical about exercise and healthy diet.

Question: Give a short explanation of expansion of The LEAD Group, and of GLASS.

Answer: Our work has expanded geographically – our web site has received “hits” from 213 countries and territories (practically every country in the world), and we've had over 76,000 direct inquiries from 128 countries. This is the work of GLASS.

Question: Is it still difficult to get the Media interested because the subject is not “Sexy”?

Answer: The media *does* respond when it's a story about lead contaminated sites. The transcript of an interview with ABC local radio, Port Pirie, is in this current newsletter. “Most lead poisoning, especially the fatal variety, is undiagnosed, so as soon as researchers and doctors get a handle on the long term effects of lead, I'm sure the media will catch on.”

Question: You got advice in the beginning from people like Theresa Gordon, Herbert Beauchamp, Dr Kate Short, Dr Chloë Mason and Naomi Segal and the professionals on our Technical Advisory Board like Professors Chris Winder and Geoffrey Duggin. Who are today's champions?

Answer: Sadly, Elizabeth's first, great mentor, Herbert Beauchamp died on October 15, 2005.

Today's champions are Carol Bodle, Dr Mariann Lloyd-Smith, Professor Chris Winder, Dr Perry Gottesfeld, Professors Bruce Lanphear and Mark Taylor; and, though retired, Professors Gulson and Alperstein.

Elizabeth and The LEAD Group twenty years on

By Anne Roberts with input from Claire O'Brien. (See also Michelle Calvert's questions arising from Noela Whitton's article about the first three years of The LEAD Group.)

At the time of writing, it's almost exactly 20 years since the genesis of The LEAD Group. (The name, by the way, stands for “Lead Education and Abatement Design Group.”) She was inspired to start The LEAD Group initially because of the value she placed on intelligence and her desire to help other parents avoid the tragic loss of IQ in their children. What drives you to continue this work, twenty years on is the idea of increasing longevity through research into ways of removing lead from people who were born before the end of leaded petrol.

Elizabeth O'Brien is still the driving force, though her title has changed: she is now designated President of The LEAD Group, and Manager of the Global Lead Advice and Support Group (GLASS). It is difficult to think of who might step forward to take Elizabeth's place, in the unlikely event of her ceasing to be passionate about ridding the world of the dangers of lead, or to take time off to write a book about lead.

The LEAD Group is a not-for-profit “charity.” It is an organisation which currently receives federal (Australian) government funding to run a “service”, which is GLASS. The Australian government

does not fund the running costs of non-government organisations unless they are an umbrella group for other NGOs. They fund only projects and services. It has to do with the electoral cycle, which, for the federal government is three years. (One *hopes* for three years.) There is thus a degree of uncertainty and anxiety about funding. The service which is funded is to answer telephone and e-mail requests for information, and give advice about lead. The web-published LEAD Action Newsletter is also funded as part of the information service.

For one glorious period of roughly three years, in the late 1990s, there was sufficient funding for renting space in an office building, and for paying seven staff.

Nowadays, The LEAD Group and GLASS are run on a shoe-string, with no full-time staff except Elizabeth. The clerical work – data entry, etc. - is done by volunteers, most of whom are from overseas, and needing to get office experience before they can get a job here in Australia. There are about 100 volunteers and interns a year passing through the doors, this year there have been so far 126, with over a dozen languages between them. Some volunteers become trainers for the others, in data-entry and information management. University students studying for higher degrees do internships with The LEAD Group. This involves writing research papers. The interns' fields of study have so far been in social science, health, optometry, agriculture and medical science. The common thread has to be some connection with lead. (Which just goes to show how ubiquitous lead is.) Thanks to the interns, The LEAD Group web site has information available in Chinese, Spanish, and Indonesian. Emma Xu is paid as office administrator, but for only ten hours a week. Elizabeth O'Brien has to do any extra office-management work. She says that the norm for an organisation such as The LEAD Group is a minimum of four full-time paid employees. There is a web-master, a part-time researcher, and a part-time editor (me).

Elizabeth O'Brien won the United Nations Association of Australia (UNAA) World Environment Day (WED) Award for Outstanding Service to the Environment in **2004**. Professor Brian Gulson (left) and Ian Smith (right) celebrated with Elizabeth on the award night in Melbourne.



The fabulous web master, who began work as a volunteer in 1992, is David Ratcliffe.

The premises are now in a small house in an inner city suburb of Sydney.

The first three years of The LEAD Group, including how it came about, are described in Noela Whitton's article in this issue of LEAD Action News.

So, what has this 'David' of an organisation managed to achieve in the last 17 years? The following is a summary of the highlights:

1993: The National Health and Medical Research Council of Australia (NHMRC) changed from setting a blood lead level of 25 µg/dL (micrograms per decilitre) as the “level of concern” (meaning something should be done to lower it), down to a *goal* of under 10 µg/dL.

2002, January 1st: End of lead in petrol for on-road vehicles, in Australia.

2010, January 1st: End of lead as an additive, in ALL paints and inks manufactured, imported and sold in Australia.

What are the current and envisaged objectives of The LEAD Group?

The Next Big Thing is the global elimination of lead in petrol. (There are currently some 11 countries which still permit the use of lead in petrol.)

What has The LEAD Group been doing about the remaining use of lead in petrol?

If one looks at the [list of countries](#) which still permit lead in petrol, one could come to some conclusions about them: conflict, poor governance, or indifference. In other words, such countries are resistant or unable to respond to appeals to concern about the well-being of their populations, for one reason or another. (See further on for an account of recent large-scale lead poisoning – though not from petrol – in Nigeria.) The solution therefore, is to try to stop lead being put into petrol in the first place.

The LEAD Group has therefore researched the sources of the lead which is added to petrol. Elizabeth O’Brien has written letters as part of a campaign to cut off the world supply of lead in petrol. She has also written to the new Prime Minister of Britain, David Cameron; to the President of Switzerland, to President Obama and the CEO of Innospec, maker of the lead additive. (No replies at the time of writing this article.)

Here is her letter to The Guardian newspaper, UK, on July 8, 2010 (Unfortunately, not published):

“Dear Editor,

Octel (now called Innospec) need to be investigated for bribery and misinformation supplied to all the countries still using leaded petrol, not just Iraq (and previously Indonesia), but also Afghanistan, Algeria, Bosnia-Herzegovina, Burma, Egypt, Montenegro, North Korea, Serbia and Yemen. Guardian readers should tell the UK Prime Minister to ban the export of tetra ethyl lead and make Innospec pay for refinery upgrades or supply of alternative octane enhancers like ethanol to these countries. Then we can all celebrate the end of the IQ-loss, increased-crime and early-death era of leaded petrol, by Christmas.”

Elizabeth also wrote to XStrata, one of the world’s largest mining companies, in May 2010. The following is an extract:

“You are [likely to be] aware that the lead in all that leaded petrol (which contributes to the continuing lead exposure of a quarter of a billion people) comes from Mount Isa's Xstrata operations. Xstrata's Mount Isa operations ship lead ore to Britannia in the UK, Britannia smelts it and sells lead metal to Innospec in the UK, who turn the lead into alkyl lead (which when added to petrol turns unleaded petrol into leaded petrol). I'm sure you know all this - please respond instantly if I've got any of that wrong.”

XStrata replied that it is following industry sustainability policies. See their sustainability policy www.xstrata.com/sustainability/ourapproach/policy/

A letter was also sent to Peter Garrett, as the Australian Minister for the Environment, requesting his support on the issue of stewardship of the Australian lead that ends up in lead additives for petrol. Mr Garrett’s reply echoed that of XStrata. The “sustainability” to which XStrata refers is that of protecting the environment ‘to the mine gate.’ In other words, XStrata does not take any responsibility for exposure to lead contamination which might occur beyond its own activities.

The LEAD Group recommends that XStrata take responsibility for the entire supply chain of its product: the mine, the smelter, the production of whatever leaded product, the wholesaler, the retailer and the recycler. XStrata could do this by stating “Certainly, leaded petrol is a non-recyclable, dispersive use of lead, and we cannot justify selling lead which ends up in that use.”

(The ‘dispersive’ use of lead is where the lead cannot be retrieved for recycling. The opposite of this is as a ‘collectable,’ such as lead acid batteries or sheets of radiation shielding.)

Indonesia has banned the use of lead in petrol, but leaded petrol was until recently being sold anyway, illegally. The CEO of Innospec has recently been charged with having bribed officials in Indonesia to sell leaded petrol.

*I haven’t described what Elizabeth O’Brien looks like – see Noela Whitton’s article for a photo taken 16 years ago and this one taken 6 years ago – nor given any direct quotes. You can skip this little confession if you like. Elizabeth is tall, and has red hair, usually worn long and loose. She dresses in what I think of as a rather exotic fashion - because I am a bird of very dull plumage - lots of mixed colours, and sometimes beads, and has no hesitation in wearing “Ugg” boots to save on energy use (do not imagine that Sydney doesn’t have cold winters). She has also been seen in “Crocs”. (A sort of very assertive sandal, for those who don’t know.) She does kung fu, and is extracted from the office once a week by a friend, Sue Gee, in order to swim many laps in a municipal pool. (I can only marvel at this: after about four strokes overarm, I forget how to breathe. This hasn’t stopped me from having visions of flinging myself into a raging torrent to rescue a drowning child, or even a grown-up...) Elizabeth has both a fine soprano and an alto voice and sings in at least one choir. I have suggested she try doing nothing from time to time. Apparently, swimming laps is the equivalent of ‘doing nothing’ because one enters something called ‘The Zone’ ... ******

Elizabeth acknowledges the help and support of her family, without which she is not sure she could have managed her gruelling work load. She says it is fabulous that she can go to kung fu for five hours a week and have her two youngest sons, both of whom have black belts, as her teachers. Her eldest son is on The LEAD Group management committee, and, having worked in the office for a year, is very helpful on all administrative matters. Both her parents are “fantastically supportive” of her work, always on the watch for relevant news items, and function as a free clipping service. Her two sisters and her brother understand and uncritically support her total commitment to the cause, and help out when needed. She says that without her partner, who actually has to ring her to tell her to leave the office and come home, she would simply never stop working or take brief holidays at his farm.

Another LEAD Group campaign underway is to eliminate lead in all paint, globally. Elizabeth has joined the Global Alliance to Eliminate Lead in Paint (GAELP), and in May this year went to a GAELP-organised meeting in Geneva, paid for by the World Health Organisation (WHO), and United Nations Environment Programme (UNEP), jointly known as “The Secretariat” (of GAELP).

Elizabeth spoke at the Geneva meeting on the need to research the supply chain of lead, and the need to contact the pigment and paint manufacturers who use lead in their product, to ask why they are using lead, and who supplies it. This was not accepted as a resolution from the floor.

The meeting decided that the issue of lead in paint needs “national heroes” in every country, and that paediatricians be asked to do research. This does not sound very revolutionary – more along the lines of “This is an important issue which someone else should be asked to take up.” Well, ok. *Wanted: single-minded, passionate types, prepared to devote their lives to a health issue which only one country – the United States - has so far done much about.* (Historically, lead was used in paint because it makes a long-lasting base for it. It is now feasible to ban lead in paint, because

there are now good substitutes. Even the USA has not yet banned lead in industrial and 'infrastructure' paints.)

Next on the list is the removal of exposure to lead of mining and smelting communities.

The first step would be testing the blood lead levels of everyone in these communities, not just the children under five, and the mining and smelter workers, in mining and smelter towns.

This full-scale testing takes place in US mining and smelting towns, because of the US system of national blood lead level surveys at all point sources where lead can be present, including zinc, silver, copper, tin and gold mines.

Which brings one to the mention of the 2010 Nigerian incident, where at least 170 children died due to unsafe illegal mining.

