Minamata COP 4.2. side event

Mining data from National Action Plans for Artisanal and Small Scale Gold Mining

7 MARCH 2022
12:30 - 13:30 (CET)
AGENDA

Moderator: Kenneth Davis UNEP

Minamata Convention and National Action Plans for ASGM
Richard Gutierrez Secretariat of the Minamata Convention

Global overview of the latest trends and mercury reduction priorities in ASGM based on Minamata NAPs
Malgorzata Stylo UNEP

Translating data into policy for ASGM – case study from Nigeria NAP project
Olubunmi Olusanya Federal Ministry of Environment of Nigeria

Questions and Answers
Moderated by Jerome Stucki UNIDO
Minamata Convention and National Action Plans for ASGM
Richard Gutierrez
Secretariat of the Minamata Convention
Mining Data from National Action Plans for Artisanal and Small-Scale Gold Mining

Pre-COP4.2 Online Side Event
07 March 2022

Richard Gutierrez, JD, LLM.
Secretariat of the Minamata Convention
Minamata Convention on Mercury

• Adoption of text and opening for signature (Kumamoto, Japan): 10-11 October 2013

• Entry into Force: 16 August 2017

• First Conference of the Parties (Geneva) 24 to 29 September 2017
  President: Switzerland

• Second Conference of the Parties (Geneva) 19 to 23 November 2018
  President: Switzerland

• Third Conference of the Parties (Geneva) 25 to 29 November 2019
  President: Zambia

• **Fourth Conference of the Parties online 1\textsuperscript{st} segment 01-05 Nov. 2021 and 21-25 March 2022  President: Indonesia**
137 parties as of 07 March 2022
Minamata Convention Controls the whole life cycle of mercury

**Article 1: Introduction**
- Overview of the convention's objectives

**Article 2: Signatories**
- List of countries that have signed the convention

**Article 3: Supply**
- Guidance on identifying mercury stocks (COP-1)
- Guidance and format for import consent (COP-1)

**Article 4: Products**

**Article 5: Processes**
- NAP guidance (COP-1)

**Article 6: ASGM**
- BAT/BEP and inventory guidance (COP-1)

**Article 7: ASGM**
- NAP guidance (COP-1)

**Article 8: Emissions**
- BAT/BEP and inventory guidance (COP-1)

**Article 9: Releases**
- Inventory guidance (expected COP-4)

**Article 10: Storage**
- Interim storage guidelines (COP-2)

**Article 11: Waste**
- Basel Convention guidelines

**Article 12: Contaminated sites**
- Guidance on management (COP-3)

Global anthropogenic mercury emissions 2018

<table>
<thead>
<tr>
<th>Category</th>
<th>Mercury emissions estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artisanal and small-scale mining</td>
<td>837658</td>
</tr>
<tr>
<td>Stationary combustion of coal</td>
<td>473777</td>
</tr>
<tr>
<td>Non-ferrous metals production</td>
<td>326657</td>
</tr>
<tr>
<td>Cement production</td>
<td>233168</td>
</tr>
<tr>
<td>Waste from products</td>
<td>146938</td>
</tr>
<tr>
<td>Vinyl chlorine monomer</td>
<td>58268</td>
</tr>
<tr>
<td>Biomass burning</td>
<td>51860</td>
</tr>
<tr>
<td>Ferrous metals production</td>
<td>39903</td>
</tr>
<tr>
<td>Chlor-alkali production</td>
<td>15146</td>
</tr>
<tr>
<td>Waste incineration</td>
<td>14944</td>
</tr>
<tr>
<td>Oil refining</td>
<td>14377</td>
</tr>
<tr>
<td>Stationary combustion of oil and gas</td>
<td>7130</td>
</tr>
<tr>
<td>Cremation</td>
<td>3768</td>
</tr>
<tr>
<td>Global total</td>
<td>2,223,594</td>
</tr>
</tbody>
</table>

Source: Global Mercury Assessment 2018
Mercury emission from ASGM (from GMA data)
Objective of the Minamata Convention (Article 1)

➢ “…to protect the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. »

➢ Provisions cover the entire life cycle of mercury, including supply, trade, mercury-added products, industrial processes using mercury, ASGM, emissions to air, releases to land and water, interim storage, waste and contaminated sites.
Article 7 – Artisanal and small-scale gold mining

➢ Applies to artisanal and small-scale mining and processing of gold using mercury amalgamation to extract gold from the ore.

