



# Global Mercury Project



## 2006 STRATEGIC PLAN ON POLICY AND GOVERNANCE



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**Removal of Barriers to the Introduction of Cleaner Technologies of  
Artisanal and Small-Scale Gold Mining and Extraction**

**Project Code: EG/GLO/01/G34**

## **STRATEGIC PLAN ON POLICY AND GOVERNANCE**

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**February 2006**



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## **I. INTRODUCTION**

**1.** The 2006 Strategic Plan on Policy and Governance presents a framework for action to promote the strengthening of policy and governance on issues of environmental management, capacity-building and technology transfer in the artisanal and small-scale gold mining (ASM) sector, with particular focus on the minimization of mercury pollution. This framework builds on initiatives previously carried out by the Global Mercury Project (GMP) and objectives identified through global, regional and national task force meetings and stakeholder consultation processes. The Strategic Plan takes into account existing regional plans, strategies, and ongoing activities. The Strategic Plan is composed of a strategic text, Activities Key, Table of Main Issues Considered, and Activity Profile comprised of initiatives, plans and selected highlights of accomplishments to date.

**2.** The GMP, supported by the Global Environment Facility (GEF), the United Nations Development Program (UNDP), and the United Nations Industrial Development Organization (UNIDO), is a joint initiative with governments to demonstrate ways of overcoming barriers to the adoption of best practices in ASM, waste minimization strategies, and pollution prevention measures that limit contamination of international waters. Working with authorities and public and private sector organizations, the GMP provides assistance in the development of policy, technology support, and capacity-building, at institutional levels and directly in ASM communities. Currently in its pilot project phase, GMP activities are focused in six countries – Zimbabwe, Tanzania, Sudan, Brazil, Indonesia and Laos. The Strategic Plan on Policy and Governance complements the strategies of the GMP Education and Awareness Campaigns and Technology Demonstration Units, which are described in other reports. Selected recent accomplishments of the GMP Policy and Governance Program are highlighted in the 2006 Strategic Plan to illustrate lessons learned and directions being taken; a comprehensive progress report shall be produced later in 2006 with full results since the inception of the GMP.

**3.** The world-wide reduction of mercury use and pollution in mining, as called for by the Global Mercury Project, requires action at all levels of society: training; information; communication; methodological tools; capacity building with financial support; transfer of know-how; knowledge of sound and proven cleaner technologies; as well as policy development, law, and regulation. In more than 50 developing countries, there are as many as 15 million artisanal and small-scale miners who use mercury extensively in gold extraction and processing. As many as 100 million people may be intoxicated by mercury from ASM, which is the single largest industrial source of mercury releases into the environment. The urgency of the situation has called for reinforced global efforts to address hazards at their source, by removing barriers to the introduction of cleaner technologies, and by



strengthening policy and institutional measures that will support positive and sustainable change. Building on the knowledge from the GMP Environmental, Health, Sociological, Socio-Economic and Legal Studies, the GMP has been executing targeted initiatives assisting participating governments, on issues ranging from national legislation and institutional capacity to community training, with lessons applied to projects with Governments in other countries as well. A key goal of the Strategic Plan is also to draw recommendations for future GEF/UNDP/UNIDO projects of a more global reach, for instance, in the promotion of the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM.

**4.** The effective involvement and coordination by all concerned stakeholders is seen as essential for achieving the aims of the Global Mercury Project. Governments, the driving force of the implementation programs and activities, are encouraged to seek the assistance of the Project Coordination Unit (PCU) and the Assistant Country Focal Points (ACFP) in any identified or related technical, strategic or policy matters. The mobilization of non-governmental organizations and existing ASM institutions is important to ensure the practical application of environmentally sound management. The PCU is responsible for establishing, maintaining and improving, as necessary, the policy framework required for the evaluation and monitoring of the progress with the Strategic Plan. All parties are encouraged to interact with the PCU on improving, revising, and adding to the Strategic Plan, particularly the twelve (12) activities described in section VII, and provide updated information on progress as well as challenges. The enhancement of information exchange and education at all levels is of paramount importance for achieving the aims of the GMP.

