THE 14TH ANNUAL ASIA PACIFIC MERCURY MONITORING NETWORK PARTNERS MEETING

UPDATE 2025
MERCURY MONITORING PROGRESS IN INDONESIA

Alfrida Esther Suoth

CENTER FOR ENVIRONMENTAL MANAGEMENT FACILITY
MINISTRY OF ENVIRONMENT/ENVIRONMENTAL PROTECTION AGENCY
TAIWAN, 8 DESEMBER 2025

INTRODUCTION

CENTER FOR ENVIRONMENTAL MANAGEMENT FACILITY (PUSARPEDAL)
MINISTRY OF ENVIRONMENT/ENVIRONMENTAL PROTECTION AGENCY (KLH/BPLH)

Mrs. Sinta Saptarina as a counterpart

PUSARPEDAL has several primary duties, including formulating technical policies for national environmental laboratories, planning and assessing their development and implementation, providing technical services for reference laboratories, and providing guidance to environmental laboratories in Indonesia. In addition, the center is responsible for monitoring, evaluating, and reporting the performance of national environmental laboratories.

INDONESIAN GOVERNMENT COMMITMENT
Related to NAP for **Reduction & Elimination of Mercury**

Law number 11 year 2017

Ratification Minamata Convention on Mercury

Presidential Regulation Number 21 year 2019

National action plan for reduction and elimination of mercury use

Ministerial Regulation of Environment and Forestry Number 81 year 2019

Implementation of Presidential Regulation Number 21 year 2019

Ministerial Regulation of Health Number 41 year 2019

Elimination and withdrawal of medical devices containing mercury in health service facilities