➢ Parties with ASGM that use mercury must take steps to reduce, and where feasible eliminate, the use and the emissions of mercury

➢ Parties who determine ASGM which is more than insignificant the that ASGM within its territory is more than insignificant, MUST:
  ➢ Develop and implement a national action plan;
  ➢ Submit NAP to Secretariat, review every 3 years after EIF or after notification to the Secretariat, whichever is later; and
  ➢ Provide a review every 3 years of progress
Annex C – Artisanal and small-scale gold mining: NAPs

- National objectives and reduction targets
- Actions to eliminate [...] 
- Steps to facilitate the formalization or regulation of the ASGM sector
- Baseline estimates of the quantities of Hg used and practices employed
- Strategies for promoting the reduction of emissions and releases of, and exposure to, Hg in ASGM
### Annex C – Artisanal and small-scale gold mining

| Strategies for managing trade and preventing Hg diversion to ASGM |
| Strategies for involving stakeholders in the implementation and continuing NAP development |
| Public health strategy on Hg exposure of miners and their communities |
| Strategy to prevent the exposure of vulnerable populations |
| Strategies to provide information to miners and affected communities |
| Schedule of NAP implementation |
NAP reports available on the web

National Action Plans

Pursuant to Article 7.3 of the Minamata Convention, a Party that at any time determines that artisanal and mining and processing in its territory is more than insignificant shall notify the Secretariat. Such Party shall also develop and implement a national action plan in accordance with Annex C of the Convention; submit its national action plan to the Secretariat no later than three years after entry into force of the Convention for it or three years after the notification to the Secretariat, whichever is later; and thereafter, provide a review every three years of the progress made in meeting its obligations under Article 7 and include such reviews in its reports submitted pursuant to Article 21.

At its first meeting, the Conference of the Parties agreed to the use of the guidance on the preparation of national action plans, which may be found here.

Reports submitted by Parties may be accessed from the below links.

<table>
<thead>
<tr>
<th>Country</th>
<th>Files</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>🇫🇷 French</td>
<td>2020</td>
</tr>
<tr>
<td>Burundi</td>
<td>🇫🇷 French</td>
<td>2019</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>🇫🇷 French</td>
<td>2019</td>
</tr>
<tr>
<td>Congo</td>
<td>🇫🇷 French</td>
<td>2019</td>
</tr>
</tbody>
</table>

THANK YOU!

www.mercuryconvention.org
MEA-MinamataSecretariat@un.org
TWITTER: @minamataMEA
Global overview of the latest trends and mercury reduction priorities in ASGM based on Minamata NAPs
Malgorzata Stylo
UNEP
41 countries started NAP
16 countries submitted
DATA EXTRACTION

National overview

- Estimated mercury use
- Estimated gold production by ASGM (also % produced with Hg)
- Estimated number of miners
- Presence of worst practices
- Role of women in ASGM
- Role of children in ASGM
- Tailings management
- Co-occurrence of LSM and ASGM
- Impacts on biodiversity
- Key locations of ASGM
- Legal status, organization
- Mercury trade
- Health baseline information

Targets and strategies

- Mercury reduction and elimination targets
- Strategies to eliminate worst practices and reduce emissions/releases of mercury strategies
- Formalization strategies
- Mercury trade strategies
- Public health strategies
- Strategies to provide information
- Strategies to prevention of exposure of vulnerable populations
- Strategies to involve stakeholders
- Estimated cost for NAP implementation
Mercury estimates – National Action Plans vs Global Mercury Assessment 2018

- **Madagascar** NAP documented a number of very mercury-intensive small-scale dredging operations resulting in a significant increase in mercury use above previous estimates from GMA, 2018.

