

## China and Rosebery Re-visited

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### Editorial: China looms large

*By Anne Roberts*

Two LEAD Group student interns from Macquarie University – Russell Ng and Hannah Beedham – have tackled the question of lead poisoning in China, and this is the major article in this edition of Lead Action News.

Under China's "12<sup>th</sup> Five-Year Plan to Combat Heavy-Metal Pollution" for the period 2011-2015, the government aims to reduce the *use* of the heavy metals lead, mercury, cadmium, chromium and arsenic.

It also seems that the central government of China has tightened some environmental regulations, which ought to have resulted in reduced levels of lead and other pollution. However, China is so vast, the population so huge (world leader, with over 1.3 billion), and economic development is taking place so quickly, that the safety of workers and residents can sometimes come second. As BBC news reports, "most analysts agree the centre has lost some control over the regions in the

past two decades, especially in the economic field.” It was reported in the *China Daily*, and referred to in an article on China’s latest 12 year plan in the June issue of *The Monthly*, that almost 60% of respondents in a poll put corruption among government officials as their most significant concern. Premier Wen Jiabao also described corruption as China’s biggest danger, because it weakens the effectiveness of the national government.

Ng and Beedham discuss some of the many instances of mass poisoning from lead and other heavy metals in China.

China is going through what England experienced, first in the late 18<sup>th</sup> century, then again from about 1830, but enormously speeded up and on a larger scale. Reformers and the working class in England had to struggle for safer working conditions. In western countries - formerly known as ‘developed countries’ - vigilance is still necessary. Greed, corruption and sheer recklessness are not geographically confined. Campaigns in the West against toxic pollution are on-going and probably increasing, as more becomes known about the full impacts of pollutants. In China, as elsewhere, however, it’s not always about greed, corruption, and recklessness. Sometimes it’s lack of knowledge about the danger, and people are needlessly exposed, just as they are in Australia.

Ng and Beedham discuss potential sources of lead poisoning in China, which include some favourite foods and traditional medicines. Disposal of e-waste is a problem, and this includes batteries used by the increasingly popular e-bikes.

China’s 12 year plan will, if successful, shift its economy from exporting cheap manufactured goods into supplying the domestic market, raising wages, and shifting many millions of workers into service industries. The intention is also to lift wages in manufacturing, and encourage people to spend some of the up to 50% of their incomes that they currently save (and lend to the rest of the world), on locally-produced manufactured goods and on services. This transformation will surely encourage a larger proportion of the population to demand more control of pollution.

China is expanding its influence: for example, industrial and economic incursions into Burma - where the local population is in no position to demand either better working conditions or control of pollution.

Lead pollution in China featured in an earlier newsletter: LANv10n3

Ng and Beedham have also contributed a smaller article which adds to the debate over whether breastfeeding should be discouraged in cases where lead in breast milk can elevate infant blood lead levels. Breastfeeding wins - sorry to tell you how the story ends -but those mothers who can not or choose not to breastfeed for various reasons, can take measures to protect their infant from lead poisoning.

The Toxic and Heavy Metals Taskforce, Tasmania (THMTT) returns with three articles on the dispute about Rosebery, a small mining town on the west coast of Tasmania, which has previously featured in two previous LANs: LAN v10n4 and LAN V11n2.

We reproduce the correspondence from The LEAD Group regarding its proposals about Blood Lead Levels in Australia, which were rejected by the National Health and Medical Research Council of Australia (NHMRC), and The LEAD Group’s reply to NHMRC.

Finally, a call for sponsorship of a poster for display in hardware stores, to alert people intending to renovate, of the dangers of lead, and what to do about it, and the offer of a free booklet.

## News



### ***News: Erin Brockovich launches Environmental Justice Society in Brisbane***

The President of The LEAD Group, Elizabeth O'Brien, and Isla MacGregor, of the Toxic and Heavy Metals Taskforce, Tasmania (THMTT), were among guests at the launch in Brisbane on February 11, of the Environmental Justice Society (EJS). The new society was launched by environmental crusader and human rights activist, Erin Brockovich.

The EJS is the creation of environmentally-conscious experts from World Wildlife Fund (WWF) Australia, The University of Queensland, Doctors for the Environment (DEA), Environmental Defenders Office (EDO) and Shine Lawyers. The EJS has been created to help people who are concerned about protecting the Australian environment, and the prevention and management of pollution.

"This country is at the beginning of a period of huge growth that will continue for decades to come, and it's all driven by the resources in the ground," said Ms Brockovich at the launch.

"The EJS will act as a guardian of people's rights to a safe and healthy environment, and is aiming to help preserve Australia's pristine beaches, waterways, rainforests and wilderness for generations to come." (Quotes from EJS news release.) See : [www.environmentaljustice.com.au](http://www.environmentaljustice.com.au)

### ***News: NHMRC rejects LEAD Group's policy proposals on Blood Lead Levels for Australians***

The National Health and Medical Research Council (NHMRC) has rejected The LEAD Group's suggestions on blood lead surveys, our recommendation of a more stringent goal for Australia than the current below 10 ug/dL, and a suite of public health strategies designed to lower Australians' blood lead levels.

We submitted our ['Model Policy' on lead](#) to the Federal Minister for Health and Ageing, the Hon Nicola Roxon, who then passed it to Professor John McCallum, Executive Director, Health Evidence and Advice Branch, of NHMRC. See the article NHMRC rejects LEAD Group's proposals.

## Letters

### ***Why aren't highly toxic lead ore and concentrates required to have export licenses?***

EMAIL

**From:** The LEAD Group Inc.

**Sent:** Wednesday, January 19, 2011 6:40 PM

**To:** ([Dr. Sally Talbot](#), MLC, is Shadow Minister for Environment in the Parliament of West Australia)

**Subject:** Suggestion to only license lead ore and concentrate exports if the receiving facility is safe

Dear Dr. Talbot,

Please reply to let me know you have received this email.

I read at <http://news.smh.com.au/breaking-news-national/reassess-lead-exports-wa-oppn-says-20110102-19cum.html> that you have said "there was only one way to safely transport lead, and the government had to revisit the issue. The reality is that lead in any form other than solid ingots is extremely dangerous to transport," she told AAP."

It would be terrific if you could have a word with Prime Minister Julia Gillard or the Honourable Tony Burke to request that all lead mine or smelter exports from Australia should be licensed, because the reality is that the only form of lead export that IS currently licensed (by the federal government - the only level of government that does require such licences) is lead waste, which is usually in the relatively "safe" form of used lead acid batteries.

I find it appalling that the unsealed lead carbonate dust that passed through the Port of Esperance, plus the bagged lead carbonate dust that has been going through Fremantle, are "out-of-sight, out-of-mind" as soon as they leave our shores. Why should hazardous lead waste exports such as batteries be the only type of lead export to be licensed when the lead carbonate or lead sulphide ores and concentrates that are shipped from Australian ports are in a far more hazardous form? Although some Australian-operating lead mining and smelting companies would claim that they have stewardship policies, under those policies lead concentrates from Mt Isa being shipped to the UK where the smelted lead is then made into the lead additive for petrol. As leaded petrol therefore, Australian lead still poisons a quarter of a billion people in those remaining countries where leaded petrol is still permitted to be sold.

For lead waste, it is only when the Australian government steps in and determines whether the specific lead recycling facility is in an importing country with adequate OH&S and environmental protection legislation and enforcement, that Australians can have any confidence that our lead is being processed safely overseas - that we are not exporting toxic problems for the locals. To date, the only export licence that has been granted is for a company that exports to New Zealand. When recycling facilities in our other neighbouring countries have been proposed as the destination for used batteries, they have failed the stringent criteria that the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) applies to the lead recycling facility overseas before licensing an Australian exporter to send lead waste to that facility.

When it comes to our lead mine or smelter exports, however, the government doesn't even seem to keep records of which facilities our lead exports go to - at least, when I asked the Port Authority where the lead carbonate that was exported via the Port of Esperance was going, I was not given an answer and certainly, Magellan refused to tell me.

I hate to think of the damage that Wiluna lead has already caused in China and other importing countries. How could anyone imagine that lead is safely smelted in China when so many Chinese smelters have been closed down following hospitalisation of surrounding residents due to lead poisoning?

Why do we apply one rule to "safe" lead exports and no rule to highly hazardous lead exports, in relation to the receiving facilities? Surely we don't only care about Australians who live near our lead exporting ports?

As an Australian citizen who cares about children everywhere reaching their IQ potential and adults everywhere reaching their longevity potential, and who also cares about protecting the environment from lead (whether in Australia or China or anywhere), I implore you to write to the powers that be in Canberra, and request that ALL lead exports from Australia be licensed after assessment that the receiving facilities (ports, transfer stations, smelters, foundries, lead

manufacturing plants etc) are not spreading Australian lead into their surrounding communities and their local environments.

Maybe your idea will result in Magellan or Ivernia setting up a state-of-the-art smelter in Western Australia but that is not going to happen overnight, and I think Port Pirie has enough lead problems already, so my suggestion would allow a quicker resumption of exports after WA OEPA have ensured their conditions are once again being met.

Kind regards and thanks for your thoughtful input to date into making these exports safe.

Can you please let me know your response to this suggestion?

Yours Sincerely  
Elizabeth O'Brien,  
President, The LEAD Group Inc.  
PO Box 161 Summer Hill NSW 2130 Australia  
Ph +61 2 9716 0132 Freecall 1800 626086  
[www.lead.org.au](http://www.lead.org.au)

AFTER NOT BEING ABLE TO CONFIRM WITH SALLY'S OFFICE STAFF WHETHER SALLY HAD SEEN THE ABOVE EMAIL, IT WAS RESENT TO THE OFFICE STAFF, AT THEIR SUGGESTION, AT THE BOTTOM OF THE FOLLOWING EMAIL:

**From:** The LEAD Group Inc.  
**Sent:** Friday, January 28, 2011 3:39 PM  
**To:** [Barbara Wilson](#)

**Subject:** URGENT Fw: Suggestion to only license lead ore and concentrate exports if the receiving facility is safe

Dear Barb,

I'd be very grateful if you could ensure that Sally sees the following email.

Thanking you  
Elizabeth O'Brien

## **Lead poisoning in China**

*By Russell Ng and Hannah Beedham, Interns from Macquarie University*

### **Part I - Background**

### **Part II - Lead in China**

### **Part III - Treatment and prevention of lead poisoning**

***Part I - Background:*** Sources of exposure to lead. How does lead enter the body? How does lead affect the body? What is the safe limit for blood lead levels?

### **Sources of exposure to lead**

Lead is an abundant heavy metal with many practical uses in the production of industrial products such as batteries, metal products such as solder and pipes, ammunition, and devices to shield X-rays (ATSDR 2007). Lead had also found its way into the daily life of people by means of house paints, smoking, printing materials, electronic products, toys and stationery, just to name a few (Dai and Fan 2007). However, amidst the flurry of health concerns surrounding the lead exposure of children which interfered with their psychological and physical development in the mid 20th century, action was taken by many Western countries to ban or greatly reduce lead exposure to the public. This included banning leaded as well as lead-based paints (Crow 2007) ; the former was accomplished at a national level in China by 2002, but the same level of success cannot be said about lead- based paints produced in the factories of China, as a study showed that the lead content was very high in existing painted houses and in new paint available for housing (Lin et al. 2009). However, lead-based paints are only one of the many sources of lead exposure to the Chinese public - in fact, the scope of lead pollution has expanded through electronic products and waste materials released into the atmosphere, water supply, and soil – all by-products of the spread and development of industry in the rural and township areas (Dai and Fan 2007).

### **How does lead enter the body?**

Lead can enter the body in two ways: inhalation and ingestion.

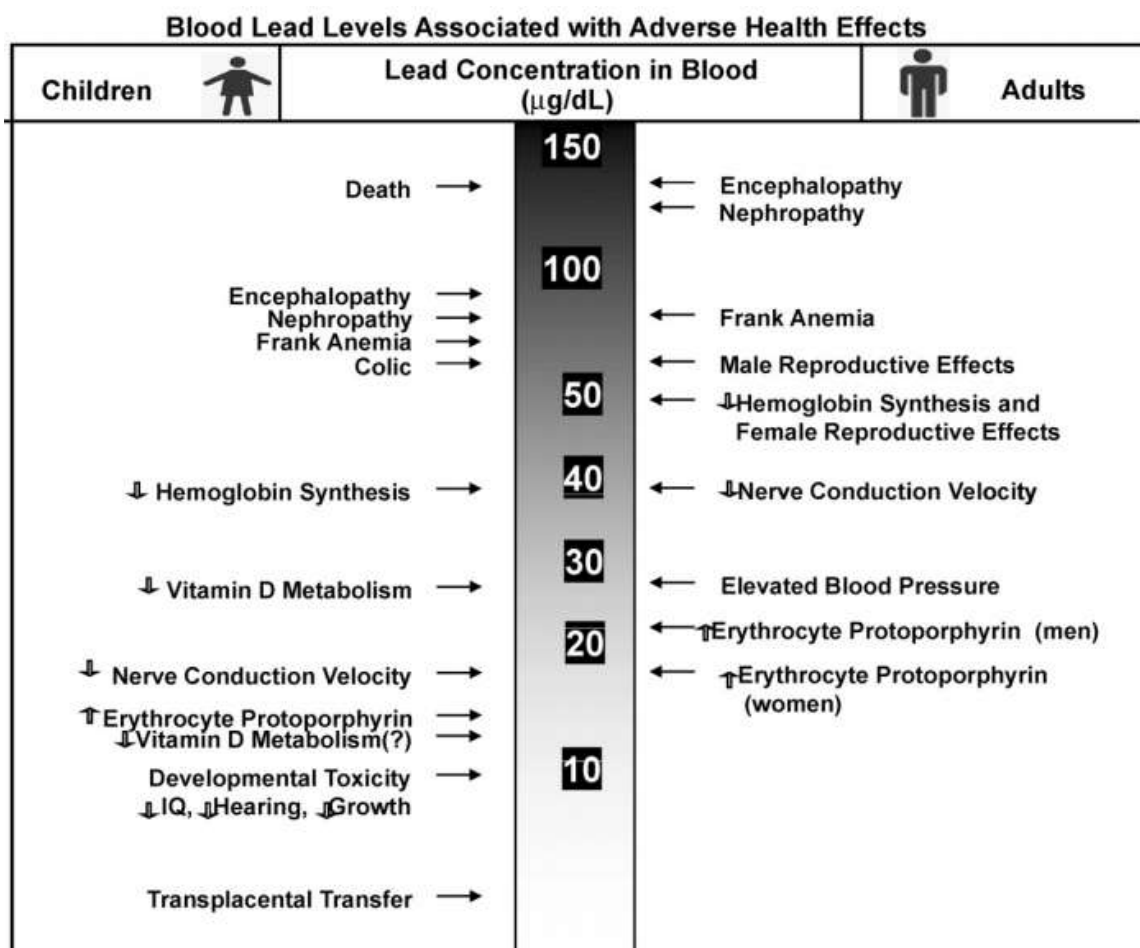
Inhalation of lead dust is a common way for lead to get into the body. When lead is inhaled, about 30-50% of the lead particles will reach the lungs, depending on the size of the particles. Large particles land in the upper respiratory tract, and unfortunately get trapped in mucous and then are often swallowed, allowing the particles to enter the digestive system. The smaller particles can reach deeper into the lungs, where they can be absorbed into the bloodstream (LWD 1998).

