

Progress of atmospheric mercury monitoring in Thailand

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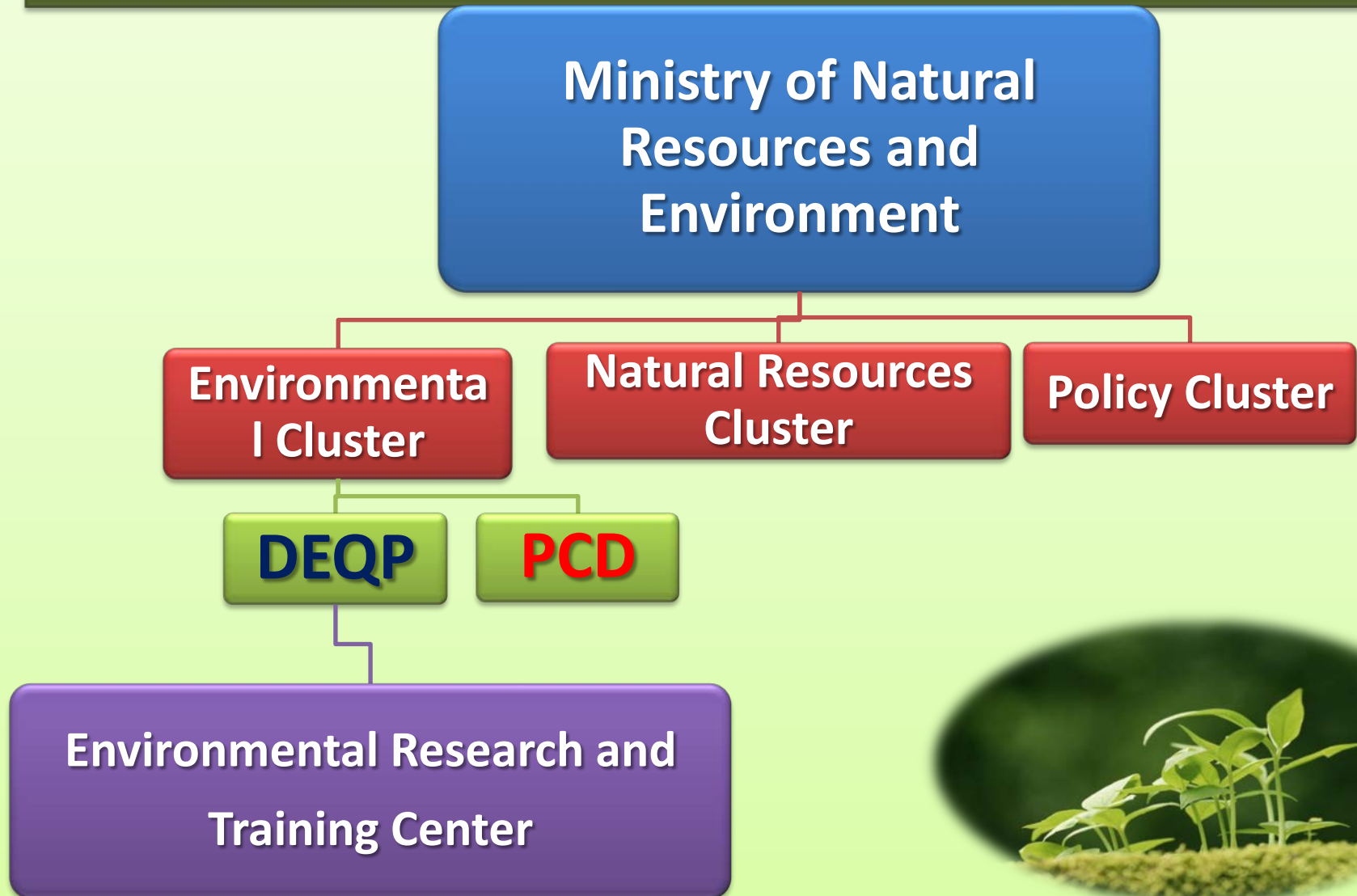