"At least six villages have been contaminated with high concentrations of lead spread by dust from the open mines, and by women processing the ore in compounds where children play barefoot", according to the [Daily Nation, Kenya](#).

Another article, by an NGO helping with the clean-up, is at www.theworld.org/2010/06/09/lead-poisoning-disaster-in-nigeria/

A Wikipedia posting by [Uche Igwe](#) on July 6th, 2010, on illegal mining in Anka and Bukkuyum in Zamfara State reports that illegal mining "is usually done by a 'cartel' that just shows up in these communities and begins to cart away the minerals in collaboration with ignorant and vulnerable community members."

"Some of the illegal mine traders are from South Asian countries, especially China, but they do not perpetrate these criminal actions without the collaboration of some locals..."

"The environmental implications of illegal mining are quite diverse. The first is that it destroys farmland and distorts the livelihood of agrarian communities. The trenches dug for these mining activities are abandoned after the mining is over. They therefore become death traps and easy entry points for devastating gully erosions...many of these mines are contaminated with impurities. In this case, gold ash was intermingled with deposits of lead. In a few cases, some of the impurities are even radioactive in nature. Ignorant community members therefore go to these mines and come in contact with contaminants..."

"As is usual in most communities, deaths are attributed to one spirit or another. The death toll continued to rise until the blood samples of patients were taken abroad for adequate tests."

I've quoted at some length this article on illegal mining in Nigeria because it is just one example of what can and does happen in parts of the world where governance is a bit slack, or corrupt, or in too much of a hurry to bring wealth to the country. The expression "Third World" is becoming no longer appropriate, what with India and China industrializing as fast as they can, at a breathless rate and on a scale that we 'westerners' are staggered by. Exposure of the population to pollutants and poisons can and does accompany this development, and is made worse if officials are corrupt.

The next phase of the campaign against the 'dispersive' uses of lead is to end the deliberate addition of lead to drugs, food and cosmetics, which is done to add weight and colour to the product. There have been cases of lead poisoning from traditional Indian Ayurvedic medicine. (Food can also become accidentally contaminated. See, for example, LEAD Action News, vol 10, no 1.

Back to the question of lead in lead-acid batteries. Earlier in this article, these were referred to as 'collectable', in that the lead they contain can, in the correct conditions, be safely retrieved, and not become a potential source of lead poisoning.

Where lead batteries are not recycled correctly, they may be, and are, in most countries, crudely smashed open – for example, by blows from an axe – spreading lead-contaminated sulphuric acid on the ground in the process. The lead plates are then removed, and melted down to be used as an additive for products mentioned above and any other use that you can think of.

Another research campaign on the horizon is researching the effectiveness of chelating agents in reversing the increased risk of death from lead when it re-enters the blood stream from the bones, as occurs in people as they age.

Which is just another way of saying, there is probably no end to it. Tempus may fugit, but plumbum never.

Note: Elizabeth O'Brien has done an [18-year review](#) of The LEAD Group's aims and objectives, originally formulated in 1992. (See also the 2002 review of progress on the group's original objectives: [Ten Year Review of Objectives](#)).

Letters

Lead poisoning in Indonesia



From Susy Retnowati, to the Editor, 5th August 2010.

(Susy Retnowati was born and raised in Indonesia and then worked for The LEAD Group in the late 1990s. Susy was asked to make pre-publication comments on Suherni's Lead Poisoning in Indonesia. Suherni's report is in English at

www.lead.org.au/Lead_poisoning_in_Indonesia_20100905.pdf and in Indonesian at

www.lead.org.au/Keracunan_Timbal_di_Indonesia_20100916.pdf

It's an honour to have my name mentioned in Suherni's report. Thank you.

It would be interesting to know what categories of schools were chosen to have blood lead levels tested. Indonesia has 4 different categories of school: government schools, national schools, national plus and international schools.

National plus and international schools are more for those in a higher socio-economic class. The children are not exposed to contact with sources of lead at home. They have everything done for them, in clean conditions. They have a better and higher standard of living.

If the surveys were done at this higher socio-economic level, then generally, the results should have been lower blood lead levels.

About the recycled plastics industry

I have observed many syringes and other hospital wastes not being recycled or disposed of safely. It is common practice in Indonesia and has been shown on TV - where kids grow up on waste land, playing and working at the same, collecting plastics or other materials that are re-sellable for money. It is sold to a "middle man", who then sells all the plastic (which contains blood and other biological chemicals) to be made into plastic recycled materials. The recycling industry can be anything from a home-based industry up to an industrial level.

The same is true of shoe-making - it could be home-based up to industrial level.

Other possible sources of lead contamination are Batik - Indonesia traditional clothes and arts.

These use a colouring agent, and the expensive ones, gold colour. All are sewn or woven and dyed by hand. Batik Prada - it would be interesting to research this area. The colouring tools are made of bronze, heated with fire / candle-light.

The following link will show you the process of making batik:

www.youtube.com/watch?v=2XdjebgIL5k

The crematorium / morgues don't have proper chimneys or waste dump facilities. The ashes just got thrown into the local river or the sea. This happens even next to fishing villages where dry salted fish is produced. It's unbelievable, but that's the reality.

So far, I've been talking mainly about the island of East Java. The highest lead contamination would probably be in Papua, Irian Jaya - where the gold mines are, and Kalimantan Island - where other mining industries are.

Fairly recently – in 2006 - a mud eruption began (Lumpur Sidoarjo - Lusi) on East Java. It's still erupting today. Several villages have been destroyed and all the trees died. See http://en.wikipedia.org/wiki/Sidoarjo_mud_flow – this mud flow along with volcanic ash may be a possible source of lead poisoning.

That's all for now... I hope this adds more value to Suherni's research.

All the best,

Susy

Lead in the Polar Ice Sheets

From Professor A.J. McMichael, to Elizabeth O'Brien, September 2010, in response to an e-mail from Elizabeth O'Brien, following a Sydney Morning Herald story on Professor McMichael and climate change (*The man with our future in his hands*, September 11-12, 2010). Date: September 16, 2010.



(Prof. A.J. McMichael is at the National Centre for Epidemiology & Population Health ANU College of Medicine, Biology and Environment, The Australian National University Canberra. Honorary Professor in Climate Change and Human Health University of Copenhagen.)

Elizabeth,

It's good to see the important work you are continuing to do, which I am aware dates back several decades...

You will be aware of the lead that has accumulated in the polar ice sheets over the past two, industrialising, centuries. That lead will be mostly in the superficial ice layers. Will it be re-mobilised into sea-water as ice sheets slowly melt? Your association might like to follow that question up.

Best wishes,

Tony McMichael

Updating the NHMRC's statement on blood lead levels

(**Ed's note:** Elizabeth O'Brien of The LEAD Group, and other members of the National Health and Medical Research Council (NHMRC) Lead Working Committee, had been asked for information on any work being done internationally to revise the positions on acceptable blood lead levels in other countries, in order to update the [NHMRC Information Paper and Public Statement on blood lead levels](#).)



From: Elizabeth O'Brien

To: other Members of the former Lead Working Committee of the National Health and Medical Research Council (NHMRC)

Date Sent: August 30, 2010

Dear Members of the NHMRC Lead Working Committee,

I believe Canada is looking at a very low blood lead goal for children but for me what's most important that I do have more detail on, is that I was advised that the most enlightened and useful approach has been happening in Germany for some years, when I attended the World Health Organisation meeting on lead in Geneva in May of this year.

Also, a 2009 US cost benefit analysis "The Social Costs of Childhood Lead Exposure in the Post-Lead Regulation Era" by Peter Muennig [abstract at <http://archpedi.ama-assn.org/cgi/content/abstract/163/9/844>] had the following results:

"Reducing blood lead levels to less than 1 µg/dL among all US children between birth and age 6 years would reduce crime and increase on-time high school graduation rates later in life. The net societal benefits arising from these improvements in high school graduation rates and reductions in crime would amount to \$50000 (SD, \$14000) per child annually at a discount rate of 3%. This would result in overall savings of approximately \$1.2 trillion (SD, \$341 billion) and produce an additional 4.8 million QALYs (SD, 2 million QALYs) for US society as a whole." These results would seem to justify a large investment in reduction of blood lead levels at least among children in Australia too, and previous cost benefit analyses, certainly justify expenditure on bringing down the blood lead levels of adults and older children as well. See for instance: "The Benefits and Costs of the Clean Air Act, 1970 to 1990" at www.epa.gov/oar/sect812/1970-1990/contsetc.pdf and "Economic Analysis for the Renovation, Repair, and Painting Program Proposed Rule" at www.epa.gov/oppt/economics/pubs/lrrpnprmea.pdf - both by US EPA.

In Germany, they have a continuous improvement towards zero blood lead level policy approach. Every so often, a national blood lead survey is done to determine the current blood lead levels in the particular sub-populations of men and women (18 to 69 years) and children (3 to 14 years of age). When the results are analysed, the 95th percentile (that is, the blood lead level that 95% of the population is already below) is then set as the new goal for the entire sub-population. As of 2009 for instance, the new goals were set at:

- 9 µg/dL for men (18 to 69 years)
- 7 µg/dL for women (18 to 69 years), [these are assuredly only this high because the most recent blood lead surveys for men and women in Germany were in 1997-1999] and
- **3.5 µg/dL** for children 3-14 years [based on a 2003-2006 survey]. [Ref: GERMAN www.umweltdaten.de/gesundheit/monitor/tab-metalle_2009.pdf; ENGLISH: www.umweltdaten.de/gesundheit-e/monitor/tab-ref-values-as-sb-metals.pdf]

Each of these levels is world's best policy national goal blood lead level for that sub-population as far as I am aware.

By comparison, Port Pirie already has a target of 95% of children under 5 yrs being below 10 µg/dL by the end of 2010 but this target was chosen on the basis of health effects, not on the basis of the 95th percentile found in this sub-population. The Port Pirie target-setting process differs significantly from the German approach in that, in Port Pirie, the Health Department appears to not be particularly looking after the interests of the 5% of the child population with the highest blood lead levels (although these should come down with lowered emissions from the smelter), whereas the Germans are, specifically, focussing on the 5% of all ages (except, strangely, 15-17 year olds and under 3 yr olds and over 70 yr olds) who have the highest blood lead levels.

If Australia were to move to continuous lowering of blood lead targets for all ages, based on regular surveys, and action plans to achieve the new targets, we would be complying with the Donovan (1996) recommendation [Ref: page 71 of "Lead in Australian Children"] that:

"Targets should be set only where public health action is planned or under consideration. Also, when there is no threshold or 'safe' level, it is not enough to set a target that everyone should have blood lead concentration below a specified level. If Australia requires targets in future, then because all lead exposure should be minimised, there should be targets for those with low exposure as well as high."

We would also be complying with the World Health Organisation (WHO) (circa 2003 or 2004 undated factsheet) "Issue Brief Series: Lead" at www.who.int/heca/infomaterials/lead.pdf recommendation: "Setting and reducing targets (e.g., below 10 µg/dL) for child blood lead levels, as well as recording and tracking these levels provides an excellent means of assessing progress on reducing child lead exposure and helping countries to identify key sources of lead pollution."

My proposal to this group and to the NHMRC is that Australia could have the world's best policy on blood lead by combining these ideas of targets and goals for the 95th percentile of a sub-group or a geographically located sub-group, and could improve on the German method by increasing the frequency of resetting the target (ie the frequency of blood lead surveys), as appropriate to the sub-group or the geographic location eg 6-monthly or annually as currently occurs in Broken Hill and Port Pirie. The German approach could be further improved by adding in the kind of recommended action for communities and individuals that was recommended by the NHMRC in 1993, but at lower blood lead levels, again relating to the 95th percentile.