Lead can also be ingested through foods we eat, from hand-to-mouth activity from lead in dust and soil, and from drinking water, if it has flowed through lead pipes/fittings. It is through ingestion that a higher proportion of lead spreads to other parts of the body via the blood stream (EPA c.2002). From the digestive system, adults will absorb 10-15% of the lead, while children and pregnant women can absorb up to 50% of the lead into the bloodstream. Furthermore, people who are fasting, or if their diet is lacking in iron or calcium, will absorb more lead (LWD 1998).

### **How does lead affect the body?**

Lead is of no benefit to the body at all, and remains in the body for varying periods of time, depending where in the body it is. Half the total amount of lead in the blood will be excreted in 25 days, or 40 days if in soft tissue, and as long as a few decades in teeth and bones. As a result, a person will continue to be exposed to lead internally even after the exposure to lead stops, and any other bout of exposure will cause lead to continue to accumulate in the body. The total amount of lead that is stored in the body is called the “body burden” and in adults the bone and teeth contain about 95% of the body burden. Lead stored in bones can sometimes leave them and enter the blood and move into soft tissue i.e., the organs, causing damage to them (LWD 1998).

Lead affects virtually every system in the body; such as the reproductive, neurological, haematopoietic (pertaining to the formation of blood or blood cells) hepatic, and renal systems (Al-Saleh et al 2009). The adverse health effects of lead and associated blood lead levels can be summed up by the following figure:



Note: ↑ = increased function and ↓ = decreased function.

Source: ATSDR, 1992

Figure 1: Blood lead levels associated with adverse health effects. Image taken from Meyer et al 2008.

**Note on some definitions of the health effects:** An increase in erythrocyte protoporphyrin is an increase of a certain compound (zinc protoporphyrin) found in red blood cells when heme (a component of hemoglobin, which transports oxygen around the body) production is inhibited by lead and/or lack of iron (Labbe et al 1999). Colic refers to abdominal pains. Frank anemia is associated with unusually smaller and paler than normal of red blood cells. Nephropathy refers to damage to the kidney. Encephalopathy refers to a syndrome of global brain dysfunction.

Children are more susceptible than adults to the effects of lead exposure, as a larger proportion of lead ingested is absorbed: more circulating lead enters the brain, and their developing nervous system is more vulnerable to the toxic effects of lead (Meyer et al. 2008).

### What is the safe limit for blood lead levels?

The World Health Organisation's "safe" limit for lead in blood, originally set in 1995, is 10 µg/dL (micrograms per deciliter); that is, 100 µg/L. (Many sources will interchange between deciliter and liter for their measurement of blood lead levels). However, even with this "safe" limit put in place by the WHO, there is no detectable safe blood lead level, as at every measurable level of lead there is associated harm (Lee and Chen 2008). Repeated studies have shown that blood lead concentrations at 5 µg/dL impact normal brain development in children as well as being associated with hypertension, heart disease and strokes in adults (OKI 2009). In fact, numerous studies which observed children aged between 6 and 16 have found that there was an inverse relationship with blood lead levels and cognitive development, even when the blood lead levels were less than the "safe" blood lead level of 10µg/dL. A similar study followed a cohort of children and tested them at ages 12 and 24 months and found a significant inverse relationship between blood lead level

and mental and psychomotor development, even though their blood lead levels never exceeded 10µg/dL. These findings are important, in that they have identified that there is no threshold for cognitive impairment due to lead exposure in children (Meyer et al 2008).

**Other standards for lead exposure:** In 1971, China's occupational exposure limits (OELs) were based on maximum allowable concentrations at 0.05 mg/m<sup>3</sup> for lead dust and 0.03 mg/m<sup>3</sup> for lead fumes. However, results from a comprehensive industrial hygiene survey conducted by the Chinese Ministry of Health in 1971-1981 found that the average exposure levels were 2.22 mg/m<sup>3</sup> for lead dust and 0.68 mg/m<sup>3</sup> for lead fumes. This led to the passage of the Occupational Diseases Prevention and Control Act in 2002, where new regulatory standards were based on time-weighted averages (TWAs) and short-term exposure limits (STELs). The TWAs are 0.05 mg/m<sup>3</sup> and 0.03 mg/m<sup>3</sup> for lead dust and fumes respectively, and corresponding STELs are 0.15 mg/m<sup>3</sup> and 0.09 mg/m<sup>3</sup> for lead dust and fumes, respectively (Ye and Wong 2006). However, the 2002 Act appears to have a minimal impact. Lead poisoning rates among lead battery workers dropped from 45% in 1990-2002 to 36.8% between 2003 and 2005. Go and Scull (2008) pointed out that a lead poisoning rate of more than 30% is hardly acceptable.

In 1986, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) established a provisional tolerable weekly intake (PTWI) of 25 µg of lead per kg of body weight for infants and children, which was extended to all age groups in 1993. The PTWI was based on metabolic studies in infants which showed that a mean daily intake of 3-4 µg/kg of bodyweight was not associated with an increase in blood lead levels or in the body burden of lead, whereas 5µg/kg of body weight or more resulted in lead retention (WHO 2009).

***Part II - Lead in China:*** The extent of lead exposure in China. Lead risks associated with children in China. Potential sources of lead in China

### **The extent of lead exposure in China**

The World Health Organization (WHO) estimated in 2002 that about 800,000 children were affected by lead exposure each year, and about 34% of Chinese children had blood lead levels that exceed the WHO limit. This is in comparison to less than 1% of children in the US that have levels above the WHO limit (Pure Living 2007). It is further estimated by the WHO that lead poisoning accounts for 0.6% of the global burden of disease (WHO 2010). (This is a gross underestimate, but the only estimate there is. (E.O'Brien 2011)

Release of heavy metals such as lead into the environment has increased abruptly since the late 1970s, along with the rapid industrial development and economic growth in China. In pursuit of economic growth, some local governments in China devote more energy to gross domestic product than to environmental protection, which goes on to affect populations of people (Ji et al 2011). In fact, in 2001 China's lead smelting capacity reached 1,200,000 tons - second only to the US - and lead production reached 1,170,000 tons (Ye and Wong 2006).

Over the past decade China has been tightening regulations over the use of lead. Leaded gasoline was prohibited in 1999, and lead standards for fertiliser and food were passed in 2002 and 2004 respectively. In 2007, China also signed an agreement with the United States to ban the use of lead paint in the manufacture of toys (in 2009, China generated nearly 90% of US toy imports) and to address other product safety issues (Lee and Chen 2008). Regulatory standards were also set for industries, such as one by the National Development and Reform Commission which set regulations to prevent lead smelting mills being built in cities or suburbs (Ji et al 2011).

However, even with these tightened regulations, implementation and enforcement lag behind. For example, even though leaded gasoline was banned in 1999 with the intention for it to be phased out in major cities through the early 2000s, as of 2008 it was still available, especially in the



western provinces (Lee and Chen 2008). A 2009 audit of 541 companies in Jiahe revealed that 309 were illegally operating, or did not meet environmental protection standards. Furthermore, many factories discharge lead waste into rivers and the atmosphere, and rely on local governments turning a blind eye because due to the need for tax revenue generated from such factories. There are also ways in which polluters escape from environmental monitoring, such as by discharging pollutants during the intervals between inspections, or secretly at night (Ji et al 2011).

In June 2010, 51 children under the age of 16 in East China's Jiangsu province (for a map of China showing provinces, [click here](#)) were found to have excessive levels of lead in their blood, with a 4 year old boy having a blood lead level of 36.4 µg/dL. The case is similar to a string of similar cases in 2009, in that a lead-acid battery factory was located less than 100 metres from the Hekou village. While the government paid for medical treatment, there was no offer of nutrition subsidisation, nor was there further compensation for the damage as a result of the lead poisoning incident (Qian and Wei 2010).

In 2011, authorities in Gaohe, in the eastern Anhui province of China, closed two battery plants they blamed for causing lead poisoning of people living in close proximity. Among those affected were children just a few months old, with one being found to have a blood level of 24.5 µg/dL, and displaying symptoms of lead poisoning, such as lack of appetite and fatigue. Furthermore, residents said that children who tested above 25µg/dL were sent to a children's hospital for treatment, but those who were below were left with nothing more than 400 yuan (\$60) and a box of apples and bananas by the local government. While the plant opposite from the complainants was shut down, another plant further away is still in production (Chan 2011). These incidents are but a few out of a myriad of lead poisoning cases since just 2009, where until now more than 4000 children have been affected by lead poisoning (Ji et al 2011). Figure 2 below summarises areas of major lead poisoning cases in China since 2009.

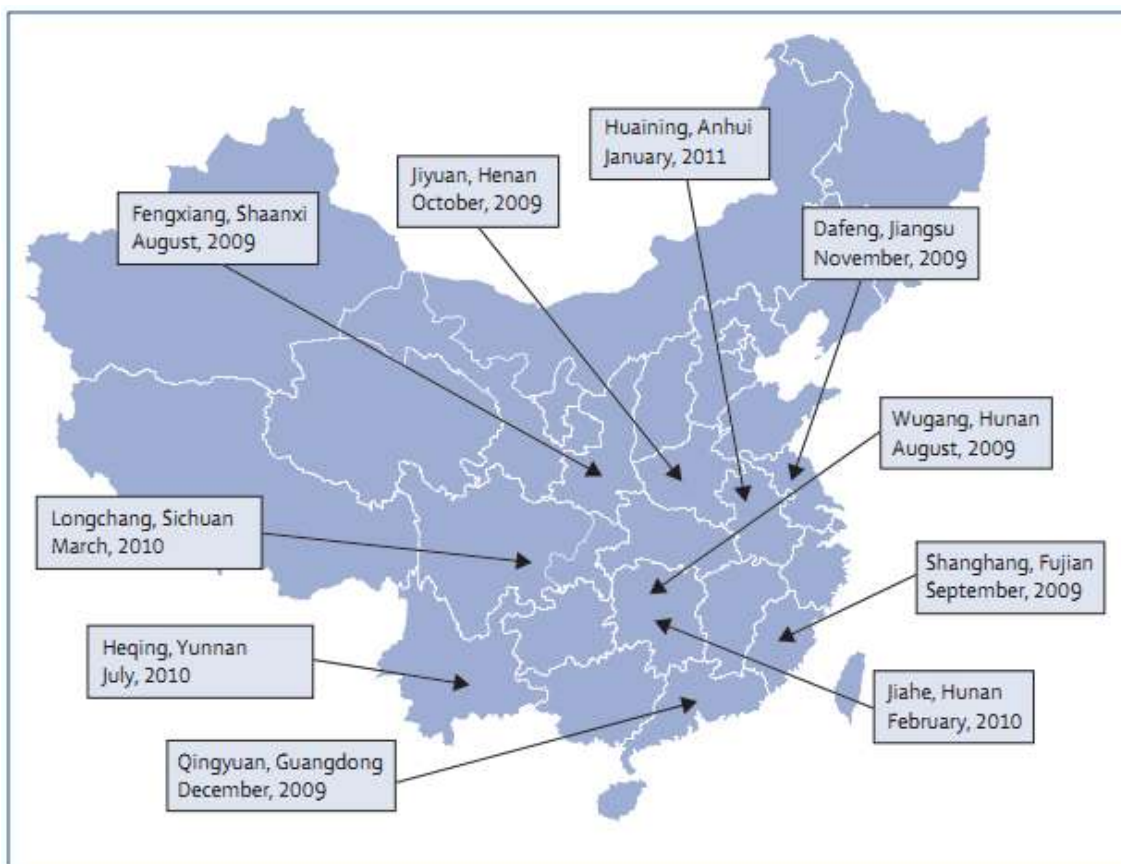


Figure 2: Major lead poisoning cases in China since 2009. Image taken from Ji et al 2011

## Lead risks associated with children in China

Blood lead concentration in children tends to increase up to the age of 6, as comparative studies have shown that with growing age, children become more independently active and participate in more outdoor activities, leading to increased chances of lead exposure. This is opposed to younger children, whose risk of exposure to lead is mostly family and feeding-related (Dai and Fan 2007).

Higher blood lead concentration in boys than girls also indicates that boys have a higher risk than that of girls of the same age group, and again the difference is more significant in the older age group than in the younger age group. The reason may be that boys are generally encouraged to be more physically active and adventurous, including outdoors, increasing their risk of exposure to lead in the environment (Dai and Fan 2007). Supporting this, a study by Zhang et al (2009) found that blood lead levels tended to increase with age and attributed it to children's changing behaviour and their increasing exposure to lead. The study also suggests that lead exposure for children in China comes primarily from outdoor sources rather than from indoor ones.

Family factors related to blood concentration levels in children include occupation, education, income, and behaviour of their parents, with the occupation of parents of utmost importance. Studies have shown that lead dust in homes is closely related to the blood lead concentration, the volume of lead exposure, parents' occupation and exposure times. In fact, a study showed that the blood lead concentration was increased in 38 of the 91 children whose parents were engaged in work involving contact with lead with 10 of them requiring treatment (Dai and Fan 2007). This can be referred to as 'take-home exposure', where workers wear their work clothes home or launder them with the family laundry or when they bring scrap or waste materials home from work (Shen et al 1996). Furthermore, the education of the parents is related to the blood lead concentration of their children, with parents who have a low education often knowing nothing about lead hazards or lead poisoning to guide their children in avoiding the risk factors (Dai and Fan 2007).