Ministerial Regulation of Environment and Forestry Number 27 year 2020

Management of medical device waste containing mercury

Source: Directorate for Toxic and Hazardous Substance Management, MOEF

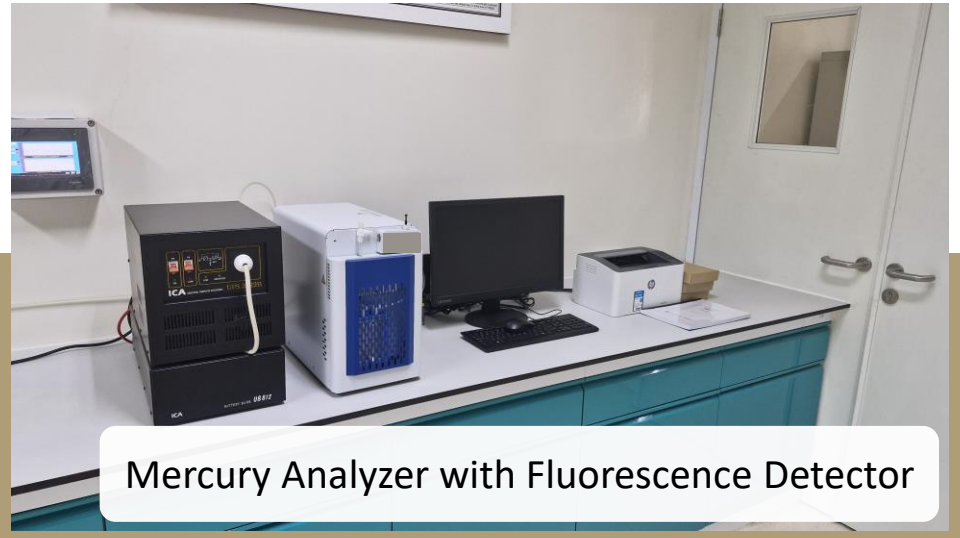
OUTLINE

Supporting infrastructure

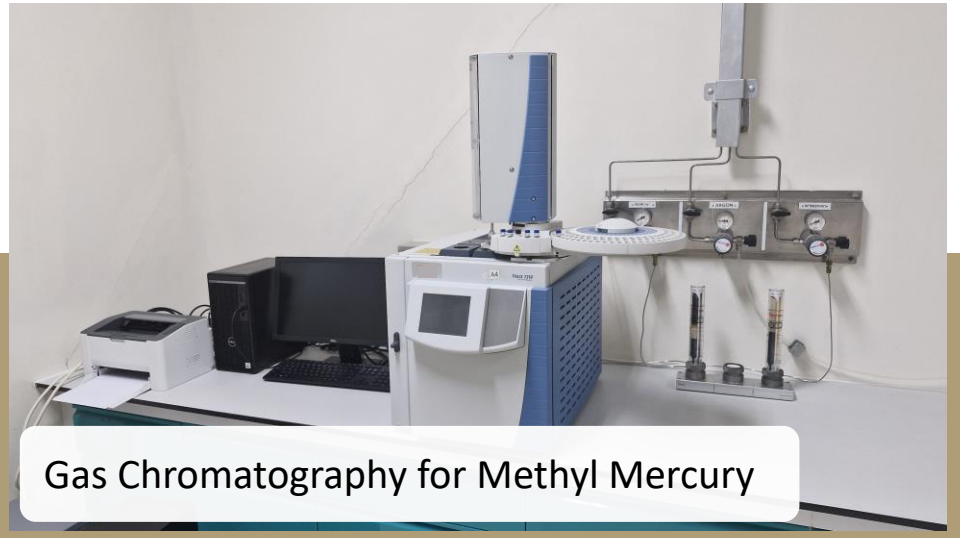
On-going activities

Next Step

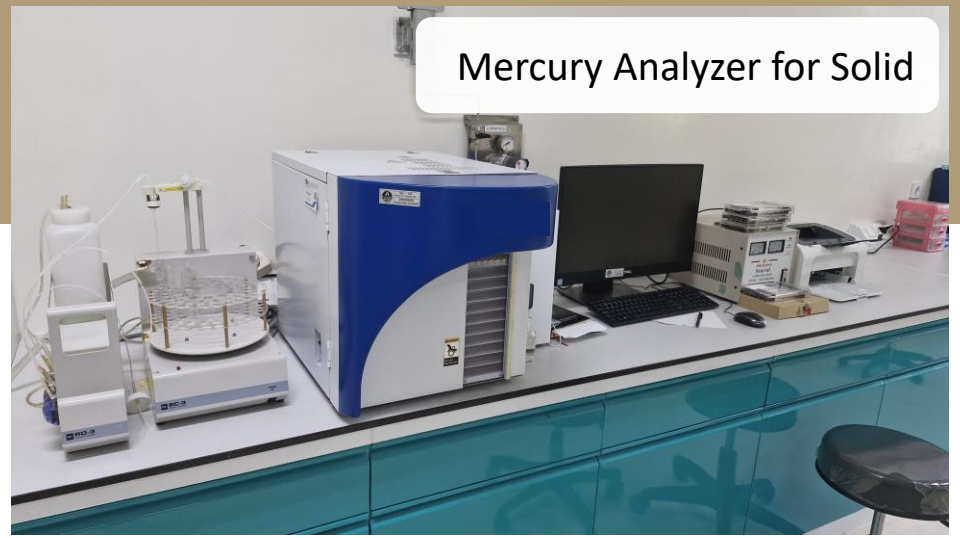
FACILITIES



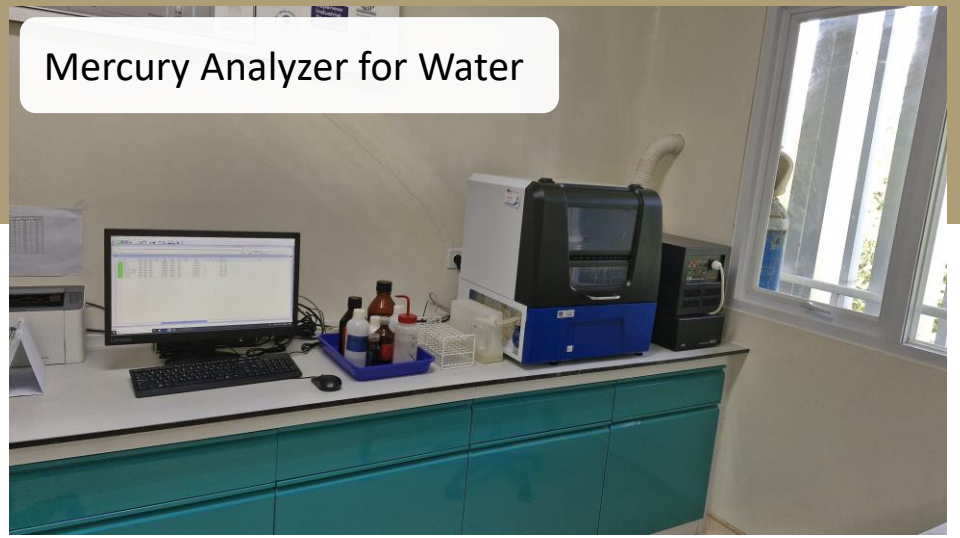
Mercury Analyzer with Fluorescence Detector



Gas Chromatography for Methyl Mercury



Mercury Analyzer for Solid



Mercury Analyzer for Water

CURRENT ACTIVITIES OF MERCURY MONITORING IN INDONESIA

Related to atmospheric mercury

Monitoring of mercury in rain water

APMMN project for mercury as a global pollutant

Monitoring of mercury in ambient air by gold column

Weekly monitoring

Monitoring of mercury in ambient air by MerPass (Mercury passive sampler)

