



Ministry of Environment and Forestry, Republic of Indonesia

Environmental and Health Impact of Lead in Indonesia

Workshop on Sound Management of Used Lead Acid Batteries
26-27 Nov 2015, Osaka, Japan

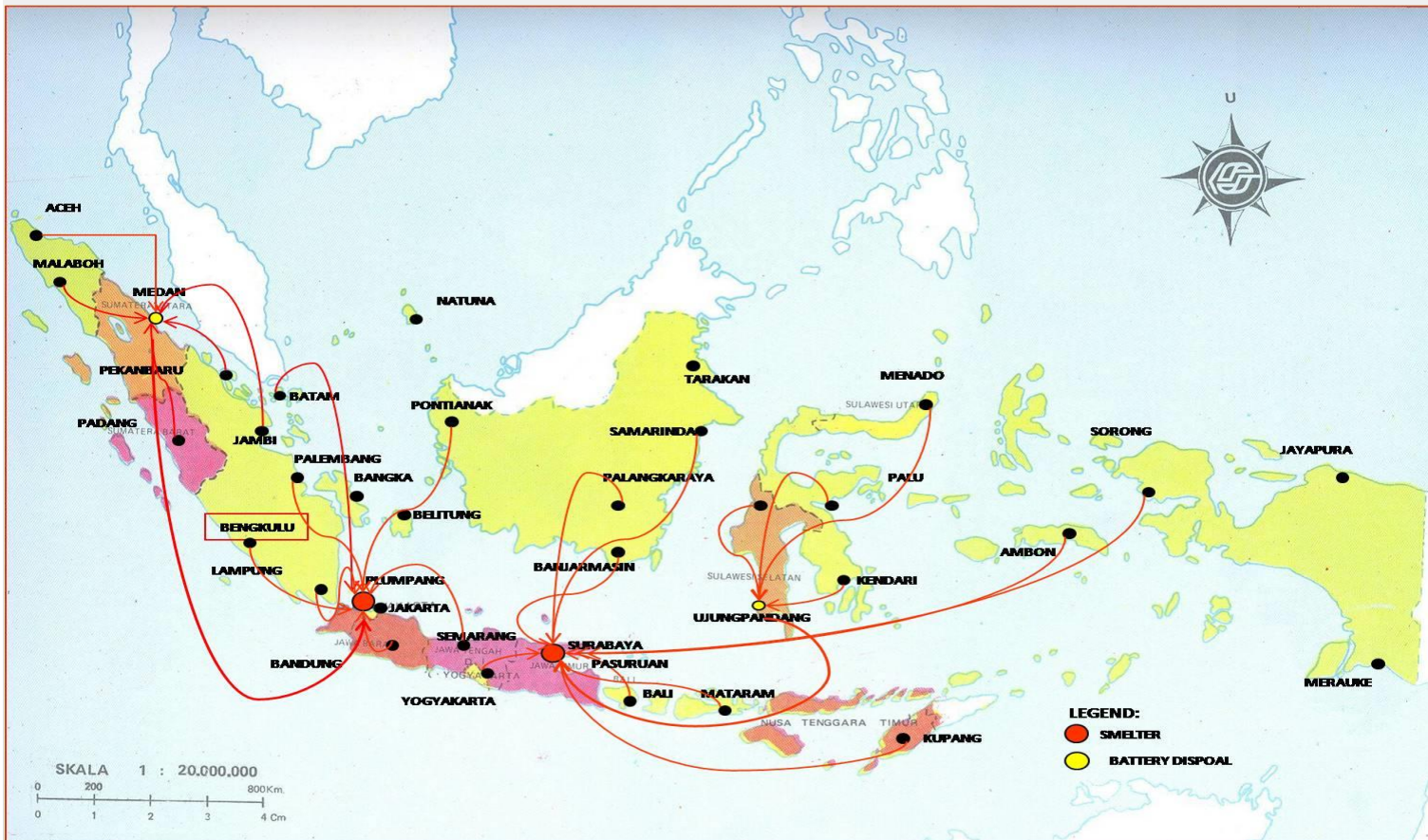
Quirie Purnamasari

*Director for Hazardous and Toxic Waste Contaminated Site Clean Up
and Emergency Response*