Environmental lead pollution is another factor that draws a lot of attention in relation to the incidence of lead poisoning in children. Shen et al (1996) point to studies performed prior to the prohibition of leaded gasoline in 1999, which indicated that children exposed to potential industrial sources of lead, whether it be through proximity of residence or school, had higher average blood lead levels than populations of children not exposed to industrial sources of lead. Other studies referred by Shen et al. (1996) showed that children with extremely high blood lead levels attended schools near heavily-used highways. These levels were significantly higher than control children who lived further away from traffic.

However, Zhang et al (2009) recognize that most studies performed to date focus merely on subjects living in highly polluted areas. A study by Zhang et al (2009) was performed to investigate the degree of lead exposure in children aged 0-6 years in 14 cities with a large metropolitan area and advanced industry and economy. Out of the 44,045 children aged 0-6 in the study, 8.46% were found to have blood lead levels greater than 10 µg/dL, 0.73% with levels greater than 20µg/dL, and 0.20% of the total children in the study with severe blood levels greater than 45µg/dL and requiring chelation therapy. While the blood lead levels of children in Zhang et al's (2009) study were lower than those reported in the Chinese media, they were still higher than those reported in developed countries.

The level of the building in which children live also has an effect on the incidence of lead poisoning, because the atmosphere closer to the ground contains more lead. In some cities, the lead concentration is about 0.18µg/m<sup>3</sup>, but the concentration at one metre above the ground is

13 $\mu\text{g}/\text{m}^3$ . Findings have indicated that children living in the lower stories of buildings are exposed to more lead than those living in the higher stories (Dai and Fan 2007).

Another source of lead is paint from toys and stationery. Children playing with toys have more chances to take in the lead, as well as from habitually biting pencils (Dai and Fan 2007). Certain foods, such as popcorn and preserved eggs, may also cause lead poisoning. Old-fashioned popcorn machines are made from lead alloy, releasing lead to the popcorns and preserved eggs, if made conventionally, use lead oxide as a food additive (Dai and Fan 2007). Lead industries in the countryside can also cause contamination of fresh vegetables, fruit and rice. In fact, a study has shown that the lead content of rice grown near a smelter was 18 times greater than the content of lead in rice grown in non-polluted farmland (Shen et al 1996). Lead pollution may also exist in the production process of children's foods such as canned foods, canned vegetables, canned fruits, and canned juices, soft drinks and candies. Children eat such foods in an increasing volume, thus daily intake of lead is increased with their age (Dai and Fan 2007).

### **What potential sources of lead exist in China?**

In China, lead compounds are regularly added to plastics and vinyl to make them more resistant to high temperatures; and, because lead is heavy, it is often added to cheap metal products as well as herbal products to mislead customers into thinking they are getting the amount by weight they are paying for. (Oster and Spencer 2006). Lead is also heavily prevalent from other sources, such as coal-burning, smelting factories, lead paint and e-waste recycling - some of which are the main source of economic income in some towns, especially in Southern China (Lee and Chen 2008).

### **E-Waste disposal**

China's methods of recycling lead-acid batteries are very basic, and operate on a small-scale. Such facilities are responsible for producing approximately 50 percent of all the lead being emitted into the environment, particularly in waterways and soil (Go & Scull 2008). A countrywide lead-acid storage battery recycling network has not been established in China, unlike most Western countries, which have formed secure recycling systems and have developed strict regulations (Changhai & Zhang 2009). There has been a phenomenal increase in lead battery usage due to the increase in electrical bikes over the past 20 years; however, with this increase there has not been any adequate development on infrastructure for the disposal of the batteries. (Go & Scull 2008)

According to the China Battery Industry Association, there are over 1,400 battery manufacturers in China, which produced over 30.5 billion batteries in 2005, and 13.9 billion of these sold for use in China (Go & Scull 2008). The main source of lead-acid storage batteries recycling is individuals, who account for approximately 60% of all the lead-acid battery recycling. The final 40% is made up from battery retailers (18%), secondary lead smelters (9%), battery manufacturers (8%) and vehicle maintenance plants (5%) (Changhai & Zhang 2009). On average, China contributed to a third of the world's battery output in 2001, with a consumption level of 10.7 batteries used by a person in China each year (Go & Scull 2008).

According to a report by Research and Markets produced in 2007, China's lead-acid storage battery industry is growing at a rate of 30 % annually. This industry is driven by the increase in technologies in China, and their need for lead-acid batteries used increasingly, in particular, electronic -bikes (e-bikes). E-bikes have increased in popularity considerably fast in China, especially in urban locations (Go & Scull 2008). China's significant usage of e-bikes is due to the fact that they are affordable, and do not require a driving licence (Bloomberg 2009). Over 10 million e-bikes were produced in 2005, which is approximately more than three times the amount

of cars produced in the same year. This is significantly large in terms of the lead-acid storage batteries consumed, as currently, the bike batteries have a very limited life of only 1 to 2 years, but emit similar rates of lead into the environment during production and at end of life as car batteries, which have a longer life span.(Go & Scull 2008).

The China Electrical Equipment Industrial Association aimed to lower the lead battery demand in China by reassessing the vehicle standards of the e-bike, and reducing their output. To do this, regulations will be enforced limiting the speed and size of e-bikes, which may cause some manufacturing companies to cease production. According to Barclays Capital, the e-bike market is responsible for more than 20% of China's lead consumption (Bloomberg 2009). Currently, the limiting factor for the e-bikes is that they have a lead-acid battery, which is unsuitable for the growing demands of daily commuting, because the batteries are too heavy for the bike to easily handle (ebikes 2005). Improvements in these batteries are being undertaken; however, there will be a larger market for the e-bikes if lithium-ion batteries are to be used (Ramzy 2009).

When disposed of correctly, lead-acid storage batteries are sent to a licensed recycler, where the lead and plastic used are reclaimed, following strict environmental regulations, and then sent back to the battery manufacturers to produce a new battery. Most developed countries use advanced technologies to break down and separate spent lead-acid storage batteries. The materials are then treated and mixed with primary lead concentrate and then given to a smelting system (Changhai & Zhang 2009).

In China, a majority of the batteries are disposed as regular garbage, which can cause them to leak and contaminate soil, groundwater and surface water supplies; with a single battery contaminating approximately 12 cubic metres of water or one cubic metre of soil. Due to the lack of legislation regarding the recycling and correct disposal of e-waste, many workers in the recycling companies are at serious risk of lead poisoning from these improperly disposed lead-acid storage batteries (Go & Scull 2008). More traditional ways are still in place to dispose of the spent lead-acid batteries, with approximately 50% of secondary lead mills partaking in manual labour to break down and separate the lead-acid batteries. The resulting lead paste and mud is used in small reverberatory furnaces or blast furnaces. Other secondary lead mills use machines to break down the batteries; however, manual labour is still used for the separation of the materials. Only a few large-scale lead battery recyclers in China have advanced, fully automatic dismantling operations (Changhai & Zhang, 2009).

To address the issue of e-waste, China has introduced regulatory measures regarding lead. The Occupational Diseases Prevention and Control Act of 2002 reaffirmed the authority of the Ministry of Health to revise and develop new Occupational Exposure Limits (OELs). Regulations were also devised around fines for subjected violators (such as factory owners), revocation of business licenses, as well as criminal prosecution. These revised regulations did not have an effect on reducing lead exposure levels from smelters and battery factories when evaluated in 2006. In fact, the average exposure levels to both lead dust and fumes increased when compared to the OELs between the years 2003 and 2005, with some levels being even higher than before the implementation of the Occupational Diseases Prevention and Control Act of 2002 (Go & Skull, 2009). In 2003, The Oriental Golden Lead Co Ltd constructed a lead smelter near the village of Mafang, located in Henan province. However, it failed to do an environmental impact assessment on the site prior to construction. With the excessive emissions of lead dust, 259 children had their blood lead levels tested, and in 2005 almost 80% of the children had levels exceeding the acceptable level of 10ug/dl, with 8 children recording over 30 ug/dl (OKI 2008).

The lead poisoning rate among lead battery workers decreased from 45 % between the period of 1990-2002, to 36.8 % between 2003 and 2005. The 2002 Act had a very minimal impact on the occupational levels (Go & Scull 2008). There was an incident of lead poisoning from lead battery manufacturing and recycling in China during 2005 at Guangzhou Nanfang Guangyuan Super Energy Battery Ltd, which is one of the major car battery producers in China. Staff started complaining of symptoms such as nausea and stomach pains, and, after physical examinations, 140 workers were diagnosed with lead poisoning. Following chelation treatment the workers were forced to return to work under the same conditions as the company had denied all claims of negligence, and stated that they had warned their workers when hiring them (OKI 2008).

A significant factor associated with e-waste in China is the lack of sufficient technology to dispose of lead-acid storage batteries. There are many cases in which the batteries are dumped in landfills, or left in warehouses due to the lack of proper disposal facilities (Go & Scull 2009). In Gansu Province, residents were determined to investigate if a local lead smelting plant was poisoning their families; however, the local medical facilities all refused to test their blood lead levels. They travelled to a different hospital, and 954 children were found to have blood lead levels exceeding 10ug/dL, as well as 43 adults with levels greater than 40 ug/dL. The Chinese media reported that the Huixian Country Non-Ferrous Metal Smelting Co Ltd had situated this smelting plant in a rural location, as it would be more likely to escape scrutiny of the government. This facility had produced 5,000 lead ingots, and had left waste in open slag piles (OKI 2008). Since 1998, urban centres such as Shanghai and Beijing introduced initiatives to increase awareness of recycling batteries, through placing recycling bins for batteries in popular public places such as shopping centres. These bins did not have a great impact on lead battery disposal, as they were located quite far from where people live, making them less convenient than putting the batteries in one's own bin (Go & Scull 2008).

In 2001, the Shandong Association of Battery Pollution Prevention and Treatment set up a network for collection and maintenance of waste batteries for recycling purposes. The group also contributes funding towards research on environment -friendly batteries. Also in 2001, the University of Science and Technology, in Beijing, developed a "chemical disposal" technique, in which lead is purified before being discharged. This method has been trialed in a battery recycling plant located in the Hebei Province. During 2008, Beijing city built the world's largest plastics recycling plant, and continued with its initiative of installing recycling bins around urban centres. China also committed to cooperate with the United States in working out a treatment and disposal regime for lead-acid storage batteries (Go & Scull 2008).

## **Lead in paint**

Lead paint is any paint that relies on lead compounds for its colour: for example white lead (also known as lead carbonate) or vivid yellow lead chromate. The lead in these paints gives the paint its tint, and is highly opaque, meaning that a relatively small amount of the compound can cover a large area. Furthermore, leaded paint is highly water-resistant, as well as being able to neutralise acidic decomposition products of some oils that make up the paint, so the coating stays tough, yet flexible, and crack-resistant for longer (Crow 2007).

Regulatory levels of lead in paint have existed in China for many years. In 1986, Toy Safety prohibited lead concentrations of more than 2,500 ppm, and soluble lead more than 250ppm for paint coating in toys, pens, pencils, and children's painting materials. This standard was updated in 2003 to prohibit paints with soluble lead concentrations of more than 90ppm. In 2001, the same standard of no more than 90ppm of lead in paint was applied to paints for indoor decorating and refurbishing materials (Lin et al. 2009). However, paint with higher levels of lead often sells for a

third of the cost of paint with low levels. As a result of an intensely competitive and poorly regulated market, Chinese factory owners will attempt to increase profits by cutting corners and using cheaper leaded paint (Barboza 2007).

## **Leaded gasoline**

Although China prohibited production of leaded gasoline in 1999, it is still available, especially in the Western provinces (Lee and Chen 2008). Lead compounds are added to gasoline to increase the octane and enhance performance. However, when leaded gasoline is used, particles of lead are emitted into the atmosphere, where they can persist for a few weeks before settling onto the ground. Prior to 1999, China used leaded gasoline extensively, with a lead content up to 0.78 g/L (Shen et al 1996). Undoubtedly vehicles that ran on leaded gasoline would have contributed greatly to atmospheric lead pollution as leaded gasoline accounted for 80-90% of airborne lead pollution in large cities where it was used (Meyer et al 2008).

## **Tobacco cigarettes**

A study that was a part of the International Tobacco Control project compared the content of Chinese cigarettes with those from other countries; all 13 Chinese cigarette brands tested were found to have significantly elevated levels of heavy metals, including lead. Some, in fact, contained up to 3 times the level of lead compared to other cigarette brands, constituting a potential global public health problem, as exports of Chinese cigarettes continue to increase (McEwen 2010).

## **Candles**

A study performed by the University of Michigan showed that candles produced in China released high levels of lead into the air during burning. Candles that had high lead emission levels when burnt contained metal cores made of either pure lead or lead alloy. Metal cores are used to provide rigidity to the wick, to provide an even and slower burn rate, ideal for scented and ceremonial candles (Reyes 1999).

The US Consumer Product Safety Commission (CPSC) has determined that candles using lead wick could present a lead poisoning hazard to young children. Emitted lead presents a risk to children from exposure by way of inhalation and via ingestion of lead that may settle on surfaces in the room, which could remain accessible to a child for an extended period of time (HKTDC 2001).

Countries such as Australia and the US have taken action in banning the importation and manufacturing of candles with lead-wicks; however, at this moment, it is not clear as to whether China even recognises the risk of lead exposure as a result of burning candles with lead-wicks, let alone has policies put in place that pertain to the problem.

## **Cosmetic products**

A study by Al-Saleh et al. (2009) tested a series of lipsticks for lead. While the primary ingredients found in lipstick are wax, oil, alcohol and dye, lead can be present as impurities in the colour additives. The study found that some brands of lipstick made in China contained lead around or above 20 PPM; the FDA limit for lead as impurities in colour additives used in cosmetics with the highest lead content was found in shimmering coloured lipsticks, which may come from Mica, a group of silicate minerals that are widely used in the cosmetics industry.

Chinese-made eye shadow has also been examined as a lead risk. The study by Al-Saleh et al. (2009) also looked at eight different brands of pressed powder eye shadow, and found that one

brand had lead contents above 20 ppm. Similarly, another study by Omolaoye et al (2010) managed to find that seven out of their test of twenty eye shadows contained lead contents higher than  $20\mu\text{g}\text{g}^{-1}$  (unable to confirm if this measurement is the same as FDA's limit of 20 ppm).