Also, the same goal-setting, target-setting and action-level setting methodology should apply to each of the different lead-exposure jobs, because the body lead stores of lead workers eventually become a public health problem (when they retire from working or move to non-lead work), and because Donovan (1996, page 71) recommended:

"The existing [1993 NHMRC blood lead] targets recognise the particular problems of occupational exposure, and allow them as an exception to the general target. At least in respect of children, there could be benefit from setting additional targets in relation to individual occupational and hobby sources of lead where exposure can be modified."

Thus my proposal to the NHMRC consists of the following points:

1. national blood lead surveys should not be less frequent than once every 5 to 7 years and the 95th percentile blood lead level within each sub-population should be set as the new goal. The target (ie the date the goal should be achieved within 100% of the population) should be based on the planned frequency of blood lead surveys eg every 5-7 years.
2. all sub-populations except pre-crawling aged babies in non-point source communities should be covered in the surveys. Better age ranges for the surveys (and thus the sub-population goals) would be:
 - foetal (using the pregnant woman's blood lead level as a surrogate for the foetus)
 - 4 months to 8 months - in lead mining and smelting communities only
 - 9 months to 5 years
 - 6 years to 17 years
 - 18 years to the age of people born after the peak in the use of leaded petrol in Australia
 - the age of the people born before the peak in the use of leaded petrol in Australia to the age of most premenopausal women,
 - the age of most premenopausal women to the age of retirement (65 years)
 - retirement age and older
3. blood lead surveys should involve over-sampling of the most at-risk sub-populations (including lead workers): children living in older housing, people under-going renovations on housing built pre 1970, people dependent on rainwater for drinking water, lead mining and smelting community residents, smokers, passive smokers, alcoholics, people taking Ayurvedic medicines

or Chinese herbal medicines; people suffering from hypertension, Alzheimers disease, osteoporosis, learning difficulties, pica, criminal or aggressive behaviour; hobbyists such as backyard automotive-repairers, panel-beaters, renovators, jewellery-makers, fishing sinker or ammunition casters, ceramicists, artist painters, etc, and indigenous populations within all these sub-populations.

4. once the 95th percentile blood lead level has been determined for each sub-population, any obvious regulatory changes or free-food programs to improve nutrition in certain sub-populations should be immediately introduced but also, the new targets for all these sub-populations, along with information on lead health risks and how to prevent further exposure, should be widely advertised especially to medical and public health professionals (especially those working in indigenous health or aged-care) and anti-smoking campaigners, as well as to members of the public who are applying for work in lead industries or lead mining or smelting communities, people considering purchasing or renting or renovating pre-1970 housing or housing in lead mining or smelting communities, people importing their own Ayurvedic medicines, smokers etc - the priority being all the sub-populations with the highest blood lead targets.
5. all blood lead test results should become notifiable (not just those above 10 µg/dL or 15 µg/dL) and target-setting needs to be followed with blood lead action levels for secondary prevention of lead poisoning eg, if an individual exceeds the target blood lead level for their sub-population, they are given a free home-lead assessment and/or advice on how to lower their blood lead level or their child's blood lead level;

That's as far as I'd like to go without getting some feedback on this line of thinking from other members of the Lead Working Committee, but I would also like to propose that Professor Mark Taylor be invited by the NHMRC to join the Lead Working Committee because he has recently done an enormous amount of collation of information on lead in Australia and his research could better-inform the Committee's work. A recent publication [Ref: www.ncbi.nlm.nih.gov/pubmed/20598069] co-authored by Professor Taylor and another member of our Lead Working Committee, Professor Alison Jones, stated that "Gould (2009) demonstrated that for every (US) dollar spent on controlling lead hazards, some \$17–221 is returned to society."

It should be kept in mind that my proposal has the huge advantage not only of following recommendations from Donovan and WHO, but also of completely eradicating the need to have endless arguments and counter-arguments about the health impacts of low blood lead levels. Further, it would place Australia at the forefront of lead poisoning prevention policy globally, a position we should never have allowed ourselves to slide from, since we were the first nation to publish in a medical journal, detailed information on childhood lead poisoning, on 20th October 1897. Wouldn't it be great if on the 113th anniversary of that publication (International Lead Poisoning Awareness Day 20th October 2010), the NHMRC were to announce a blood lead survey for all ages n Australia?

I look forward to all your comments.

Yours Sincerely
Elizabeth O'Brien

Lead levels- are they fatal?

Interviews on ABC Radio South Australia North and West Region program: *Mornings with Kieran Weir*, aired 9:00am - 11:00am Friday 4th June 2010 – you can listen to the interviews at http://blogs.abc.net.au/sa/2010/06/lead-levels-are-they-fatal.html?site=adelaide&&site_search=northandwest which states: Kieran Weir spoke to a number of guests about lead levels in Port Pirie and the possibility of illness or death from increased lead levels.

- * Elizabeth O'Brien from the not-for-profit LEAD Group
- * Professor Baghurst from Adelaide University and also leader of the initial lead cohort study
- * Kevin Buckett- the Director of Public Health- SA Health
- * Councillor Debbie Devlin who moved her children away from Port Pirie because of lead concerns.

Transcript of Interviews

Transcribed by Anne Roberts and proof-read by Elizabeth O'Brien, The LEAD Group

[Ed's note: we have only transcribed words of hesitation (such as "um", "uh") where the hesitation was deemed especially significant]

KIERAN WEIR: Somebody who is the president of The (Not-for-Profit) LEAD Group – they're a federally-funded group looking at this issue - is Elizabeth O'Brien. Elizabeth, good morning.

ELIZABETH O'BRIEN: Good morning Kieran.

KIERAN WEIR: You've come out just recently, in the last 24-48 hours, [Elizabeth was briefly interviewed for local South Australian ABC Radio morning news – not found online – and called for blood lead testing of adults in Port Pirie] having a look at some of the recent stats, to say that we shouldn't just be looking at children and measuring their blood levels, that it is potentially, that it could have impacts on all adults. What evidence do you have that there is potentially any sort of build-up in any of the adult populations in Port Pirie or Broken Hill, for example?

ELIZABETH O'BRIEN: well, none, it's a simple, logical conclusion that if children have high blood lead levels, then adults probably do, and unfortunately our Federal Government has never listened to me when I've requested over and over a national blood lead survey so that we could actually know what national blood lead levels are for all ages of people in Australia; those studies have been done in the United States on a regular basis – so they've been able to track what adult and child blood lead levels have done over at least 20 years, and we can only assume that our trends have been similar, due to us following the United States in getting rid of leaded petrol, for instance – seven years later, but nevertheless, doing it – and also more recently, this year, actually controlling the level of lead in paints – almost to the level of the Americans from 1978. So, all we can say, is that there is *probably* a group of adults alive today – anyone, in fact, above the age of 6, who's been affected by the use of lead in petrol, because everybody breathes, and practically everyone in Australia is close to traffic, and that therefore we have a huge population with elevated lead levels from the era of leaded petrol, from the time when there was *more* lead in petrol, we have higher blood lead levels in people, but the actual figures haven't been researched; so, that's the basis of saying that there is a huge population in Australia of people who've been affected by lead, and that we would expect that there's an even larger population in Port Pirie, or at least a population with higher blood lead levels because of children's blood lead levels there.

KIERAN WEIR: Now, Elizabeth, is there any empirical evidence to suggest that if you had any amount of lead, even a small amount in your body, that that can cause any medical complications,

or could some people construably have a bit of lead dust that they've absorbed over many years and not be affected by it?

ELIZABETH O'BRIEN: I would think that it was virtually impossible to *not* be affected – it's true that different people will be affected differently by even the same blood lead level, and all you can really know is what are the results of research on populations of people – there's no way of actually knowing when an individual has this or that health outcome or academic outcome, whether the lead in *their* body was influential on that outcome. All you can say is that when you take, you know, hundreds or thousands of people and you compare their blood lead levels and then you look at their health outcomes or their academic outcomes - you can find relationships. And that's the relationship that I'm talking about when I say that adults have an increased risk of early death from heart attack or stroke – even from quite low blood lead levels. So it is a serious problem for adults because of this early death factor due to hypertension - that is the reason that we are calling for blood lead testing of adults, not only in Port Pirie but actually across Australia.

KIERAN WEIR: You've been calling on health authorities and environmental authorities to take up this cause – why do you think that those pleas are falling on deaf ears – is it because of the lack of evidence or perhaps your qualifications? Can you tell us about those?

ELIZABETH O'BRIEN: Well, yes, I only have a science degree and post graduate work in health education, that's true, but the 20 years that I've spent researching lead and nothing else, have to count for something. The evidence is massive, which would, I think, indicate that there should be a reduction in the acceptable blood lead level. I hear often on radio and television and in newspaper stories that the level of 10 micrograms per decilitre [$\mu\text{g}/\text{dL}$] is regarded as "safe" – that is just simply not true, it could not be called safe when it does lead to increased risk of early death and certainly to loss of many IQ points – between 7 and 11 IQ points are thought to be lost, even when you only have a blood lead level of 10 $\mu\text{g}/\text{dL}$. So yes, there is overwhelming evidence to say that the acceptable blood lead level should be brought down, and I believe it's falling on deaf ears for purely economic reasons. If the blood lead level was brought down, then a place like Port Pirie would need a hell of a lot more investment in people's health, in prevention of lead exposures in Port Pirie, and perhaps that's too much to enable profitable smelting to be continuing.

KIERAN WEIR: Ah, well, would you advocate closing the smelter altogether?

ELIZABETH O'BRIEN: The matter is really a money matter – if you throw enough money at a problem you can typically solve it, so when Nyrstar claims that they've had some problems with their processors, I mean, I have to ask the question, well, how much money did they spend on solving those problems, and in fact, preventing them? That would be the better way to go. So, it's all about money. I would...

KIERAN WEIR: There's been a \$36 million dollars spend already, they've enclosed the actual smelter furnace, they've really dampened down a lot of the dust heaps, and had a lot of remediation projects, but, just in terms of measurement of blood lead levels Elizabeth, there is something called dclu [*sic*] [he meant $\mu\text{g}/\text{dL}$], and we're talking about micrograms per decilitre, and the world standard for lead in adult workers is around 50 dclu [*sic*]; the Port Pirie smelter works on 30. What more can they do if they're saying that their workers have pretty good blood lead levels compared with the world standard?

ELIZABETH O'BRIEN: The, yes, the world standard is most definitely in need of review, and there's been very good evidence from the United States that in fact an accessible level of lead in blood for workers would be much more like *ten* micrograms per decilitre, so yes, it's laudable that Nyrstar has gone to 30 $\mu\text{g}/\text{dL}$, quite a number of other companies in Australia have also gone to around that level; the occupational health and safety level *is* ridiculous at 50u/dL, in fact, it's criminal, and in fact in Western Australia I'm told it's even higher than that, which is even more criminal, so..

KIERAN WEIR: Is it true, is it proven, in fact, that lead is in fact fatal, that it will lead to complications, medical problems, that it can cause death, and what levels would you need to see to be able to identify those sorts of medical complications?

ELIZABETH O'BRIEN: The way the lead poisoning works is that basically you take on lead in place of calcium and iron in your body, and then, after many years of the calcium and iron functions of your body not working properly due to the lead, you end up with a higher risk of hypertension - and heart attack and stroke therefore, but also the brain architecture is affected, because there's a lot of calcium in the brain, and, the, you know, the risk of Alzheimers goes up. Also in the bones, when you have lead in place of calcium in the bones, you suffer a greater risk of osteoporosis, which can be fatal. So there are a number of ways that lead can affect the body, but / and the only answer really is prevention.

KIERAN WEIR: Elizabeth, we thank you for your time, one more quick question before you go – do you want to see compulsory testing for all residents who live in a lead town?

