Minamata Initial Assessment
Experiencia de Guyana

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Outline

- What is Minamata Initial Assessment (MIA) project?
- Elaboration of MIA
- Main Findings
- Challenges
- Best Practices
- Way Forward

Minamata Initial Assessment project

Background

- The Government of Guyana (GoG) signed the Minamata Convention on 10 October, 2013.
- The GoG ratified on 24 September, 2014.
- GoG proposed a phase-out approach which would lead to the eventual ban of mercury in Guyana by 2022.

Objective, Components

- The **Project objective** is to undertake a MIA to enable the GoG to determine the national requirements and needs for the implementation of the Minamata Convention.
- Two components:
  - Enabling environment for decision-making on the implementation of the Minamata Convention.
  - Development of the National Mercury Profile and Mercury Initial Assessment Report.

Elaboration of MIA

Component 1: Enabling environment for decision-making on the implementation of the Minamata Convention.

- Establishment of Mercury Coordination Mechanism (MCM)
- Policy and Regulatory Framework Review
- Communication Strategy

Component 2: Development of the National Mercury Profile and Mercury Initial Assessment Report.

- Inventory – trainings, data collection
- Development of National Mercury Profile and MIA report

MCM Members

- **Ministry of Natural Resources (MNR) – Implementing Partner**
- Ministry of Public Health (MoPH)
- Ministry of Social Protection
- **Guyana Geology and Mines Commission (GGMC)**
- Pesticides and Toxic Chemicals Control Board (PTCCB)
- Guyana Revenue Authority (GRA)
- **Environmental Protection Agency (EPA)**
- Guyana Gold & Diamond Miners Association (GGDMA)
- Guyana Women Miners Organisation (GWMO)
- National Toshaos' Council (NTC)
- World Wildlife Fund - Guiana (WWF)
- United Nations Development Programme (UNDP)
- Ministry of Finance (MoF)

Inventory

- Training was conducted for:
  - 58 Technical officers from key stakeholder agencies, incl. Guyana Gold and Diamond Miners Association, G. Women's Miner's Organization, on the preliminary inventory and use of UNEP toolkit.
  - Practical training was also done for GGMC and EPA during the field visits.
  - MCM members aiming to enhance knowledge and understanding of conducting the inventory to review the report.

Inventory

- Data collection
  - Interviews with key stakeholders, including GGDMA, GWMO, dentists and hospitals.
  - Field visits to Mining Districts, interviewed miners, communities, shop owners, and gold smiths.
  - UNEP Toolkit Level I was used as reference for the Mercury inventory.
  - Toolkit Spreadsheet was used.
  - Inventory and National Mercury Profile were produced.

Knowledge Attitudes and Practices (KAP) study

- KAP study was conducted:
  - across 6 mining districts
  - Interviews with 200 miners (small and artisanal)
  - focus group sessions at 6 communities.
- To assess the level of understanding and awareness of the use and effects of mercury by miners and surrounding communities in the gold mining sector.
- Developed an evidence based communication strategy based on the findings and recommendations.

MIA Report

- Consolidated all output documents into one document.
- Draft MIA report was reviewed at:
  - Stakeholder workshop with technical officers from various institutes, SC groups and miners.
  - Workshop with MCM members.

Main Findings

Total amount of mercury imported

- Average import 2010 -2014

  80,668 kg/year

- 60,000kg of mercury imported into Guyana in 2015.
- 27,765.2kg of mercury was produced as a result of gold mining in 2015 (and in lesser extent, fuel, biomass and energy combustion).