- **Ecuador** reported in their NAP that only 40% of the ASGM gold is produced using mercury. This finding resulted in a notably lower mercury use estimate than in the 2018 GMA.
ASGM worst practices

- Open burning of amalgam
- Burning of amalgam in residential areas
- Cyanide use with mercury containing tailings
- Whole ore amalgamation

<table>
<thead>
<tr>
<th>Occurrence of worst practice</th>
<th>No data</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

- Open burning of amalgam: 14 countries reported yes, 10 reported no, 6 reported no data.
- Burning of amalgam in residential areas: 10 countries reported yes, 10 reported no, 6 reported no data.
- Cyanide use with mercury containing tailings: 10 countries reported yes, 10 reported no, 6 reported no data.
- Whole ore amalgamation: 6 countries reported yes, 10 reported no, 6 reported no data.
ASGM workforce

Percentage of women involved in the sector

- **Guinea**: 65% of women involved in the sector - highest reported value
- **Congo**: 5% of women involved in the sector - lowest reported value

© 2022 Mapbox © OpenStreetMap
ASGM workforce

**Productivity** - Grams of gold produced per year per miner

- Ecuador
- Lao PDR
- Burundi
- Uganda
- Central African
- Zimbabwe
- Mongolia
- Guinea
- Senegal
- Burkina Faso
- Nigeria
- Mali
- DRC
- Sierra Leone
- Madagascar
- Congo

**Madagascar**

In contrast, the average amount of gold per artisanal miner in Madagascar per year is **22 grams**, suggesting, among other factors, a relatively lower level of mechanization and dependency of the rudimentary methods during gold extraction and processing.

**Ecuador**

An average amount of gold being produced by artisanal and small-scale gold miner in Ecuador per year is **1.5 kg**, suggesting, among other factors, a relatively higher level of mechanization in the gold extraction and processing.
NAP mercury reduction targets

2021: Baseline - 280.8 tonnes of mercury

By 2025:
- 44% - 123.5 tonnes of mercury programmed to be reduced

By 2030:
- 81% - 229 tons of mercury - is committed to be eliminated
Thank you for your attention!

For more information about NAP data mining visit:
Exploratory tool with NAP data

Or contact:

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Imelda Dossou Etui
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Translating data into policy for ASGM – case study from Nigeria NAP project
Olubunmi Olusanya
Federal Ministry of Environment of Nigeria
TRANSLATING DATA INTO POLICY FOR ASGM – CASE STUDY FROM NIGERIA NAP PROJECT

PRESENTED AT THE

UNEP/UNIDO SIDE EVENT ON MINING DATA FROM NATIONAL ACTION PLANS FOR ARTISANAL AND SMALL-SCALE GOLD MINING

BY
MR. OLUBUNMI OLUSANYA
DEPARTMENT OF POLLUTION CONTROL AND ENVIRONMENTAL HEALTH
FEDERAL MINISTRY OF ENVIRONMENT, NIGERIA
The National Action Plan (NAP) on the use of mercury in the Nigerian Artisanal and Small-scale Gold Mining (ASGM) sector was approved by the Global Environment Facility (GEF) in 2016 and implemented by the United Nations Industrial Development Organisation (UNIDO). The project was jointly executed by the Federal Ministry of Environment (FMEnv), Ministry of Mines and Steel Development (MMSD) and Federal Ministry of Health (FMoH), supported by World Health Organisation (WHO) through a multi-stakeholder National Steering Group (NSG).