## **II. VISION**

**5.** Building on the achievements of the first three years of the Global Project Mercury, the Strategic Plan asserts a vision that the improvement of environmental management in artisanal and small-scale gold mining is accessible to all participating countries, emphasizing the minimization of mercury pollution and the strengthening of capacity-building.

## **III. AIMS**

**6.** The fundamental aims of the Strategic Plan are the removal of barriers to the improvement of environmental management in artisanal and small-scale gold mining, particularly the prevention and minimization of mercury use and pollution, the strengthening of policy, and the active promotion of the transfer and use of cleaner technologies.



## IV. STRATEGIES

7. A set of interrelated and mutually supportive strategies were developed to support the implementation of the GMP policy and governance activities described under Sections V, VI and VII below. These are:
- a) **To promote and support existing national and regional policy initiatives** on ASM issues, linked with efforts already in progress;
  - b) **To collaborate with existing institutions and programs** to develop and promote policies encouraging use of cleaner technology in ASM and the reduction of mercury use;
  - c) **To strengthen the capacity of governments to implement policy and sustain the capacity and technology** after GMP efforts have been completed;
  - d) **To tailor activities to individual countries based on a bottom-up needs - assessment process**; given the specific circumstances of the different countries concerned, each country should be encouraged to identify its own policy needs;
  - e) **To involve experts in designing communication tools** for creating awareness at the highest level of governments, and other institutions, to promote GMP goals;
  - f) **To engage and motivate selective partners to bring added value** to making progress in the short and long-term, **including public-private sector partnerships**;
  - g) **To undertake periodic review** of policy activities in relation to agreed indicators;
  - h) **To promote principles of transparency and accountability** in government initiatives and programs;
  - i) **To integrate gender-specific strategies**, as well as education and training for women, in formulating relevant policies, and to promote the participation of women in policy-related decision-making;
  - j) **To support the implementation of global and regional environmental conventions** and other legal instruments related to mercury reduction and related ASM issues;
  - k) **To promote and support South-South cooperation** related to ASM development issues and mercury reduction;
  - l) **To provide assistance for developing and facilitating compliance with multilateral initiatives and guidelines** aimed at reducing mercury; and
  - m) **To recognize the relationship between poverty and environmental stewardship**, including the implementation of poverty reduction strategy programs to support GMP objectives.



## V. ACTIVITIES KEY

<b>1. International Guidelines on Mercury Management</b>
Development of <i>GEF/UNDP/UNIDO International Guidelines on Mercury Management in Artisanal and Small-Scale Mining</i>
<b>2. National Legislation and Regulation on Mercury Management</b>
Assistance to Governments in the Development of National Policy, Legislation and Regulation on Mercury Management and Related Environmental Issues in ASM
<b>3. Promotion of Compliance</b>
Reinforcement of Government Capacity to Promote Compliance with Regulations in ASM Communities through Awareness-Raising, Monitoring and Enforcement Strategies
<b>4. Capacity-Building and Technology Transfer</b>
Strengthening of Multi-Sector Cooperation with Government Agencies and other Organizations in Support of Capacity-Building, Science, Technology, Training, Awareness and Mobilization of Resources to Facilitate and Assist in Fulfilling the Aims of the GMP
<b>5. National Mercury Trade</b>
Development of Knowledge and Tools for the Reinforcement of National Capacities to Track, Monitor and Regulate the Domestic Trade and Distribution of Mercury Used in ASM
<b>6. Transboundary Mercury Trade</b>
Assessment and Recommendations on the Transboundary Trade of Mercury with a View of Reinforcing Government Capacities for Regulating the Export and Import of Mercury Used in ASM
<b>7. National ASM Sector Policy</b>
Development of Recommendations to Governments on Policy to Enhance Organization, Coordination and Empowerment in the ASM Sector
<b>8. International and Regional Law and Policy</b>
Promotion of Standards and Guidelines on Mercury Management and Trade as well as ASM Development Issues in International and Regional Laws, Conventions and Agreements
<b>9. Micro-Credit Initiative</b>
Development of Pilot Programs Enabling ASM Communities to Access Credit and Finances to Support Technology Transfer
<b>10. ASM Cooperative Organization</b>
Development of Community Strategies to Encourage the Formation of ASM Cooperative Organizations and Programs for their Support
<b>11. Fair Trade Gold</b>
Development of Global Certification Criteria and Processes for Fair Trade Gold in ASM
<b>12. Global Partnerships for Development</b>
Strengthening and Expansion of Global Partnerships for Development - Joint Activities, Regional Network Capacity-Building, Global Awareness and Resource Mobilization