Outline of the presentation

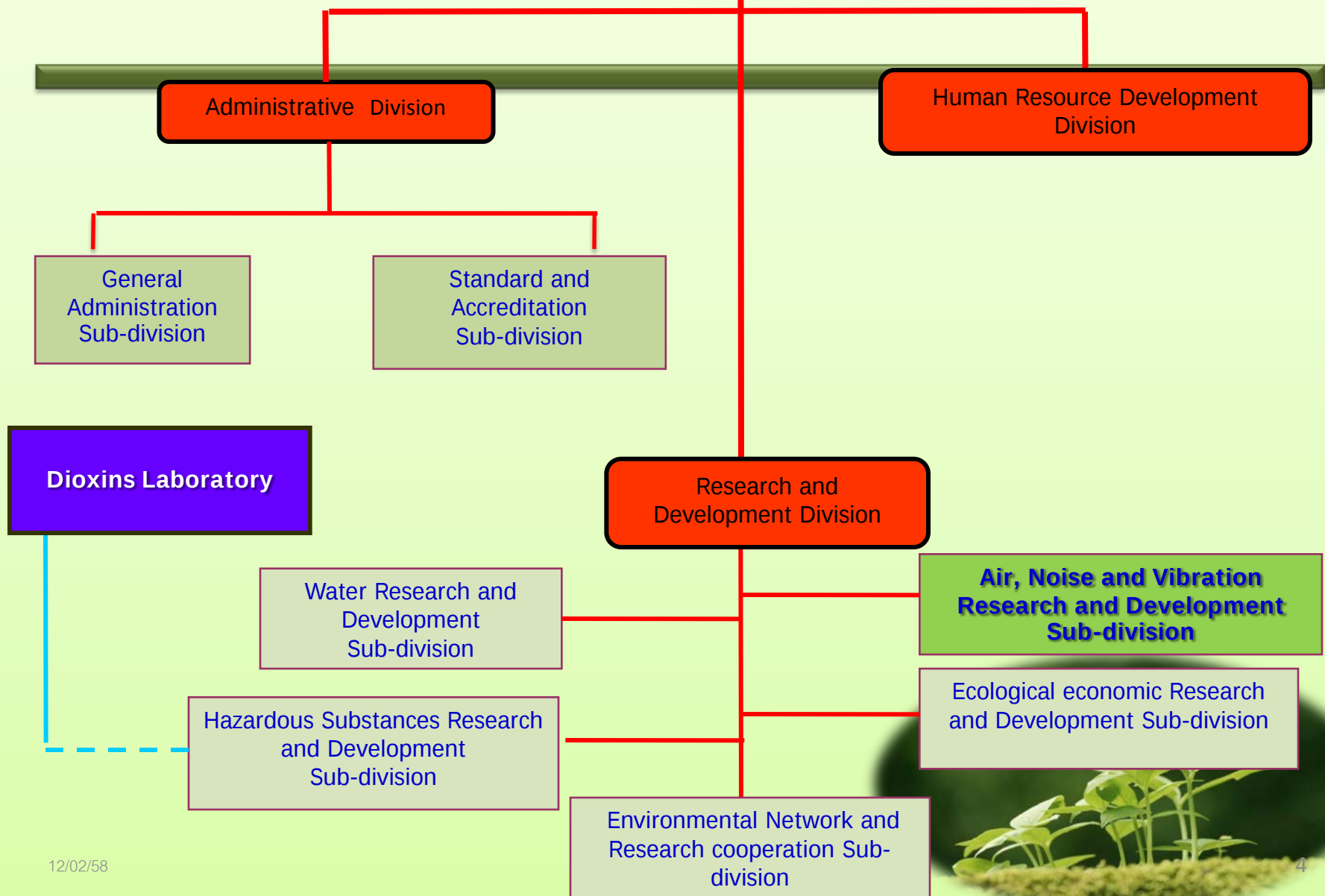
- Organization background
- Status of mercury pollution
- Minamata Convention on Mercury
- Progress of ambient mercury monitoring in Thailand



Organization of MoNRE



Environmental Research and Training Centre



Pollution Control Department (1)

Mission

To control, prevent, reduce and eliminate pollution and to conserve and rehabilitate the environment conducive for human life.

Main Duties

- Submit opinions for the formulation of national policy
- Establishment of environmental quality standards and emission/effluent standards,
- Monitor environmental quality
- Develop appropriate systems, methodologies, and technologies for environmental quality management



Pollution Control Department (2)

Divisions within PCD that deal with mercury pollution.

“Minamata Convention”

- **Waste and Hazardous Substances Management Bureau**

“Environmental Monitoring”

- **Air Quality and Noise Management Bureau**
- **Water Quality Management Bureau**
- **Environmental Quality and Laboratory Division**



Status of mercury pollution in Thailand

- PCD has been monitored mercury level in various media across the country, which are water, sediment and marine tissues, in Thailand. The results were reported in Mercury Monitoring Network Meeting , July 2013, USA
- We still have no monitoring network for atmospheric mercury



Thailand's mercury release inventory 2010

Recalling decision 25/5 of 20 February 2009 of the Governing Council of the United Nations Environment Programme to initiate international action to manage mercury in an efficient, effective, and coherent manner and,