## Food

Preserved eggs, also known as *pi dan*, are a traditional Chinese food which is made from egg with some additives, one of which is lead oxide. Shen et al (1996) found that five out of the eleven tested brands of preserved eggs contained lead concentrations greater than  $3\mu\text{g}/\text{g}$ , which was at the time the allowable lead level for food in China, with the highest one as high as  $10.3\mu\text{g}/\text{g}$ . More recently, the Consumer Council (2006) tested 19 samples of preserved eggs taken from both retail outlets and restaurants, and found seven of the samples to contain lead. However, it was reported that these levels were well below the permitted amount stipulated in the Food Adulteration (Metallic Contamination) Regulation of  $6\text{ mg}/\text{kg}$  (or  $6\mu\text{g}/\text{g}$ ). (\*Authors' Note: unable to verify these permitted levels of lead in food for both time periods of 1996 and 2006, nor could we explain how the permitted levels had in fact risen from  $3\mu\text{g}/\text{g}$  to  $6\mu\text{g}/\text{g}$ )

*Bao mi hua*, one of the most favourite foods among Chinese children, similar to popcorn in Australia, also potentially contains considerable amounts of lead. Bao mi hua is processed in a special tank alloyed by iron and lead under very high temperature; as a result some of the lead is melted onto the food. A study that looked at the lead content of 66 samples discovered that the highest content of lead was as high as  $21\mu\text{g}/\text{g}$  (Shen et al 1996)

Traditional medicines such as *hai ge fen* have also been proven to contain substantial quantities of lead, with several cases of lead poisoning due to Chinese traditional medicines. Unfortunately, there has been little or no comprehensive data available on this potentially large lead risk (Shen et al 1996)

## Sewage sludge

Sewage sludge as fertilizer is widely used in China because of its rich source of nutrients for crop production; however, precautionary steps must be taken to address the risks of heavy metal accumulation due to the application of large volume of sewage sludge fertilizer. (PCARRD 2006). For more information on the issue we refer readers to The LEAD Group's LEAD Action News article title, "[Biosolids used as fertilizer in China and other countries](#)"

***Part III - Treatment of lead poisoning:*** Chelation therapy, anti-oxidants, ways to reduce and prevent lead exposure

## Chelation therapy

This process involves the use of a drug called a chelating agent, which comes in many forms. The drug interacts with lead to form a chelate that can be eliminated in urine, faeces, or both. The intention of the use of such a drug is to reduce the lead content of target tissues, such as the brain, and to restore normal cellular and tissue function (Mortensen and Walson 1993). The three primary agents used for chelation are dimercaprol, edetate calcium disodium, and succimer (Gracia and Snodgrass 2007).

The focus of chelating therapy has been on the treatment of childhood lead poisoning and the therapy's effect on neuropsychological and behavioural development. In particular, the focus has been on at what the blood lead concentrations of the child needs to be before administering

chelating agents, in particularly the FDA licensed drug, succimer (dimercaptosuccinic acid), which is taken orally (Dietrich et al 2004). It is accepted that the lower threshold for chelation be at 40µg/dL, due to some promising clinical observations of children undergoing the chelation therapy, even though the FDA-approved indication for use of the oral chelator succimer is for blood lead levels of 45 µg/dL. However, it is also well accepted that blood lead levels below 25 µg/dL should not be treated by chelation therapy. Therefore there is uncertainty as to whether chelation should be used for blood lead levels of 25 to 39 (or 44) µg/dL (Mortensen and Walson 1993).

Along with the uncertainty of when to administer chelation therapy, its effectiveness in the reduction of target-tissue lead content and reversal of toxic effects has not been demonstrated in humans. While some chelating agents have been shown to increase urine or faecal lead elimination, chelation is still seen as relatively inefficient, as a course therapy may remove only 1% to 2% of body lead content. Furthermore, there is no evidence that available chelating agents have significant access to lead stored in the brain (Mortensen and Walson 1993). Adverse effects of chelators have been reported, and the uncertainty in their efficacy in reversing or preventing the neurotoxic effects of lead in children with 25 µg/dL blood lead concentrations have caused clinicians to avoid pharmacological intervention in children with low blood levels (Gurer and Ercal 2000). In fact, Mortensen and Walson (1993) point to a study in rats that found brain lead content having *increased* following a single dose of ethylenediaminetetraacetate (CaNa<sub>2</sub>EDTA). Such a finding raises concerns that CaNa<sub>2</sub>EDTA, along with potentially other chelating agents, redistributes lead from less- to more-vulnerable body tissues, such as from bone to brain. Another known risk involved with chelation therapy is the rebound effect of chelators, where the blood lead levels may rebound to higher than pre-chelation levels if the person returns to the source of lead exposure (Mortensen and Walson 1993).

As a result, chelation is generally not indicated for adults with blood lead concentrations of <45 µg/dL because of the potential risk of adverse drug events and concerns about remobilized lead. Chelation for children with blood lead concentrations of <45 µg/dL still remains controversial (Gracia and Snodgrass 2007).

## **Antioxidants**

Studies so far have suggested that antioxidants, either individually or in a combined therapy with chelating agents, can play an important role in reducing some toxic effects of lead. Some antioxidants, such as NAC (N-acetylcysteine), have been shown to have a potential for chelating lead and removing it from the bloodstream. This opens up the possibility of new therapeutic intervention options, as antioxidants are recognised as safe molecules, hence can be given to subjects with low lead concentrations in their blood even when it is not possible to remove them from exposure to lead (Gurer and Ercal 2000).

## **Ways to reduce and prevent lead exposure**

It is thought that dairy products, and regular supplements of calcium, zinc or iron are effective in lowering the risk of lead poisoning in children (Dai and Fan 2007). Though the mechanism behind this is yet to be fully understood, it is thought that micronutrients, especially the presence of calcium in the intestinal lumen (the cavity where digested food passes through and from where nutrients are absorbed) may play a role by competing with lead for absorption (Liu et al. 2011).

A recent six-month study has suggested that breakfast may help protect children from lead poisoning. Scientists from China showed that children who regularly ate breakfast lowered their



blood levels of lead by 15% compared with those who skipped the first meal of the day. The study then looked at the education level of the parents of the children that partook in the study, and found that parents with more education or who had technical or professional jobs were more likely to get their children to eat breakfast (Park 2011). Previous, yet related studies, have also shown that an empty stomach increases the absorption of lead, thus increasing blood lead levels, and that food in the gastrointestinal tract in fact reduces the absorption of ingested lead in adults (Liu et al. 2011).

At a more political level, laws and regulations concerning environmental control of lead and prevention of lead poisoning should be formulated by the government in cooperation with relevant departments. This includes the different institutions of health, education, science and technology, environmental protection agencies; and, importantly, society (Dai and Fan 2007). This is important, as China has more often than not failed to live up to its promises of ensuring heavy metal pollution is reined in. Chinese officials often put economic development ahead of environmental protection and community safety, which often result in cases of mass lead-poisonings which arouse public anger. In fact, the Minister of Environmental Protection Zhou Shengxian outlined a fresh plan in which the Chinese government will aim to cut pollution in key regions and industries, including lead-acid battery manufacturing and lead smelting by 15% of 2007 levels by 2015 (Martina 2011). Furthermore, standards and criteria should also be firmly established or altered, as implementation of these recommendations can help to achieve the goal of eliminating lead poisoning (Dai and Fan 2007). Measures need to be implemented to eliminate lead poisoning before they occur and affect nearby residents. Local governments always choose to shut down factories after a serious pollution incident occurs, but such action is too late to help those already affected. Surveillance before construction and during the operation of factories therefore has to be stricter (Ji et al 2011).

A clear example of this can be seen by the very recent action by the Chinese government, which closed down almost all lead-acid battery makers in China's major producing regions. As quoted by Xu Hong, the head of the lead-acid battery branch at the China Electrical Equipment Industry Association, "regardless of the plants' condition, they've all been shut down, and there is no timetable now to resume operations" (Sun 2011). "Closing these plants is good news for nearby residents, but unless Chinese provincial governments develop planning guidelines which can stop highly-polluting battery manufacturers from setting up somewhere else tomorrow, then it's not good news for the Chinese population in general. Currently, provincial governments don't seem to demand any assessment of a plant's ability to comply with occupational health and environmental regulations. The risk is that the polluting equipment from the recently-closed down plant will simply be set up in another location." (E.O'Brien, pers com 2011)

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## **Are breastfed or artificially-fed babies more likely to be lead-poisoned?**

*By Russell Ng and Hannah Beedham, Interns from Macquarie University*

### **The advantages of breastfeeding**

According to the Australian Breastfeeding Association, it is critical to breastfeed your baby, as breast milk provides the needed nutrients for infants, protects them from infections and illness, and encourages the development of eyesight, speech and intelligence. Those who are not breastfed can have a higher risk of Sudden Infant Death Syndrome (SIDS) and an increased risk of allergies (ABA 2005). The World Health Organisation (WHO) recommends that mothers exclusively breastfeed their babies for the first 6 months of their life. WHO defines exclusive breastfeeding as no other food or drink, including water, except breast milk (WHO 2002).

### **Breast milk lead concentrations**

Lead has a bio-accumulative effect in the human body; thus mothers who have been exposed to excessive lead prior to breastfeeding are a problem for the nursing infant. The impact on the infant's early development is heavily determined by the mother's diet and nutritional status

(Mead 2008). For example, as more than 90% of lead in the adult body is stored in bone, there is the possibility that there will be a large redistribution of cumulative lead stores from bone into plasma and subsequently into breast milk, during periods of heightened bone turnover, such as during pregnancy and lactation (Ettinger et al 2004).

A study by Dillon et al (1974) concluded that studies on the measurement of lead concentration in breast milk were sparse, and that, despite differences in methods and periods of study, there had been no increase in lead concentrations in breast milk over the 40 years prior to their own study. However, it was noted that at the time there was no comparative data available concerning the lead content of breast milk from populations with a possibly higher risk of exposure. A study by Oskarsson et al (1995) looked at toxic elements that could be found in breast milk and therefore transferred to the infant. The study found that lead levels in the milk were significantly higher for women who lived near a lead-emitting metal smelter in Sweden, and attributed this to the increased mobilization of lead from bone into the bloodstream and subsequently excreted through breast milk, as mentioned previously.

Results from Ettinger et al (2004), however, indicate that levels of lead in breast milk are low, regardless of the mothers' high cumulative lifetime exposure to lead. The authors even go so far as to criticize previously-published studies showing high breast-milk lead levels, as being a result of contamination and inaccurate analytical methods. A study by Gulson et al (1998) also came to the same conclusion that breast milk contributes minimally to blood lead concentration in infants up to 1 year old. In fact, findings by Gulson et al suggest that the high levels of lead in breast milk in other studies may have been due to contamination from the foil around the alcohol wipes used to clean nipples.

## **Infant formula lead concentrations**

Nursing infant exposure to lead can also come from the ingredients used in infant formula milk, whether it is lead in the water or in the infant formula itself, as well as potentially from the feeding bottle or teat. Cruz et al (2009) define infant formula as, "when in liquid form, may be used either directly or diluted with water before feeding, as appropriate." Infants who drink formula are at particular risk as well, due to consuming large volumes of potentially contaminated fluid relative to their body weight (Baum and Shannon 1997).

Ikem et al. (2002) looked into levels of elements in infant formula from USA, UK, and Nigeria and, even though lead was detectable in the UK and Nigerian samples, it did not exceed the 15µg Pb/L stipulated by the EU directive for lead in drinking water. (Note: the limit of 10µg/L is set for implementation on 25/12/2013 – SCHER 2011). However, the presence of *any* lead in infant milk is of concern, considering the sensitivity of an infant to lead's toxic effects. Another study performed by Cruz et al (2009) analysed heavy metals, including lead, in selected infant formula milks commercially available in the Philippines, manufactured in 2008, and found that there was no presence of lead in the tested samples. They do, however, cite a study that reported that reconstitution of infant formula milk with tap water contaminated with heavy metals can result in much higher lead concentrations.

		Consumption data		Daily intake of lead ( $\mu\text{g}/\text{kg}$ bw) and expected blood lead levels ( $\mu\text{g}/\text{dL}$ ) at different concentrations of lead in the drinking water (from 10 to 30 $\mu\text{g}/\text{L}$ )							
Age (mo.)	Weight (kg)	Formula (mL)	net mL of water 90%	10 $\mu\text{g}/\text{L}$		15 $\mu\text{g}/\text{L}$		20 $\mu\text{g}/\text{L}$		30 $\mu\text{g}/\text{L}$	
				Daily intake of Pb	Blood levels of Pb	Daily intake of Pb	Blood levels of Pb	Daily intake of Pb	Blood levels of Pb	Daily intake of Pb	Blood levels of Pb
3	6.1	800	720	1.2	2.8	1.8	4.2	2.4	5.8	3.5	8.5
3	6.1	1200	1080	1.8	4.3	2.7	6.4	3.5	8.5	5.3	12.7

Table 1: Estimated exposure of a 3 months old child to lead and blood lead levels at different concentrations of lead in drinking water (From SCHER 2011).

From table 1 we can see that under all conditions, the daily intake of lead for formula-fed infants of 3 months of age is above the European Food Safety Authority's (EFSA) accepted level of 0.5  $\mu\text{g}/\text{kg}$  body weight per day (SCHER 2011).

In a further example, Baum and Shannon (1997) describe a situation of two infants who contracted lead poisoning when formula was prepared with a lead-soldered electric kettle. Other cases associated with lead poisoning from water contaminated during the preparation of infant formula had three formula preparation practices in common responsible for the incidences of lead poisoning. They were i) excessive water boiling, (ii) use of lead-containing vessels, and iii) morning (first-draw) water. Risks also exist in certain feeding bottles used for infant formula. According to Art Hazard News, studies had shown that lead was leached from crystal decanters and baby bottles into the beverages they hold. The lead content of warm infant formula was reported to have greatly increased after just 15 minutes in a lead crystal baby bottle. (AHN 1991),

### Testing for a lead-soldered kettle

The following information is specific to readers in Australia, who may be concerned about whether their electric kettles are lead-soldered or not. They essentially have two choices: to test the kettle themselves by boiling water in it and testing the boiled water using lead test kits available from The LEAD Group, or to send their query about the safety of the kettle – or other consumer products - to the Australian Competition and Consumer Commission's Product Safety Australia Division. The ACCC is responsible for ensuring that only safe products are available to consumers and for recalling products that they find to be unsafe. In 2005 the ACCC recalled all Russell Hobbs Mona Kettles due to the possibility that the kettles may leak lead into the water (ACCC, 2005).