## VI. TABLE OF MAIN ISSUES CONSIDERED

Activities	Main Issues Considered
<p><b>1.</b> Development of <i>GEF/UNDP/UNIDO International Guidelines on Mercury Management in Artisanal and Small-Scale Mining</i></p>	<ul style="list-style-type: none"> <li>· Guidelines aimed at minimizing mercury use in ASM and reducing environmental and occupational hazards</li> <li>· Technical guidelines on mercury use; emission controls; recycling; and tailings management; exposure controls; location of use; storage; and disposal</li> <li>· Specific guidelines on the protection of water bodies</li> <li>· Guidelines on clean-up and rehabilitation</li> <li>· Recommendations for licensing mercury distribution and use</li> <li>· Recommendations for instituting mercury regulations in mining to phase out mercury use over short and long term</li> <li>· Recommendations on accountability and liability issues concerning mercury management practices (with specific consideration of the role of miners, millers, etc)</li> <li>· Recommendations on accountability and liability issues concerning public and occupational exposure and environmental contamination</li> <li>· Recommendations for developing community-based as well as national monitoring and enforcement</li> </ul>
<p><b>2.</b> Assistance to Governments in the Development of Policy, Legislation and Regulation on Mercury Management in ASM</p>	<ul style="list-style-type: none"> <li>· Classification level for mercury as a hazardous substance</li> <li>· Legal base for instituting mercury regulations in mining</li> <li>· Licensing of mercury amalgamation and distribution</li> <li>· Technical recommendations on mercury use; emission controls; recycling; and tailings management</li> <li>· Establishment of technical recommendations for exposure controls; location of use; storage; and disposal</li> <li>· Protection of water bodies from mercury and mining</li> <li>· Accountability and liability issues concerning mercury management practices (with specific consideration of the role of miners, millers, etc)</li> <li>· Accountability and liability issues concerning public and occupational exposure and environmental contamination</li> <li>· Recommendations on clean-up and rehabilitation</li> <li>· Community-based monitoring and enforcement</li> <li>· Clear accountability for miners, mine/land owners, etc</li> </ul>
<p><b>3.</b> Reinforcement of Government Capacity to Promote Compliance with Regulations in ASM Communities through Awareness-Raising, Monitoring and Enforcement Strategies</p>	<ul style="list-style-type: none"> <li>· National awareness of laws and associated requirements</li> <li>· National awareness of mercury hazards</li> <li>· National awareness of benefits of compliance through the use of environmentally sound and efficient technologies</li> <li>· Integration of regulatory issues in GMP Education and Awareness Campaigns and Technology Demonstration Units</li> <li>· National training of officers and enforcement agents</li> <li>· National/local level strategies for monitoring/enforcing</li> <li>· Identification of priority sites for monitoring and reclamation</li> </ul>