3 month monitoring

STATION OF WET DEPOSITION SAMPLER FOR MERCURY IN RAIN WATER ON PSIKLH ROOFTOP (3rd FLOOR), SERPONG, INDONESIA

APID02
Rain Water Sampler
First run: 31 December 2019

Ambient Air Sampler
First run: 4 May 2021

RAIN WATER
Sampling and Analysis






Sampling

SHIPMENT

Sample Analysis in National Central University (NCU) Taiwan

MERPASS
Sampling and Analysis

Sampling

SHIPMENT

Sample analysis in ECCC Canada

AMBIENT AIR

Sampling and Analysis

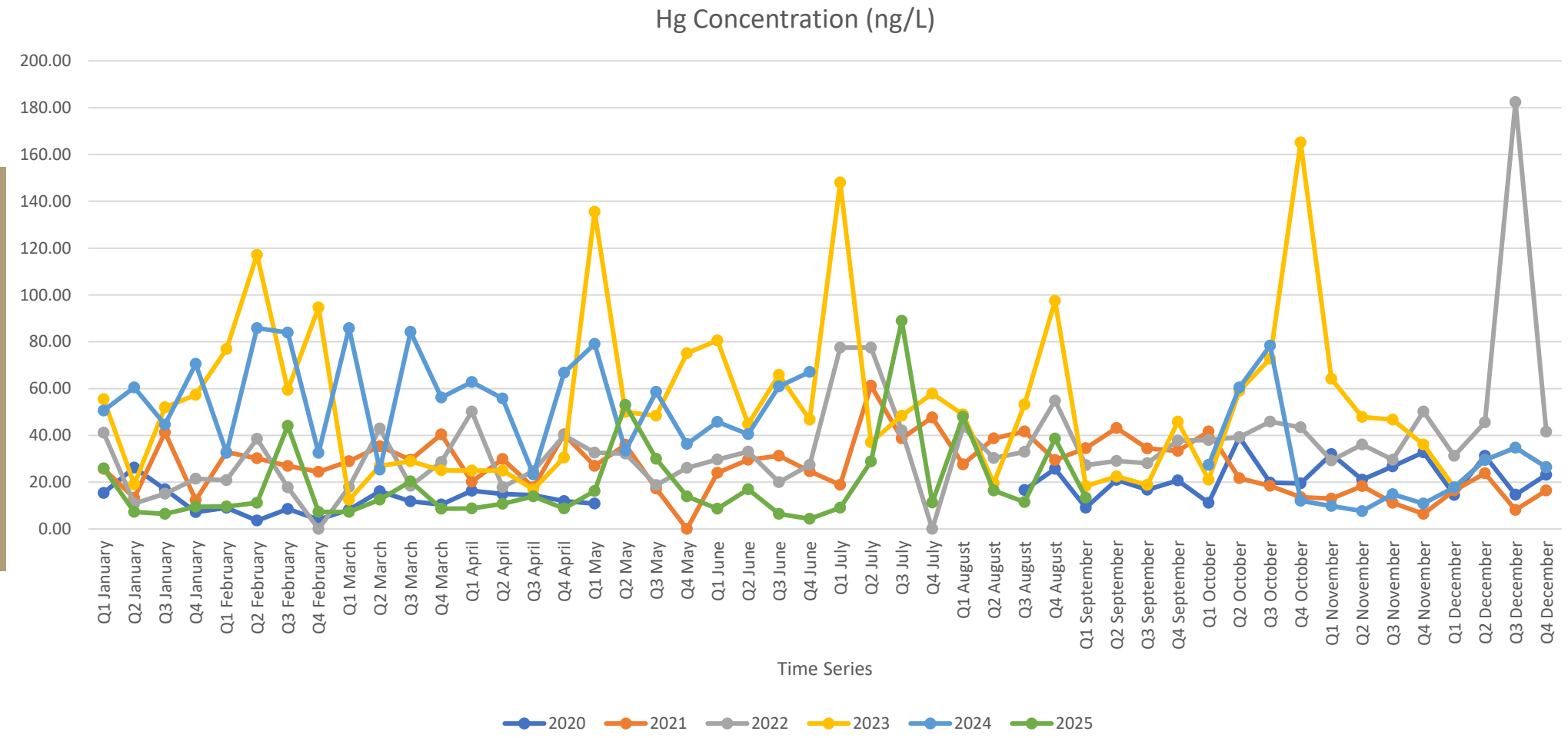
Sampling

Sample Analysis

Mercury in Rain Water

Annual Variation: Serpong Station's Data Results for T-Hg in Rain Water in year 2020-2025