**“The Minamata Convention on
Mercury”**



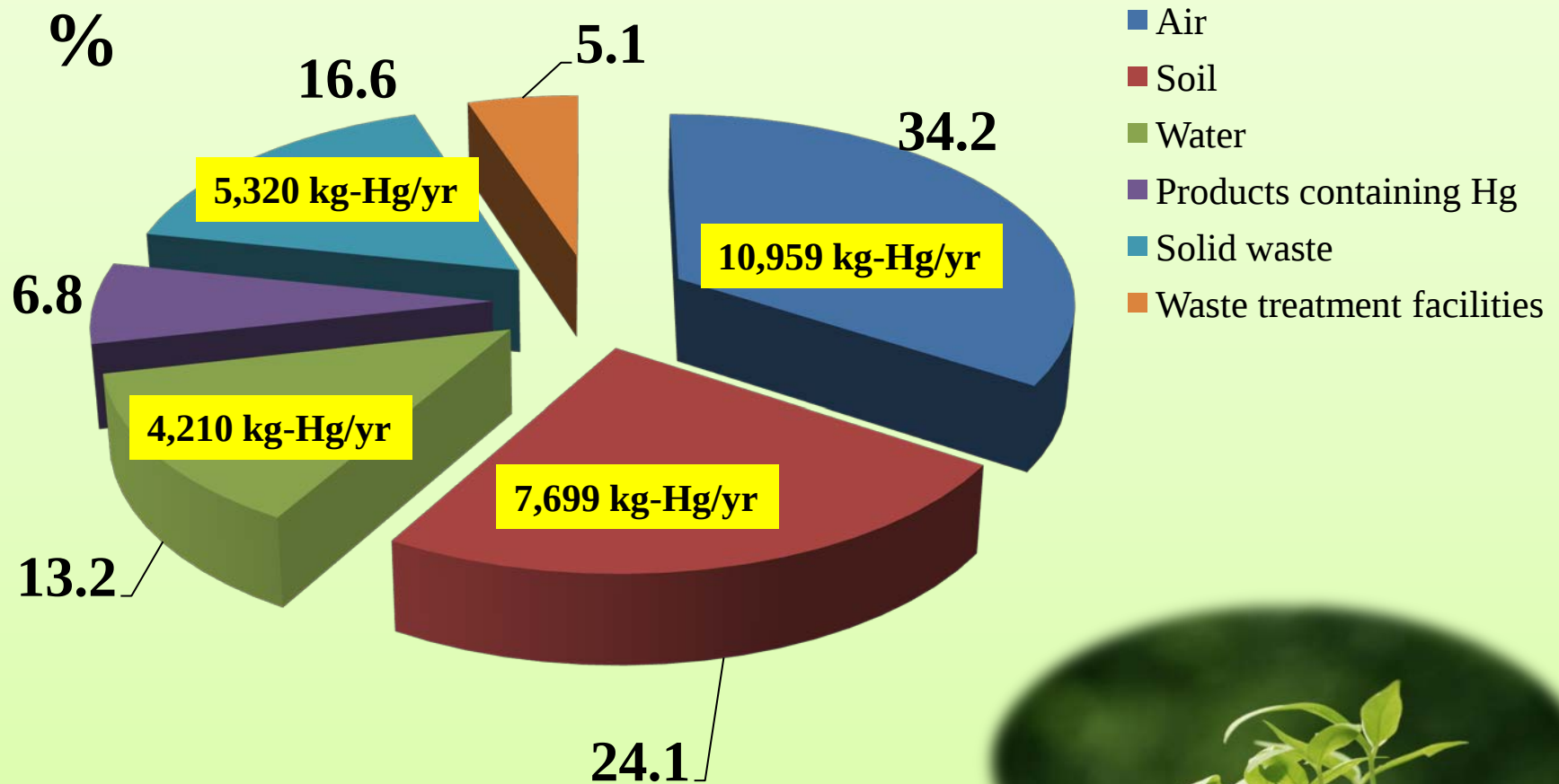
Thailand's mercury release inventory 2010

The inventory has been established based on the

“Toolkit for identification and quantification of mercury releases (UNEP, 2010)”



Estimation of mercury releases from different sources in Thailand 2010



Source: Toolkit for identification and quantification of mercury releases (UNEP, 2010)

Minamata Convention on Mercury

Thailand attended the “Conference of Plenipotentiaries on the Minamata Convention on Mercury” during 7-11 October 2013, Minamata, Japan.

Thailand adopted the resolutions and the final act of the Conference....

but to give the signature on the Convention is still under consideration



Minamata Convention on Mercury

This is because the Convention strengthen the management of Hg on its life cycle, namely, Production, import-export, use and treatment of Waste containing Hg. It must be concerned many sectors and stakeholders in Thailand in which we need to discuss and hear their opinions before Giving signature to the Convention.