<p><b>4. Strengthening of Multi-Sector Cooperation with Government Agencies and other Organizations in Support of Capacity-Building, Science, Technology, Training, Awareness and Mobilization of Resources to Facilitate and Assist in Fulfilling the Aims of the Global Mercury Project</b></p>	<ul style="list-style-type: none"> <li>· Promotion of effective sustainable partnerships with major stakeholders and opportunities for joint for environmentally sound management activities emphasizing mercury minimization and the strengthening of capacity building</li> <li>· Cooperation and partnership at all levels between public authorities, international organizations, the industry sector, NGOs and academic institutions</li> <li>· Participation in the implementation of GMP Education and Awareness Campaigns and Technology Demonstration Units in project sites; and joint activities in other ASM regions</li> <li>· Enhancement of information exchange, education and awareness-raising in all sectors of society</li> <li>· Identification of priority sites for future capacity-building</li> <li>· Development of national inventories of technology capabilities, production centers and support mechanisms</li> </ul>
<p><b>5. Development of Knowledge and Tools for the Reinforcement of National Capacities to Track, Monitor and Regulate the Domestic Trade and Distribution of Mercury Used in ASM</b></p>	<ul style="list-style-type: none"> <li>· Development of national inventories on quantities of mercury used in ASM, primary international sources, quantities imported, prices, domestic channels, primary dealers, other purposes of mercury, and marketing mechanisms to, and within, the ASM sector</li> <li>· Tools to support sustainable monitoring of the import, sale distribution, and use of mercury</li> <li>· Reinforcement of national capacities to detect and halt illegal traffic in mercury and stockpiling of mercury</li> <li>· Development and implementation of national legislation and institutional frameworks, including a legal base for regulating mercury trade and for the conduct of inventories and related activities, e.g. hazardous substance audits, disposal and phase-out plans, etc</li> <li>· Assessment of legality of particular trade practices, such as setting standards for market mercury prices; limiting free mercury dealing by gold purchasers; licensing traders; etc</li> </ul>
<p><b>6. Assessment and Recommendations on the Transboundary Trade of Mercury with a View of Reinforcing Government Capacities for Regulating the Export and Import of Mercury Used in ASM</b></p>	<ul style="list-style-type: none"> <li>· Analysis of data submitted by Activity 5 in the preparation of national plans to reduce transboundary trade of mercury to a minimum</li> <li>· Review of national waste management infrastructure and systems in the context of transboundary trade by national authorities and tools to measure effectiveness</li> <li>· Development of national regulation and institutional policy to restrict imports of mercury</li> <li>· Assessment of regional and global patterns of transboundary trades of mercury with a view to improving coordination among Governments in developing standards or common approaches to reduce export and import</li> <li>· Promotion of awareness about mercury in ASM as a means of encouraging industrial countries to ban or restrict the export of mercury to developing countries</li> </ul>



<p><b>7. Development of Recommendations to Governments on Policy to Enhance Organization, Coordination and Empowerment in the ASM Sector</b></p>	<ul style="list-style-type: none"> <li>· Legal recognition of ASM</li> <li>· Incorporation of a poverty reduction dimension in mining policy, recognizing both the constraints and the potential of ASM as an economic sector</li> <li>· Formalization of ASM activity with incentives for registration</li> <li>· Simplification of registration and licensing procedures</li> <li>· National programs for technology assistance and training</li> <li>· Regulatory frameworks on environmental management, health and safety; and associated codes of practice</li> <li>· Implementation of standards from the ILO Convention on Health and Safety in Mines and other relevant standards</li> <li>· Mining titles and designated areas for ASM</li> <li>· Incentives to discourage illegal mining and illegal trading</li> <li>· Access to formal markets and marketing mechanisms</li> <li>· Women and children’s issues</li> <li>· Institutional functions, capacity, coordination amongst Government agencies, local participation in policymaking</li> <li>· Resource mobilization to support local delivery functions</li> </ul>
<p><b>8. Promotion of Standards and Guidelines on Mercury Management and Trade as well as ASM Development Issues in Relevant Regional and Global Laws, Conventions and Agreements</b></p>	<ul style="list-style-type: none"> <li>· Promulgation of mercury management standards and pollution prevention and remediation measures in international law, global and regional conventions, and agreements on sustainability and the environment, chemical safety, and water protection - e.g. Basel Convention, Rotterdam Convention, Nile Basin Initiative etc.</li> <li>· Promotion of ASM development concerns in regional and global development agendas</li> </ul>
<p><b>9. Development of Pilot Programs Enabling ASM Communities to Access Credit and Finances to Support Technology Transfer</b></p>	<ul style="list-style-type: none"> <li>· Identification and assessment of viable micro-economic development / poverty alleviation models to assist the ASM sector to transfer to cleaner technologies - e.g. village banking, loan-based and equity-based financing schemes, hire-purchase schemes; donor and government support programs; finances through cooperation of ASM miners and mining companies</li> <li>· Implementation of pilot micro-credit programs in GMP project sites, integrated with GMP Education and Awareness Campaigns and Technology Demonstration Units</li> <li>· Development of sustainable long-term community-based financing mechanisms for ASM in GMP sites and nationally</li> </ul>
<p><b>10. Development of Community Strategies to Encourage the Formation of ASM Cooperative Organizations and Programs for their Support</b></p>	<ul style="list-style-type: none"> <li>· Development of core organizational and trust building activities and training in GMP project sites, following from assessments and consultations with communities, to build capacity for collective transfer to improved technology</li> <li>· Capacity building for cooperatives, guilds, associations, etc.</li> <li>· Development of basic business principles awareness and training for community-based organizational development, incl. issues of shared ownership of equipment, production strategies, cooperative mining, economic behaviors</li> </ul>