Lead Contamination in Indonesia

Lead Contamination in Indonesia

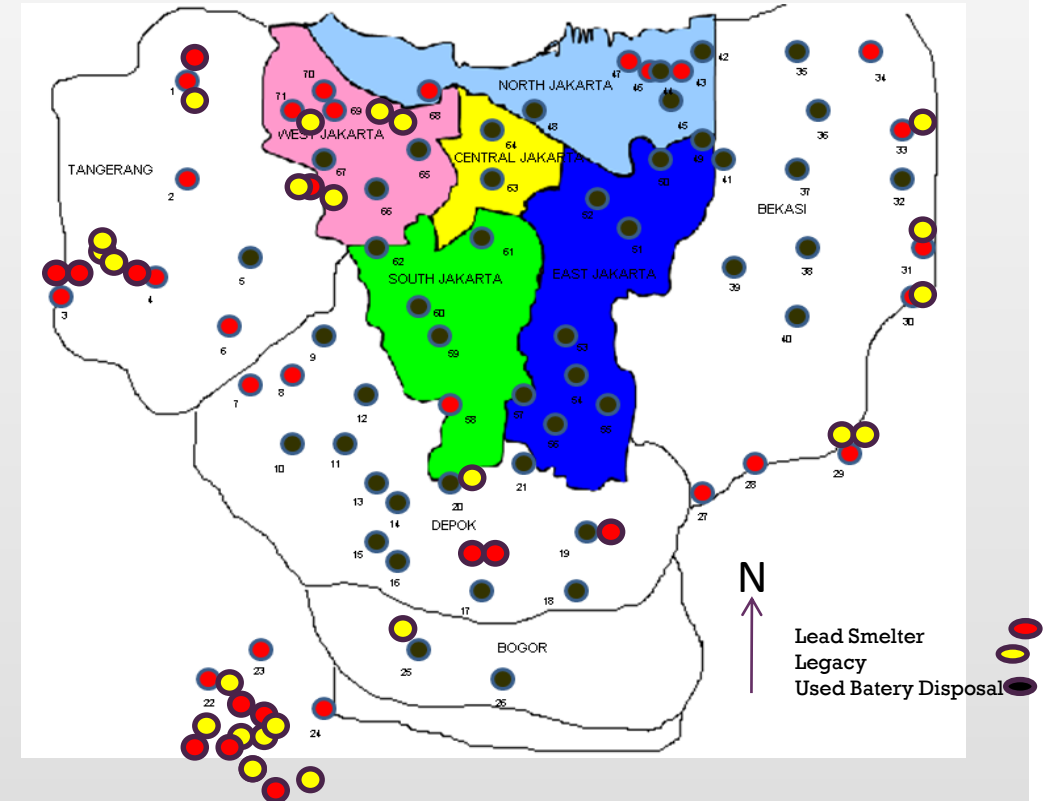
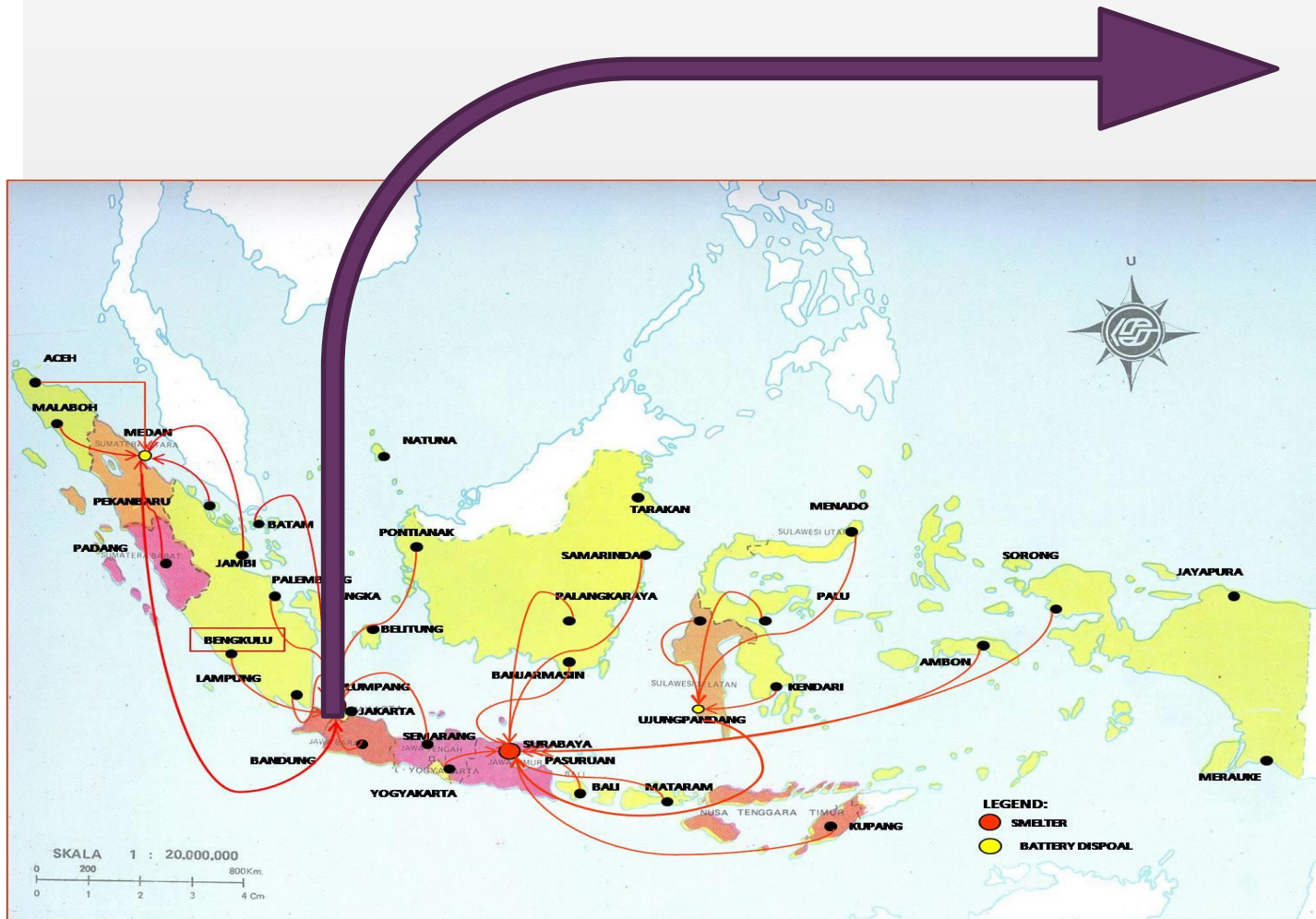