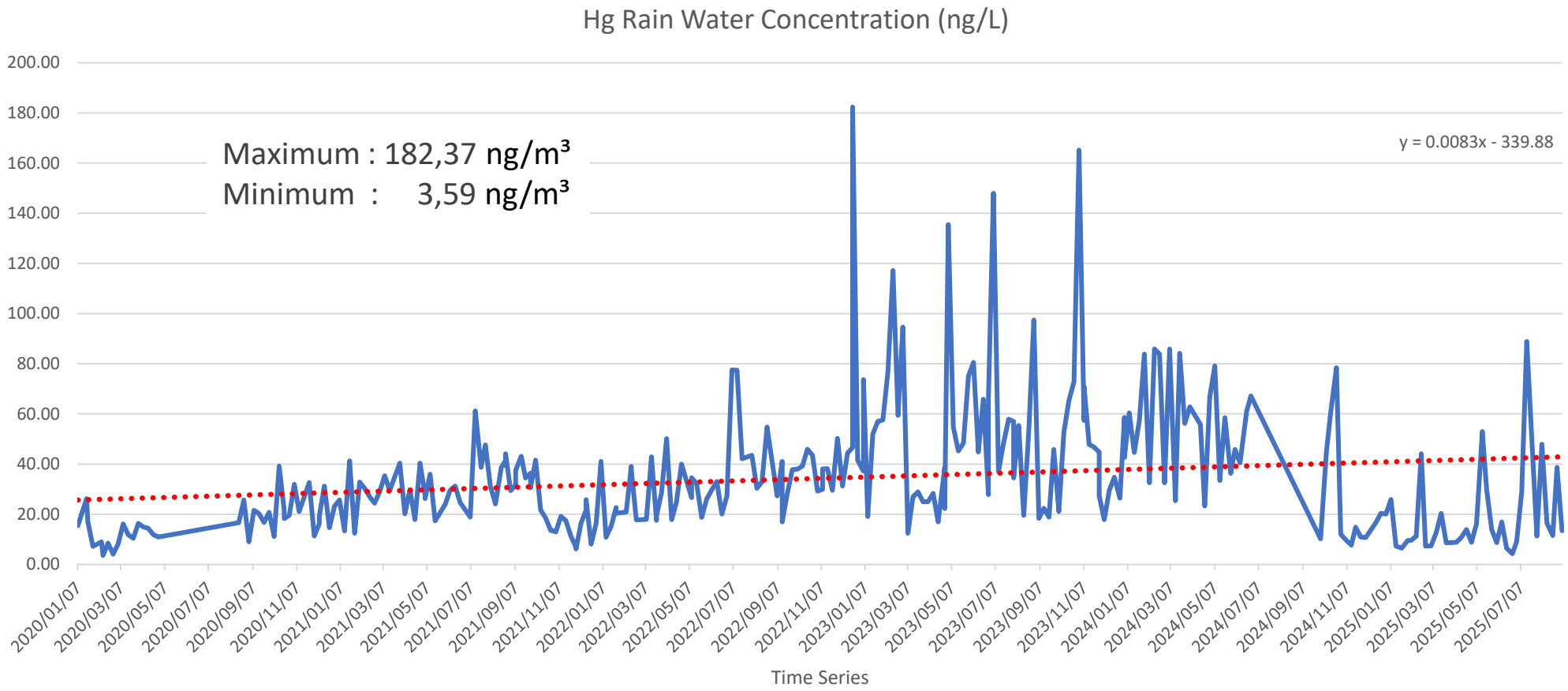
Analysis was done in NCU Taiwan



Source: Report on mercury monitoring in Serpong Station 2020-2025

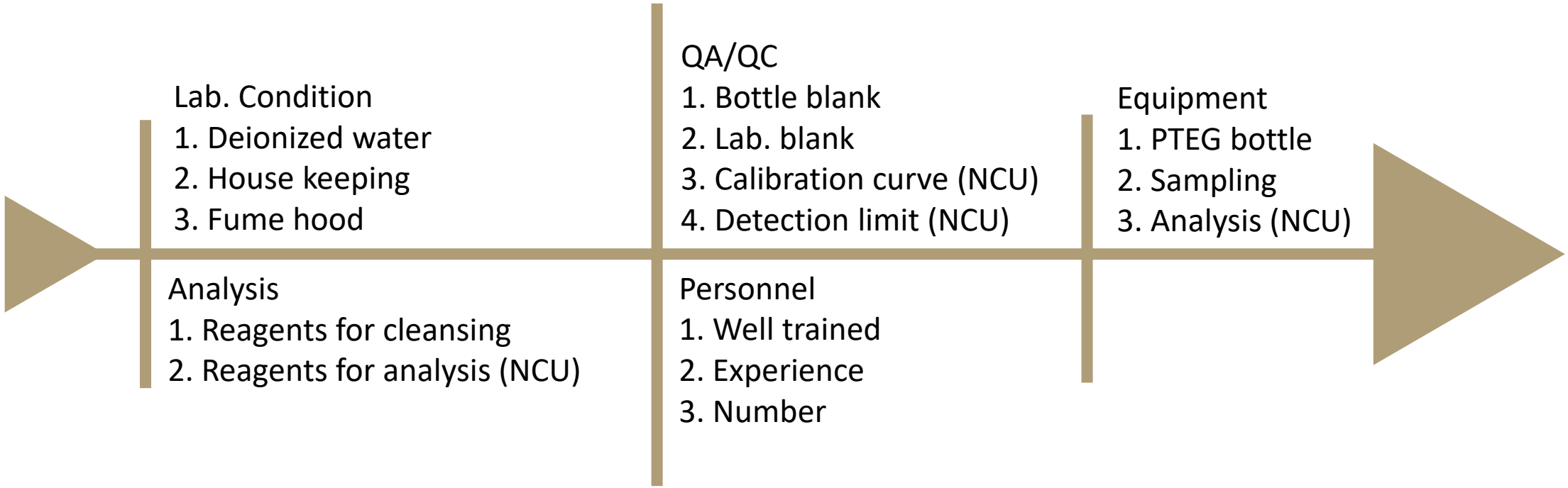
Serpong Station's Data Results for T-Hg in Rain Water for period year 2020-2025