The NAP Report was developed in line with the requirements of annex C of the Minamata Convention on Mercury.
NATIONAL ASGM BASELINE DATA GATHERING PROCESS

THE EXECUTING AGENCIES
Engaged consultants

CONSULTANTS IN COLLABORATION WITH EXECUTING AGENCIES
- Set survey timeline
- Determined data collection methods
- Prepared questionnaire
- Identified enumerators and target audience
- Developed training materials for enumerators

DATA REVIEW PROCESS
Data were reviewed and validated by National Stakeholders
NAP developed and validated by National Stakeholders
NAP published and Lunched by policy makers

FIELD ACTIVITIES
Enumerators were trained on data collection methods
Data were collected and submitted for review
Data was collected to provide information on the following areas:

- GEOGRAPHICAL DISTRIBUTION OF ASGM

- GOLD MINING AND PROCESSING INFORMATION
  i. Annual Gold Production and value.
  ii. Quantities of mercury used and practices employed in the sector.
  iii. Health impact of mercury use in ASGM.
  iv. Baseline consumption of mercury and other harmful chemicals, including cyanide.
  v. Workforce and active working days.
  vi. Gender distribution.
  vii. Available and economically feasible techniques and technologies to replace the use of mercury.

- ENVIRONMENTAL IMPACTS OF ASGM ACTIVITIES

- HEALTH RISKS/ACCESS TO PUBLIC HEALTH FACILITIES

DATA COLLECTION METHODS:
- Interviews, Questionnaires and surveys, Observations, Desktop reviews and Focus groups discussion.
Data was validated with appropriate recommendations to address gaps.

Data and recommendations were disseminated to Policy makers / Technical Working Group through a technical brief.

Policy makers after due diligence and, in close consultation with relevant stakeholders formulate policies and initiatives as appropriate.

Policies and initiatives e.g. of initiatives is the GEF Planet Gold + project “Enhancing Formalisation and Mercury-Free Gold in Nigeria”.

Collaboration with development partners e.g. regularly planning meetings with UNIDO Regional Office.
### Case study 1 - ASGM gold production

#### Data on Official Reported and Study Estimates of Gold Production Per State

<table>
<thead>
<tr>
<th>S No.</th>
<th>State</th>
<th>2018 Official Reported Gold Production (kg)</th>
<th>Estimated Gold Production (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Niger</td>
<td>5.43</td>
<td>2,297.18</td>
</tr>
<tr>
<td>2</td>
<td>Zamfara</td>
<td>15.84</td>
<td>8,608.12</td>
</tr>
<tr>
<td>3</td>
<td>Osun</td>
<td>39.11</td>
<td>1,922.53</td>
</tr>
<tr>
<td>4</td>
<td>Kaduna</td>
<td>0.00</td>
<td>2,476.09</td>
</tr>
<tr>
<td>5</td>
<td>Kwara</td>
<td>0.00</td>
<td>355.66</td>
</tr>
<tr>
<td>6</td>
<td>Nasarawa</td>
<td>0.30</td>
<td>484.22</td>
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<tr>
<td>7</td>
<td>Kebbi</td>
<td>3.32</td>
<td>0.00</td>
</tr>
<tr>
<td>8</td>
<td>Kano</td>
<td>0.00</td>
<td>16,260.40</td>
</tr>
</tbody>
</table>

Clearly, the Federal Government of Nigeria is losing a lot of revenue from ASGM sector due to the high-level informality and illicit activities in the sector.

**POLICY RECOMMENDATION:**

- Comprehensive assessment to know why previous Government’s efforts to formalize and establish an effective gold buying center failed.
- Technical and financial support to miners to meet the licensing requirements and, once licensed, to continue to improve performance.
- Establish an effective legal, institutional and policy framework for the ASGM sector.
- Build the capacity of the regulatory institutions to improve the present poor regulations and formalization of the ASGM sector.
- Formalize the gold and mercury trade and supply chain (looking into international connections and cross border activities) to enable proper documentations of gold produced and mercury supplied and used per annum.
Pictures: ASGM gold production