Pathway of used Batteries in Indonesia :

- Sumatera
- Jawa, Bali and Nusa Tenggara
- Kalimantan
- Sulawesi and Maluku
- Papua

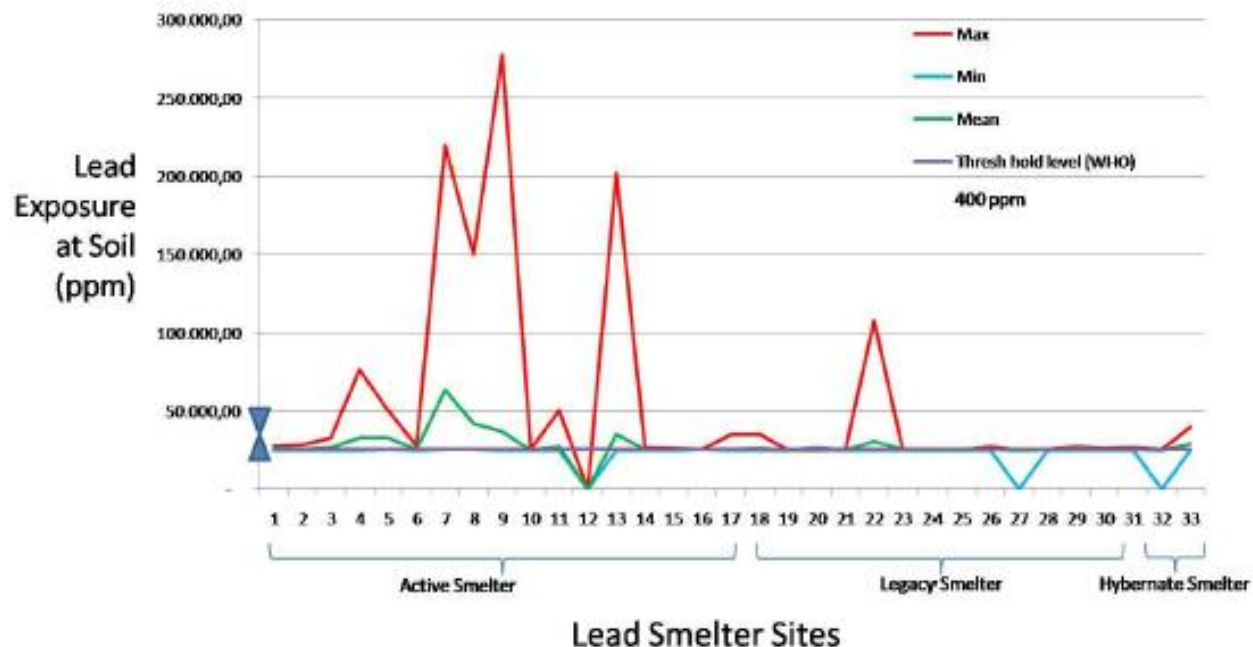
Lead Contamination in Indonesia

(ULAB Hotspot in Jabodetabek)



Identification of illegal lead based used battery collection and/or smelter in Jakarta and surrounding area

Environmental Monitoring of Lead (Pb) in Soil



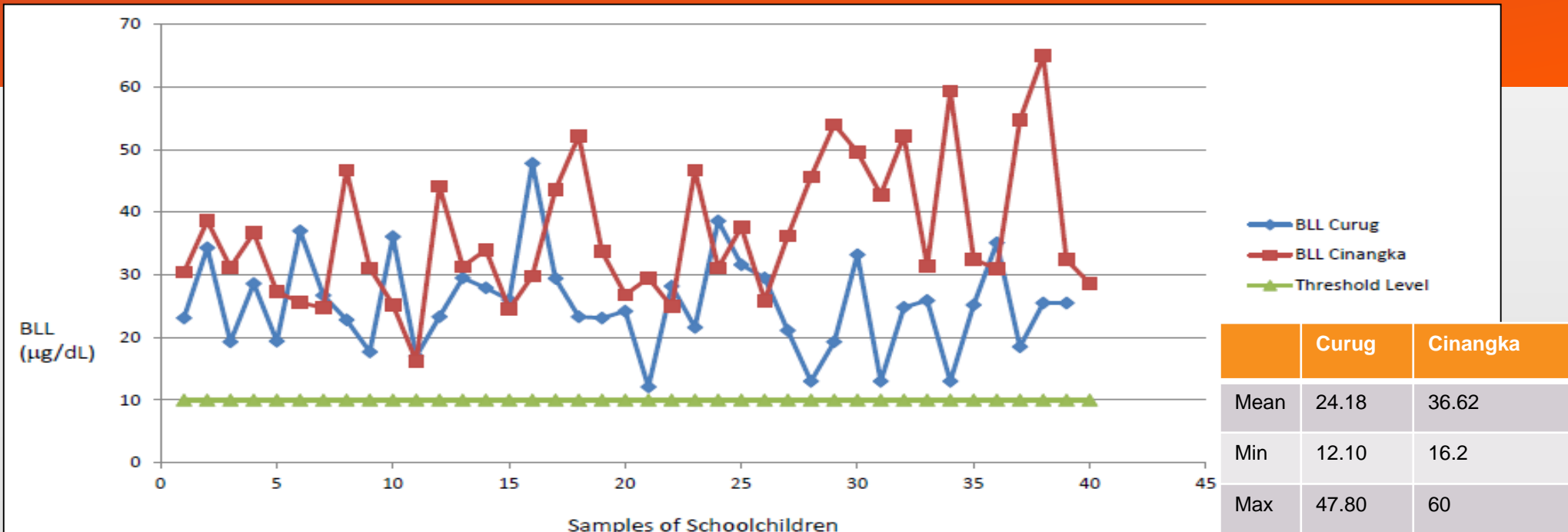
Concentration of Pb in Soil nearby used battery smelter in Jabodetabek (2010)

Air quality in Serpong still shows high levels of lead although gasoline containing lead (TEL) had been abolished in Indonesia since 2006