### Lead exposure from being fed breast milk or infant formula: Which poses the higher risk?

As previously noted, studies from Ettinger (2004) and Gulson (1998) have found results which indicate that lead levels in breast milk, regardless of the mother's previous exposure to lead, are low. With this in mind, the mother's exposure to lead is more critical during foetal development than during breastfeeding, as the foetus is more vulnerable through placental transfer than milk (Mead 2008).

Preparation of infant formula may involve running the risk of using lead-contaminated water, as does heating in, or feeding from, a vessel containing lead. This is on top of the possibility of lead

contamination of infant formula itself. "Because infant formula and other foods for infants contain lead in the water used for their preparation, breastfed infants are exposed to less lead (Gulson *et al.*, 1998)." (SCHER 2011) A study by Ryu et al (1983) found that concentrations of lead in formulas prepared for 25 infants between birth and 112 days of age, ranged from 19 to 26 µg/L.

Provided breast feeding is possible, reasons to *not* use infant formula because of the risk of exposing the infant to lead may outweigh the advantages.

### **However, there have been some improvements, though not necessarily universally**

According to Rabinowitz and Leviton (1985), there have been reductions in lead content of infant formulas which is attributable to improved packaging methods. Earlier soldering methods resulted in splashes of molten lead entering the can and contact between the solder and food, but the increased demand for bottled formula, more careful canning techniques, and different seam designs have resulted in lower dietary lead intakes among infants. However, "They are the result of concerted efforts by federal government departments and thus they do not necessarily occur at all in less developed countries or even in developed countries where very little lead testing is done." (O'Brien 2011)

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### **Taskforce reply to 'Rosebery: The View from the Ramparts'** LEAD ACTION NEWS VOLUME 11 NO 2

*By Kay Seltitzas and Isla MacGregor, Toxic Heavy Metals Taskforce Tasmania (THMTT)*

The Toxic Heavy Metals Taskforce Tasmania welcomes the opportunity provided by The LEAD Group Inc to reply to LEAD Action News 11 Number 2 'Rosebery: The View from the Ramparts' edited by Chrissie Pickin ( [www.lead.org.au/lanv11n2/LEAD Action News vol 11 no 2.pdf](http://www.lead.org.au/lanv11n2/LEAD_Action_News_vol_11_no_2.pdf) ).

We have greatly appreciated The LEAD Group Inc providing the THMTT an opportunity to put our side of the debate over heavy metal contamination in Rosebery in LEAD Action News 10 Number 4 'View from the Trenches' ( [www.lead.org.au/lanv10n4/LEAD Action News vol 10 no 4.pdf](http://www.lead.org.au/lanv10n4/LEAD_Action_News_vol_10_no_4.pdf) ).

During the Rosebery controversy, THMTT has gained many insights into the workings of government bureaucracies and their bureaucrats. Most importantly we have come to understand the inherent problems of 'Community Engagement' processes orchestrated by Government bureaucrats.

The primary role of heads of Government Departments is to defend Government policy and decisions and minimise any liability or responsibility for Government negligence or failures.

Prior to coming to work in Australia from the UK in 2002, Deputy Director of Health Chrissie Pickin was previously Project Director of the Salford Social Action Research Project (SARP). She was seconded part time to Salford University, while also being Director of Public Health for Salford, and Trafford Health Authority from 1996-2001.

In the National Conference Agenda 'Involving Communities in Regeneration' SARP is described:

'Salford Social Action Research Project was established to explore how effective community involvement in public policy making and implementation and in public service planning and delivery could be promoted. SARP explored through action the strength of social relations, civic engagement, and other collective processes within, and between communities forming a powerful



collective resource that may have an effect on community health and wellbeing. ([www.nwpho.org.uk/press/regeneration.pdf](http://www.nwpho.org.uk/press/regeneration.pdf) )

In light of Chrissie Pickin's professional background, it was disappointing that the Government's community engagement process in Rosebery was such a disaster.

Chrissie Pickin's suggestion to The LEAD Group Inc that it "could more usefully focus its attention" on issues concerning exposure levels of miners "rather than continually supporting a campaign group which the evidence strongly refutes their claims," is completely inappropriate, given that The LEAD Group Inc has provided equal opportunity for both sides to outline the evidence in their respective arguments. The DHHS (Department of Health and Human Services, Tasmania) has taken a very aggressive posture defending itself against THMTT's arguments about their flawed investigation, and the effective media campaign that saw our point of view covered in the Tasmanian media.

Chrissie Pickin's use of the words 'allegations' and 'claims' instead of 'views' or 'opinions' in relation to comments made by the THMTT are common tactics used by governments to undermine arguments and discredit opponents. It is important at the outset that we clarify the differences in the language used by governments/corporations, as compared to non government community organisations. Government and corporate spin provided to media outlets during the so-called community engagement process always needs to be treated with some caution by the public. The Government's 'Community Engagement' process in the Rosebery case was the vehicle for dissemination of their particular 'spin,' which justified their 'cheap' investigations. It is inevitable to have claim and counter claim arguments in many issues concerning toxic contamination and the poisoning of people and the environment. Frequently, in controversies of this nature, the most recent research publicly available is not always used or cited by governments or corporations in their quest to minimise their responsibility for any harm to humans or the environment. In Chrissie Pickin's response it is not as simple as ensuring "the public record is accurate" by providing a reinterpretation of opinions given or facts stated by the THMTT. It is far from a "fascinating" story as Dr Pickin states, it is a tragedy unfolding. The Slater and Gordon legal action will reveal many facts that have been withheld by the Government and West Coast Council to date.

The introduction by Bronwyn Hill to the Rosebery tragedy in the form of a tourism promotion only provides half the story behind the picturesque nature of the West Coast of Tasmania. It was the beauty of the mountains and forests that first attracted the people - who subsequently became poisoned in Rosebery - to the area in the first place. The legacy of historic mining on the west coast has laid waste, by heavy metal contamination and acid mine drainage, vast areas of land and river systems. The effects of decades of previously-unregulated pollution from various mines have left Tasmania with the dubious honour of having one of Australia's biggest environmental catastrophes adjoining a World Heritage Area and the Tarkine Wilderness. These effects will last for centuries to come. Very little funding has been provided by Federal or State Governments to independently investigate the true impact of these problems in Gormanston, Linda, Zeehan, Renison, Williamsford, Waratah and Tullah.

The context of the management plan and results of the Government's and Minerals and Metals Group's (MMG) deficient investigations are best summed up in the statement by John Lamb, MMG Rosebery General Manager: "Our long-term plan to operate this mine only works if people are happy to come and live in the town to work at our Rosebery site, so responding to the concerns about potential heavy metal contamination was a necessity."

The MMG 'engagement' promotional by John Powell (MMG Engagement Manager) fails to contribute to any of the issues in LEAD Action News on Rosebery being debated.

## **A critique of some of those involved in the dispute about Rosebery**

### **Dr Roscoe Taylor: In denial about complex mixtures?**

[Ed's note: Dr Roscoe Taylor is Director of Health, Tasmania. In a press release in April 2010 he stated there was no evidence of heavy metal poisoning in 10 current and former residents of Rosebery: <http://www.tasmaniantimes.com.au/index.php/pr-article/experts-rule-out-heavy-metal-poisoning-at-rosebery> ]

An article by Dr Taylor in an Australian Government document titled: *The Need To Consider Complex Mixtures*, outlines issues relating to *synergistic* action of the components of "complex mixtures" of toxic chemicals.

Roscoe Taylor (then working with the Qld Dept of Health) and Andrew Langley (also from the Qld Dept of Health) produced a paper for the Commonwealth Dept of Health .

The paper was entitled: *Exposure Scenarios and Exposure Settings*.

It is a rather complicated Guide concerning contaminated sites and risk assessments.

"Exposure scenario" is broadly defined as a set of facts, assumptions and inferences about how exposure takes place that aids the exposure assessor in evaluating, estimating or quantifying exposures. However, there are two specific references.

Page 12 (para 2)

*'Complex mixtures of contaminants are beyond the scope of this paper, but the possibility of additive and/or synergistic effects on health needs to be considered (Pollack 1996).'*

Page 15 (last paragraph)

*'.....the implications of complex mixtures for health risk assessment may need further development in future versions of the Guidelines.'*

In the References section at the end of the Guide, *there is no listing of this particular reference*. This is despite the fact that the specific paper is referred to in the Guidelines, and it is proper scientific procedure to correctly source all references used in a scientific paper.

The paper by John Pollack, published in 1996, is entitled "*The Problems Posed by Xenobiotics (chemicals foreign to life) in Chemical Mixtures and the Role of Mixed Function Oxidases*".

At the time John Pollack was at Sydney University Medical School. In Paragraph 3 of this paper, John Pollack states:

*'Chemical mixtures may produce additive, synergistic or also antagonistic effects due to the induction and action of mixed Function Oxidases. Hence it is essential to consider the overall exposure to chemicals in evaluating the effects of chemical mixtures on public health and the ecology.'*

*This* research exposes a fundamental and crucial problem (by omission) for Dr Taylor concerning his attitude to 'Public Health Investigations of heavy metal contamination in Rosebery'.

**Clearly, Dr Roscoe Taylor has been well aware for many years of the need to take into account the combined effect of the various toxic chemicals in the mixture of heavy metals and metalloids in the Rosebery environment.**

**Publicly, he has steadfastly adhered to the outmoded concept of “single” chemical “safe health limits” of the heavy metals when considering the health of the Rosebery residents.**

Roscoe Taylor appears to have “conveniently” forgotten his own important (published) findings!!

His adherence to this outmoded viewpoint is unacceptable for the functions of a Director of Health, particularly given his major role in the Rosebery investigations.

### **Mayor Darryl Gerrity – Defending the Mayordom** (See article in Lanv11n2)

West Coast Mayor Darryl Gerrity, while claiming to always having been sympathetic on heavy metal poisoning issues has not lived up to this in the Rosebery situation. In fact, he only met with three residents on one occasion for half an hour. Repeated telephone calls by the THMTT to make an appointment with him were initially not responded to. When a final meeting was arranged this had to be cancelled due to failing health of a THMTT representative. This occurred after Mayor Gerrity had repeatedly and publicly expressed his contempt for those suffering from heavy metal poisoning. Mayor Gerrity's assertion that many residents have been tested can not be substantiated with the numbers. Only about 20% of children from Rosebery were tested for heavy metals and the background information about these children's exposure period living in Rosebery or socio-economic background was not provided. This, therefore, does not provide an adequate set of data to make assumptions about children's blood/urinary metal and arsenic levels. Mayor Gerrity, even given his extensive knowledge of the impacts of acid mine drainage in Queenstown and the controversy over the lost Federal Government rehabilitation funds, refuses to acknowledge the fact that parts of Rosebery are heavy metal 'hotspots' affected by acid mine drainage. Mayor Gerrity also fails to acknowledge that people have been diagnosed with heavy metal poisoning by Dr Andreas Ernst and eight other doctors and specialists. The residents who bravely raised these issues with the mine and the Government have been the ones who have suffered the most insults and threats in Rosebery.

### **Jo Powell – Behind the scenes on Facebook** (See *Rosebery Community Response* in Lanv11n2)

Jo Powell was invited by the Department of Health and Human Services, Tasmania to sit on the Rosebery Community Reference Group (RCRG). The DHHS were providing ongoing advice to Jo Powell that she was posting on her Facebook website. Jo Powell's position on the RCRG was questioned by members of the Rosebery community, as there had been no community consultation or nomination process for this appointment.

Jo Powell is the creator and administrator of the Facebook website 'Rosebery is not Contaminated – We're prepared to be tested.' No member of THMTT is a member of this Facebook site, contrary to Ms Powells' statement to this effect.

On Friday 29<sup>th</sup> January 2010, ABC Radio National's *The World Today* ran a very controversial program on Rosebery, by ABC journalist Felicity O'Gilvie: *Small mining town divided over plans to sue local mine*: <http://www.abc.net.au/worldtoday/content/2010/s2804965.htm>

In this program, Felicity O'Gilvie interviewed Rosebery residents Kay Seltitzas from the THMTT, and Jo Powell. The program included a reference to Jo Powell's website having had some comments posted that were so offensive that Ms Powell had to remove them. They included:

"Houses go up quick when you set alight to them. I'm sure no one will miss one house and two dumb c....."

"Funny how the people have lived here for so long and they're not sick. F.....off and get a real life you low life instead of running our town down."

Jo Powell acknowledges that two people she knew had been diagnosed with heavy poisoning who subsequently had a different diagnosis from another doctor. In the experience of most of the people now diagnosed with heavy metal poisoning by Dr Andreas Ernst, it has been virtually impossible to obtain thorough health testing and examinations for symptoms typical of heavy metals poisoning from DHHS or GPs in Tasmania. After Dr Ernst made his initial contact with the DHHS in November 2009 to notify them about his diagnosis of several people with heavy metal poisoning, the DHHS decided to investigate Dr Ernst instead of conducting a proper public health investigation in Rosebery.

### **Yossi Berger – Sitting on the fence (on one side)** (See article in Lanv11n2)

Yossi Berger's contribution to the LAN v11n2 provides some interesting insights into the role of the Australian Workers Union and their views of the position taken by those individuals poisoned by heavy metals or working with the THMTT. On several occasions THMTT contacted the AWU to make an appointment to meet and provide documents. On 15<sup>th</sup> November 2010, Yossi Berger and Ian Wakefield finally agreed to a meeting in Hobart. The THMTT wanted to discuss at this meeting some critical issues and offered important documents to Yossi Berger. He refused to discuss any matters of substance and also refused to take the documents. It appeared that the sole purpose for the AWU of attending this meeting with reps from was to attempt to encourage representation by the THMTT on the Rosebery Technical Advisory Group. A similar invitation had been given to the THMTT to sit on the Rosebery Community Reference Group with the condition of confidentiality. Both these offers had been refused. Clearly the most important function of a Mediator is to get both parties to the table and obviously Yossi Berger had failed. It would have been very useful for the AWU to make the time to apprise themselves of the reasons why this involvement could not occur, based on the experiences of people who had been treated so inhumanely by the DHHS and West Coast Council. Yossi Berger refers to the need for people in THMTT to discuss their 'suspicions'. THMTT views are not 'suspicions,' and for Yossi Berger to use the language of spin has provided no sense of confidence in those he wishes to 'engage'. Not a good look for the principle role of a Mediator in the 'Community Engagement' process on such serious health issues that impact on family members of his unions workers.