Analysis was done in NCU Taiwan



Source: Report on mercury monitoring in Serpong Station 2020-2024

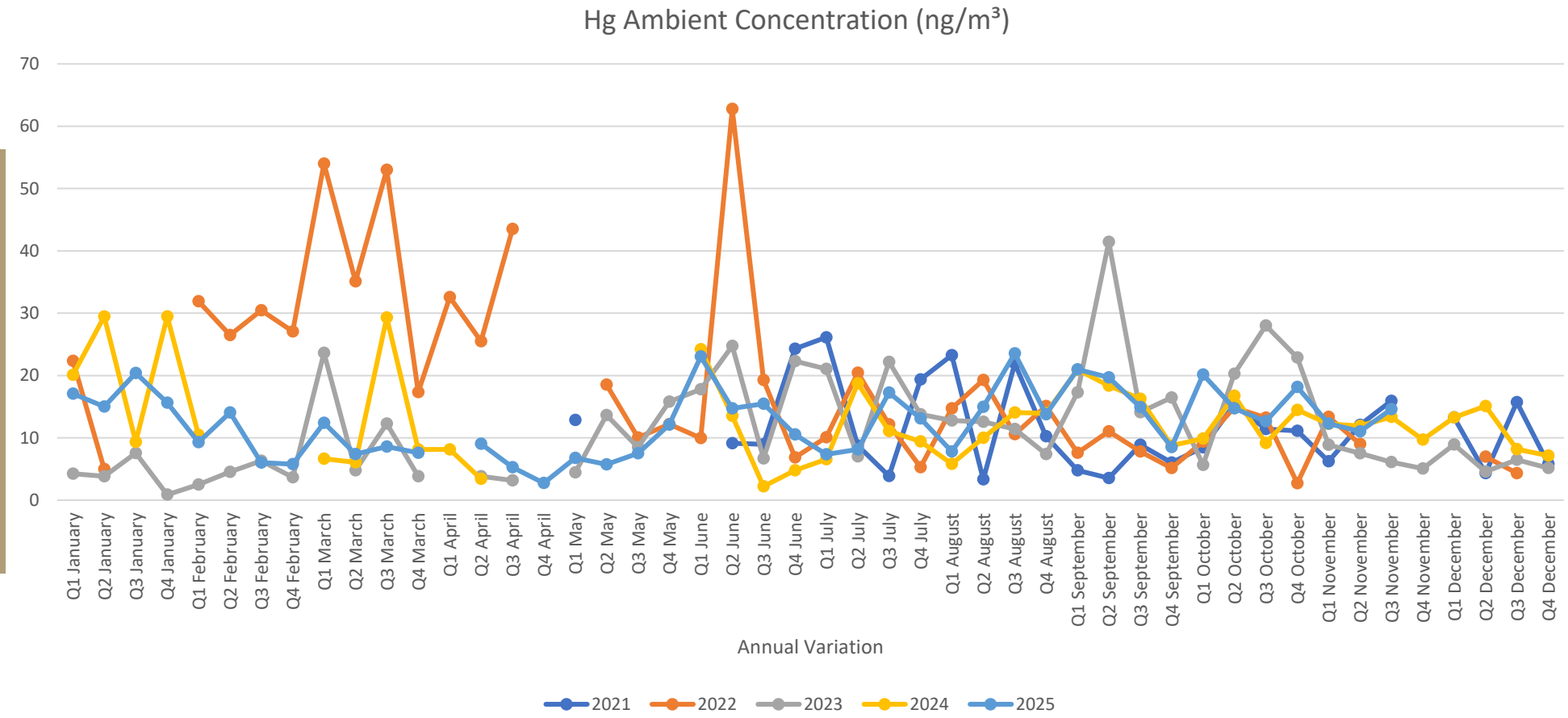
CAUSE EFFECT FOR ABNORMAL DATA for Hg in Rain Water



Mercury in Ambient Air

Serpong Station Data Results for T-Hg in Ambient Air by Gold Coloumn Methods

Analysis was done in PUSARPEDAL



*WHO Guideline : 300 ng/M^3

Source: Report on mercury monitoring in CSEQI Station 2020-2025

Serpong Station Data Results for T-Hg in Ambient Air by Gold Coloumn Methods

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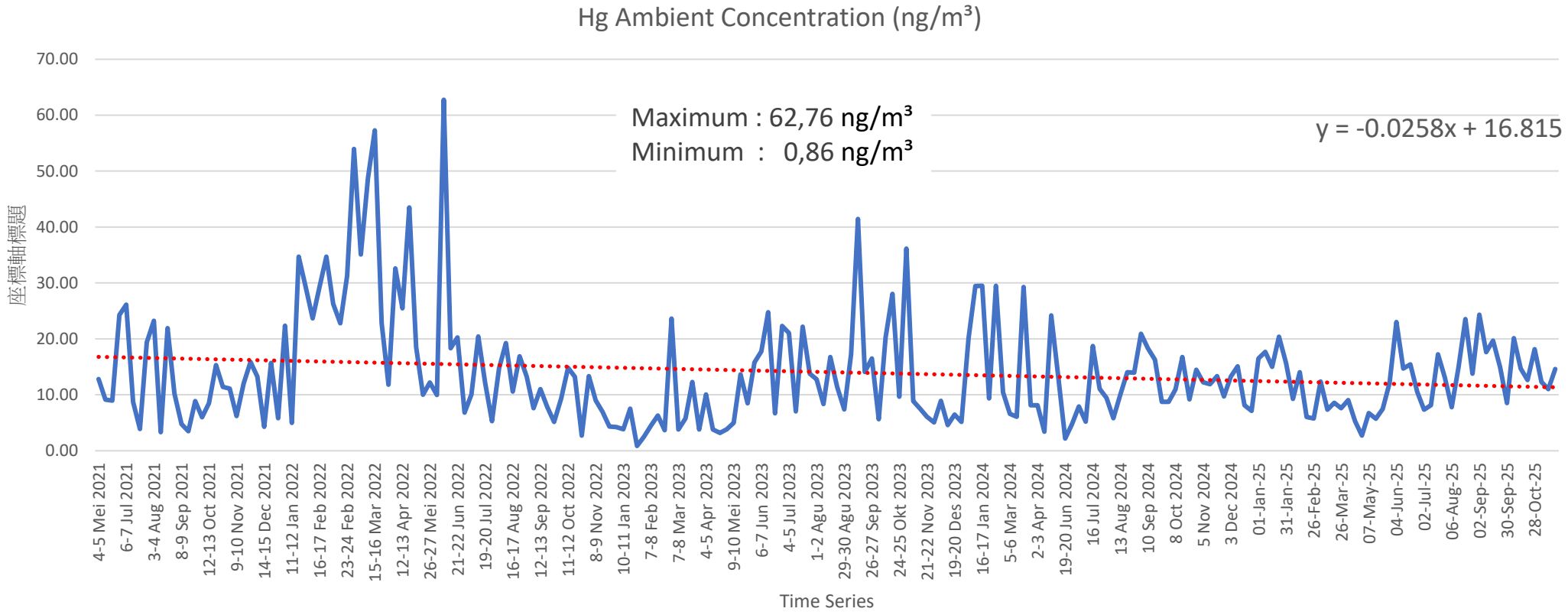