<p><b>11. Establishment of Certification Criteria and Processes for Fair Trade Gold in ASM</b></p>	<ul style="list-style-type: none"> <li>· Development of environmental, social, and economic criteria for Fair Trade gold, including mercury-related criteria</li> <li>· Development of organizational capacity in mining communities for meeting progressive Fair Trade Criteria</li> <li>· Development of niche markets for Fair Trade gold by building on previous experience with fair trade markets and establishing supply chain networks which deliver gold from small-scale producers more directly to refineries and linkages between ASM producers to international markets.</li> <li>· Communication and promotion of the initiative’s findings and program of action, including the identification of models of certification and an international certifying agency</li> </ul>
<p><b>12. Strengthening and Expansion of Global Partnerships for Development - Joint Activities, Regional Network Capacity-Building, Global Awareness and Resource Mobilization</b></p>	<ul style="list-style-type: none"> <li>· Consolidation of strategic partnerships to support regional and global action plans with major stakeholders and opportunities for environmentally sound management activities emphasizing mercury minimization and the strengthening of capacity-building and technology transfer in ASM and related developmental issues</li> <li>· Development of joint activities with other initiatives of UNIDO, UNDP, GEF, UNEP and other international agencies; public authorities; international organizations; the industry sector; mining companies, NGOs; and academic institutions, identifying opportunities and synergies</li> <li>· Identification of opportunities and implementation of programs that replicate GMP capacity-building in other countries (e.g. Mozambique, etc); formation of partnerships with other organizations and developing knowledge on mercury, ASM infrastructures and future needs and priorities</li> <li>· Dissemination of the produced GMP results and identification of opportunities that will allow the project to continue beyond 2006 through self-financing, including conducting donor conferences to solicit financing and workshops with potential contributors</li> <li>· Enhancement of awareness of mercury and ASM issues on a global scale through public media and media directed at donor communities</li> </ul>

## VII. Activity Profiles: Initiatives, Plans and Selected Highlights of Accomplishments to Date

### ACTIVITY 1

#### **International Guidelines on Mercury Management**

*Development of GEF/UNDP/UNIDO International Guidelines on Mercury Management in Artisanal and Small-Scale Mining*

##### OVERVIEW:

In more than 50 developing countries, an estimated 15 million people are involved in artisanal and small scale gold mining (ASM). This activity usually involves the use of substantial amounts of mercury in mineral processing, often in highly unsafe and environmentally hazardous conditions. As many as 100 million people may be exposed to mercury emitted from ASM. Mercury misuse in ASM is responsible for an estimated 1000



tonnes of mercury polluted annually into the environment, with negative impacts in diverse ecosystems including international waters. Globally, many of the hazards are similar - extensive emissions in tailings, contamination of water bodies, vapor inhalation, etc. However, environmental regulations are minimally developed for ASM in most countries, or not yet developed, and consequently, mercury is generally unaddressed. In the absence of an international management code for mercury management in ASM, many governments have been unsure how to address policy in ASM, what hazards are most pressing, and what technical practices should be regulated.