High level of Pb on the ground at illegal used battery smelter site

Pb Level in children's blood above the threshold

Environmental Monitoring of Lead (Pb) in Children's Blood



Pb Level in children's blood at Cinangka and Curug



Contaminated Site in Cinangka, Bogor Regency

1



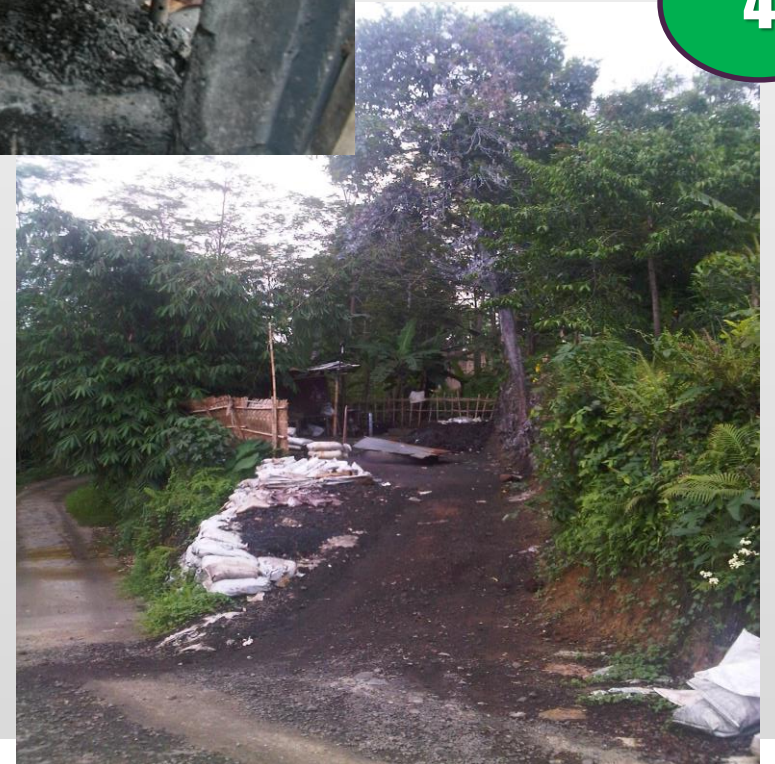
2



3



4





Health Impact of Lead

Impact of Lead exposure on human health



Lead poisoning

Lead buildup in the body causes serious health problems

Symptoms

- Headaches
- Irritability
- Reduced sensations
- Aggressive behavior
- Difficulty sleeping

- Abdominal pain
- Poor appetite
- Constipation
- Anemia

Additional complications for children:

Lead is more harmful to children as it can affect developing nerves and brains

- ▶ Loss of developmental skills
- ▶ Behavior, attention problems
- ▶ Hearing loss
- ▶ Kidney damage
- ▶ Reduced IQ
- ▶ Slowed body growth

Source: MedlinePlus/Mayo Clinic

240809 AFP

LEAD POISONING DANGERS

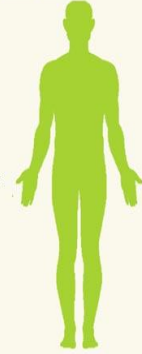
SIGNS OF LEAD POISONING:

Mild Side Effects Include:

- Fatigue
- Muscle Pain
- Abdominal Pain

More Serious Symptoms Include:

- Severe Headaches
- Tremors
- Nerve Damage
- Seizures
- Coma
- Death




LEAD IN THE WORKPLACE:

More than 3 million workers in the United States may be exposed to lead at their jobs.

The following industries face an increased risk of lead poisoning:

- Battery Manufacturing
- Demolition
- Pipe Fitters
- Welders
- Construction
- Jewellers
- Printers




DEFECTIVE PRODUCTS:

Products must conform to federal lead paint standards. Every year thousands of children's toys are recalled because they do not meet federal lead paint standards. Toys with lead are especially dangerous because children often suck or chew on them.

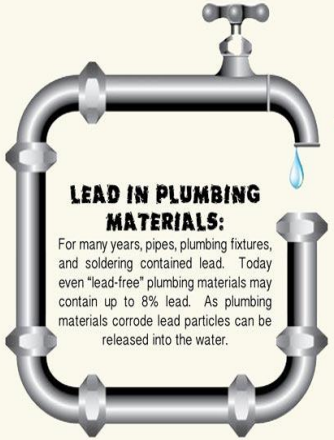
LEAD PAINT:

Lead paint was used in homes until 1978. More than 38 million homes may still contain lead paint. Deterioration of lead paint can create lead paint chips and lead dust. Renovation projects in old houses can create lead paint dangers.



LEAD IN PLUMBING MATERIALS:


For many years, pipes, plumbing fixtures, and soldering contained lead. Today even "lead-free" plumbing materials may contain up to 8% lead. As plumbing materials corrode lead particles can be released into the water.