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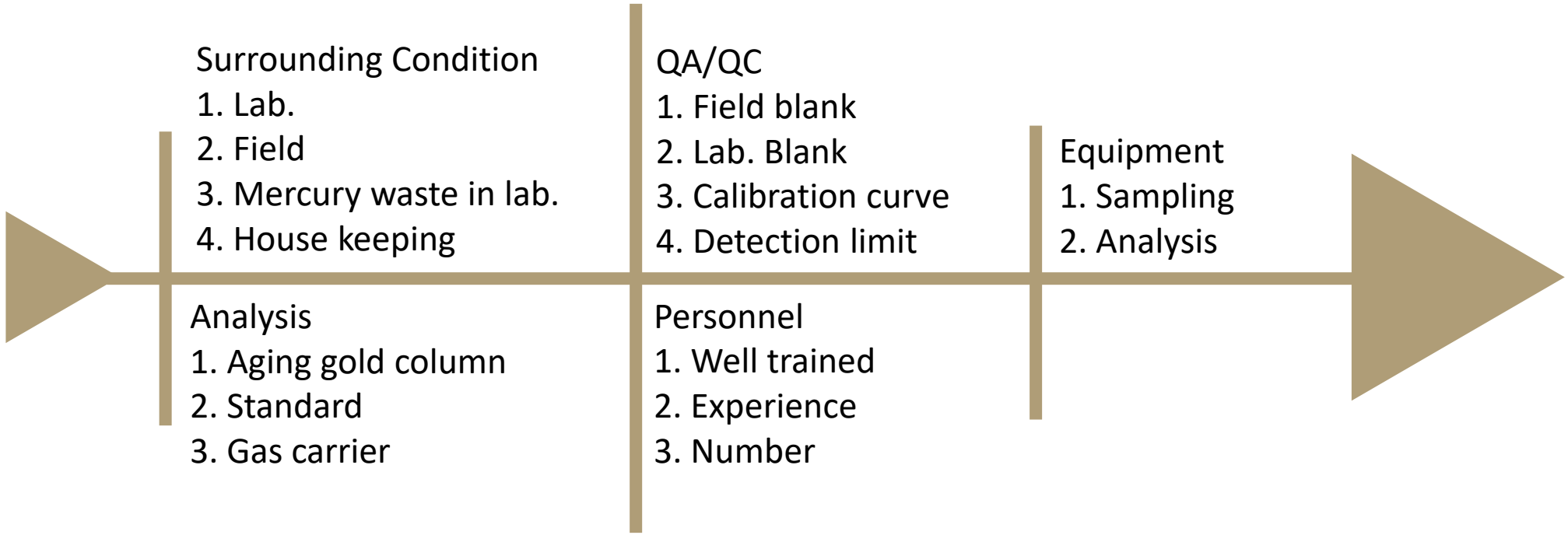
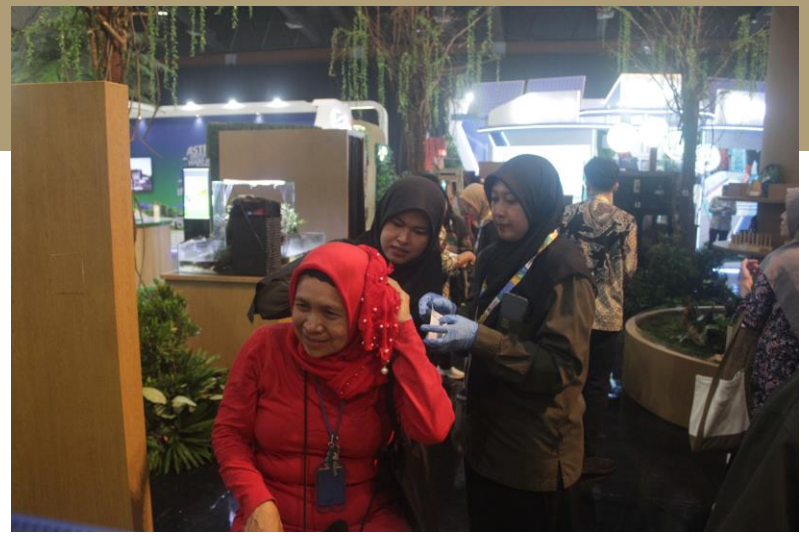
CAUSE EFFECT FOR ABNORMAL DATA for Hg in Ambient Air