The GMP has combined specialized experts from various countries and disciplines - mining engineers, metallurgists, environmental scientists, toxicologists, and legal and policy experts - to prepare the *GEF/UNDP/UNIDO International Guidelines on Mercury Management in Artisanal and Small-Scale Gold Mining*. These guidelines will provide standards of operation and regulatory guidance for governments. They will be designed to promote the minimization of mercury use as well as the elimination of pollution point sources and occupational health risks in mercury management. The guidelines will also address multi-actor responsibility issues in the ASM setting and will include guidance on adoption into national legal systems.



**GOAL:**

Develop GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM to assist governments in minimizing mercury use in ASM and reducing environmental and occupational hazards. Provisions will address, but are not limited to, the following issues:

- Emission controls to eliminate pollution point sources
- Use of retorts
- Recycling and reusing mercury
- Reduction of mercury in tailings
- Tailings management methods
- Prevention of combined use of mercury and cyanide, and mercury and acid
- Restriction of location of mercury use, with emphasis on protection of village/residential areas and protection of water bodies
- Exposure controls and ventilation facilities
- Protection of pregnant women and children
- Storage and disposal methods
- Clean-up and rehabilitation
- Guidelines for minimizing mass-flows of overburden and/or sand/gravel and sedimentation
- Guidelines for mercury management in gold shops



- Recommendations for licensing mercury sale, distribution and use in mining
- Recommendations on accountability and liability issues concerning mercury management practices in mines, with specific consideration of the role of miners, mine owners, millers, etc
- Recommendations on accountability and liability issues concerning public and occupational exposure
- Recommendations on accountability and liability issues concerning environmental contamination
- Recommendations for community-based as well as national monitoring and enforcement
- Government implementation procedures and guidelines
- Accompanying “model legislation”, including main provisions for implementation



#### **INITIATIVES:**

The following initiatives have already been completed:

- A) Review and analysis of laws, regulations, guidelines, and codes of practice available internationally (including GMP countries and others), that address mercury management in ASM and related practices in ASM such as protection of waters, tailings management, occupational risks, etc



- B) Review of reports and scientific literature available internationally, including GMP Environmental, Health, Socio-economic, Sociological, and Legal Assessments, to collect relevant technical and strategic insights into the development of the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM
- C) Synthesis of above information to develop technical and strategic measures for inclusion in the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM.
- D) Conducting of targeted stakeholder consultation processes with miners, Governments, and other groups, to discuss and gain insights regarding additional important measures for inclusion in the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM; and

The following initiatives are planned in 2006:

- E) Preparation of main standards and technical language for incorporation in Draft GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM
- F) Finalization of first draft, revision and circulation of Draft GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM for comments, amongst GMP Team Members
- G) Revision and circulation of Draft GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM for comments, amongst government representatives in GMP countries and wider communities of researchers, policymakers and stakeholders
- H) Preparation and execution of plans for the publication and official inauguration of the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM; and
- I) Preparation and execution of strategies to promote the adoption of the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM by Governments in countries where ASM is prevalent, globally

#### **INDICATORS OF SUCCESS:**

GEF/UNDP/UNIDO International Guidelines on Mercury Management in Artisanal and Small-Scale Gold Mining are drafted to provide clear and useful guidelines on specific practices in such ways that draw consensus among government representatives and stakeholders; GEF/UNDP/UNIDO International Guidelines on Mercury Management in Artisanal and Small-Scale Gold Mining are adopted by national governments in various countries in the form of new legislation, policy and regulation