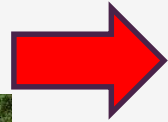
DANGERS OF LEAD POISONING TO CHILDREN AND PREGNANT WOMEN:

Exposure to lead in the womb and lead poisoning in children can have serious mental side effects:

- Impaired Attention/Concentration
- Communication Problems
- Hearing Loss
- Learning Disabilities
- Lack of Motor Skills
- Memory Problems
- Lower IQ



Call d'Oliveira & Associates at 1-800-992-6878 for a free legal consultation.

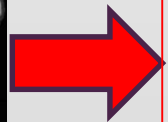
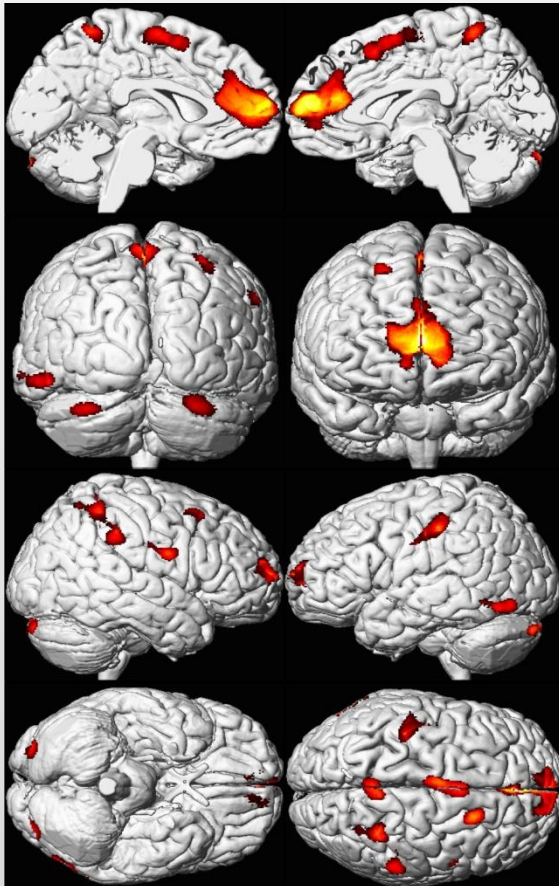


• **When lead is absorbed by children, even if it's in a small amount, it can cause disturbances in the early phase of physical and mental growth which then results in reduced intelligence and academic ability.**

• **10-20 $\mu\text{g}/\text{dL}$ of lead in a child's body could decrease 2 points level of intelligence (IQ)**

• **32 million Indonesian children potentially exposed to lead, in particular from smelting facilities processing lead containing used batteries and weathered old layers of paint**

• **Prof. Dr. Umar Fahmi Achmadi (Professor of FKM-UI), concluded that every increasing of $1 \mu\text{g}/\text{m}^3$ blood, Pb can decline children's IQ (Intelligent Quotient) skor by 0,975**



The illustration of volume reduction of adult brain which had lead exposures since his childhood (colored areas is reduction area)



Health Condition



- Lead levels in the blood (BLL) of children in the village Cinangka relatively high :
 - An average of $36.62 \mu\text{g} / \text{dL}$
 - Minimum $16.2 \mu\text{g} / \text{dl}$ were found in boys aged 6 years
 - Maximum (above the $60 \mu\text{g} / \text{dL}$) was found in girls aged 7 years
- Children in the area of Cinangka has BLL 100% above normal limits /tolerances are determined by WHO ($10 \mu\text{g} / \text{dl}$).
- Children in the region of Smelter Used Batteries was found suffering from a decrease in IQ, damage to the cells and organs of the brain, anemia, impaired bone growth, impaired kidney function, nervous function damage, mental disability and physical disability.