### **Bronwyn Hill – Still no research results on pet health** (See article in Lanv11n2 *Are our pets safe?* written in collaboration with Drs Mary Lou Conway and Ron Harris)

This article provides no medical or scientific evidence and is a very unsatisfactory and particularly mediocre commentary quoting Tasmanian veterinarians on animal health investigation of pets in Rosebery.

Dr Ron Harris, local vet for the area admits that 'He said he can't speculate about or competently comment on the cause of death for those animals about which concerns have been raised, because he didn't examine them.' Yet, after reviewing clinical records he fails to say which animals

he reviewed and on what basis. He has not been specific about what he has used in his assessment review, cited anecdotal evidence but provided no results from clinical assessments or laboratory tests. Dr Harris provides no tenable explanation for not collecting relevant samples. In the Rosebery situation especially, costs for laboratory testing should never be a barrier to obtaining a diagnosis and the consultant veterinarian would need to explain the value of the tests ordered and the resulting costs.

It is an unacceptable excuse for Deputy Chief Veterinary Officer (CVO) Dr Mary Lou Conway to claim 'confidentiality' for an inability to comment; either there are clinico-pathological cases supported with laboratory test data that substantiates Dr Harris' conclusions or there aren't.

The statement attributed to Dr Conway that 'she said the symptoms identified in some dogs and cats are consistent with stomach cancer or other illnesses which can be genetic' is astonishing. Stomach cancers are rare in both these species and if there are multiple cases diagnosed from the Rosebery area through laboratory tests or a veterinary examination they need to be presented.

Dr Conway failed to tell us how many cases by species have been submitted to Mt Pleasant animal Health Laboratory for the past 11 years to determine what is the basis for her assertion that there is 'no evidence of a Rosebery-wide cluster of ill health in animals'. Dr Conway 'said animal data for valid comparison is limited' yet previously stated that the interrogations of the databases found no evidence; but now the data has become 'limited'.

Before Dr Conway begins to discuss 'quarantining processes within the body that reduce the risk or effects of toxicity' she would need to detail her general toxin dose comment. These statements are unhelpful.

Dr Conway has focused on 'a single or closely grouped multiple exposure event' but has not considered the possibility of chronic exposure to one or more putative toxins. Has Dr Conway undertaken any Rosebery survey of pet health to ascertain whether there have been any 'closely grouped exposure events'?

If a veterinarian is unsure of the cause of toxicity he/she may suggest some diagnostic tests to determine a 'definitive' diagnosis. Any 'generic treatment' based on 'non-specific' signs could be seen as professionally incompetent. Yet Bronwyn Hill writes 'She said the signs of toxicity are often non-specific and require generic treatment to promote survival while a definitive diagnosis is reached.'

### **Chrissie Pickin – The 'cheap' investigation or 'don't look and you won't find'**

It has been useful for the DHHS to admit that "The Department says neither it nor Professors Daly and Braitberg had access to the full medical records of each of the residents, nor were they able to directly examine the patients". This is important, in view of examples of incorrect attribution of data to patients and conclusions drawn on medications assumed to be taken by patients and numerous other examples, outlined in detail in our full Critique at: [http://www.lead.org.au/mr/20100415Rosebery\\_Toxic\\_Heavy\\_Metals\\_Taskforce.html](http://www.lead.org.au/mr/20100415Rosebery_Toxic_Heavy_Metals_Taskforce.html)

Professors Braitberg and Daly failed to acknowledge that all these patients had been attempting to find the cause of their illnesses for years prior to the DHHS/EPA investigation instigated after the poisoning of the cat Kuba.

The fact that no patient's GP chose to discuss with the Professors any matters relating to their views about their findings is of particular interest. The THMTT's view about GPs declining to

discuss these issues with the Professors is because the GPs would not agree with the findings. Having observed the consequences for Dr Andreas Ernst as a result of his diagnosis, patients' GPs would not want to leave themselves open to similar treatment by the DHHS.

Residents involved in the health investigation by the DHHS at no time "demanded compensation" from the mine. They did ask for relocation and even Mayor Darryl Gerrity suggested in the early stages of the investigation that they be temporarily relocated until such time as the investigations had been finalised.

Chrissie Pickin continues to assert that there are no exposure pathways for heavy metals for residents living in the middle of a mining operation, which - over the decades of operation- has contributed to severe acid mine drainage (especially arsenic and cadmium) affecting private residential properties. Inhalation, ingestion and dermal contact are the known pathways for heavy metal poisoning in mining towns throughout the world. HELLO!!!

There is considerable scientific evidence that shows that long term low level exposure to low levels of toxic chemicals or metals can result in build up in tissues and bones . Chrissie Pickin has not provided any evidence from testing of tissues, nerves, nails or bone from residents with raised heavy metals levels in blood or urine. Absence of evidence is not evidence of absence .

Chrissie Pickin states "The understanding of the DHHS, supported by toxicologists who were consulted for advice, is that synergistic interactions and any resultant adverse health effects are associated only with high levels of exposure – at or above individual toxicity threshold level for the metals concerned," despite considerable available scientific evidence to the contrary. Although this evidence has been provided to Chrissie Pickin repeatedly, no response has been received by THMTT to this research. A recent article by Linda Birnbaum, Director of the US National Institute of Environmental Health Sciences (NIEHS) and the National Toxicology Program published in Environmental Health Perspectives states:

"There are several recent examples of how research supported by the NIEHS is leading to a paradigm shift in understanding how environmental toxicants – even at very low-level exposures – can have significant consequences including dysfunction and disease".

[\[http://findarticles.com/p/articles/mi\\_m0CYP/is\\_11\\_117/ai\\_n42284545/ \]](http://findarticles.com/p/articles/mi_m0CYP/is_11_117/ai_n42284545/)

Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) (Land and Water website) states:

'Research on the outcomes of contaminants has tended to focus on single chemicals tested under highly controlled conditions. In reality, ecosystems are complex environmental matrices (e.g., water, sediments, soil and air) and mixtures are the norm. The effect of a contaminant when assessed in isolation may be very different to the effect of a mixture. Chemical interactions (due to mixtures) may result in dramatically different fate, effects and risk profiles.

CSIRO are investigating chemical interactions between contaminants as mixtures (and the implications for their environmental outcomes) – in order to develop theories for sub-lethal effects and models incorporating multi-contaminants, multi-stressor and multi-compartmental systems.' See: <http://lwa.gov.au/programs/national-river-contaminants-program>

Of concern is Chrissie Pickin's statement that, based on bio-monitoring results, there is no evidence of synergistic effects. This claim is made in the absence of any tests that could be used to provide data for low level exposure over time i.e., nails, nerves, tissue or bone.

The spurious reasons that were turned out by DHHS officials to justify their failing to undertake a proper population-based health survey in Rosebery are truly amazing:

13. That the yellow lids on SARSTEDT (a Medical Diagnostic & Laboratory Products company) specimen bottles contaminated the urine samples with cadmium. DHHS could not prove that specimen bottles obtained from Analytical Services Tasmania for these samples were contaminating samples.
14. That one person with extremely high levels of blood cadmium might have swallowed cadmium button batteries. This person was subjected to an X-ray which found that no cadmium batteries had been swallowed.
15. That the body manufactures cadmium.
16. That high levels of biological cadmium found in blood and urine could only be caused by smoking. Some of these residents didn't smoke at all and another who was a lifetime smoker had the expected cadmium level of 4.
17. That one resident who does not, nor has ever smoked, was 'seen' smoking. This allegation was included in the Final Report even though it was totally incorrect.
18. That some residents who returned high levels of arsenic from urine samples must have been eating fish/seafood/mushrooms. None of the four people involved ate fish/seafood or mushrooms at all and also knew that a person had to refrain from eating these prior to testing.
19. That specific medications being taken by several residents were causing their biological metal levels to be high. These residents were taking none of the alleged medications at all.
20. That because one person was pregnant, this was the only cause possible for her higher levels of copper.
21. That the cause of one woman's higher copper levels was because she was on the pill. This person was not on the pill.
22. That one person's illness was caused by Hormone Replacement Therapy. This person had not been on HRT for well over a year before falling ill. This same person, now back on HRT, and still smoking, has had normal levels of blood cadmium and copper since leaving Rosebery.
23. That residents had intercurrent illness. [A separate illness that occurs at the same time as another disease that can affect the course of the disease.]
24. That it is good for you to have nickel in the body.
25. That one resident was told over the telephone that she had cancer. This resident does not have cancer.
26. That alcohol causes many of these symptoms even though none of the residents involved in the investigation drank alcohol.
27. "This sounds like a June Bug event...an account of hysterical contagion". (Dr Ian Sale Hobart Psychiatrist – comment on Crikey.com article on Rosebery 10-7-09).
28. All residents diagnosed by Dr Ernst were suffering from a somatic illness.
29. Two members of Tasmania Police visited two residents and asked whether the residents might have enemies who would try to poison their properties.
30. The houses were built with fill material from waste rock therefore the heavy metal contaminants could not have come from the Rosebery Mine.
31. That batteries from historic mining activities had been disposed of on one resident's property.
32. That the properties may contain sheet metal or buried car bodies that caused high metal levels.
33. That mullock (waste material from a mine) was brought in many years ago and dumped on the properties.

34. That the gas bubbles could possibly be methane. (From sewage?)
35. That “the elevated (heavy metal) levels are natural, being associated with sulphide mineralisation in the Rosebery area.” In the ‘absence of evidence’ (on the public record) given that no hydro-geological testing in any investigations in Rosebery was carried out, this is the worst example of non science from the DHHS imaginable.
36. That the death/illness of pets could have been caused by snake bites.

This list gives a clear picture that the Tasmanian Public and Environmental Health Service (PEHS) investigation in Rosebery was designed to find sources of contamination on peoples’ property other than the mine.

## Summary

The outstanding issue for THMTT remains the problem for new buyers or renters of properties in Rosebery or other contaminated areas (yet to be investigated) being able to have access to information and data on the levels of contamination and advice on preventing health risks from exposure. Numerous requests to the West Coast Council, the DHHS, EPA and the Rosebery Community Reference Group about this issue have been futile. A recent reply from Chrissie Pickin did provide some insight into the possible views on this issue:

In an email sent to Kay Seltizas on the 15<sup>th</sup> February 2011, Chrissie Pickin stated:

“From my personal perspective I would make the comment however about the different context between Lutanist and Gooseberry. Lutanist is an urban suburb with no clear links to the Superstar smelter , and so new residents are unlikely to be aware of any potential hazard relating to the legacy from this smelter. Rosebery, however, is an active mining town, and it has in the past been assumed that new residents would be aware of that fact, and seek information about the mine and its legacy – information which is believed to be readily available through the Community House and the active community meetings held by the mine owners.”

In other words, you go and live in a mining town, you get what you deserve.

This view has been expressed by many government officials associated with this investigation and is profoundly offensive and avoids the importance of the concept of “right to information”.

On the 15<sup>th</sup> February 2011 MMG posted to all Rosebery residents an Information update from the DHHS “*Living with Dirty Soil*” *What to do if you have contaminated soil.*” This pamphlet is the first pamphlet of its type to be distributed in any West Coast mining town in Tasmania providing advice about reducing risks from exposure to heavy metals, even though this would be useful for other towns that are known to have high levels of contamination. The THMTT’s view is that all new residents and buyers should have the information made available to them prior to purchasing or renting properties in Rosebery. There are several cases that we know of, where people have bought houses very cheaply in Rosebery without seeing them in person – miners and non-miners alike. Without this information, people are being denied their right to know information that is vital to protect their health, their family’s health, and any pets they have.

The perception that the Rosebery mine is an underground mine creates a false impression that pollution will be contained underground and not generate impacts above ground as is the case with open cut mining activities. The surrounding beauty and grandeur of the mountains around the west coast do give an impression of a remote and untouched environment. There is no general information provided to the tourist, would-be buyer of west coast properties of the history of impacts of acid mine drainage and pollution from previously unregulated mining activities. In the



past, pollution controls for mining companies on the West Coast of Tasmania have been described as akin to those in third world countries.

Mine meetings were only held at the mine, and no residents involved in the DHHS/EPA investigation ever received any invitation to such meetings or information about reducing health risks from exposure to complex mixtures of arsenic, lead, cadmium, copper, manganese, thallium and other metals.

### ***Diagnosed with heavy metal poisoning***

*Ross Whitney's story as told to Isla MacGregor on 9th August 2010*

(Ross Whitney is a former West Coast miner who lived part time in Rosebery for two years, while working on a house he'd bought there as an investment. Ross is now retired, and sadly he has been diagnosed with heavy metal poisoning and his health is slowly deteriorating. Nevertheless he is always cheerful, and living every day to its fullest.)

I worked for the hydro for twenty four years, mainly at Gowrie Park and Strathgordon on the West Coast of Tasmania. I lived in various hydro villages until 1988. After this I got a job with the Hellyer mine (lead, silver and zinc,) about 45 minutes north of Rosebery. I was working in a multi-skilled capacity driving machinery, drill rigs, blasting and working on a bogging machine. (A bogger is a high-powered vehicle with gigantic tyres. It can deal with rocky, slippery or swampy terrains.)



**Ross Whitney when in good health**

While I worked at Hellyer I had regular blood lead testing, and my results were always fine. I did not know of anyone who worked there who had an unacceptable blood lead reading. Mates I used to work with at Hellyer still come to visit me today. Most of them worked at least another five years at Hellyer after I left in the same types of jobs that I did, and none of them have lead poisoning. In 1996 I hurt my back while working on a bogger, and I went out on worker's comp.

I could not work again and I was put on a disability pension.