Largest contributions to mercury inputs

Emission and releases of mercury from anthropogenic sources in Guyana

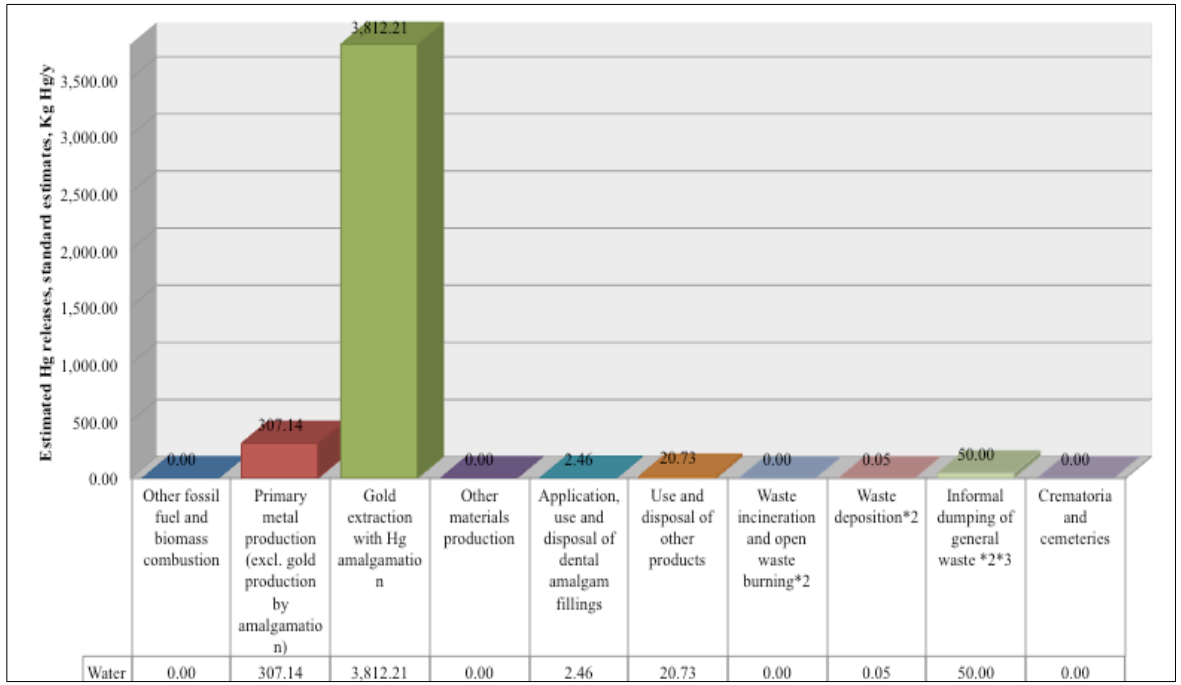
Estimated Hg releases, standard estimates, Kg Hg/y

Source category	Estimated Hg input, Kg Hg/y	Air	Water	Land	By-products and impurities	General waste	Sector specific waste treatment /disposal	Total releases *3*4*5	Percent of total releases *3*4
1. Other fossil fuel and biomass combustion	41.60	41.60	0.00	0.00	0.00	0.00	0.00	41.60	0.1%
2. Primary metal production (excl. gold production by amalgamation)	15,356.90	614.28	307.14	13,821.21	614.28	0.00	0.00	15,356.90	53.3%
3. Gold extraction with Hg amalgamation	11,777.15	4,570.05	3,812.21	3,394.89	0.00	0.00	0.00	11,777.15	40.9%
4. Other materials production	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.08	0.0%
5. Application, use and disposal of dental amalgam fillings	7.42	0.15	2.46	0.36	0.27	1.25	1.25	5.73	0.0%
6. Use and disposal of other products	1,498.60	370.66	20.73	379.11	0.00	717.85	10.25	1,498.60	5.2%
7. Waste incineration and open waste burning*2	1.20	1.08	0.00	0.00	0.00	0.00	0.12	1.20	0.0%
8. Waste deposition*2	500.00	5.00	0.05	0.00	-	-	-	5.05	0.0%
9. Informal dumping of general waste *2*3	500.00	50.00	50.00	400.00	-	-	-	100.00	0.3%
10. Crematoria and cemeteries	7.17	2.23	0.00	4.94	0.00	0.00	0.00	7.17	0.0%
TOTALS (rounded) *1*2*3*4*5	28,790.00	5,660.00	4,190.00	17,600.00	610.00	720.00	10.00	28,790.00	100.0%

Source: National Mercury Profile 2016

- Presently mercury emission and releases are predominantly linked to the gold mining (94.2%).
- Use and disposal of other products came second (5.2%).
  - Batteries with mercury (1,325 kg/y)
  - Controlled landfills/deposits (500 kg Hg/y)
  - Informal dumping of general waste (500 kg Hg/y)