Gold panning of river Sediments

Bottle for Measuring Mercury for Sale
Pictures: ASGM gold production

Gold-mercury amalgam

Open burning of Gold-mercury amalgam
### Case Study 2 - Mercury use

#### Annual Estimates of Mercury Use and Gold Production Per State.

<table>
<thead>
<tr>
<th>#</th>
<th>States</th>
<th>Annual Estimate of mercury used in ASGM sector (kg)</th>
<th>Annual Estimate of Gold produced in ASGM sector (kg)</th>
<th>Mercury / Gold Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Niger</td>
<td>2,797.12</td>
<td>2,297.18</td>
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<tr>
<td>2</td>
<td>Zamfara</td>
<td>8,782.24</td>
<td>8,608.12</td>
<td>1.0:1</td>
</tr>
<tr>
<td>3</td>
<td>Osun*</td>
<td>-</td>
<td>1,922.53</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Kaduna</td>
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<tr>
<td>6</td>
<td>Nasarawa</td>
<td>151.58</td>
<td>116.60</td>
<td>1.3:1</td>
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<tr>
<td>7</td>
<td>Kebbi</td>
<td>581.07</td>
<td>484.22</td>
<td>1.2:1</td>
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<tr>
<td>National Estimates</td>
<td>16,067.01</td>
<td>16,260.40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data gathered revealed that mercury is being used in all the gold mining States except Osun State.

**POLICY RECOMMENDATION:**

- Comprehensive assessment of ASGM activities in Osun State
- Build the capacity of ASGM sector for improved gold mining and sustainable gold ore processing techniques that are devoid of inappropriate use of mercury, which will lead to progressive reduction in the quantity of mercury use and eventual elimination of mercury use in the sector.
- Develop and propagate sustainable alternative technologies.
- Establish a sustainable sensitization programme effectively reaching out to miners on the hazard of mercury to human health and the environment /alternative livelihood and technology.
Case Study 3- Mercury Trade

Mercury Trade and Demand
Official data on mercury import into Nigeria specifically for use in ASGM sector is not readily available. However, informal and illicit movement of mercury from across neighboring West African countries into Nigeria on syndicated links is not uncommon. Mercury used in the Nigeria's ASGM sector comes mostly from neighboring West African countries.

Findings from the field indicated that occasional illicit supplies come from other sectors such as health (hospitals) or power sectors to the ASGM operators.

POLICY RECOMMENDATION:
• Further studies to fully understand the trading mechanism and supply chain of mercury trade in Nigeria.

• Relevant agencies must work together to eliminate illegal trade in mercury within the ASGM sector.
## Case Study 4 - ASGM workforce

### Estimates of Numbers of ASGM Workers in Nigeria

<table>
<thead>
<tr>
<th>S No.</th>
<th>State</th>
<th>No. of Miners directly Involved in ASGM</th>
<th>No. of Miners indirectly Involved in ASGM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Niger</td>
<td>58,429</td>
<td>292,145</td>
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<td>2</td>
<td>Zamfara</td>
<td>133,492</td>
<td>665,780</td>
</tr>
<tr>
<td>3</td>
<td>Osun</td>
<td>20,557</td>
<td>102,745</td>
</tr>
<tr>
<td>4</td>
<td>Kaduna</td>
<td>33,803</td>
<td>169,015</td>
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<tr>
<td>5</td>
<td>Kwara</td>
<td>2,281</td>
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<tr>
<td>6</td>
<td>Nasarawa</td>
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<td>12,750</td>
</tr>
<tr>
<td>7</td>
<td>Kebbi</td>
<td>7,600</td>
<td>38,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>259012</td>
<td>1,291,840</td>
</tr>
</tbody>
</table>

Though difficult to provide the exact number of miners engaged directly or indirectly in ASGM activities in Nigeria, it is estimated that over 260,000 miners are directly involved in ASGM in Nigeria. Child labour is also predominant in most of the communities, because most don’t have basic educational facilities and where they exist, it is either in deplorable conditions or kilometers away.

### POLICY RECOMMENDATION

--Periodic creation of awareness on the harmful effect of mercury on human health (especially the vulnerable groups) and the environment.

