Update year 2019:

MERCURY MONITORING
IN INDONESIA

6th APMMN Partners Meeting in Ritz Carlton Hotel Indonesia
INTRODUCTION

- Research and Development Center for Environmental Quality and Laboratory, Ministry of Environment and Forestry of Indonesia
  - Rina Aprishanty
  - Fitri Yola Amandita
- Directorate for Toxic and Hazardous Waste Management, Ministry of Environment and Forestry
  - Aisyah Syafei
  - Aditya Febrian Masri
OUTLINE

- Existing Activities
- Progress Activities
- Review APMMN Project in Indonesia
- Next Step Mercury related Activities
EXISTING ACTIVITIES
Monitoring heavy metal in sea water and sediment also green muscle

Monitoring mercury in ASGM (Artisanal and Small-scale Gold Mining) in Rejang Lebong, Bengkulu; Sungai Rungan dan Sungai Kahayan, Kalimantan Tengah; Lampung dan Pongkor, Jawa Barat

EMC continuing Monitoring mercury in ASGM in Sulawesi Utara, Kalteng, Kalbar, Jambi, Sumbar
PB3 MOEF start monitoring in ASGM Hotspot for soil and surface water sample

Monitoring mercury in Energy Sector for coal, fly ash and bottom ash and emission source

Monitoring of mercury pollution from ASGM and socio-economic study of the ASGM workers in Sukabumi, West Java
- Indonesia ratified Minamata Convention through Law No 11 year 2017;
- Indonesia established Ministry Decree No 340 year 2018 about Committee for Research and Monitoring on Mercury (KPPM);
- Indonesia established National Action Plan under President Regulation No 21 year 2019 for Eliminating and Phasing-out Mercury.
PENYEBARAN PERTAMBANGAN EMAS SKALA KECIL (PESK) DI INDONESIA

Sumber: YTS, 2015; +/- 1,000 hotspots - > 500,000 penambang

- Produksi emas (KK+IUP) Tahun 2012 ± 75 tons, Tahun 2013 ± 59 tons (Pusdatin ESDM)
- Produksi emas dari ASGM diperkirakan mencapai 65-130 ton/tahun (Balifokus)
PROGRESS ACTIVITIES
TIM MoEF and P3KLL
Wet Deposition Sampler for Mercury in Rain Water in East Jakarta Station

Regular sampling done by Hazardous and Toxic Substance Management Department MoEF (APMMN Rain Sampler)
DATA 2015 - 2019

Monitoring of Mercury in Rain Water At

MERCURY CONCENTRATION (ng/L)

SAMPLING PERIOD (2015 - 2019)

- max 592.49
- min 0.71
- mean 50.40
- sd 118.39
DATA (edited) 2015 - 2019

Note: Slightly increasing from the start in year 2015 to year 2019 (1 ng/L)
EMC STATION
In Serpong
APPLICATION OF GOLD CATRIDGE IN P3KLL

<table>
<thead>
<tr>
<th>Column No.</th>
<th>Concentration 24 hour (ng/m³)</th>
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<tr>
<td>IDN2</td>
<td>5.3</td>
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<tr>
<td>IDN3</td>
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<td>IDN4</td>
<td>4.6</td>
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<tr>
<td>IDN5</td>
<td>6.1</td>
</tr>
</tbody>
</table>

NOTE: Gold Cartridge sampling equipment provided by MoE Japan And analysis of Gold Cartridge was done by IDEA

METEOROLOGICAL DATA: T=29°C RH=78% WS=0.2m/s (CALM)
Training in National Central University (NCU) Taiwan:

- Aditya Masri in 2017 for mercury monitoring from rain water and analysis using CV-AFS
- Rina Aprishanty in June 2019 for mercury monitoring using various instrument and analysis using CV-AFS
REVIEW MERCURY MONITORING PROJECT IN INDONESIA
DATA EVALUATION

- QA/QC in sampling need to be strengthen;
- GIS for mapping surrounding source;
- Meteorological data need to be provided for mercury monitoring;
- Any other abnormalities must be recorded.
Lack of Multi-media Information for Integrated studies

Insufficient Data in ambient Air media

Some data in water Media

Some data in soil Media

Unavailable personnel in Organic Mercury Analysis

Available personnel in Inorganic Mercury Analysis

Unavailable capacity For Organic Mercury in all media

Unavailable personel in Organic Mercury Analysis

Unavailable personel in Inorganic Mercury Analysis

Unavailable capacity 
For Organic Mercury in all media

Absence of health Data monitoring

Unavailable Ambient Air and Emission Source data

No socio-economic Data monitoring

Incomprehensive data monitoring

Unavailable standard for air measurement

SNI & USEPA standard for soil measurement

SNI & APHA standard for Water media Measurement

Available analytical Equipment for all media

Unavailable sampling Equipment for air media

Available equipment for water & soil media

Data Base

Equipment

Trained Personnel

Method Mesurement

Multi-Media Data Monitoring

Available Personnel for Mercury sampling 
In Water and Soil Monitoring

Unavailable personnel in Mercury Sampling in Air Monitoring

EXISTING CAPACITY

@ EMC MOEF
NEXT STEP
MERCURY ACTIVITIES
in Indonesia
Applying QA/QC in place for next mercury monitoring in rain water

Reestablish the sampling point for both mercury wet deposition and dry deposition

Developing the system for mercury sampling from ambient air by means of gold-amalgamation

Mercury baseline upgrade for 3 location (World Bank project)

Developing Method standardization so that the monitoring could be applied widely in local laboratory in Indonesia (i.e. mercury in ambient air)

Strengthening Local Capacity in monitoring mercury in multimedia (UNDP project)
Upgrading Baseline of multimedia monitoring in:
- Landak District in Central Kalimantan
- North Minahasa District in North Sulaweso
- Kulon Progo District in Yogyakarta
- Strengthening Local Action Plan for Eliminating and Phasing-out Mercury through KPPM
- Strengthening KPPM through coordination among sector involved:
  - Energy and mining
  - Manufacture
  - Health
  - Science and Technology
  - Academic
10 October 2017
Indonesia ratified Minamata Convention

28 March 2018
FGD on the Urgency of Mercury Research Center In Indonesia

20 April 2018
Expert Meeting to establish Mercury Research Center In Indonesia

30 August 2018
KPPM’ first meeting to socialize KPPM action plan

3 September 2018
Formulation of Decree on the KPPM Secretariat

7 August 2018
The launching of KPPM

5 December 2018
FGD on the formulation of KPPM Grand Design

7 May 2019
Meeting to discuss collaboration between KPPM with ISMIA project

14 May 2019
FGD on the formulation of KPPM Roadmap

3 August 2018
KPPM was established through the Ministry Decree No. 340/2018

23 May 2018
FGD on the establishment of KPPM

3 May 2018
Workshop “Mercury Monitoring and Research as Policy Basis”
MAPPING LOCAL INSTITUTION
for environmental laboratory capacity

Environmental Lab not available:
1. Kab. Minahasa Utara
2. Kab. Bone Bolango
3. Kab. Kuantan Singingi

Environmental Lab Available:
1. Kab. Sekotong
2. Kab. Halmahera Selatan
3. Kab. Kulon Progo
TERIMA KASIH