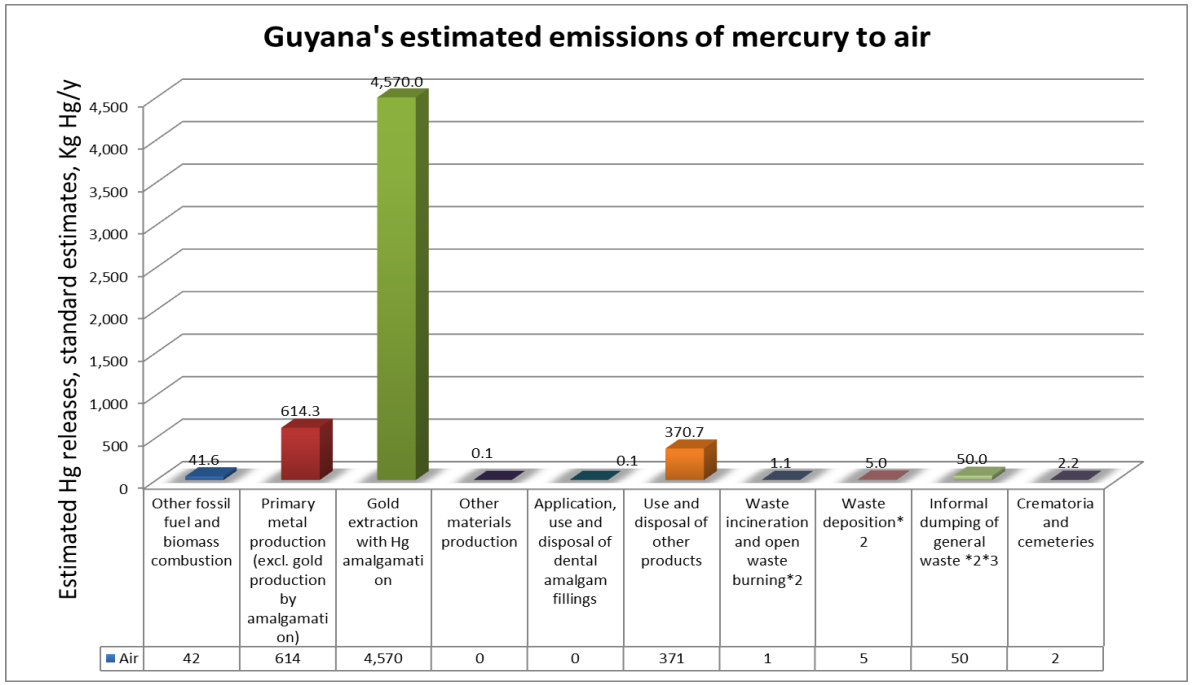
Total estimated mercury releases to Water



Source: National Mercury Profile 2016

Gold mining with amalgamation process is responsible for the largest releases, with 3,812.2 kg Hg/year, equivalent to 91.0% of total releases to water.

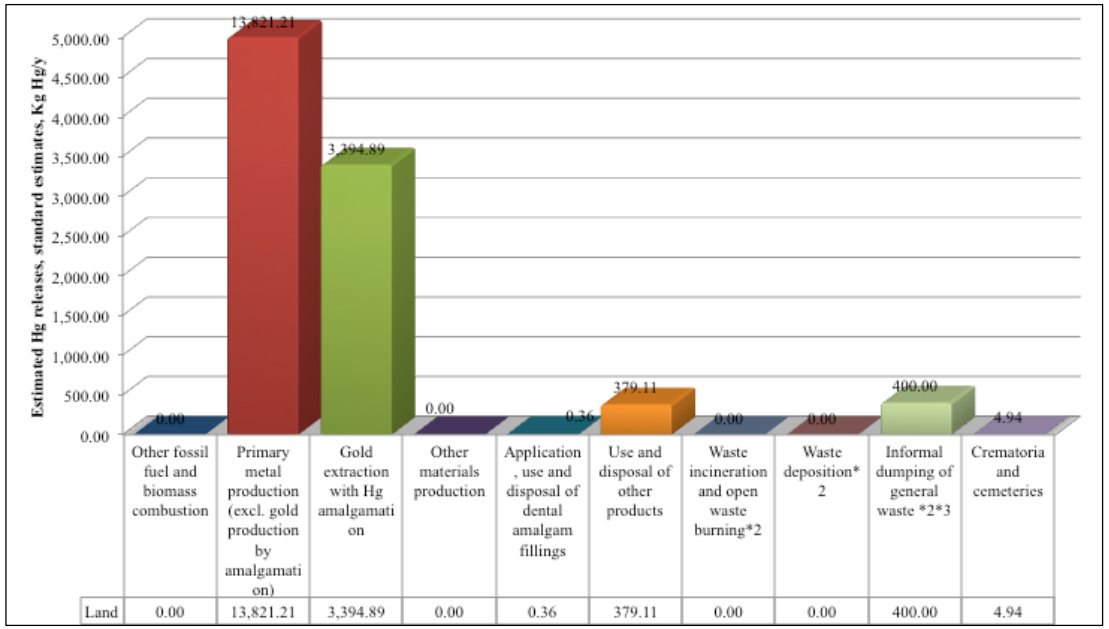
Total estimated mercury emissions to Air