Up until leaving Rosebery I had been a very active bushman, hiker and adventurer. I would often go bush for a week at a time around Strathgordon, the Western Tiers or down to Pullinger along the Bird River track and beyond. I explored many other places where there is little public access. Today, my brother at 76 years of age, still does guided bush walks for tourists. While I was working at Hellyer I was living in and building a house at Waratah. I had two dogs when I lived at Waratah. When I bought a house at Rosebery in 1999 I took my golden labrador dog with me. I bought the house in Rosebery as an investment property and worked on this for four to five nights at a time and then went back to Waratah. In the first spring I was in Rosebery I put in a veggie garden in the backyard and I grew everything: lettuce, potatoes, carrots, beans and tomatoes too. The veggie garden was situated next to an open drain that drained seepage water from up above my property.

After two years I sold the property and moved up to Waratah full time. A few months after leaving Rosebery my dog started to lose control of his legs and would shake and collapse from fits. I had to put the dog down. Twelve months after I left Rosebery my fingers and then hands started to go numb and I couldn't do up my shoe laces. Then my feet, backs of legs and arms started to go numb. My hands and arms would cramp up. I started to seek medical help around 2002 in Burnie. I was put onto various medications which were unsuccessful and I then insisted that I see a specialist. I went to see Dr Stan Siejka in Launceston who told me that I had nerve damage. He sent me to Hobart for more tests.



**Ross Whitney showing his deformed hands**

After several months waiting and three canceled appointments for a nerve biopsy, which I turned up for each time in Hobart, I finally had the nerve biopsy taken from my left ankle.

The results of the nerve biopsy came back from Dr Siejka in around 2005. Dr Siejka sent them to Dr Waugh, my GP at the time, and he told me that my results showed that I was suffering from lead, cadmium and other heavy metals poisoning. I was diagnosed with neuromyopathy.

In 2006, I had to leave Waratah to stay with my brother and sister in law in Burnie. I applied for a Housing Commission Unit, and moved to my current address in 2007. By this time I could only just look after myself.

By 2009 I started to have in-home care. Now my hands do not work at all. I can only just walk, and I have to be bathed, dressed and fed. I am on slow-release morphine all the time which occasionally I have to top up.

In November 2008 I read in the newspaper that some people living in Murchison Street Rosebery were having trouble in the area near where I had lived. I rang and spoke to Marsha Stejskal and at this time I realised that I may have been poisoned while living in Rosebery.

Dr Roscoe Taylor [Director of Public Health, Tasmania] had discovered that I had been diagnosed with heavy metal poisoning. He rang me in January 2009, and asked me for my medical records which I agreed to supply. He asked to come and see me in my home which I also agreed to but he never turned up and he never spoke to me again.

A Professor from Palliative Care in the Department of Health and Human Services (DHHS) made an appointment with me, asked me questions and took notes. I was later contacted with a request to take photos of my symptoms which I refused.

*I had been degraded enough by a health system that didn't care and had failed.*

The next time I heard from the DHHS was in January 2010 when I received a call from Dr Chrissie Pickin [Deputy Director of Public Health] asking me to provide a blood sample. I refused, as I had already been diagnosed, and I knew there was no point in taking this blood sample as it was too late.

I have friends and family that come to visit and a very good friend who is a carer.

My main concern is that I do not want what happened to me and others to happen to anyone else. I want the West Coast Council, the Health Department and the Mine to admit there is a problem; that something is wrong, and that things have been covered up for years. I want the problems fixed up and I will do whatever I can to help make this happen.

## ***Sydneysider's mountain change hits 'rock' bottom in Rosebery***

*Interview with Kay Seltitzas by Isla MacGregor, 9<sup>th</sup> February 2011*



**Kay Seltitzas delivering documents to Dr Roscoe Taylor**

In January 1995 I had just finished setting up the first Aboriginal Skillshare Centre in Claymore in the western suburbs of Sydney and decided it was time to fulfill my dream of moving to 'clean and green' Tasmania. I saw a private property advertisement in the Sydney Morning Herald for a fully-serviced four bedroom home in Rosebery for \$18,000. I thought the price was astonishing, and asked the owners to send me some photos. I had been sent brochures and pamphlets of all the services available in Rosebery, including the hospital, so I jumped at the opportunity and bought the property.

In May I packed my bags and arrived on a bus in Rosebery. I absolutely loved it - it was cold - there was snow on Mount Black and Mount Murchison.

When I walked in the door of the house for the first time I was extremely happy to be standing in my very own beautiful home.

A couple of months later my friend Lindsay brought my 3 dogs down for me, found some work and decided to stay on.

After about 18 months, my three dogs became ill; all of them were partially paralysed. Many dogs had been poisoned in town and the belief was that there was a serial poisoner around. After a few weeks they improved but after 5 years I decided to sell this house and move to a quieter section of the town.

In 2000 I bought my current house at 14 Murchison Street. It was a bit smaller, more private and had a bigger yard for the dogs. Up to this time our health had been good.

In January 2006 Lindsay was living and working as a fisherman in Strahan. He telephoned me after work, and received no answer. He drove from Strahan and found me incoherent, confused and having difficulty breathing. A few hours later he called for an ambulance. When they arrived I had no blood pressure and they could not stabilise me and they took me to Rosebery Hospital and they couldn't help so they sent me to Burnie.

It took them another day to stabilise me and put me on a ventilator. Four days later the Burnie Hospital arranged a midnight care flight fully staffed with medical personnel because they did not

think I'd survive an ambulance journey through to Launceston General Hospital. I was put in intensive care and they tried to discover the cause of my sudden condition. They determined that it was neither viral nor bacterial in nature, and took blood and biopsy samples and sent them to mainland and overseas laboratories for testing. I was in hospital for about six weeks and in this time I was given various medications and antibiotics to no avail.

I had lost an enormous amount of weight and had gone down to 48 kilos. When I woke for the first time after being unconscious for a month, I felt OK for a few hours, and then started hallucinating. They gave me an MRI and discovered that I had suffered brain damage from this illness but that in time I would recover. A week after I returned home from hospital my dog Bandit died. In November 2005 she had become ill and was diagnosed with copper poisoning. I was very distressed by all these events. To this day it is not known exactly what happened to me.

From this time on I started to lose my appetite and had difficulty sleeping and problems with depression. In early 2007, my other dog, Vasco, died - followed by her niece Ninja a few months later. By late 2007 my weight had gone back up to 68 kilos but I started to lose weight, and was unable to eat at all. When my weight reached about 55 kilos my doctor tried to discover the cause. He took blood tests and he discovered that I was chronically anemic and prescribed very strong prescription iron. This did not help at all and my health got worse. I was sent for an ultrasound and nothing was found. About this time my hair started to fall out, I started sweating constantly through the feet and hands.

During 2008 my doctor continued to try and discover what was causing my symptoms as I was by now chronically unwell.

In September, my neighbour Marsha Stejskal came to visit and told me that her cat had drunk seepage water outside her front door, and had become violently ill. She then took soil and water samples and sent them to Analytical Services Tasmania. When her results came back she came over to show them to me, we were horrified to discover how high the levels of arsenic and lead were in the soil and seepage water.

I took samples in the bottles provided by AST of soil and surface water. The results that came back within a week were much higher than those from Marsha's.

What happened from then on has been the subject of intense controversy in Tasmania. Tasmanian media were initially very interested in covering the story about all the people who eventually came forward about their health problems. The ABC Stateline program did two very good stories on the Rosebery problems.

<http://www.abc.net.au/stateline/tas/content/2006/s2394553.htm> and

<http://www.abc.net.au/news/video/2010/02/05/2811954.htm> ]

In late 2008 the EPA did testing on several properties and found very high levels of metals, including arsenic, cadmium, lead, copper, nickel and other metals. In September I was diagnosed with cadmium and copper poisoning by a doctor in Burnie and again in November through the DHHS investigation. In November I went to Launceston at the Department of Health and Human Services' (DHHS) request, and at the end of the week being away from Rosebery they conducted blood and urine tests which showed a drop of both levels of metals, but not below the guidelines. After a week at home in Rosebery I drove to Burnie and my doctor did more heavy metal tests, and the levels had gone back up again. I immediately sent copies of these results to Dr Roscoe Taylor. [Director of Public Health.] In July 2009 I went to see Occupational and Muscular-skeletal



specialist, Dr Andreas Ernst, and after lengthy consultations and review of my medical notes he diagnosed me with heavy metal poisoning.

For the five of us who were involved in the DHHS/EPA investigation, we are all appalled at the lack of professional conduct by government officials, and the cover-up that ensued. The West Coast Council has failed to take responsibility for their role in not protecting their ratepayers' health.

Along with some other Rosebery residents I decided to work with a number of concerned people in Tasmania on issues around heavy metal contamination and poisoning, to set up a new community based group called the Toxic Heavy Metals Taskforce Tasmania (THMTT). I am now the Spokesperson for this group and was very pleased that The LEAD Group Inc published a LEAD Action News ([http://www.lead.org.au/lanv10n4/LEAD Action News vol 10 no 4.pdf](http://www.lead.org.au/lanv10n4/LEAD_Action_News_vol_10_no_4.pdf) ) totally dedicated to representing our side of the story. THMTT is affiliated with the Tasmanian Public and Environmental Health Network (TPEHN) and we now have all of our reports and documents publicly available on the Sourcewatch Pollution Information website ([http://www.sourcewatch.org/index.php?title=Pollution Information Tasmania](http://www.sourcewatch.org/index.php?title=Pollution+Information+Tasmania) ).

I now live in Primrose Sands [ENE of Hobart, in SE Tasmania] as I had to abandon my property because of the contamination and associated health risks. The two dogs I brought with me from Rosebery have both got cancer, and although their health has improved they still get ill from time to time. My health improved gradually; however, my bones are rotting, and I am chronically deficient in Vitamin D even though I take prescription Vitamin D.

Myself and several other people are now clients of Slater and Gordon, and we are awaiting commencement of legal action on our matters. I have now listed my property on the PIT website as a Contaminated Site. [Pollution Information Tasmania (PIT) was formed in July 2009. See the Sourcewatch website: <http://www.sourcewatch.org> ]

Premier Lara Giddings, when Tasmanian Health Minister in 2009 refused to instigate a population based public and environmental health survey for Rosebery. From information I receive from residents still living in Rosebery, I strongly believe that it is vital for this health survey to be conducted as a matter of urgency.

At this time, any people from the mainland or overseas who might be considering coming to buy or rent a home in Rosebery have no way of finding out about the potential health risks of living in a town that is in the middle of a mine operation, and on a mine lease.

If, while I was still living in Sydney, when I first looked into buying my home in Rosebery and had I discovered in the conveyancing process that the town was contaminated, then I would never have uprooted myself to pursue my dreams of a 'clean and green' Tasmania. I now know more about the precautions that a person has to take when living in a mining town; unfortunately it is not always quite so simple. Until our Taskforce produced the first pamphlet on health risks and distributed it ourselves in Rosebery, there was no publicly available information in the town about how to reduce your risks from exposure to heavy metals especially arsenic.

Sadly, even last week I heard from a friend that there are no pamphlets available at the hospital nor the neighbourhood house, and only the MMG Shop front in the main street now distributes a pamphlet about Lead only. Arsenic, cadmium, copper, nickel, manganese have been swept under the carpet.

I would hate to see anyone else go through what happened to me, my friends, their children and their pets. We were vilified, bullied and threatened by a small number of people in the town for

speaking out about the issues. It is a huge relief to be living away from Rosebery and I hope that my friends still living there will find new homes in safe environments sooner than later.

In the future, once the Slater and Gordon legal case is finalised, I hope that some of the Rosebery residents will come understand that the issues that we raised initially back in 2008 and since were absolutely necessary. Many people have been very angry at the purported threat to property prices falling in Rosebery, and this has become their focus and not the health of the community. Property prices were never generally high in Rosebery, and even though there had been two property boom periods , one as a result of a Today Tonight program in 2000 which promoted cheap housing in Rosebery as low as \$1,000-\$7,000. Recent house sales have attained prices between \$35,000 and \$187,000. I would much rather that people were concerned about children's and communities' health rather than property prices.

## **Boolaroo ongoing Lead Abatement Strategy**

*By Valda Barton, Boolaroo Neighbourhood Centre - Our Community Place (OCP)*

(Boolaroo is at the northern end of Lake Macquarie, SW of Newcastle, New South Wales)

Early November 2010, community workers became aware that Pasminco Cockle Creek Smelter, through their liquidators had written to the then NSW Department of Planning asking for a minor change to the 2007 approved Lead Abatement Strategy (LAS) for remediation or abatement to residential properties within the recognized grid.(The grid originated with the Dept of Health, and basically defines affected properties. [ Ed's note:The 'Lead Grid' was adopted as the boundary of the Lead Abatement Strategy.] This area covers the four suburbs of Boolaroo, Argenton, Speers Point and some houses at Edgeworth. As part of this minor change the liquidators wanted residents to sign a Deed of Agreement where they waive away their rights to sue Pasminco or the Liquidators in future years. By the time the letter from Planning NSW was sent to homeowners, they were left with 14 day to respond.

Our State MP managed to get a 14 day extension and a commitment to a community consultation/Information session to be arranged early December

Our independent State Member gave a speech in Parliament and later in November questions were also asked by the Greens in the upper house.

Early in December, two well attended Information meetings were held. Here, residents expressed their concerns that the Pasminco site land was fully remediated but the resident's homes were going to mainly get abatement. People were openly hostile to the suggestion that the properties containing lead slag would be eliminated from the abatement program, and were advised that lead in soil was not now as serious an issue as it has been in the past. However, they had been repeatedly told over the past 17 and more years how harmful LEAD in soil was to children's health, to it now being down-graded to a lower status and, were aware that lead in air was now recognized by the Health Department as the main pathway to contamination.

Four days before Christmas, community members ran another Public Meeting on the Deed proposal with a firm of local solicitors there to provide blanket advice to the community about whether or not to sign the Deed, and the implication of signing and not signing.

Now it is 2011. Just before the State elections a meeting of community representatives, Government Department representatives got together to talk about one final push to get it all changed as much as possible to suit the residents' needs. This meeting was a great success, with

lots of changes to the document taking place. It is now a Participation Agreement - not a Deed - as realistically, it is a document to outline how the remediation/abatement process will be undertaken and agreed upon by both parties. Unfortunately, there is still a small section (watered down) where homeowners sign away their rights to sue, but, as Pasmenco was split into different companies, each to stand on its own, as a closed plant, this one does not have a lot of capital to call upon to agree to major changes to how abatement/remediation will work. Therefore, the set of guidelines for remediation of properties over 300>ppm is still used.