ELIZABETH O'BRIEN: Well, I mean, of course, I won't be popular by suggesting that, and there's never ever been compulsory testing of anyone except a worker; basically our legislation is set up so that you can't force anyone to have a test, unless they are being *paid* to do the work, so that's not going to happen - that blood lead testing for adults would be compulsory. It would be the same as it is for children, where: it is offered, and it's free, and it's easily obtainable – that would be the best outcome, and...

KIERAN WEIR: Speaking of which – sorry just to jump in there – speaking about *paying* to do the work - your federal funding runs out at the end of the month... have you heard anything from the Government about whether they'll be funding your work again next year?

ELIZABETH O'BRIEN: Yes, we have - only verbally, not in writing - so yes, we constantly have this problem going on from year to year.

KIERAN WEIR: Elizabeth, thanks for joining us on the program this morning.

ELIZABETH O'BRIEN: Thank you.

KIERAN WEIR: President of The (Not-for-Profit) LEAD Group. We go now to Professor Peter Baghurst – he has been having a look at the lead-in-blood issue for many many years now, in something called the Cohort Study. Professor Peter Baghurst, welcome to our program this morning.

PROFESSOR PETER BAGHURST: Good Morning.

KIERAN WEIR: The Cohort Study – tell us a little about its history – how long has it been looking at this issue?

PROFESSOR PETER BAGHURST: Oh, well, actually, that particular study that you mentioned – we finished following that cohort in the middle of the 1990's, so that was a group of 700 or 600-odd children that were born in Port Pirie way back in the years 1978 to 1982. And we followed those children until they were 11 or 13 years old, really. So, and we measured their blood lead many times throughout those 11 to 13 years really, and we also tested them with respect to their cognitive ability, using IQ tests and we also got their parents and teachers to assess their behaviour because there are suggestions that lead exposure may be linked to emotional and behavioural problems as well. And at the end of all that, of course we obviously looked for links between lead exposure and decreased cognitive ability, and increased emotional and behaviour problems, and we *were* able to find some relationships there, but, somewhat controversially, although everybody else sees this as well, we did find that, to a large extent, many of the *apparent* effects of lead were actually attributable to other things – other things such as the genetic inheritance that we all get from our parents , so, for example, a child who did really well on an IQ

test was likely to have parents who would do extremely well on an IQ test; children who had higher IQ and less emotional behavioural problems tended to be ones that came from stable households, with both parents still living together, who provided them, their child with a warm and an affectionate upbringing; and so when we took all those sorts of things into account, the effects of lead were really fairly modest; but, nevertheless, given that they were something that was potentially preventable, was kind of strong evidence for – a strong reason, at least - to do the utmost to make sure that lead exposures were minimised.

KIERAN WEIR: The Ten by 10 [“The tenby10 goal is to have at least 95% of children in Port Pirie with a blood lead level of less than 10 micrograms per decilitre ($\mu\text{g}/\text{dL}$) by the end of 2010.” Ref: www.tenby10.com/about_tenby10/tenby10_goals/Content] has been a very expensive project for the smelter, and it seems like there’s been a recent spike in some of the figures. Would you, as a researcher, be able to give us any reason that that **may** have happened, and the implications for those kids who’ve been tested?

PROFESSOR PETER BAGHURST: Oh look, my colleagues in SA Health [South Australia’s Dept of Health], ah, ah, who’ve shared data with me – it’s clear that from what they find, that there has been um, a little, a blip, if you like, in both in air leads, and in, subsequently in children’s blood leads, over the past few months. So um, there’s no doubt that something’s been happening, and it sounds as if the management of Nyrstar are acknowledging that. So I don’t think there’s any sort of argument about the fact that there has been an increase in the last few months. Now the impact on the children’s blood leads is clearly regrettable, but the information that I have would suggest that, um, ar, those increases would have no really perceptible effect on children’s health, so, um, whilst it’s a regrettable state of affairs, and everybody seems to be agreeing that it’s something that needs to be fixed, so that we get back on track... where the Ten by 10 project is actually looking remarkably successful over the long term, so this is something that’s just happened in the last few months. So, you know, I just think we need to put this all in context, and my, sort of heart goes out to residents of Port Pirie who might be sort of spooked by, um, somewhat overstated health claims around the consequences of what’s happening there at the moment.

KIERAN WEIR: Would you advise adults in the Port Pirie region to be tested for lead in blood, or do you think that that is just a step too far?

PROFESSOR PETER BAGHURST: Oh, um, look, um – people ought to be able to get it done if they want to, but my own knowledge tells me that a lot of adults in Port Pirie have remarkably similar blood lead levels to those in Adelaide. So, it’s probably the children that we need to monitor most closely, because children are more capable of absorbing the lead they’re exposed to, and of course their much smaller bodies – they’ve got much smaller bodies, so a dose is potentially more important there, so um, but of course, there’s a huge testing program going on then in Port Pirie, and it’s very easy for people to get their children tested there, in fact, and they’re the ones that we really need to keep a very close eye on.

KIERAN WEIR: Professor Peter Baghurst, we really appreciate you joining the program this morning.

PROFESSOR PETER BAGHURST: OK.

KIERAN WEIR: And the Director of Public Health, SA [the State of South Australia] is Dr Kevin Bucket, and he joins us on the program this morning, to get a response. Kevin Bucket, a very good morning to you.

DR KEVIN BUCKETT: Good morning.

KIERAN WEIR: The latest calls to have adults tested in Port Pirie: is it a bridge too far?

DR KEVIN BUCKETT: Yes, I think it is a bridge too far. In fact, it's really quite irresponsible to make the claims, and raise the fear, that is being raised here, based on very little evidence. We do monitor virtually all children in Port Pirie. [Elizabeth O'Brien's note: he probably meant all children aged up to four years ie the age-range in the report that the interview is about.] We do monitor pregnant women in Port Pirie, and probably we understand about the blood lead level of about 80 to 85% of women who become pregnant during their time in Port Pirie. We know from that data that women – the average blood lead level tends to be around 3 µg/dL – which is about the same as you'd see in Adelaide - so, the fact that there is a smelter in Port Pirie does not seem to impact particularly on the adults of Port Pirie – if they're working in the smelter, then they are required to have a blood lead test as a part of their employment, and Nyrstar do monitor that. For the rest of the community, the problem is with children. It's the fact that they are more easily exposed to lead, they've got hand-to-mouth activity. The very sensitive years in fact are the first two years of life. That's the area where we need to focus, and that's why we have the Ten by 10 program to actually get the lead out of the air, stop the emissions, and then do all sorts of things in the community as well, to reduce childhood exposure.

KIERAN WEIR: I'm speaking with the Director of Public Health, SA, Dr Kevin Bucket. The statistics, in the way that they're released, the way that populations are tested – particularly young children's statistics - we're talking about here of course – we've focussed on the young people of Port Pirie in these studies - how long did your Department actually...when do you get the stats – do you get them as they're released by the company and by the EPA [SA Environment Protection Authority]?

DR KEVIN BUCKETT: We've been monitoring the blood lead level of children since way back in the mid-80s. The way that we do it currently at the moment is that all of the - virtually all of the children do have their blood lead tested [Elizabeth: again, he probably means virtually all of the children up to the age of four.] You can't make people do this – this is not a Stalinist or Nazi regime, this is a medical intervention, and people have a right to say Yes or No to taking part in it, but the community of Port Pirie are very much behind the program, so we do get most children. Their blood is taken through a pin prick, a needle prick process, so it's a much less invasive process than the usual venipuncture, and that's taken once a year, every year... every year we take a child's blood lead level.

KIERAN WEIR: So, how long have you had these most recent stats?

DR KEVIN BUCKETT: Well, the data that's just been reported, for the first quarter of 2010, was, from the blood taken in the period from the 1st of January to the 31st of March.

KIERAN WEIR: So why the three-month delay in releasing those stats?

DR KEVIN BUCKETT: Well, it's not a three months' delay in releasing those stats, that's when the blood is taken – the blood then has to go to a laboratory, has to be analysed, we have to do quality control, we have to do the analysis of what the numbers mean then, and then we have to release a report. Then we have to discuss it through the Ten by 10 program and those discussions happened late in May.

KIERAN WEIR: So how long would the Minister have had those figures – just late May?

DR KEVIN BUCKETT: Late May. Right towards the end of May.

KIERAN WEIR: Right, OK, What, uh, let's, well, how much delay are we talking about, between the time that that testing happens, and the time that you actually get them on your desk?

DR KEVIN BUCKETT: Ah, well, it's ...the first-run report, as I recall, was finished on the 30th of April.

KIERAN WEIR: OK, is, the public being kept up...

DR KEVIN BUCKETT: Sorry, I've, it's the 20th of April.

KIERAN WEIR: Is the public being kept up-to-date with these figures as soon as they're available – should they not be on a web site immediately when you, the health authorities know about them, or when the company knows about them? Why the process that you have to go through after that?

DR KEVIN BUCKETT: Well, it's an extremely difficult issue - in terms of taking the samples themselves, and doing the analysis. We release information every three months; previously, up until the start of the Ten by 10 program we only used to do it annually, because we needed to have the whole population sample before we could do the analysis. Now we do an analysis for the first three months of the year, then the first six months of the year, then the first nine months of the year, and then the final, full year. The numbers of children involved in each three month period are very variable – it depends when people's birthday is, having their annual blood lead test, so it's not a simple, straight-forward matter. What we do, though, is try and have the information as quickly as possible, so that we can monitor that trend, so that we can make sure that we're heading in the right direction. And, from the inception of the Ten by 10 program, until this last set of data, we have been heading in the right direction. It's very disappointing that the last three months' data show that the blood leads have risen, following increased emissions from the smelter in the second half of last year.

KIERAN WEIR: And, as far as you know, is there any evidence to suggest that adults, even with low blood levels can be experiencing medical complications that could even lead to fatalities? Really serious medical issues that we're simply missing, and not studying?

DR KEVIN BUCKETT: There is quite a deal of controversy about this. There are some studies that have showed effects such as Elizabeth on your program was saying earlier, at low level, but there really is no medical consensus about this, it's an area that's still being actively researched, and it's very hard to say that having lead in the blood is going to be um, ah, a problem of the nature that Elizabeth says.

What we can say, though, is that, from what we know, the people, the adults of Port Pirie are not at any greater risk than other Australians – in particular, living in the urban environment. We know that the pregnant women's blood level in Port Pirie is about 3 µg/dL, and that's not too dissimilar from what you'd find in Adelaide itself. So, it's not really an issue, and I think – and it would be very rare, we've got no evidence that there's higher mortality rates in Port Pirie, than anywhere else, so it really is quite irresponsible, I think, to claim that and to put fear in people that these sorts of things are happening. We just don't have the evidence that it is happening.

KIERAN WEIR: Dr Kevin Bucket, we understand that both Nyrstar and the Port Pirie Regional Council wrote to the Public Health Department seeking additional help with the problem. What do they want? What sort of help do they want?

DR KEVIN BUCKETT: Well, I haven't seen those letters at the moment, I have to say, but I think that it's important to note that we have been running a program in Port Pirie since the mid 80's, entirely focussed on reducing blood lead levels. We – the first ten years of the program –there was an assumption that it was historical exposure to lead, because of a hundred years' of operation of the smelter and the railway bringing lead ore through the town and so on. We cleaned up over two thousand houses, including the roof space, demolished some houses, put green space in its place, started monitoring children, and so on, and after ten years we managed to get the blood leads down quite remarkably, but we weren't getting them down far enough. Then we understood that it was actually the major problem was current emissions from the smelter, and that's changed our focus of course. We have spent a considerable amount of money and effort and a great deal of dedication by a large number of very dedicated staff trying to tackle this problem for over twenty

years, twenty five years or so, and we're very happy that in 2005, when the Ten by 10 program started, which actually shared the burden a little bit, and involved, more centrally involved the smelter, and who took strong leadership on it, I have to say, and the local council and other government agencies, so you know, and we were having considerably more success than we'd achieved in the previous few years.