Source: National Mercury Profile 2016

The emission from Gold mining with amalgamation process is almost eight times higher (7.4) than emissions from gold mining with other methods excluding amalgamation (large-scale mining).

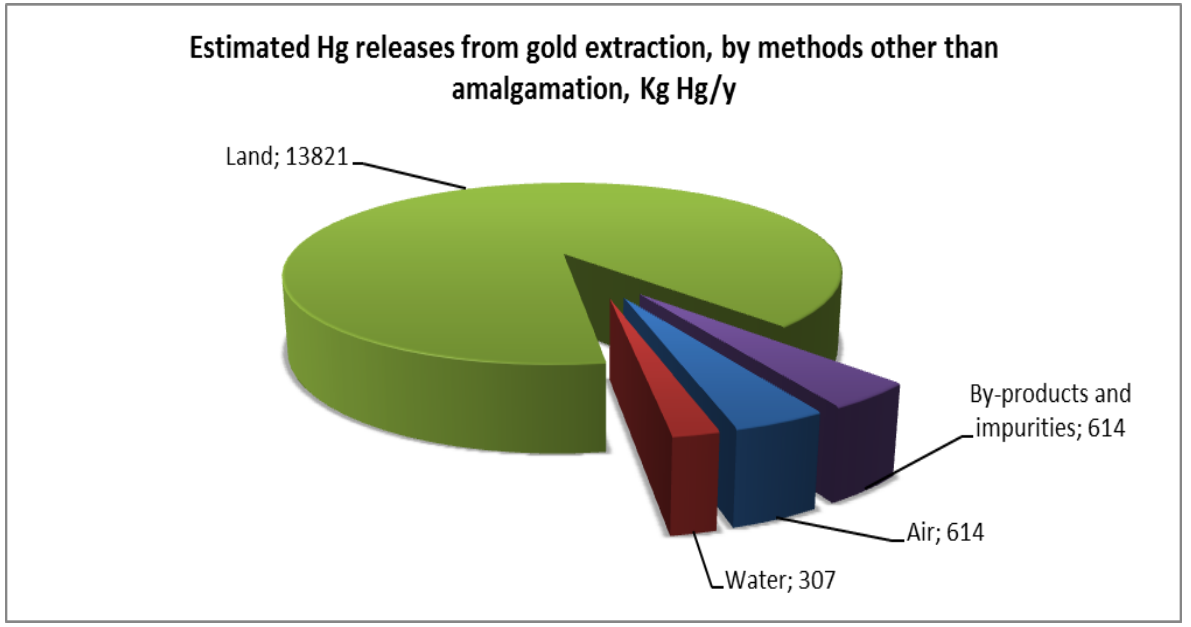
Total estimated mercury releases to Land



Source: National Mercury Profile 2016

The main contributor to mercury releases to land corresponds to gold extraction with and without mercury amalgamation (19% and 77% respectively).