Minamata Convention on Mercury

Now PCD cooperate with Thailand Environment Institute to study advantage and disadvantage as well as organize public hearing for Thailand to participate in the Minamata Convention on Mercury. However, Thailand, with the participation in Basel Convention and the Stockholm Convention, has a strong interest and signalling our Readiness to cooperate and coordinate with the Minamata Convention on Mercury



Progress on atmospheric Hg monitoring in Thailand

Role of MONRE

- Pollution Control Department by Air Quality and Noise Management Bureau
- Department of Environmental Quality Promotion by ERTC



Pollution Control Department

New Generation - Tekran Model 2537X



a TSI company



Back Panel Descriptions



Many areas are contaminated with mercury



Coal-fired power plant

Gold mining

**Coal-fired power plant
& pulp and paper industry**

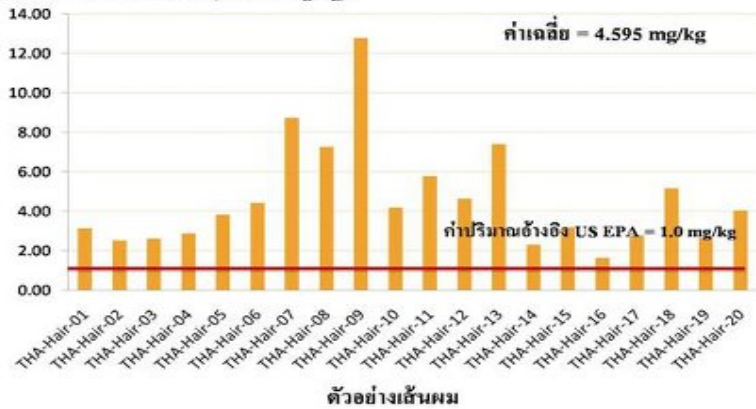
Petrochemical industries



Some complain case of mercury contamination in a canal nearby coal power plant and pulp and papers industry.

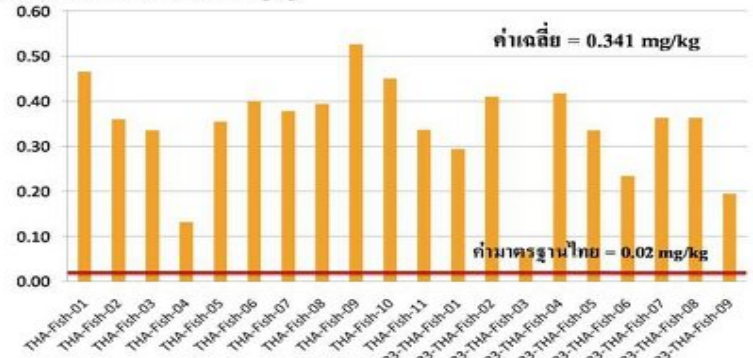
ผลการตรวจปริมาณสารปรอทในเส้นผม

ปริมาณสารปรอทในเส้นผม (หน่วย: mg/kg)



ผลการตรวจปริมาณสารปรอทในปลา

ปริมาณสารปรอทในปลา (หน่วย: mg/kg)



* ประกาศกระทรวงสาธารณสุข ฉบับที่ 98 (พ.ศ. 2529) เรื่อง มาตรฐานอาหารที่มีการปนเปื้อน 0.02 mg/kg