- Consider reviewing the mining laws and regulations to deter children’s participation in ASGM activities.
- Improve accessibility to quality education in ASGM communities.
- Empower the women populations in alternative means of livelihoods to divert them from engaging in ASGM activities.
## Case Study 5 - Environmental impacts

<table>
<thead>
<tr>
<th>Leading themes</th>
<th>Specific issues</th>
</tr>
</thead>
</table>
| Environmental degradation | No environmental control of mining activities.  
                          ▪ Degradation of land due to mining activities.  
                          ▪ Abandonment of land (no reclamation) after mining activities leading to erosion and flooding.  
                          ▪ Deforestation and Destruction of farm land, Collapsing terrain , etc.                                                                 |
| Use of mercury     | The use of mercury, open burning of amalgam and indiscriminate disposal of mercury waste.                                                         |
| Contamination of soil | Contamination of soil with toxic chemicals.                                                                                                    |
| Contamination of water | Contamination of water bodies use for drinking, washing and irrigation with toxic chemicals (heavy metals).                                    |
| Contamination of air | Contamination of air through burning of mercury amalgam.                                                                                       |

### POLICY RECOMMENDATION:

- Strengthen national environmental monitoring and enforcement programme.

- Develop training module and train ASGM operators on new techniques that reduced or eliminate mercury use in gold processing.

- Develop guidelines for the management of heavy metals contaminated sites.

- Identify and conduct environmental assessment of ASGM sites degraded and contaminated with mercury containing tailings and proffer appropriate remediation solutions.

- Continuous sensitization of miners and communities in local language on the Environment, Occupational Safety and Health impacts of their activities.
### Case Study 6 - Health risks

<table>
<thead>
<tr>
<th>Leading themes</th>
<th>Specific issues</th>
<th>POLICY RECOMMENDATION:</th>
</tr>
</thead>
</table>
| Occupational hazards | ▪ Falling in pits by humans (including children) and animals  
▪ Collapsing pits, Land slides  
▪ Inhalation of dust (leading to pneumonia, silicosis)  
▪ Accidents and injuries  
▪ Carbon monoxide intoxication from water pump machine in pit  
▪ Excessive work and exhaustion, Extreme heat and cold, Vibration, Falling stones |  - Comprehensive assessment of mercury exposure through health data gathering in the ASGM communities.  
- Provide health promotion services in ASGM communities.  
- Provide technical assistance to health care facilities in ASGM communities to develop treatment protocols. |
| Vector-related hazards, animals |  ▪ Malaria, Mining created stagnant waterbodies that become breeding sites for mosquitoes  
▪ Spread of Lassa fever | |
| Chemical hazards |  ▪ Mercury exposure: inhalation and direct contact  
▪ Cyanide exposure  
▪ Lead exposure | |
| Community exposures |  ▪ Same instruments used to mine and process food. Tailings are used for building houses  
▪ Children eat from hand to mouth while soil is contaminated with mercury  
▪ Drinking water is polluted with heavy metals  
▪ People are bothered about the noise from milling machines | |
| Health effects |  ▪ Symptoms of swollen legs when they stand in the waters/ponds up until the knees (pedal oedema), Swollen face, Eyeball changes  
▪ Carbon monoxide poisonings  
▪ Injuries: puncture injury in legs, cuts in feet, rocks falling on heads  
▪ Drug abuse: leading to overdosing, accidents  
▪ Sexually transmitted infections  
▪ Headaches, Dizziness, Body pains, Stiffness, Stomach pains, Malaria, Mental disorders, Pneumonia, Fingernails falling off | |
Nigeria’s GOLD+ under the planetGOLD Initiative

“ENHANCING FORMALIZATION AND MERCURY-FREE GOLD IN NIGERIA”
THE NIGERIA’S GEF GOLD+: ENHANCING FORMALIZATION AND MERCURY-FREE GOLD

• Subsequent to the development of the NAP and in order to achieve the desired Policy changes early, the Federal Government of Nigeria collaborated with UNIDO to develop the GEF GOLD+ project. The project is structured to enhancing:

• Formalisation in the ASGM sector.

• Access to finance through financial inclusion and responsible supply chains.

• Uptake of mercury-free technologies.

• Knowledge sharing, communication and local capacity building.
APPRECIATION

• The Federal Government of Nigeria use this medium to express her appreciation to the GEF, UNEP and UNIDO for their unwavering technical and financial support.
THANK YOU FOR YOUR ATTENTION
Questions and Answers
Moderated by Jerome Stucki
UNIDO