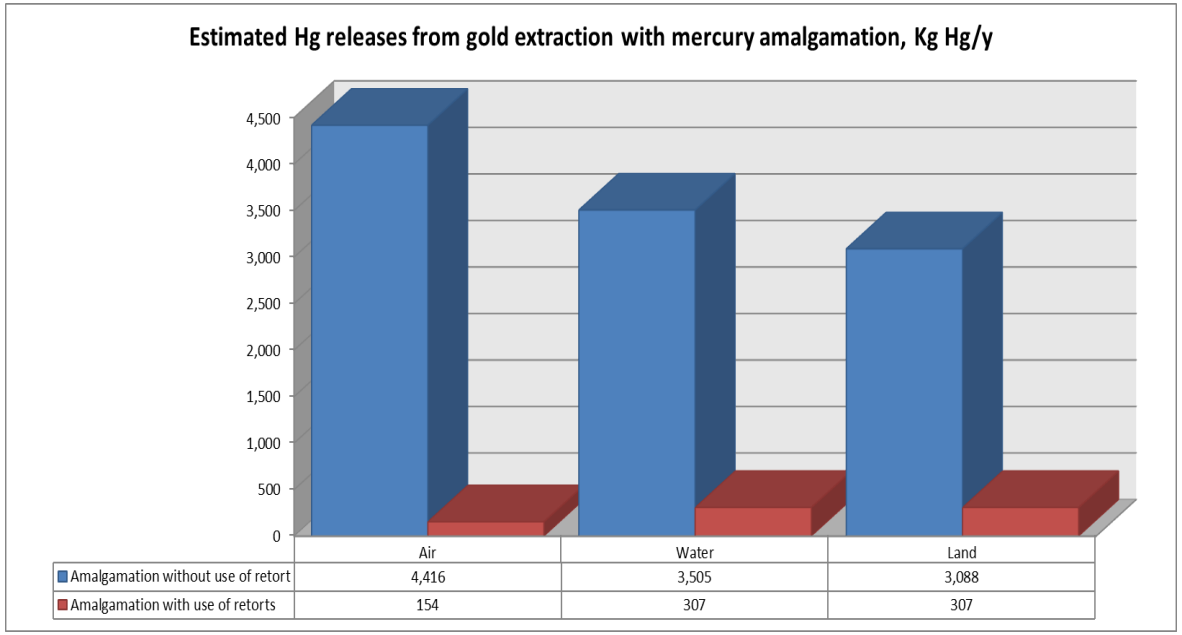
Total estimated mercury emissions and releases from Large scale gold mining



Source: National Mercury Profile 2016

The bulk of the inputs and releases are associated with the extraction of very large volumes of mercury-containing ore, which is processed to remove the gold, and then 90% of it is returned to the land.

Estimated emissions of mercury from gold mining, with and without the use of report



Source: National Mercury Profile 2016

- The use of retort significantly reduces Hg emissions to air.
- Atmospheric emissions 28 times higher without using retorts.
- The releases without using retorts are 10 times higher to land and water.

Policy and Regulatory Framework

- The current legal framework provides a foundation for Convention implementation.
- There are no specific barriers to implementation. However, mercury and mercury compounds are not explicitly addressed in many areas directly covered by the Convention.

- To improve enforcement capacity, modification to relevant legislative instruments is necessary to include mercury with standard guidelines.
  - e.g. EPA Environmental Protection (Water Quality) Regulation 2000 & Environmental Protection (Air Quality) Regulation 2000 to mainstream mercury as a target compounds under these legislations.

Institutional gaps and constraints

Regulatory body

- GGMC - 7 environmental officers
- EPA - regulatory body, only focusing on large scale mining practices, monitoring capacity
- Inventory

Data

- National B. of statistics – specification of imported mercury contain materials

Importation

- No formal MOU
- GGMC “no objection letter”
- PTCCB granting permits

Transboundary issues

- Suriname – total ban of Hg importation
- French Guiana – more restrict measures in place for importation

Populations at Risk

- Artisanal and Small-scale gold miners, incl. youth and children, and their families
- Surrounding indigenous communities
- Shop owners in mining districts
- Gold smiths and jewelers
- Waste workers and waste pickers
- Dentists and assistants

KAP study - Feature Film

Communication strategy

Awareness raising and communication to population at risks

- Evidence based – environment and health risk assessments
- Targeting population at risk e.g. ASGM sector
  - Workshops/campaigns in mining districts (e.g. landings, communities)
  - Educational TV commercials, Videos (e.g. mining camps)

Drivers to change attitudes and practices

- Availability of alternatives - viable Mercury free technology
- Technological advance (e.g. Recovery rate 30% to 80-90%)
- Incentives – e.g. Mercury free fund
- Understanding and evidence that these measures secure livelihoods

Priorities for Guyana

In Guyana, it is clear from the inventory that the primary focus needs to be on the gold mining industry as ASGM especially is the main driver behind mercury importation and use.

1st Priority

- **Article Nº7.** Artisanal and small-scale gold mining.

2nd Priority

Article Nº8. Emissions.

- **Article Nº9.** Releases.