* ค่าปริมาณอ้างอิง US EPA = 0.22 mg/kg



MERCURY CONTAMINATION FROM COAL-FIRED POWER PLANT ACTIVITIES: CASE STUDY IN LAMPANG PROVINCE

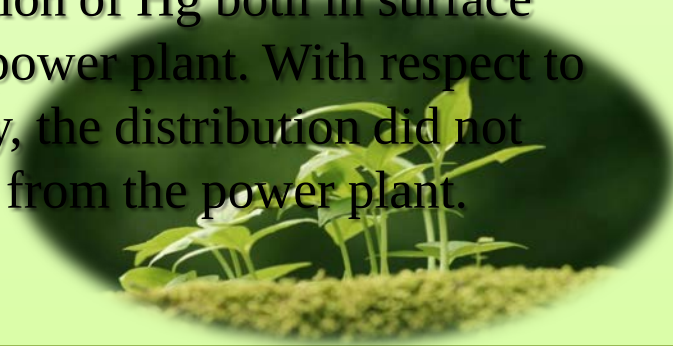
MANUSA MEEMUK^{*}, DUANGTA KITKAEW^{*}, PORANEE
PATARANAWAT^{*,a}

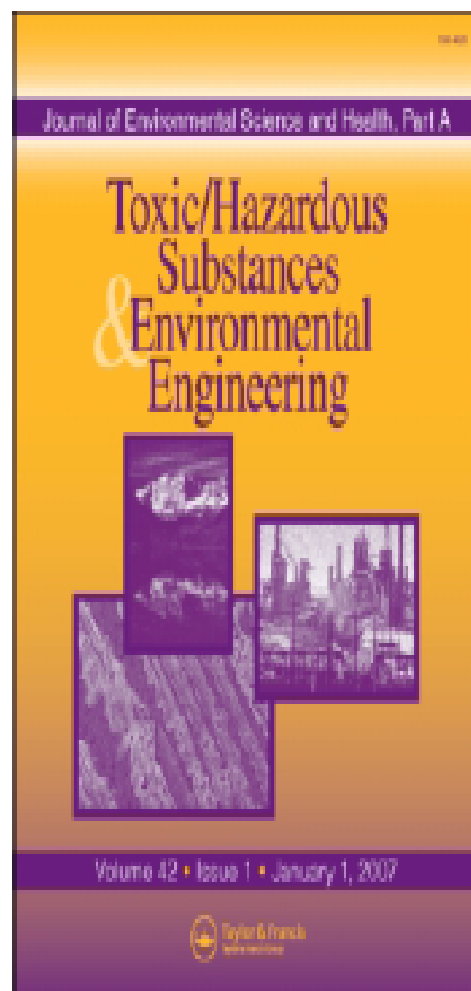
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ABSTRACT

This research was conducted to investigate the distribution of mercury (Hg) in surface soils and rice grains in the area within the 30 km radius of the lignite coal-fired power plant in Lampang Province. Samples of soils and rice grains were collected to estimate the environmental potential risks by Hazard Quotient Equation (HQ). The results revealed that the distribution of Hg both in surface soils and rice grains occurred in all areas around the power plant. With respect to the topography of the study area, the Mae Moh Valley, the distribution did not correlate with wind direction, wind speed or distance from the power plant.





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Mercury emission and distribution: Potential environmental risks at a small-scale gold mining operation, Phichit Province, Thailand

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^b School of Environment, Resources and Development, Asian Institute of Technology, Thailand

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We would like to emphasis on

- Mercury in wet deposition
- Manual systems for monitoring gaseous and particulate mercury