OTHER RELATED ACTIVITIES

Quick Measurement of Hg in Human Hair during environmental related exhibition

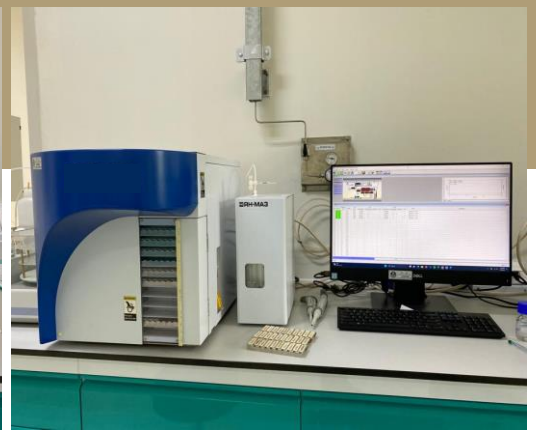


Measurement of MeHg in Biota

Biota from various Indonesia sea at Tanjong Priok Port

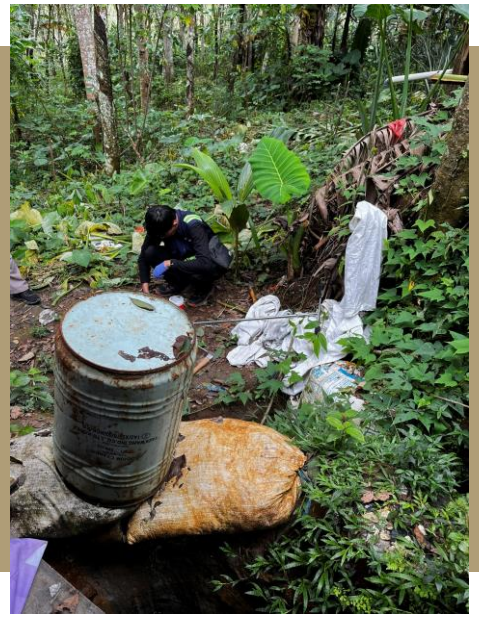


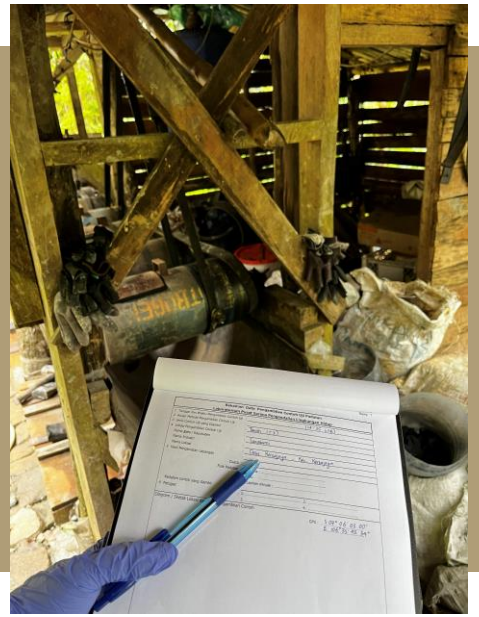


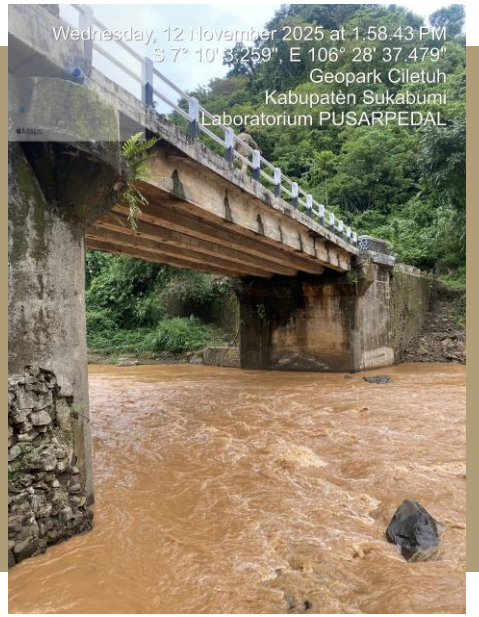



Hair sampling for MeHg Analysis

from the communities affected by activities related to the use of mercury (ASGM in Sukabumi)