3rd Priority

- ***Article Nº3.*** *Mercury supply sources and trade.*

4th Priority

- **Article Nº10.** Environmentally sound interim storage of mercury, other than waste mercury.

Priority Actions

- **Restriction to mercury Importation**
  - Initial reduction of imported mercury
  - More restricted requirement at GGMC and PTCCB level in issuing permits
- **Formalization of artisanal miners**
  - Develop a register of artisanal miners
  - Conduct baseline, including socio-economic survey and occupational exposure monitoring
- **Contaminated sites**
  - Include in the National Action Plan a systematic approach to address contaminated sites
  - Conduct health risk assessment targeting populations in the vicinity of where ASGM takes place.
  - Conduct low budget mercury field assessment using “passive sampler devices” to identify mercury hotspots
- **Regulatory enhancement**
  - Improve enforcement capacity through modification of some of the legislative instruments in order to include mercury with standard guidelines.
- **Institutional enhancement**
  - Strengthen institutional capacity development, with special focus on human resources (e.g. incentives, capacity building);
  - Clarify and/or re-define functions through the MoU mechanism;
  - Establish inter-agency agreement prior to the development of new mandates.
  - Support and development of new and/or complementary local technical capacities, specially related to waste management (municipal, industrial and hazardous wastes).
- **Use of mercury**

Challenges

Data credibility and sensitivity

Challenges

- Activity rate
  - official data
- Input estimate
  - based on import statistics and estimation
- Output estimate
  - output distribution factors were the toolkit default factors
- “Punters” and “pork knockers” – Unregulated

Our approach

- Worked with stakeholders to estimate inputs.
- Proposed estimates of the mercury use by unregulated artisanal miners based on field visits and consultation with GGMC field officers.
- Consulted the acceptable and realistic estimates.

Perception – “Artisanal miners do not exist in the gold mining sector”

Challenges

- Mining Act - by definition artisanal miners are defined as small scale miners.
- Lack of field knowledge and reality.
- Selective ignorance due to the challenges in regulating artisanal mining.

Our Approach

- Slowly introduced the idea of pork-knockers and punters with facts and data.
- Field visits.
- Presented a feature film.
- Perception has notably changed by the end of the project.

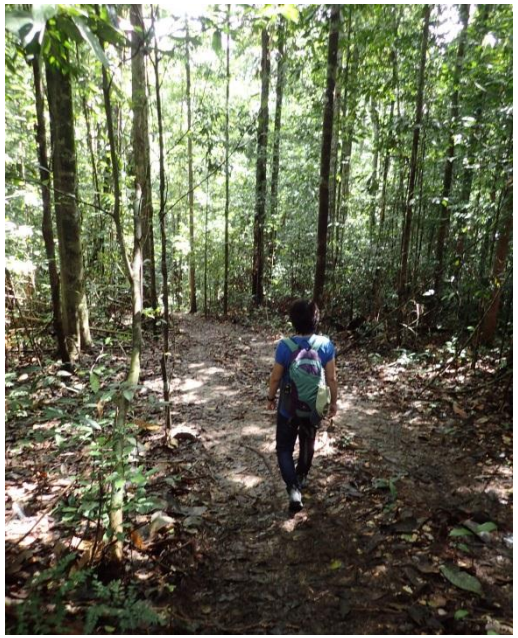
Lack of capacity

Challenges

- A small niche of expertise in the area of mercury exists in Guyana.