Mercury in wet deposition



EANET Wet and Dry Deposition Monitoring Sites in Thailand



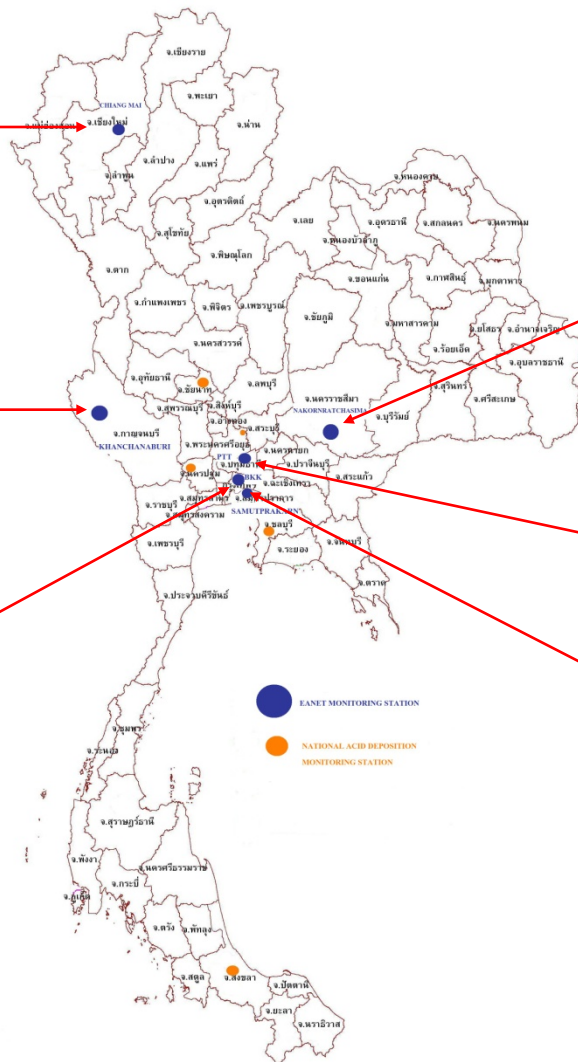
Chiang Mai



Khanchanaburi



Bangkok



Nakhon Ratchasima



Pathumthani

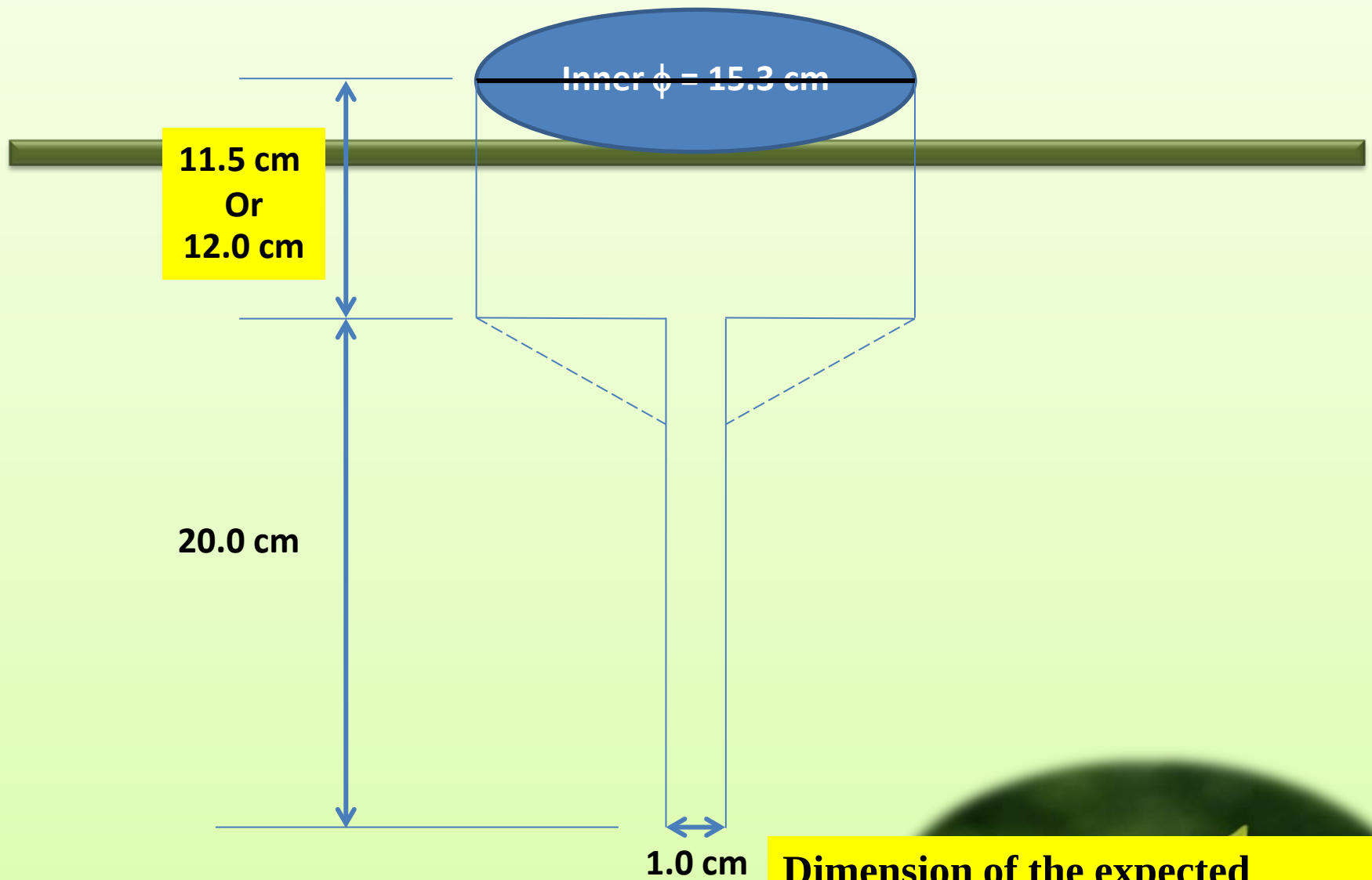


Samutprakarn

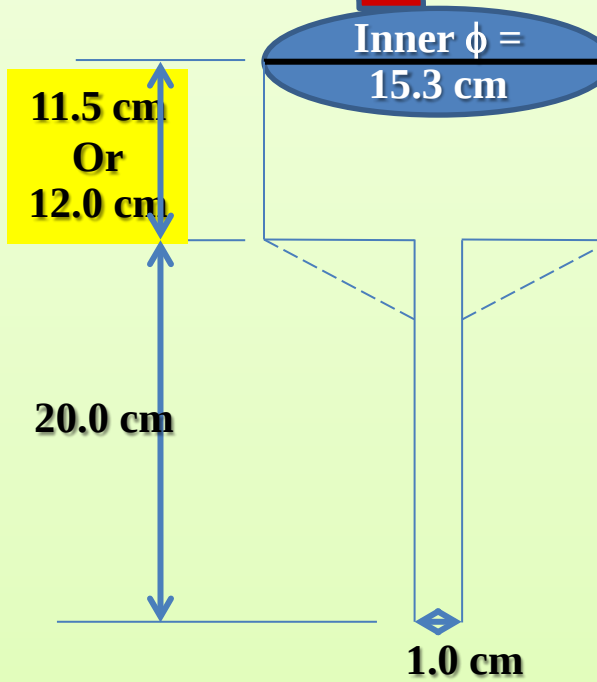