KIERAN WEIR: The Director of Public Health in South Australia, Dr Kevin Bucket, thank you for your time on the program.

DR KEVIN BUCKETT: Thank you.

KIERAN WEIR: It's coming up to twenty-seven and a half minutes to ten, we are talking heavy metal on the program today – no, not the music, the substance, and we've had a caller, and wanted to follow up whether cereal crops grown in the Port Pirie hinterland are segregated after harvest: "As an on-farm apprentice many years ago, we were told that heavy metals' fall-out, lead and cadmium, on crops in the Wirrabara area, would become an issue." That was a caller this morning. We're going back to Professor Peter Baghurst, who has led a lead study, bad use of the word "lead/led" there twice in the one sentence – Professor Peter Baghurst, welcome back.

PROFESSOR PETER BAGHURST: Hi.

KIERAN WEIR: You've been listening in, there – final question: is it possible that there are people dying of medical complications and that lead could be leading to serious health issues or fatalities?

PROFESSOR PETER BAGHURST: Ah, look, I have to agree with Kevin Bucket on this – that the evidence is unbelievably weak... I have the utmost admiration for Elizabeth O'Brien's advocacy work in reducing exposure – and while there's any doubt about the health effects of lead – clearly, the best thing we can do is minimise exposure, but I really have to say, with due respect to her, that some of the claims she was making were enormously alarmist and really not properly supported by higher level evidence, such as those levels proposed by the National Health and Medical Research Council. So, for example, there've been countless studies over the years, looking at the relationship between blood lead levels and blood pressure, and really, ah, the overall effect that was detectable, um, would have been so small that it would never be actually detectable in a doctor's office, really. So, um, while we still need to be prudent and to minimise exposure, I really do think that we have to be a little bit more rigid about the evidence that – on which we base some of these health claims. And I suppose – the one other thing that I think might *really* be useful to your listeners around the Port Pirie area, is that – help them understand that a lot of our understanding of the health effects of lead was actually based on dosages that are much higher than we're experiencing at the moment, and really, I don't see that coming out in much of this discussion over the last few days. So, if we look at exposures in the population in Port Pirie at the moment – in adults, in fact they're pretty much the same as they are in Adelaide here, so one of my – my project manager in Port Pirie has a blood lead level of around 2 or 3 µg/dL. I have one. I live in Adelaide, and I live up in the hills, in a fairly nice, clean environment, I myself have a blood lead of around about 3 µg/dL. So, we'll never get those values down to zero, because there's sort of naturally-occurring lead in the environment as well, and we're possibly seeing the um, ah, some tail-off in the lead that we used to be exposed to from petrol, and that brings me to the last point that I really think your listeners might be interested to know about, is that, the kind of exposures that we're seeing in Port Pirie now are certainly no worse, perhaps a bit better than we were seeing in big capital cities around Australia in the 1980s, like Melbourne, particularly, there's a lot of work being done, and Sydney, so, before we started to take the lead out of petrol, you'd actually be hard pressed to find any child with a blood lead level below 10 µg/dL. Now, of course, we're terribly anxious that there's been a hiccup in the trend in Port Pirie, where numbers, up until recently, were looking like 70% of children achieving less than 10 µg/dL. So, back in the 1980s, in Melbourne, you would have been hard-pressed to find any child less than 10. So, we

need to appreciate that any health effects – and there may still be some – at this level of exposure, are bound to be incredibly modest. So, people shouldn't be spooked into thinking that these recent events, regrettable though they may be – will lead to some really nasty health consequence down the track for all the kids living in Port Pirie.

KIERAN WEIR: Professor Peter Baghurst, from the Public Health Unit at Adelaide University, we thank you for sharing your knowledge with us on the program this morning.

PROFESSOR PETER BAGHURST: My pleasure.

KIERAN WEIR: Now, just briefly back to Elizabeth O'Brien – she's the President of The LEAD Group - and we will then hear from a resident, who decided to move her children out of the city because of raised blood lead levels. But just very quickly, back to Elizabeth...Elizabeth, thanks for hanging in with us this morning.

ELIZABETH O'BRIEN: Thanks Kieran.

KIERAN WEIR: You've been vindicated there by other experts working in the area. Any final comment, any words about people who may be worried about their own blood lead levels?

ELIZABETH O'BRIEN: Yes, the way to know whether you have an increased risk of anything that I've been talking about is to have a blood lead test. I would definitely encourage anybody in the whole of the world, actually, to have a blood lead test, but especially people in Port Pirie and any capital city. I agree that people in capital cities can have elevated blood lead levels. I myself have a level of 4 µg/dL right now. It's going up, because I'm peri-menopausal – I turn 54 today, and you know, this is something that I'm going to be tracking for the rest of my life, because it is expected that blood lead levels will rise as everybody ages, and that's because the lead in our bone stores is coming out. What I would like to see happen in Port Pirie is the studies which would actually *find* the data to compare Port Pirie fatalities and what people die of, to those of Australia, to see – and to compare their blood lead levels at the same time to the rest of Australia, to see whether it is reasonable to say that my claims are, "over the top."

KIERAN WEIR: Elizabeth, thank you again.

ELIZABETH O'BRIEN: Thanks.

KIERAN WEIR: The President of The LEAD Group, there. And now, finally to somebody who's been very patient: Debbie Devlin is a resident of the Port Pirie region; she's also a councillor on the regional council, and she joins our program. Debbie, thank you for being so patient this morning.

DEBBIE DEVLIN: My pleasure. It's been very interesting.

KIERAN WEIR: Oh, good. You have been an advocate of keeping this issue front-and-centre in people's consciousness in the city of Port Pirie, and a few years' ago now, you discovered your children had elevated blood levels and you moved out of the city. What happened to their blood levels after that move? [*Ed's note:* For more detail about Debbie's history with this issue, see the transcript of another ABC radio interview on 10/2/06 at www.abc.net.au/stateline/sa/content/2006/s1568236.htm]

DEBBIE DEVLIN: We're talking nearly 30 years' ago, and in the context of blood lead levels were not known about and 30 µg/dL was the "level of concern", and when I was concerned about my child's health actually when she was about four, took her along to a doctor, asked to have lead levels tested, and they weren't really sure why I would even ask for that as a parent; and their levels fluctuated over a three-month period between 34 and 43. So, it was in a climate where Council, the smelter at the time, and the government didn't really want to know, wanted to blame the victims, not really look at doing anything about the problem, so in that context I decided that the only thing I could do would be to move my children away from the point-source of pollution.

And it took 18 months of natural chelation, living in a very lovely rural area down near Koolunga for their lead levels to drop below 20.

KIERAN WEIR: I know that lead, as a toxin, is absorbed into the bones, and has all sorts of toxic multiplier effects – did your children – were their blood lead levels then, after that 18 months or first two year period – did you see those levels drop significantly, to the point of being able to say, “It’s ok now, I don’t have to worry”?

DEBBIE DEVLIN: Well, in those days, anything below 20 was an “it’s OK – I don’t have to worry any more” – it was a different level of knowledge and different understanding of the impact on children of blood lead levels, so after 18 months we didn’t retest and we’ve continued to live... they’re in different states now and young adults. But certainly I believe that there were significant impacts, on particularly one child seemed more affected than the other: *[inaudible]*, poor coordination, you know, just a whole range of general not-healthy things that made us concerned.

KIERAN WEIR: You still work in the city, and we had a letter from a listener yesterday: Mary lives in the Port Pirie region, but not in the city, and she says “The latest blood levels make me wonder whether the fall-out that can be seen from the city from the rural areas is causing problems by covering equipment in the lovely playground in the main street,” and she says, “this area”, as far as she knows, “isn’t washed down – there aren’t wash basins or signs provided at the gate for visitors to wash hands, as in the Ten by 10 Ads” – is that something that we should be looking at immediately?

DEBBIE DEVLIN: Certainly, I’m concerned that that is happening, that the playground *is* cleaned regularly, but you’d need to talk to the Council directly about that, but my understanding as an elected member is that that is happening.

KIERAN WEIR: Debbie, thank you for your time this morning. I know it was brief but your story is one that is personal, you’ve personalised this story for us, your kids are obviously doing very very well now, no harmful or ill effects?

DEBBIE DEVLIN: No, yes normal young adults.

KIERAN WEIR: Debbie, thank you for your time.

DEBBIE DEVLIN: Thankyou.

[The following links provide good context for these interviews:

1. *Model National Public Health Policy on the Prevention of Lead Poisoning* by The LEAD Group, at [www.lead.org.au/Model National Public Health Policy on the Prevention of Lead Poisoning 20080516.pdf](http://www.lead.org.au/Model%20National%20Public%20Health%20Policy%20on%20the%20Prevention%20of%20Lead%20Poisoning%2020080516.pdf)
2. *Dangers of a blood lead level above 2 µg/dL [two micrograms per decilitre] and below 10 µg/dL to both adults and children* by The LEAD Group at [www.lead.org.au/fs/Dangers of BPb Level Above 2ug dL and Below 10ug dL 200909 22.pdf](http://www.lead.org.au/fs/Dangers%20of%20BPb%20Level%20Above%202ug%20dL%20and%20Below%2010ug%20dL%2020090922.pdf) [Transcribed below by Elizabeth O’Brien]

Worries over blood lead rise: Port Pirie’s smelter operator is asked to explain why children’s blood lead levels are again rising in the SA city – ABC TV news telecast aired 7pm, 2nd June 2010, South Australia ABC: www.abc.net.au/adelaide/archives/?date=2010/06/02 **7PM SA ABC TV**

Newsreader: the state government has ordered the operators of the Port Pirie smelter to explain why there’s been a rise in blood lead levels in local children. The health department says recent tests show that 43% of young children have lead in their blood above the level deemed safe by the World Health Organisation. That’s up from 31% last year. Higher than normal lead emissions have forced the smelter to close twice this year.

Greg Poynter, Managing Director, Nyrstar: it really relates to the way our process is operating on the site and when we have unstable operations, that leads to more emissions.

John Hill, South Australian Health Minister: Higher concentrations of lead level in the brain of a child can lead to delayed intellectual development so it really can be profoundly affecting.

7PM ABC TV Newsreader: the government is demanding to know how the smelter's operator, Nyrstar, is addressing the problem.

3. *Rise in children's blood lead worries authorities: An explanation has been demanded from a smelter operator on why blood lead levels have risen in children at Port Pirie in South Australia*, 2nd June 2010, ABC News online, www.abc.net.au/news/stories/2010/06/02/2915889.htm?section=justin
4. *Blood lead fight must continue: Unfortunately for Port Pirie, the deadline on its goal to reduce lead levels in the community is fast approaching and it doesn't look like the ambitious target will be met*, 9th February 2010, Loukas Founten, ABC News online, www.abc.net.au/news/stories/2010/02/09/2814644.htm]

The Arrival of Peak Lead: Peak Environmental Impacts?

By [Dr Gavin M. Mudd, Monash University](#), September 2010

Lead mining is amongst one of the oldest sectors of the global mining industry, reaching back centuries in some places (even back millennia in Europe). By the mid-twentieth century, lead was ubiquitous in batteries, paints, petrol additives, chemicals, metals and alloys, and much more. By the late twentieth century, however, lead was also understood to be a recalcitrant pollutant to the environment and public health, leading to removal from paints and petrol and major recycling programs for batteries.

Given that lead is a non-renewable and finite resource, there are always concerns that we may eventually run out of remaining lead deposits to mine. This, however, is only part of the issue – like ‘peak oil’, we may not run out of remaining lead deposits to mine, but they will be increasingly harder to extract and process, leading to uneconomic lead mining.

