 **Landcare Broken Hill Inc**

***Greening the Hill Mk2***

ABC Radio interview No.40 – 26 February 2020

**HEALTH & LANDCARE**

**Why is Far West Local Health District partnering with Landcare?**

Last week ABC listeners might have been surprised to hear the news that the Far West Local Health District was partnering with Landcare Broken Hill’s Greening the Hill Mk2 Initiative. What’s happening? Why is Local Health helping Landcare with a sizeable donation of material to assist Landcare’s horticultural activities?

The answer is LEAD. Local Health have run a Lead Health Program for many years which has at its core the objective to reduce the health hazard of lead within the Broken Hill community. Local Health has identified Landcare’s ***Greening the Hill*** projects as being exactly the sort of remedial activity that the whole community should be supporting and following.

Last Thursday at the handover of materials being donated Ms Vilmae Appleton, the Senior Health Education Officer, Far West Local Health District said:

*“Our objective is to encourage the community to green bare areas of dirt to reduce dust,”*

*“Reducing dust around the home and in the community helps to reduce blood lead levels in children,”*

*“We believe Landcare’s re-greening project for Broken Hill is very important and we’re very happy to donate products to this worthwhile initiative. We’re confident that Landcare will put the donated items to good use in its endeavours to help re-green our city,”*

##### **Why do we care about lead?**

The World Health Organisation says:

* Lead is a cumulative toxicant that affects multiple body systems and is particularly harmful to young children.
* Lead in the body is distributed to the brain, liver, kidney and bones. It is stored in the teeth and bones, where it accumulates over time. Human exposure is usually assessed through the measurement of lead in blood.
* Lead in bone is released into blood during pregnancy and becomes a source of exposure to the developing fetus.
* There is no level of exposure to lead that is known to be without harmful effects.
* Lead exposure is preventable.

Young children are particularly vulnerable to the toxic effects of lead and can suffer profound and permanent adverse health effects, particularly affecting the development of the brain and nervous system. Lead also causes long-term harm in adults, including increased risk of high blood pressure and kidney damage. Exposure of pregnant women to high levels of lead can cause miscarriage, stillbirth, premature birth and low birth weight.

Young children are particularly vulnerable to lead poisoning because they absorb 4–5 times as much ingested lead as adults from a given source. Moreover, children’s innate curiosity and their age-appropriate hand-to-mouth behaviour result in their mouthing and swallowing lead-containing or lead-coated objects, such as contaminated soil or dust. Exposure to lead-contaminated soil and dust resulting from mining has caused mass lead poisoning and multiple deaths in young children in Africa, in countries like Nigeria and Senegal and other countries.

Once lead enters the body, it is distributed to organs such as the brain, kidneys, liver and bones. The body stores lead in the teeth and bones where it accumulates over time. Lead stored in bone may be remobilized into the blood during pregnancy, thus exposing the fetus. Undernourished children are more susceptible to lead because their bodies absorb more lead if other nutrients, such as calcium or iron, are lacking. Children at highest risk are the very young (including the developing fetus) and the economically disadvantaged.

In particular lead can affect children’s brain development resulting in reduced intelligence quotient (IQ), behavioural changes such as reduced attention span and increased antisocial behavior, and reduced educational attainment. Lead exposure also causes anaemia, hypertension, renal impairment, immunotoxicity and toxicity to the reproductive organs. The neurological and behavioural effects of lead are believed to be irreversible.

**PROOF OF LANDCARE’S SUCCESS – PHYTO-REMEDIATION**

Last July, here in one of my earlier Landcare interviews, we spoke about phyto-remediation – being a natural process by which certain chemicals and minerals are absorbed by plants and thereby improve the soil – remediate it – by having removed these chemicals. As I said last July, a number of plants have been identified as natural hyperaccumulators of lead – specifically mustard and sunflowers.

Last week Dr Greg Curran, Landcare Broken Hill’s Vice President, received from the VegSafe laboratories at the Department of Environmental Sciences at Macquarie University in Sydney the test results from soil collected at Landcare’s community garden at the Centre for Community in Beryl Street. The soil samples included ‘control’ samples, that is surface soil in the open ground at the Centre proximate to the community garden beds. Other soil samples were from the raised garden beds after their treatment by the Landcare gardening volunteers. Some of the mustard plants were also tested. It is too complex to go into the details of the results, but the initial analysis looks promising. For instance, the lead level in the treated raised beds was six times less than the lead level in the surface dust by the old bowling green.

For soil treatment I’m talking about the growing of hyperaccumulators (the lead extractors) in the beds (like mustard) together with natural ‘green manure’ plants that put good nutrients back into the soil. Green manure refers to crops that are grown specifically to be dug back into the soil. Green manure plants can remediate exhausted soil. It also improves soil structure, water retention and draws minerals up through the soil profile, making them more available to other plants. Peas and beans are popular examples of green manure as they put nitrogen back in the soil.

Our experimentation at the gardens will continue. For instance, recently the volunteer team has commenced growing an ancient or traditional ‘green manure’ plant which is the herb **comfrey**. These comfrey herbs were donated by the Sufi community who operate the Sufi bakery in Broken Hill. Nicholas Culpeper (1616-54) wrote of the medicinal values of comfrey in his ‘Complete Herbal’ specifically to relieve rheumatism and gout. We will use it to improve the soil.

**The first public meeting of Landcare Broken Hill for 2020 will be tomorrow night Thursday 27 February**

**At the CENTRE FOR COMMUNITY, 200 Beryl St, Broken Hill**

**LAUNCHING OUR MONTHLY GUEST SPEAKERS’ PROGRAMME**

**Broken Hill Council’s new Waste & Sustainability Manager, Kathy Graham, is our first 2020 speaker**

**COME ALONG AND HEAR ABOUT COUNCIL’S WASTE MANAGEMENT POLICIES AND PLANS FOR THIS CITY TO PUT SUSTAINABILITY PRINCIPLES INTO PRACTICE**

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