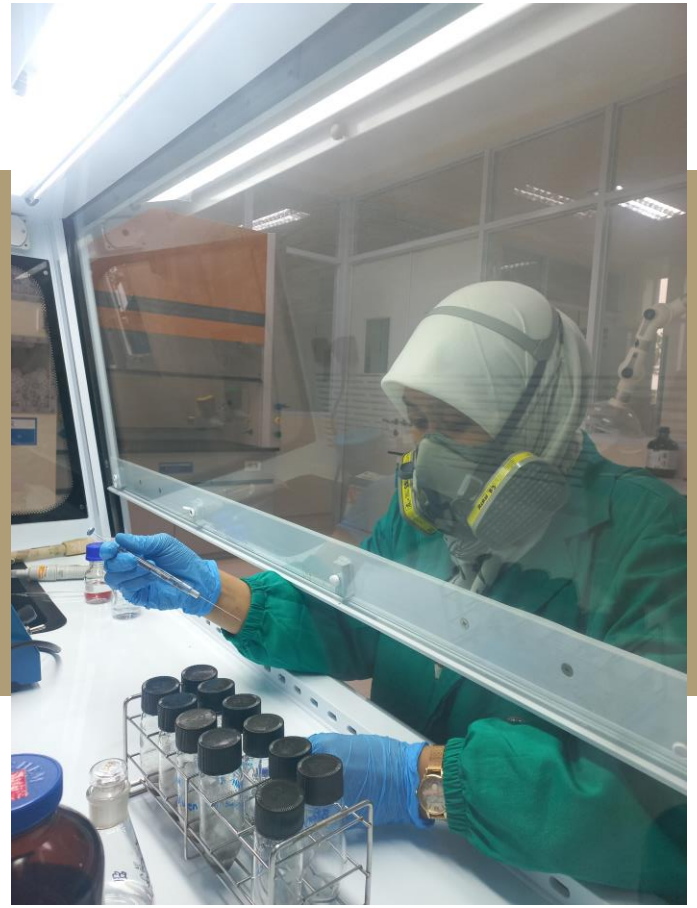






Measurement of MeHg in Human Hair

Sample analysis



Macrozoobenthos Sampling for Total Mercury Analysis

In upstream river at Pongkor, near the metal factory

Accredited by National Accreditation Agency
for Methyl Mercury in Biota and Biomarker

SERTIFIKAT AKREDITASI

LP-082-IDN

Ditetapkan tanggal : 20 Maret 2024

Berlaku hingga : 19 Maret 2029

Diberikan kepada

Pusat Standardisasi Instrumen Kualitas Lingkungan Hidup (Multilokasi)

di

Kawasan Sains dan Teknologi BRIN, Gedung 210, Serpong, Tangerang Selatan, Banten

yang telah menunjukkan kompetensinya sebagai

LABORATORIUM PENGUJIAN

dengan menerapkan secara konsisten

SNI ISO/IEC 17025:2017 (ISO/IEC 17025:2017)

Persyaratan Umum untuk Kompetensi Laboratorium Pengujian dan Laboratorium Kalibrasi

untuk ruang lingkup seperti dalam lampiran

KOMITE AKREDITASI NASIONAL

Dokumen ini telah ditandatangani secara elektronik menggunakan Sertifikat Elektronik yang diterbitkan BSrE

Drs. KUKUH S. ACHMAD, M.Sc.

KETUA

Sertifikat ini memberikan hak kepada laboratorium untuk menggunakan tanda akreditasi pada sertifikat/laporan yang diterbitkan, kop surat, iklan, dan tujuan promosi lainnya sesuai ketentuan yang berlaku. Sertifikat ini tidak boleh direproduksi sebagian, kecuali secara keseluruhan, tanpa izin tertulis dari Komite Akreditasi Nasional.

Formulating National Indonesia Standard
about Methylmercury test on Biota and Biomarker

Hg measurement at soil

Sample from Ciawitali River and Ciemas River, Sukabumi

Sediment

- Total mercury (Hg) in Sukabumi sediments ranges from 0.0619 to 0.8074 µg/g

Soil

- Total mercury (Hg) in Sukabumi soils ranges from 0,1053 to 191,0307 µg/g

Cooperation Program with JICA

1. Clean room development in Mercury Laboratory and Metrology
2. Monitoring air, water, soil, sediment, tissue in coal mining and ASGM
3. Training management data and analysis mercury sampel

POTENSIAL COOPERATION
STRENGTHENING TECHNICAL CAPACITY FOR PUSARPEDAL

Building a clean room with JICA collaboration in January 2026 and developing method with CV-AFS so that in the future we can do our own analysis of mercury in rainwater

Developing Methods for methyl mercury analysis **in Sediment**

Developing Method of methyl mercury analysis **in Water**

Developing Method standardization in Hg monitoring to be applied widely in local laboratory in Indonesia

Developing capability as a provider in Mercury proficiency test

Comparison testing for Hg using Gold Column and MerPass Sample with IDEA and NCU Taiwan

CONTRIBUTORS

Materials Preparations

- Rina Aprishanty, Ernawita Nazir, Ely Rahmy T, and Ricky Nelson from CSEQI, MOEF
- Yunik Kuncaraning Purwandari from Directorate for Toxic and Hazardous Substance Management, MOEF

Sampling Team

- Muhammad Azzam, Maulana Kusumardani & Miya Riski Utari
- Nurmalia Safitri, Adi Mulyadi, & Muhammad Azzam

Special Thanks to

- Sandy Steffen & Da Wei Lin

THANK YOU