As the dawn of the third millennia continues to grow, what are the key trends in primary lead production from mining? This is a brief review of some of the main mining trends which underpin the lead-zinc sector of the global mining industry. The article is based on continuing research on the sustainability of mining and its associated environmental costs, and the published peer-reviewed papers are available from the author.

Lead is commonly found in hard rock sulfide deposits, usually in association with zinc (Zn) and silver (Ag), and occasionally in polymetallic deposits of lead-zinc-copper-silver-gold. These deposits are somewhat widely spread around the world, with major producers at present being China, Australia, United States, Canada, Mexico and Peru. Significant zinc is also produced by India, Kazakhstan, Sweden and Ireland. (MBendi 2010)

Recent research has documented the long-term trends in lead mining in Australia (Mudd 2009a), covering the early days of hand-sorting lead ore at Northampton in Western Australia during the mid-1800s to the rise of Broken Hill, Mt Isa, Rosebery, McArthur River, Century Zinc and Cannington, amongst others. In addition, growing global data sets also examine similar trends from Canada (Mudd 2009b), with countries such as the USA, Peru and Mexico being analysed at present. The research provides important and unique insights into the evolution of an industrial sector such as lead mining.

The long-term trends in global lead and zinc production are shown in Figure 1 below (top left and right graphs respectively). Curiously, by 1973 global production reached about 3.67 million tonnes (or 'Mt') and began a downward trend to reach just 2.7 Mt in 1993. This decline corresponds to the growing global awareness of lead's true nature as a toxic heavy metal and declining uses. From the mid-1990s, global lead production again began to grow, led mainly by booming production from China, reaching a new high of some 3.9 Mt in 2008. In contrast, global zinc production has enjoyed a long-term steady growth. Growth was rapid following World War 2 until the mid-1970s, due mainly to rapid industrial growth in western economies, followed by slower growth until the mid-1990s when both Chinese production and consumption grew rapidly. By 2008, global zinc production had reached 11.7 Mt. The strength of zinc production over lead also shows the preferential importance miners place on zinc over lead, due to its higher price and demand. The lead production over time by mine in Australia is shown in Figure 2, clearly showing the dominance of Broken Hill, Mt Isa and more recently Cannington.

The next major trends over time are ore grades – that is, how much lead and zinc is contained in each tonne of ore mined and processed. Trends in ore grades for Australia and Canada are shown in Figure 1 (middle left and right graphs). For Australia, the ore grades are dominated by large fields such as Broken Hill, Mt Isa and Rosebery, and more recently by Century Zinc, Cannington, Golden Grove and McArthur River. The ore grades of Australia's mines over time are shown in Figure 3. The obvious trend is a long-term decline in lead grade, plus a lesser decline in zinc grade. In Canada, lead production has historically been dominated by a small number of major fields and mines, such as the Kimberley-Sullivan field of British Columbia, Brunswick and Heath-Newcastle in New Brunswick, Faro and Keno-Elsa in Yukon, Polaris, Baffin Island and Pine Point in the Northwest Territories, and a range of minor producers such as copper-zinc mines and districts (especially in Quebec and Manitoba).

Ore grades are crucial to monitor, since they are fundamental to understanding the economic costs of lead production as well as environmental costs and impacts. For example, to produce one tonne of lead from 10% Pb ore takes 10 tonnes of ore, while 1% Pb ore requires 100 tonnes of ore. As grades decline, energy costs increase and so do greenhouse gas emissions and water requirements, plus more mine waste is produced such as tailings (rock remaining after lead-zinc extraction, normally some 80-90% of the ore), plus any waste rock produced from open cut or underground mines. Waste rock has no metals of economic value, but is often problematic from an environmental perspective due to its sulfide content – which gives the waste rock a strong propensity to leach pollution via 'acid and metalliferous drainage' (AMD). That is, the sulfide minerals in the mine wastes can undergo chemical reactions to convert to sulfuric acid, leaching extremely high concentrations of salts and heavy metals into the environment. Thus, as ore grades continue to inevitably decline, the environmental burden increases – both in energy, greenhouse and water terms given the greater amount of ore required, but especially in terms of the legacy of mine waste to manage and rehabilitate following mining (Mudd 2010).

The final critical trend is remaining economic lead-zinc resources, also shown in Figure 1 (bottom left and right graphs). The data includes Australia, Canada and the USA, each providing sharply contrasting trends. Over time, Australia has been quite successful in mineral exploration, leading to a strong growth in economic lead-zinc resources over time, especially for zinc. In the 1990s, major new deposits were discovered and developed at Century Zinc and Cannington in Queensland, with significant growth in resources at existing fields also. In contrast, Canada shows a long-term and seemingly inevitable decline, especially for lead. There has been no major new discovery in Canada for some time, with most being somewhat small to moderate. If one examines all mineral resources reported by lead mining companies in Canada, a much higher remaining resource can be estimated, although the declining trend over time would still effectively be

similar. The USA appears to be somewhere in the middle, although the US Geological Survey estimates are somewhat coarse and considered order of magnitude only.

For major mines and fields across the world, some have remained in production for more than a century – even at global scales of annual production (eg. Broken Hill, Kimberley-Sullivan). In contrast, numerous projects have closed after some decades, due to exhaustion of ore resources (eg. Polaris, Heathcote-Newcastle). If the trends in lead-zinc production growth continue, it is clear that even Australia's lead-zinc industry is not immune – major mines such as Century and Cannington have about a decade or two remaining, respectively. Historically speaking, this situation is not unusual nor unprecedented – the Broken Hill field for most of its early years only had a decade or two of resources remaining, a pattern it maintains even by 2010. The longer that the trend of growing production (and demand) continues, the harder and harder it gets to maintain growing production through new discoveries, technology and economics.

All of these trends point to the emerging application of 'peak curves' to minerals – following the increasing acceptance of the peak oil problem. That is, as new deposits become harder to find and mine or process, as ore grades decline, and as demand continues to grow, this will inevitably lead to a maximum production rate from mines before a painful and perhaps permanent decline. Of course, this does not necessarily mean that the world will run out of lead – indeed, given the massive stock of already mined lead in widespread use around the world, there are good options for the future such as more aggressive recycling, more efficient use, as well as substitution where possible and realistic.

A final point to consider is the environmental impacts of lead-zinc mining specifically: although uses can often result in widespread public health or environmental problems (eg. paints, petrol additives), the actual mining and primary processing stages are also significant sources of impacts. At many historic and current lead mine and smelter sites in Australia there are ongoing sagas of soil, water and/or air contamination. For example, recent research at the Mt Isa complex has shown that the lead contamination in soils which is linked to elevated blood lead levels in children is unequivocally related to historic and current lead emissions from the lead mine and smelter (Taylor et al 2010). It has taken extensive work over more than three decades at the Port Pirie lead smelter site to address lead emissions and blood lead levels in children, but the problem is still not completely solved. Perhaps the most remarkable example of all is the Magellan lead mine in central Western Australia – it was opened in 2005 but by early 2007 it was proved that its concentrate, trucked to Esperance for overseas shipping, had caused massive environmental contamination. As grades decline, this will require even greater volumes of ore to be mined and processed, placing substantive upward pressure on the cumulative environmental impacts of lead production.

Although global lead production will soon 'peak' sometime by the middle of this century (optimistically speaking), it is clear that the cumulative environmental impacts of lead mining will continue to grow well beyond this unless there is pro-active intervention by industry, government and the community. In this regard, it is important to understand these key trends in lead production – declining ore grades, increasing mine wastes and environmental footprints – since they will become increasingly important to recognise as the world's population continues to grow and consumption rises. Let us hope that we can address the potential environmental and public health impacts more successfully than in the past.

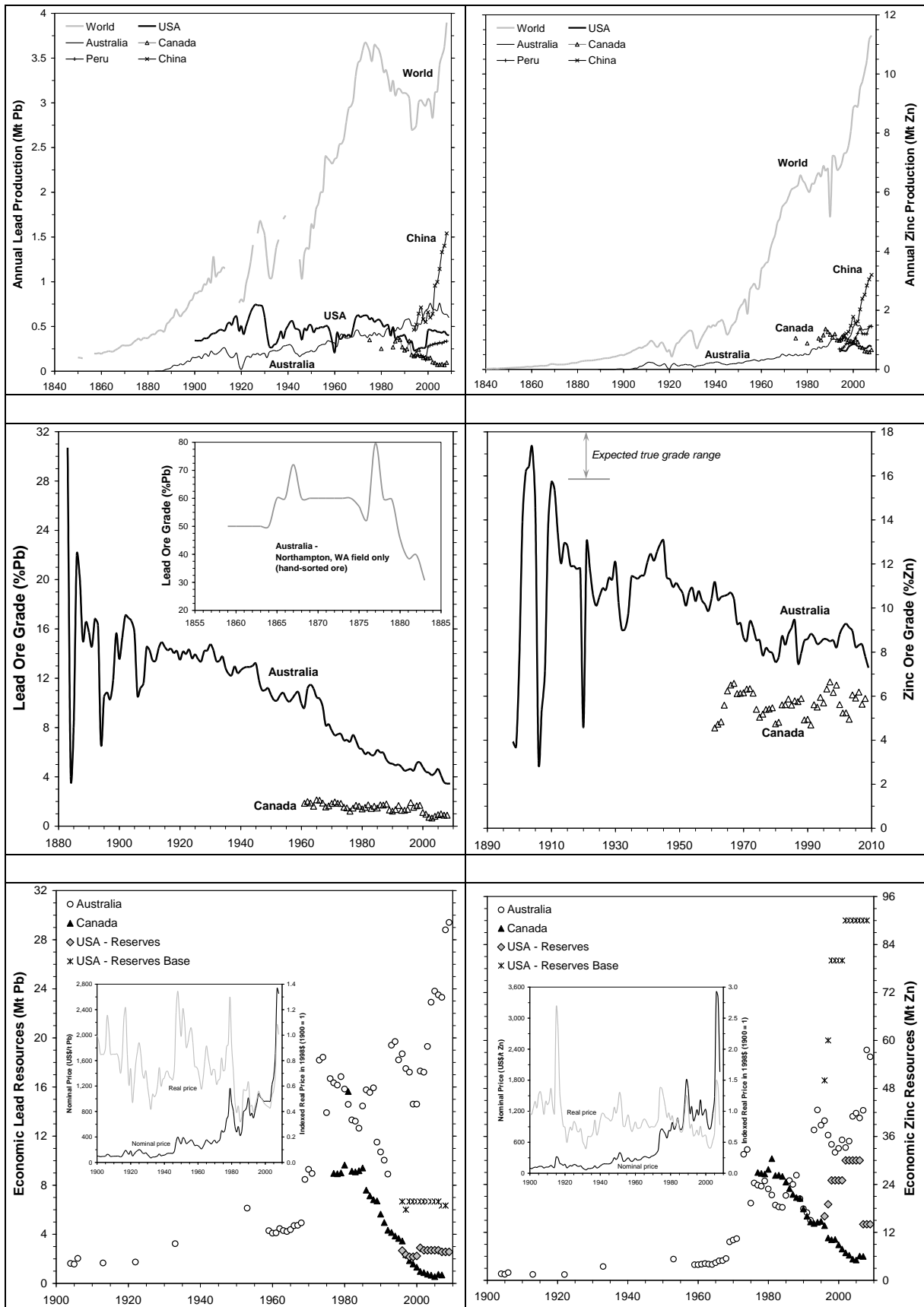


Figure 1: Lead and zinc production over time (top); Ore grades over time (middle); Economic resources over time (bottom), with nominal and real (US\$1998) Pb-Zn prices over time (inset)