Acknowledgement to Prof. Hiroshi Hara





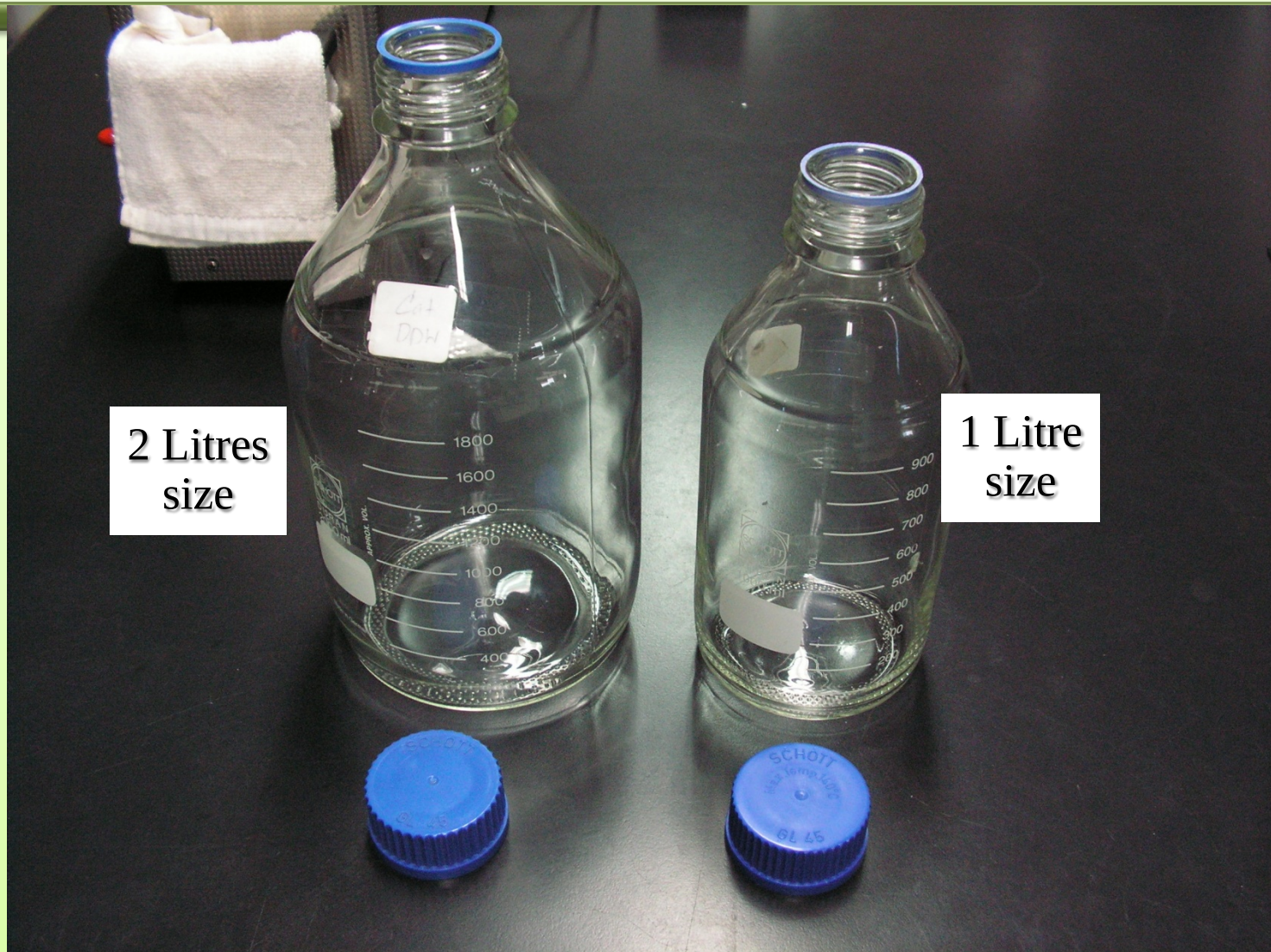
**Dimension of the expected
quartz funnel to insert into
the automatic wet sampler A-TF1**





The distance between the bottle and the funnel tip can be adjusted by using some box as indicated in the picture.