3

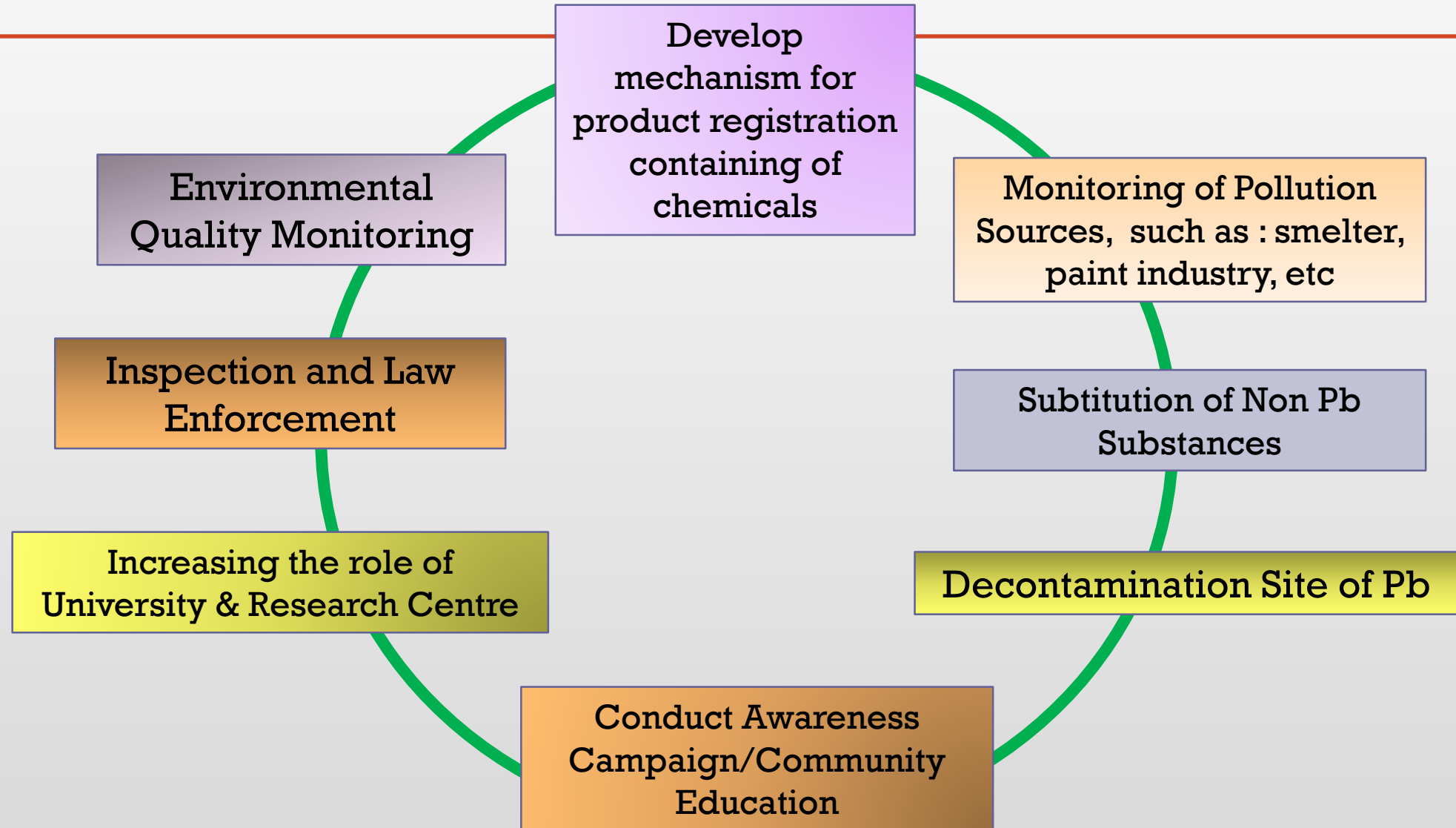
**Strategy Should be Taken for Handling
Lead Contamination**



EXISTING REGULATION TO CONTROL IMPACTS

- Act 1945
 - Indonesian people have the right to have a good and healthy environment
- Law Nu. 32 Year 2009 on Environmental Protection and Management
- Gov. Regulation Nu. 101 Year 2014 on Hazardous Waste Management, which states:
 - ULAB is categorized as hazardous;
 - ULAB import is prohibited
- Law Nu. 18 Year 2008 on Solid Waste Management
 - ULAB import is prohibited
- Ministerial Decree for SOP (Standard of Procedure) of Contaminated Site Recovery

STRATEGY FOR LEAD CONTAMINATION CONTROL IN INDONESIA





4

Conclusion

Conclusion

- Lead pollution is a threat to Indonesia's future
- It is important to increase awareness and the role of stakeholders in order to control lead contamination
- Need to develop an alternative material as a substitute for lead

Terima Kasih

Thank you

Arigato