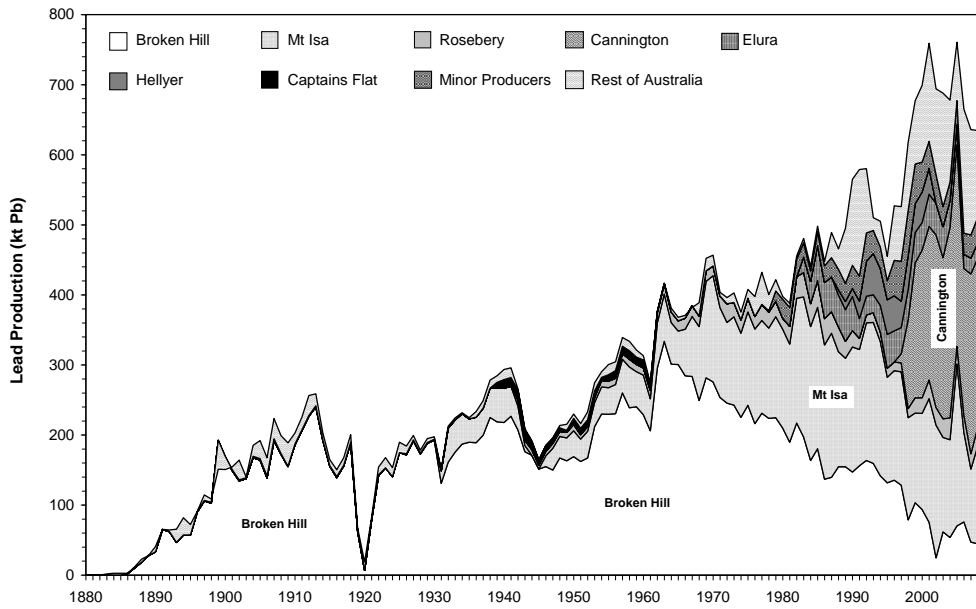


Figure 2: Lead production by mine for Australia over time

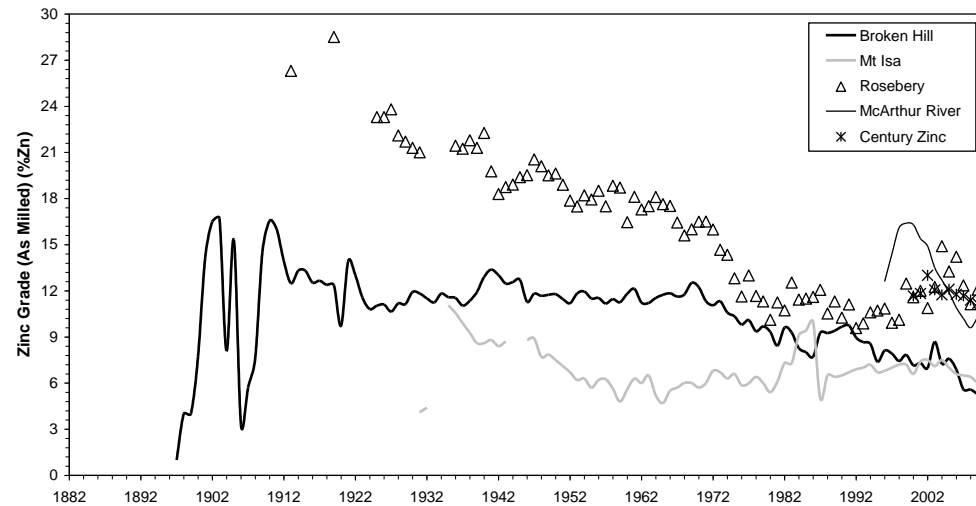
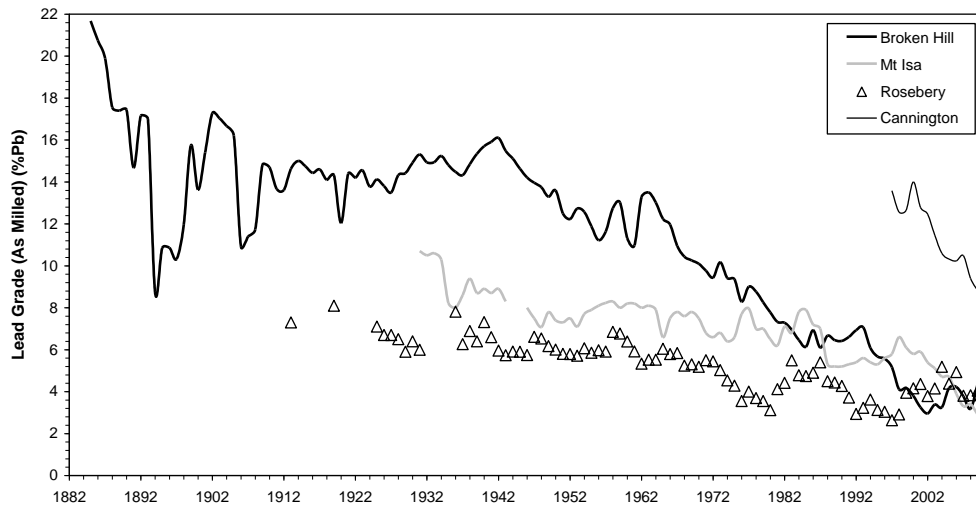


Figure 3: Lead-zinc ore grades for Australia over time

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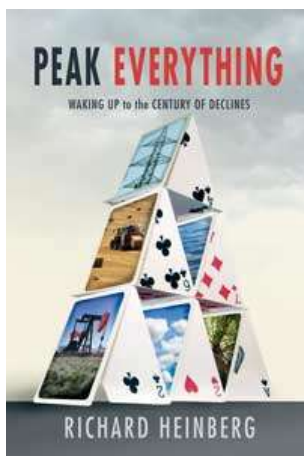
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Peak Oil, Lead & Everything

By Ian Smith, Systems Analyst for The LEAD Group Inc.

Into the garden with the sunrise, and a deep sense of belonging arises along with the rising of the bird chorus and the dissipation of darkness. A mythical *simpatico*, being in the garden grants a free access-all-areas pass to the higher powers of humanity from proximity to absolutes (or lack thereof, as you will) inherent in nature.

This wisdom from the garden is now a calling to action.



Along with apparently peak everything (Heinberg, 2007, Robinowitz 2009), comes peak lead. This is the point in history where the amount of new mined lead will start to decrease. (See Mudd, 2010, preceding this article.) Not as immediately as fossil fuels availability will slow, but as inevitably. Equally inevitably, food too must be at or near its peak production and soon to decline. As the decline in cheap available fossil fuel progresses, the ability to fertilise and then transport vast quantities of food all around the world will also decline.

The current situation of local supermarket shelves full of fresh food from around the global village will cease, to be replaced with a less widely ranging array of local produce to chew upon while we contemplate our position.

Our position is that we're living in the time of the maximum of new mined lead entering the world. We're contending with the centuries of bygone ignorance of chemistry and medicine and the lack of lead management practices. We're looking to a future of still more lead and heavy metals (though decreasing) entering the biosphere, but now with less energy available to conduct mitigation strategies.

With Australia adopting the 'clever country' approach to economics, specialising in being the world's hole in the ground for metals (sarcasm – bazinga!), the numbers of people living in or affected by contaminants from mining activities is significant. Adding the cleverness of shipping

those metals overseas to countries without even our OH&S practices and environmental protection legislation and the people negatively affected by this mineral wealth is far greater than just the population of Australia. It is documented through the 'free-rider problem' that these health costs are not picked up (to the satisfaction of those badly affected) by those positively affected by the dividend payouts of the mining companies.

Our position is one of reducing fuel energy available for food transport (which will result ultimately in reduced food) and significant and increasing heavy metals contaminants in soils where we may grow our own vegetables.

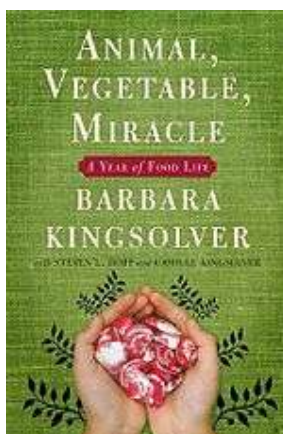
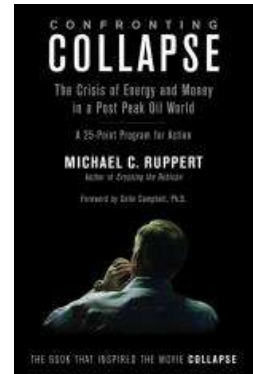
Sounds bleak? Back to the garden...

To the urban concrete and steel dweller, the idea of producing food yourself rather than getting it from the mall sounds stupid. Not even wrong. But a very modest vegetable garden patch can provide a decent part of your fresh food intake, and more than enough herbs to give away to friends and family (stupid parsley just takes over everything!)

But when Cuba's economy and society was floundering after the fall of the USSR, the people staved off starvation and (more) hardship through community gardening every un-concreted space (Ruppert, 2009).

In "Animal, Vegetable, Miracle" (Kingsolver 2007), a modern day rural family could feed themselves and live comfortably from food they grew themselves or grown from farms within a short distance. While not practical for everyone, it pointed out the petrochemical energy content in food as a consequence of the globalisation of agri-business.

Local food contains the energy of the food taken from the soil, the water & the sun. From an energy economist's view, the imported food contains all the transport costs too. Each calorie of supermarket food took 10 calories of fuel energy (Ruppert 2009) to get it to you. When food can be imported from China for less than the cost of local produce, fuel is so cheap, too cheap... its cost is not indicative of the energy content. Using 10 times as much energy as food is worth to get it to you requires much, and accomplishes little. Do you really need those out of season strawberries flown in from Portugal?



Organisations are forming around organic farming, farmers' markets and home delivery to attempt to find commercial value in minimising pesticides, fertilisers and fossil fuel use inherent in large scale farming. In Australia, Australian Community Foods: for people interested in healthy, local foods provides web search tools at www.communityfoods.org.au/ The Animal, Vegetable, Miracle (2010) website provides links re local food in the USA and UK: www.animalvegetablemiracle.com

Before getting your hands dirty, you want to know what the 'dirt' is. The dirt is that the dirt can be full of some nasty stuff you don't want to put on yourself nor on your vegies. This is particularly so in the backyards of houses that were formerly industrial areas in the days before Occupational Health and Safety legislation. Also in contemporary mining and smelting towns (Kachenko 2004), along the railway lines and in the sea port towns around the country where the mineral wealth is extracted, smelted, moved & shipped by those who can become physically poorer as a result of all that mineral wealth passing them by.

The mistakes of earlier centuries –adding lead to paint (Rosner et al 2005) and to petrol (Shy 1990) – ensure that all heavily-trafficked areas and areas with old buildings, especially those once / being renovated or demolished, are very likely to have lead-contaminated soil (Calvert & O'Brien 1997, Calvert et al 2008).

If you know you live in a contaminated area, then further precautions need to be taken in gardening (Cross and Taylor 1996). Certainly, in heavily contaminated areas, any gardening should be done in raised beds (eg Birdies, Tankmaster). Further mitigating actions should be taken in washing, peeling produce and the exclusion of some vegetables or tuber species wherein the heavy metals are absorbed into the skin, and in establishing soil acidity which can drastically affect the uptake of heavy metals in some plants. Adding organic matter (compost) to the soil is also critical in reducing the uptake of heavy metals into plants.

While your future garden site may have no contamination, the possibility that it may, and the health effects if it does, are too likely and too disastrous to ignore. Not when lead testing is both cheap and easy using The LEAD Group [test kit](#) (Roberts et al 2010) , or when full-spectrum soil testing is available (SESL, NSW DPI, etc).