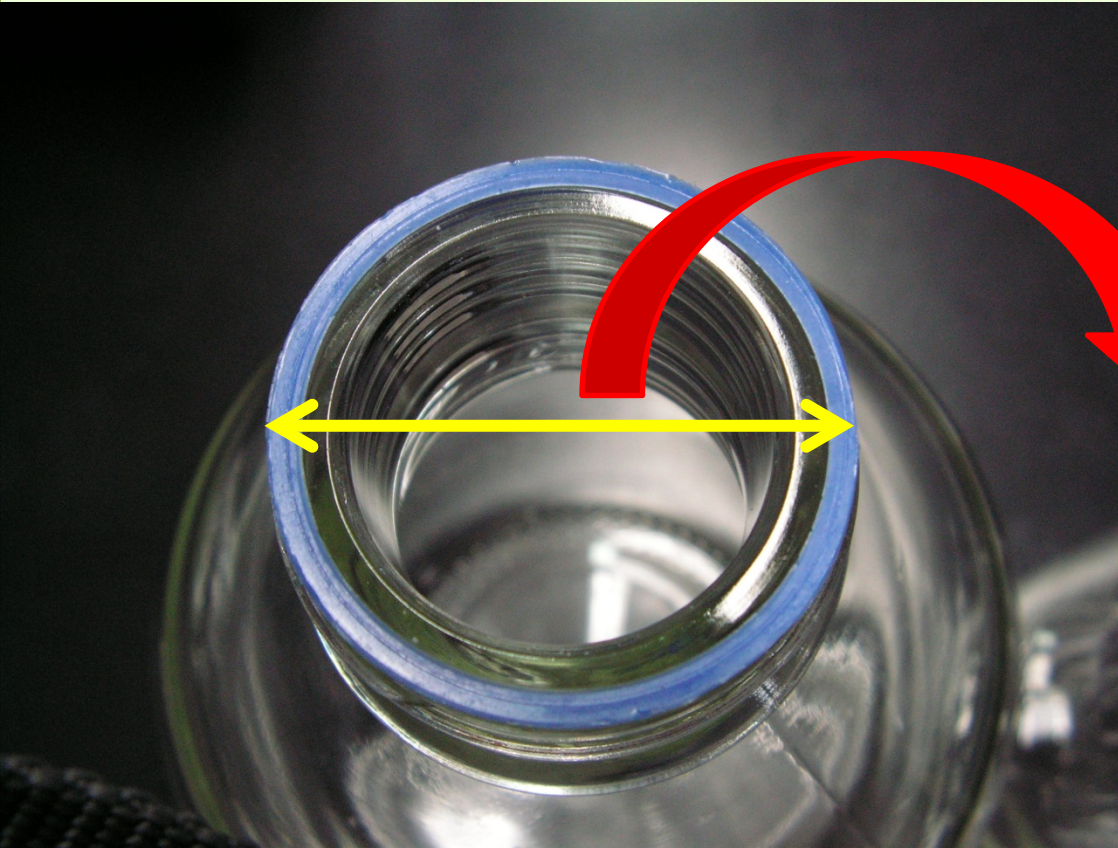
Possible Collecting bottle



2 Litres
size

1 Litre
size

Possible Collecting bottle

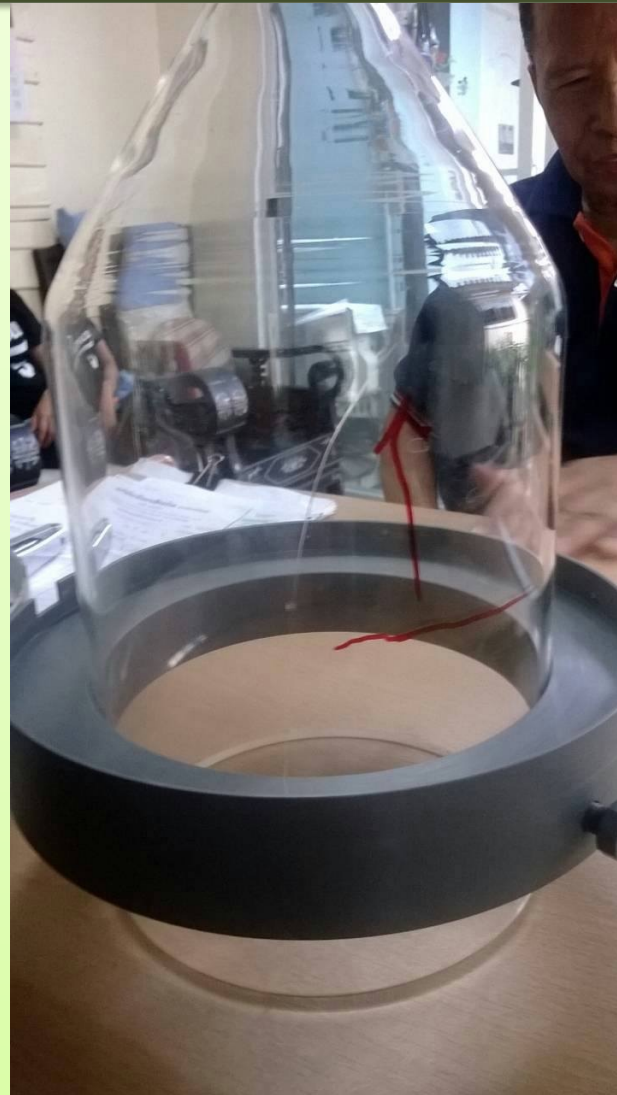


Inner diameter ~ 3.2 cm
Outer diameter ~ 4.0 cm

Cap size “GL 45”
Duran glassware



My first attempt was broken



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Atmospheric Hg measurement is still new for Thailand. The knowledge gained from the workshop will help to start atmospheric Mercury monitoring network for the good Management of mercury in the future.