Now we have a new Government, which has implications for implementing the agreement reached by all parties (except homeowners) towards changes to the Lead Abatement Strategy. As Pasmenco Cockle Creek plant will cease to exist by 2012, residents are in the position of having to accept the little on offer, as there will be no company or liquidators to seek any further money from in future years.

There will, however, be an ongoing education program for current and new residents of the area. This is in the development stages, and perhaps a future article can go into the details when these are finalized and funding secured.

Overall, the residents feel they have been let down by a company that, over the past years, kept promising them they will have their homes and yards fully remediated, and led into accepting the little abatement that is on offer as better than nothing at all.

## **The LEAD Group proposals on Blood Lead Levels rejected by NHMRC**

*Letters from The LEAD Group to the Federal Health Minister, and to NHMRC; a summary of NHMRC's response, and The LEAD Group's reply*

**In December last year, The LEAD Group wrote to the Federal Health Minister, the Hon Nicola Roxon, with a proposed new policy on Blood Lead Levels for Australians. The Minister passed on the letter to the National Health and Medical Research Council of Australia (NHMRC), the body responsible for making health recommendations. NHMRC rejected the proposals.**

December 03, 2010 10:15 AM

Dear Minister,

A new policy on lead poisoning has been developed by The LEAD Group, aimed at the National Health and Medical Research Council of Australia (NHMRC).

The policy is for adoption by NHMRC, which would then recommend it to National and State health ministers. It is supported by an impressive 47 page background document which provides the weight of evidence (including 12 pages of references) to convince the NHMRC to improve on its current policy. [Please click on the links to see what's being proposed and why.]

The policy is a radical departure from the practice of setting 'goals' and 'targets' for blood lead levels. Instead, it proposes 'individual action levels' for anyone with a blood lead level exceeding that of 95% (the 95th percentile) of others in their population group.

The starting point for the new policy is the present 'world's best practice' adopted by Germany in April 2010.

Under the German policy, selected sub-populations are tested for their blood lead levels. The level which 95% of those in the sub-populations are at or below becomes the target for the remaining 5% of that sub-population to achieve.

The Germans do a blood lead study and then ensure, through action for those individuals in the top 5% of blood leads, to gradually bring their blood lead down to a safer level.

Their current action level for children is around one third of the goal anywhere else, including in Australia, and less than one quarter of the action level in NSW and Victoria.

A proposed long-term study of adults would likely verify US research findings that correlate lead exposure with early death.

Amongst the many proposals: that vets be educated to the fact that a pet with lead poisoning is the 'canary in the mine' for the household where the pet lives; that doctors be asked to use a questionnaire to decide which of their patients should be tested for lead.

The policy recommends research into the effectiveness of pectin, Vitamin C and other 'lead-clawing therapies', which drag lead out of the body. Determining the effectiveness of such therapies has the potential to help millions to live longer and healthier lives. All of us older than 8 years were exposed to the Australian lead that goes into leaded petrol and still goes into AvGas.

The current NHMRC policy (Public Statement) sets a blood lead goal, but requires no action on the part of public authorities or the medical establishment to achieve it. The LEAD Group's model policy requires action.

Can you please ensure that the NHMRC adopts the basic principles of this model policy, by first requiring them to organise a national blood lead survey of all ages so that policy-makers can get started on preventing lead poisoning, especially tertiary lead poisoning of our ageing population (whereby the lead in our bones comes out to raise our blood pressure and age our brains)?

On August 22, 2009, internationally renowned lead poisoning expert Professor Bruce Lanphear shone a spotlight for the world on Australia's lead policy when he wrote in The Australian newspaper:

"Why do public health officials and physicians permit obsolete standards to persist in the face of compelling science?"

"Despite proof that reducing the source of lead is necessary to further reduce children's exposure, the NHRMC continues to rely on education -- washing children's hands, dust control -- rather than on reducing industrial emissions or tightening regulations to protect Australian children from lead hazards."

I was advised over the phone by NHMRC staff on 12 February 2010 that despite being aware that Western Australia had introduced a policy of taking action to locate lead sources, and eliminate them for individual children under 5 yrs of age who have a blood lead level above 5 micrograms per decilitre (half the NHMRC's 1993 and current goal), that "It's been agreed to annually review the lead level (ie next December it will be on the agenda again) and in the meantime to keep a watching brief and to revise the blood lead goal downwards if there is compelling evidence to do so."

But when I rang the NHMRC yesterday, I was advised that no meeting, and no public announcement from the NHMRC on lead is slated for December. With the dissemination of our media release on this topic today, you might expect that there will be media interest in your response to this policy and plans to get the NHMRC moving on this issue. The world is watching. If Germany can have a proactive public health policy on lead, surely the world's biggest lead exporter could take their ideas and improve on them to achieve a model policy for the world.

Today, we also hope to web-publish the attached two lists of references which provide the compelling evidence of the harm that lead does at blood lead levels under 10 micrograms per decilitre. Do you agree that the evidence is compelling, and that Australia need not wait for



Canada or the US to lead the way on lead? Both countries are currently reviewing their blood lead targets so now, this month, is your opportunity to be a leader among Health Ministers of the English-speaking world.

Please respond as soon as possible.

Elizabeth O'Brien,

Manager, The LEAD Group

**NHMRC rejected the proposed changes. In his reply to The LEAD Group Professor McCallum stated**

“NHMRC conducted a search of new literature in late 2010 and found no new evidence compelling enough to warrant revising the BLL at this time.” He concluded by saying that NHMRC “is aware of the majority of the cited articles and references in the GLASS background document including the German model outlined in your correspondence to the Minister...”

**The following is The LEAD Group’s reply to Professor McCallum, a copy of which was also sent to the Health Minister:**

Professor John McCallum,

3<sup>rd</sup> February 2011

Executive Director, Health Evidence and Advice Branch,  
NHMRC [nhmrc@nhmrc.gov.au](mailto:nhmrc@nhmrc.gov.au)

CC: The Honorable Nicola Roxon, Minister for Health and Ageing

[Nicola.Roxon.MP@aph.gov.au](mailto:Nicola.Roxon.MP@aph.gov.au) ; [nicola@nicolaroxonmp.com](mailto:nicola@nicolaroxonmp.com)

**Re: Proposed new health advice on LEAD. Response to your letter of 5 January, 2011**

Dear Professor McCallum,

Thank you for your letter of 5<sup>th</sup> January 2011 on behalf of The Honorable Nicola Roxon, in response to my letter to the Minister dated 3<sup>rd</sup> December 2010.

Despite your letter’s reference to the NHMRC’s statement that “10 ug/dL is not the goal and should not be interpreted as either a ‘safe’ level or exposure or a ‘level of concern’, according to <http://www.nhmrc.gov.au/publications/synopses/gp3syn.htm> - “**Annual Review of Scientific Literature:** The NHMRC reviews new scientific literature annually to ensure that the Blood Lead **Level of concern** remains current with the most recent scientific evidence and international best practice. If the scientific evidence is compelling NHMRC will revise the blood lead **level of concern**.”

In NHMRC’s ‘**Findings of October 2010 Review**’ also at <http://www.nhmrc.gov.au/publications/synopses/gp3syn.htm>, it is stated:

‘The 2010 review of the recent scientific literature did not provide sufficient evidence to warrant reducing the blood lead **level of concern**. Both internationally and nationally the recommendation remains that lead levels should be less than 10 µg/dL’.

Our document was *not* presented to the Australian government and NHMRC as a LEAD Group policy. The LEAD Group is clearly not a policy-setting body, we can only propose.

In my letter to the Health Minister I said ‘A new policy on lead poisoning has been developed by The LEAD Group, aimed at the National Health and Medical Research Council of Australia (NHMRC).

The policy is for adoption by NHMRC, which would then recommend it to National and State health ministers.

I am aware, and we have stated in the documents, that NHMRC makes recommendations. I have used the word 'policy' to refer to what, in its Public Statement, are NHMRC recommendations, the first of which is 'All Australians should have a blood lead level below 10 µg/dL.'

Our document was designed for review by the Minister's advisors and adoption, as an improvement on, and replacement of, the information that is accessible from the NHMRC webpage you cited in your letter and which is titled: "Blood lead levels for Australians" [<http://www.nhmrc.gov.au/publications/synopses/gp3syn.htm> ] Although your web-team has categorized it simply as "Publications", the fact that you, as Senior Scientist, Public Health, by dint of being the person chosen by the Minister to answer my letter, means you ARE, de facto, the Minister's advisor on this issue and thus the "Publications" that you have referred me to, are, de facto, the current Policy on lead. Or are you saying that the Australian Department of Health and Ageing has NO policy on lead? In other words, if the NHMRC's "Publications" on lead are not the Policy, then where is the Department's lead Policy to be found and who makes it?

To avoid further semantic stumbling blocks, I am happy to change the word 'Policy' to 'Advice'. You have stated that NHMRC provides Advice to the government and the community. I can change the names of our documents to "Model Australian Public Health Advice on Lead" and "BACKGROUND to the Model Australian Public Health Advice on Lead" and ask that you now consider them afresh.

For example, our document suggests a raft of recommendations for NHMRC to make to agencies such the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC), and Customs (Australian Customs and Border Protection Service), which would reduce lead exposure, and thus help achieve NHMRC's existing recommendations. I am disappointed that these recommendations are apparently to not even be considered because NHMRC 'does not have a policy setting or regulatory role.'

I observe that the difference between NHMRC's current Advice on Lead and The LEAD Group's (not GLASS's) Proposed Advice on Lead is that our proposals involve NHMRC recommending action on the part of many stakeholders, whereas the current Advice leads to "business as usual" or no action taken by anyone. Our proposals are for the systematic reduction of blood lead levels, starting with surveys to determine what the blood lead levels actually *are* in specific sub-populations, then setting about lowering the levels of those within each sub-population to the level of the 95<sup>th</sup> percentile of that sub-population.

We did not say that NHMRC has a regulatory role.

When we stated:

"The NHMRC 'Blood Lead Levels for Australians Information Paper for Practitioners and Policy Makers 2009' still states 10 micrograms per decilitre (µg/dL) of blood as their recommendation for the Australian blood lead level (NHMRC, 2009)" [Ref:

[http://www.lead.org.au/Model\\_Australian\\_Public\\_Health\\_Policy\\_20101203\\_Background.pdf](http://www.lead.org.au/Model_Australian_Public_Health_Policy_20101203_Background.pdf) ] we were simply re-stating, using the term recommendation instead of goal, the following sentence:

"It was never intended that this goal of 10 µg/dL be interpreted as either a 'safe' level of exposure or a 'level of concern'". [Ref:

[http://www.nhmrc.gov.au/files\\_nhmrc/file/publications/synopses/gp02-lead-info-paper.pdf](http://www.nhmrc.gov.au/files_nhmrc/file/publications/synopses/gp02-lead-info-paper.pdf) ]

Two other sentences repeated this "goal of 10 µg/dL" concept taken from NHMRC's document.

We can change them: "The LEAD Group Inc. strongly believes that the current recommendation of 10 µg/dL for Australia's blood lead level is too high;" and "This level is above the current NHMRC recommendation of 10 µg/dL" [Ref:

[http://www.lead.org.au/Model\\_Australian\\_Public\\_Health\\_Policy\\_20101203\\_Background.pdf](http://www.lead.org.au/Model_Australian_Public_Health_Policy_20101203_Background.pdf) ]

I am disappointed that NHMRC, being, as you say 'aware of the majority of the cited articles and references in the background document including the German model', should feel there is nothing 'to warrant revising the BLL at this time.' The concept behind the German model is 'let's not argue about how much lead is too much, let's agree that all exposures (men, women and children) should be minimized, and that action be taken if an individual exceeds the 95<sup>th</sup> percentile blood lead level of their subpopulation, as determined by a national survey.'

Since I wrote to the Minister, and probably since the 21/12/10 review of your lead publications synopses page, the World Health Organisation (WHO) has stated at <http://www.who.int/ceh/publications/leadguidance.pdf> :

"Recent research indicates that lead is associated with neurobehavioural damage at blood levels of 5 µg/dl and even lower. There appears to be no threshold level below which lead causes no injury to the developing human brain. The Joint FAO/WHO Expert Committee on Food Additives re-evaluated lead in June, 2010 and withdrew the provisional tolerable weekly intake guideline value on the grounds that it was inadequate to protect against IQ loss."

[The WHO document is dated 2010 but The LEAD Group and other lead-concerned NGOs globally were advised by WHO's Dr Ruth Etzel by email on 22/12/10 that it had just been published.]

If it is good enough for WHO to review downwards their various recommendations in relation to lead, surely this should inspire an NHMRC review prior to the scheduled annual review. Please reply to this letter to let me know what you plan to do and when the next NHMRC lead review will occur.

Yours Sincerely

Elizabeth O'Brien,

Partner, UNEP Partnership for Cleaner Fuels and Vehicles (PCFV)

Member, WHO/UNEP Global Alliance to Eliminate Lead in Paint (GAELP)

Member, UNEP Chemicals Branch Lead and Cadmium Working Group

President, The LEAD Group Inc., an Australian Health Promotion Charity

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The LEAD Group is a health promotion charity that will use your **sponsorship** to raise lead-awareness amongst renovators.

- Would a *green* image improve your sales?
- Are you keen to save renovators from lead poisoning themselves and their families?

Please **sponsor** the printing, and distribution of the 'Renovating' poster (see draft) for display in **your stores** where paint removal equipment such as heat guns or dry sanders are sold, or stores selling **your paint, your lead check kits**, etc. Phone 1800 626 086

Draft lead-safe renovation poster- safety gear and clothing not shown



## Free booklet offer to Hardware store owners / managers

Become the go-to store in your area for lead-safety advice and equipment. Put these free booklets on display with a notice: "Repainting a pre-1992 home? Please take free booklet." Order more when they run out, by phoning 1 800 803 772. Stock *Lead Check* kits imported by Zinsser and get listed at <http://www.rustoleum.com.au/buy.asp> and ask your suppliers and owner to sponsor the 'Renovating' poster above.

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