A way to get around a contamination problem is to get *above* the problem using raised garden beds. Firstly, if you're going to be in the garden, you don't want to have to be bending down all the time. Very boring. Secondly, importing fresh soil or composting gives you the power of control of the soil and its nutrients, essential for known contaminated areas. Interestingly, raised garden beds using water tank style tubs are appearing at my hardware 'bahn', where only high-turn-over products are stocked. This suggests the ideas of 'gardening for victory' previously a patriotic diversion of the war years away from agri-business, is again climbing in the collective consciousness, although this time under a collective impetus rather than the war-propaganda machine.

Still, it's hard to see whether manufacturers are fully aware of the problems. There is often no clear concise indication as to the material's suitability for food. Just what is in that made-in-China plastic or weed-matting? Is that a galvanised (lead-contaminated) iron water tank? Are these garden tubs made without contaminants?

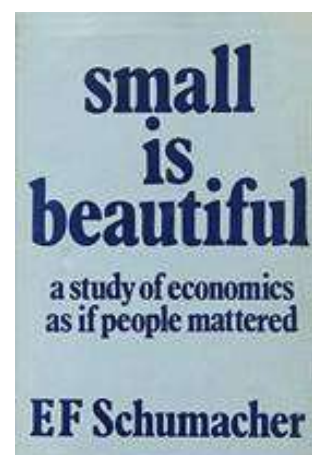
While many deer are floundering in the headlights of a failing commercial-capital paradigm and the three year political cycle is mismatched to the gazillion-year cycle of climate change and peak oil, many other deers are starting to notice. The future is here already, it's just not evenly distributed.

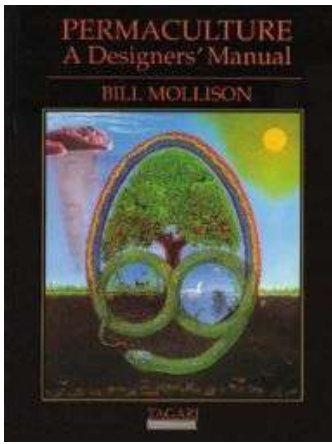
Modern industry "requires so much and accomplishes so little. Modern industry seems to be inefficient to a degree that surpasses one's ordinary powers of imagination. Its inefficiency therefore remains unnoticed" (Schumacher 1973).

It's hard to take economists seriously when the market god they praise, moving as if by an 'invisible hand' to optimise efficiency is visible in the banking and finance sectors to the extent of being 45% of market capitalisation. In other words, 45% of the world's resources are tied up in making nothing better than money.

Contrary to the bleakness of the peak everything situation, this is not a call to run for the hills. The hills are not everyone's cup of tea. More effective will be a collaborative effort using man's innate sociability.

The energy now loaded up into current civilisation from fossil fuels and from the mass of humanity is phenomenal. That energy can be dispelled chaotically through war, violence & anarchy, or we can choose to direct that energy, choosing uses for energy that are commensurate with its one-time use value. The vast human capital can be directed to changing the way we think in order to change the way fuel energy is directed into establishing self-sustaining highly efficient systems. Given the pitiful efficiency of the current delivery systems, vast improvements are only as hard to make as changing your mind.





Bill Mollison's permaculture garden designs were an early application of general systems theory, raising efficiency via allowing nothing to escape, nothing to be wasted. Raising the concentration of life within the garden, once it reaches a critical mass, creates a highly efficient engine in yielding food energy with just sun and water as inputs. Rather than using chemical fertilisers, everything is composted. Once a good bio-mass is in your soil, it will produce good plant life above it. Permaculture and today's organic farming methods are both attempts to return the nutrients to food. The more life and energy (and life energy) flowing through the system, the more is available to be creamed off for your use. The more nutrients in your food, the more you are protected from the ill-effects of heavy metals (Taylor 2010).

The wisdom from the garden is calling you to a "new orientation of science and technology towards the organic, the gentle, the non-violent, the elegant and beautiful" (Schumacher 1973).

Undoing the globalisation years with an effective return to an efficient, localised food production system is a clear and present imperative. If ever you needed a better reason to get back to the garden, this is it. Just be sure the soil isn't suffering from past follies, so that you don't create more.

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Book Review:

***Engaging the Community: A Handbook for Professionals Managing Contaminated Land*, by L. Heath, S.J.T. Pollard, S.E. Hrudehy and G. Smith, Cooperative Research Centre for Contamination Assessment and Remediation of the Environment, March 2010, 90pp.**

*Review by Sharon Beder**



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The ***Engaging the Community Handbook*** is available for purchase - AU\$35 – from CRC CARE in Adelaide, South Australia: http://www.crccare.com/working_with_industry/contaminated_sites_handbook.html

I hear what you're saying...

Engaging the Community is a guide book aimed at helping government authorities and private companies to gain community trust and acceptance for any plans they might have for dealing with contaminated land: “These practical tools are intended to facilitate understanding and approval of proposed developments within the community” (p. 2). It would be wrong to assume the book is meant to assist communities by ensuring that contaminated land is made safe and

environmentally benign, or to enable local residents to have a voice in proposals that will affect them. *Engaging the Community* is essentially a public relations manual on how to persuade local communities and other interested parties in ways that will not enrage them but will sooth and reassure them.

Whilst much lip service is given to “participatory decision making” in the book, there is little substance behind this. The aim of understanding community concerns is not so much so those concerns can be addressed, but rather so that a good risk communications plan can be developed (p.10). The authors point out that it is important to let people express their concerns otherwise they may become outraged, but the issue of whether or not these concerns are genuinely addressed seems to be of little interest.

The book contains many brief examples and short case studies. One example is of efforts to site a nuclear waste repository in the US. A public meeting revealed that the “public were more aware of the characteristics of the proposed sites than the authority” and that meeting-goers were therefore able to point out “health and safety, transportation and waste storage” issues that had not been adequately addressed by the authority. The lessons to be learned from this, according to the authors, were not that the authority was remiss in its research and preparation, nor that the public consultation was successful in that this was caught in time, but rather that the problem was the conflict that had not been avoided because of, amongst other things, “community culture and distrust towards the relevant authorities” (p. 29). Yet this distrust seems to have been warranted.

Similarly, a NSW case study is given as an example of poor risk communication practices. At Port Kembla a copper smelter had been operating for 40 years with excessive emissions that exceeded national and international health standards for lead and sulphur and repeatedly breached local pollution control standards. When it stopped operating the local residents noticed a marked environmental improvement. When it was proposed that the smelter be reopened by new owners, the residents objected, claiming that they had not been sufficiently consulted and that they could not be sure that the emissions from the smelter would not be polluting. The government passed special legislation to enable the smelter to be opened in 2000 despite a successful legal challenge by local residents.

The lesson to be learned from this was, according to the authors, that residents were outraged because of various factors such as their lack of power, the memory of past pollution, the perceived unfairness and the untrustworthiness of the company and government authorities: “It is not always the lack of understanding that constrains the public’s consideration of science, economic and political issues, but the lack of political framework that outlines clear choices, benefits and trade-offs in decision making” (p. 45). In fact there was nothing constrained about the community’s understanding of the science, economic and political issues as evidenced by the fact that the reopened “smelter breached numerous air quality criteria” in the following two years, and it was closed again because the owners found it was not economic to meet the regulatory requirements.

The case studies of good communication practices are even more bizarre. The first is of remediation of the Homebush Bay Olympic site. This happens to be a case that I have written about myself. Success, according to the book authors, was evident in that the public accepted the remediation. They claim trust was established between government and the public by making reports and data of site investigations available to the public through local councils, libraries and local environmental groups.

However several key reports about this development were not made public. They included a multi-volume report by Dames and Moore on the site remediation that found that the most contaminated parts of the site posed potential health and safety problems to workers and site visitors during redevelopment and that there could be public health risks to users of these areas

arising from possible seepage of contaminants and gases to the surface after redevelopment was complete.

Reports by environmental consultants Inner City Fund (ICF) P/L assessing the health and environmental risks that were posed by the Homebush Bay site were also kept secret. In its report on the contamination of Haslam's Creek South, ICF concluded that risks to people using the site from breathing in contaminants were probably within acceptable limits but that "insufficient data was available for quantitative assessment". Other ICF reports were similarly equivocal.

The book's authors claim that the "application of risk assessment increased the feeling of 'ownership' of the project between the government and the public". It is difficult to know how this could have been, given that the risk assessments were not published. The report also applauded the project for its public consultation including a "proactive approach involved unions, residents and the public in assessment and dialogue" (p. 49).

However, the mandatory requirement for an environmental impact statement to be prepared and publicly displayed for community comment was removed through an amendment to the Regional Environmental Plan (REP). It gave the NSW Minister for Planning full authority to give consent for development of the contaminated land to occur without the normal consultation process.

Instead, selected groups were consulted, ranging from Greenpeace, which had been co-opted by its role in designing the Olympic village, through to a local group called *Greenspace*, which apparently consisted of three married couples who organised exhibitions and translators for the local community. A few key people were kept informed, including a specially selected environmental committee. Selected information was provided to others through newsletters and brochures.

However, many local residents did not feel there has been adequate public consultation and participation. A survey of local residents by the local group, *Greens In Lowe*, found that of the 100 residents surveyed, 71% said they were not getting enough information about what was to be done in the Homebush Bay area for them to be able to form an opinion on it, and 75% said that they had not received enough information about the clean-up of pollution in the area to satisfy them that the area was safe for people to live and work in.

The book concludes from these case studies that risk communicators "need to interpret scientific findings to enhance the technical understanding of a range of stakeholders" (p. 56). But this assumption that opposition is rooted in ignorance is not supported by their case studies. Often opposition is a rational response to what the community does know and understand.

In the section on "Raising the bar on community consultation," the authors utilise public relations techniques for categorising the community according to their amenability to negotiation and acceptance of the proposed project. Categories, including the angry group, the uninterested group, the stubborn group and the group with positive attitudes, are meant to enable project proponents to tailor their communication strategies according to whom they are talking to. It also enables individuals to be selected to be part of a forum that is met with regularly, ensuring that such meetings are kept "small and controllable" (p. 63).

The authors note that at more public meetings it is important to acknowledge people's questions, for example by writing them down and responding to them as time allows. "Be empathetic and listen to their concerns. Acknowledge their preconceptions, especially if you are going to contradict them." (p. 69) "Any risk communication process that lacks an effective means to listen to community concerns and a commitment to seriously seek to understand those concerns will be dismissed by the community as merely public relations" (p. 76). The authors don't seem to realize that any process that fails to go beyond understanding and actually address those concerns will be dismissed as public relations!

Contaminated land practitioners are advised to explain the options “with a clear message that a decision will be made ‘in the public interest’”; however, if the final decision “cannot honestly be justified as being ‘in the public interest’ then the community will lose interest in the decision makers. At this point an independent consultant specialising in community consultation may be required.... The goal is to make the community feel they have some control over their own destiny” (p. 73).

In the end, it is perception that matters, and this book provides guidance about how to manipulate public perception to ensure that the community feels it has been consulted and has had its say. It is not about genuinely engaging and empowering the community.

News: Gillard Government Cabinet reshuffle

In case you missed it – collapsing with a sigh (of relief or despair, depending on your leanings) when the Independents finally made up their minds who to support in minority government – the Australian Prime Minister, Julia Gillard, announced her new Cabinet and Outer Ministry on the 14th of September, 2010.



Of interest to our readers: the new Minister for the Environment (full title: Minister for Sustainability, Environment, Water, Population and Communities) is the Hon Tony Burke.

The former Minister for the Environment, the Hon Peter Garrett, is now Minister for School Education, Early Childhood and Youth.

Our funding agency’s name has also changed, from Department of the Environment, Water, Heritage and the Arts (DEWHA) to Department of Sustainability, Environment, Water, Population and Communities (DSEWPC).

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