Efforts to reduce mercury emissions from Artisanal and Small Scale Gold Mining
Mercury amalgamation is an ancient technique but still used by artisanal gold miners.

Main reasons why Hg is widely used in the sector:

1. easy to use
2. cheap
3. very accessible
4. miners are not aware of the risks
Causes of poor practices

- Disorganisation & Transience
- No technical assistance
- Lack of education
- Inadequate Regulations
- Financial Barriers
- Lack of Support from Mainstreams of Society
- POVERTY
Amalgamation of the Whole Ore

Huge Hg losses, large environmental problem

and/or

Cyanidation of Hg-contaminated tailings

Hg° vapor

Hg° CH₃Hg in fish

Burning Amalgams in Pans

Hg° vapor

lungs

Health problem for miners, family and neighbors

Source: UNIDO GMP
Solutions being introduced

Reduction of Hg Use and Emissions

- Avoid bad practices and Hg exposure

Replacement for Amalgamation

- Use other process (e.g. Cyanidation)

Short-term

Long-term
Ore Processing
Bad Practices

Whole ore amalgamation
Ore Processing
Bad Practices
Copper plate amalgamation
Ore Processing
More efficient and better practices

Concentration of the ore
Ore Processing

More efficient and better practices

Controlled amalgamation
Amalgam burning
Bad Practices

Open air retorting
Amalgam burning
Good practices
Locally made retorts
Gold shop refining
Good practices

US EPA fume hood for gold shops
Solutions being introduced

Reduction of Hg Use and Emissions

Avoid bad practices and Hg exposure

Replacement for Amalgamation

Use other process (e.g. Cyanidation)

Short-term

Long-term

Use other process (e.g. Cyanidation)
Gravimetric separation
Classic Cyanidation
Improved cyanidation
Training local Trainers
Awareness Campaign Focused on Groups at Risk
Past projects and interventions

- Increased international awareness about the issue
- BUT limited in size and scope and uncoordinated

New Development

- UNEP Global Mercury Partnership area on Artisanal and Small-scale Gold mining
- All the key players are now communicating, collaborating and developing project together
Francophone Africa
Background

- Follow up of a workshop organized by UNIDO in 2009
- Burkina Faso, Mali and Senegal are participating
- Approved in late 2011
- AGC, ARM and UNIDO are the main international partners
- GEF Budget: $990,000
- Co-financing: $2,240,000
Francophone Africa Components

- Inventory of ASGM sites
- Development of a National Strategic Action Plan
- Raise awareness through health campaigns
- Transfer of technologies eliminating mercury emissions and reducing mercury use
- Facilitate market access through the introduction of the Fairtrade – Fairmined standard
Ecuador-Peru
Background

- Building upon a US DoS project with UBC in Peru
- Approved early 2012
- Multifocal project (IW – Chemicals)
- GEF Budget: $999,900
- Co-financing: $12,382,500 from National Governments, U.S. Department of State and UNIDO
Ecuador-Peru
Components

- Design of mercury releases minimization, gold recovery and income enhancement strategies
- Implement Mercury Releases Minimization Strategies in the Puyango-Tumbes River basins
- Promote Fairtrade and Fairmined standards for gold
- Implement Communication, Dissemination and Replication (CDR) Strategies at the national and regional levels
Philippines
Background

- Building upon UNEP and Ban Toxics previous work with SAICM
- GEF Budget: $550,000
- Co-financing: $1,081,070 from Dialogos, US DoS, National Government, UNIDO and Ban Toxics
Establishment of a semi-public ASGM agency
Promotion and replication of mercury-free gold extraction techniques
Dissemination of results
Thank you

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