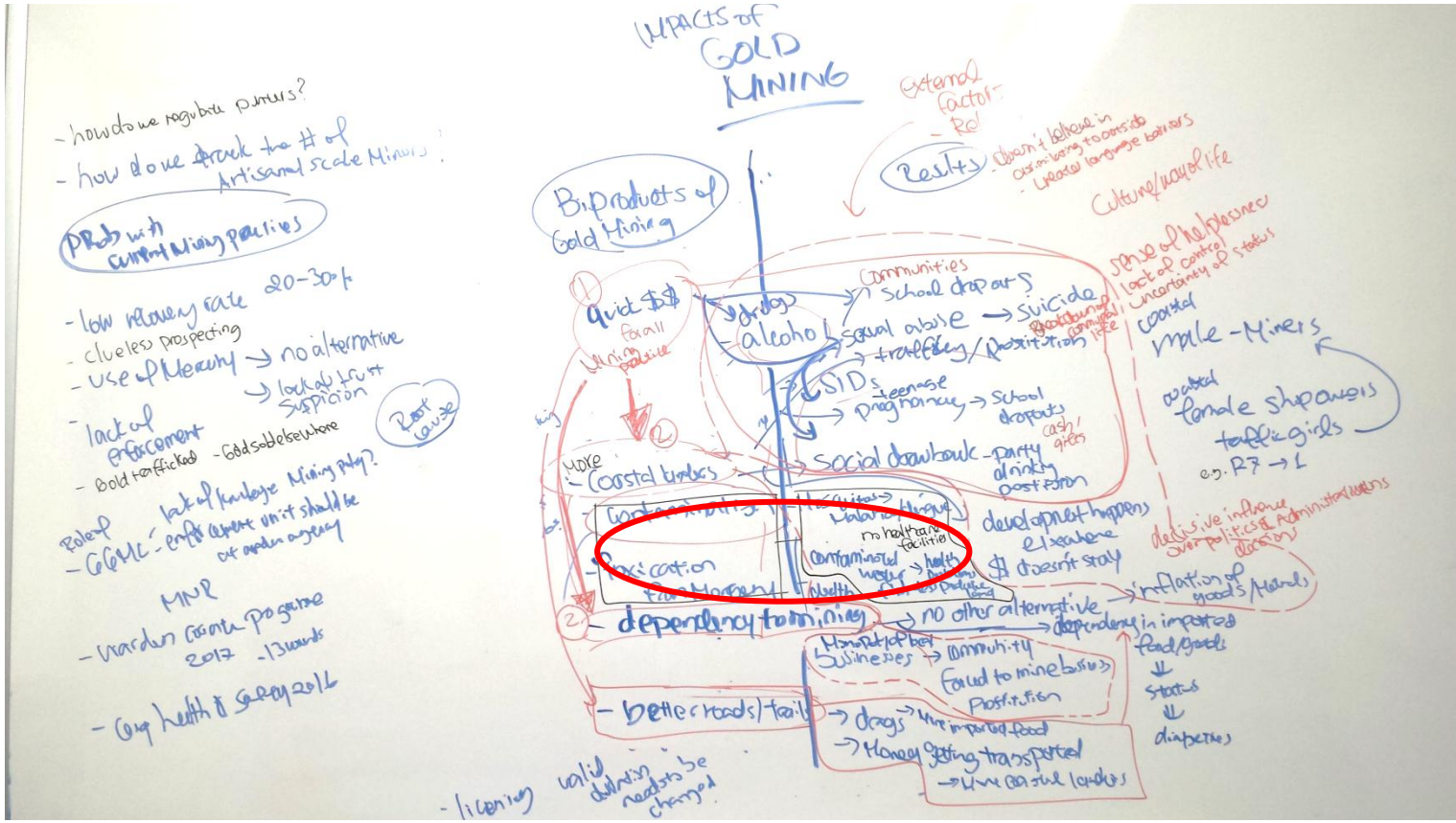
Our Approach

- Our role as IP and UNDP to ensure quality assurance was very crucial to quality outputs.



Political and Economical sensitivity of mercury associated with gold mining industry

- The industry alone contributes 12.5% of Guyana's Gross Domestic Product.
- Quick money for all – coast landers and indigenous communities
- Indigenous communities dependency on gold mining



Best Practices

Best Practices

- **Data collection** – handling of sensitive data

- **KAP study** – in developing an evidence based communication strategy, a KAP study was conducted to align the strategy with the needs and recommendations from the study.

- **Feature film** - a feature film was produced based on the findings from the KAP study.

Way forward

In implementing the Minamata Convention

On-going & new initiatives/projects

- National Action Plan (NAP) was drafted by WWF and GGMC in 2015.
- Health risk assessment for awareness raising in Region 9 – WWF
- Mercury reduction in small-scale gold mining operations– UNDP, (GEF 6)
- Greening the gold mining supply chain – CI, GEF 6

MIA

- MIA provides the findings and baseline data.
- Recommendations to NAP from National Mercury Profile (NMP) can be used as reference and an entry point.
- Environmental and health risk assessment suggested in NMP will be references.
- The research methods used in KAP study can be used as a reference.
- Evidence based communication strategy can be used to advocate for awareness raising.

Thank you

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Questions?