## **ACTIVITY 2**

### **Legislation and Regulation on Mercury Management**

#### **Assistance to Governments in the Development of Policy, Legislation and Regulation on Mercury Management in ASM**

##### **OVERVIEW:**

As ASM continues to expand globally, governments are increasingly recognizing the need to institute new policies to strengthen the management of environmental, health, social, economic and legal aspects of this sector. However, as ASM is an informal sector and its associated legislative frameworks are minimally developed in most countries, mercury controls remain largely unaddressed in law and policy. Globally, most countries, even those with substantial ASM sectors, have not yet established legislation and regulation for environmental management aspects of ASM. Lack of knowledge on mercury issues has been identified as a significant barrier. While the GMP is preparing the GEF/UNDP/UNIDO International Guidelines on Mercury Management in ASM (Activity 1), the GMP policy experts are also working directly with the governments of the GMP countries to develop and/or strengthen national legislation, regulation and policy measures to address mercury in ASM.

##### **GOALS:**

Based on the specific country conditions, and legislative and regulatory frameworks that exist in each of the participating countries and their respective jurisdictions, the GMP is assisting governments in developing policy to minimize mercury use in ASM and reduce environmental and occupational hazards. Depending on local conditions and specific needs, legislative and/or regulatory provisions may address issues such as:

- Mercury management practices and emission controls to eliminate point sources of pollution
- Use of retorts
- Recycling and reusing mercury
- Reduction of mercury in tailings
- Tailings management methods
- Prevention of mercury/cyanide interaction
- Restriction of location of mercury use, with emphasis on protection of village/residential areas and protection of water bodies
- Exposure controls and ventilation facilities



- Protection of pregnant women and children
- Storage and disposal methods
- Clean-up and rehabilitation
- Licensing mercury sale, distribution and use in mining
- Mercury management in gold shops
- Accountability and liability issues concerning mercury management practices in ASM (with specific consideration of the role of miners, mine owners, millers, etc)
- Accountability and liability issues concerning public and occupational exposure
- Accountability and liability issues concerning environmental contamination
- Community-based as well as national monitoring and enforcement
- Government implementation procedures and guidelines
- Other specific legislation and regulatory provisions as appropriate to the local conditions.

**INITIATIVES:**

The following initiatives were completed in some cases, and are currently in-progress in other cases:

- A) Review of legal classification level for mercury as a hazardous substance
- B) Verification of existing laws concerning mercury management and the management of other toxic substances
- C) Verification of / recommended development of a legal base for instituting mercury-specific regulation in mining
- D) Development of recommendations and draft measures on policy/regulatory mechanisms for licensing of mercury amalgamation and distribution
- E) Development of technical recommendations and draft measures on mercury use; emission controls; recycling; and tailings management
- F) Development of technical recommendations and draft measures for exposure controls; location of use; storage; and disposal
- G) Development of specific provisions and draft measures for the protection of water bodies from mercury and/or mining



- H) Investigation of possibilities for developing policy mechanisms on accountability and liability concerning mercury management practices (with specific consideration of the role of miners, millers, etc)
- I) Investigation of possibilities for developing standards for accountability and liability concerning public and occupational exposure, and environmental contamination
- J) Investigation and development of recommendations on clean-up and rehabilitation
- K) Investigation and development of mechanisms for community-based monitoring and enforcement; and
- L) Formulation of recommendations for clear accountability for miners, mine/land owners, millers, etc.

**PRIORITIES:**

In addition to completing country-specific work currently underway regarding the above initiatives (see Highlight boxes below), overall policy initiatives planned for 2006 include focusing on the following prioritized objectives:

General Use of Mercury

- a. Restrict mercury-amalgamation to locations designated for mining, performed only by miners with amalgamation licenses
- b. Eliminate mercury amalgamation without the use of a retort to contain vapor
- c. Eliminate the practice of whole ore mercury-amalgamation on copper plates.

Location of Mercury Use

- d. Eliminate the use of mercury within 100 meters of public streams and water bodies
- e. Eliminate the use of mercury within 100 meters of houses
- f. Institute the requirement that mining managers, where applicable, establish designated areas for retorting and that no amalgamation shall occur outside this area



Storage and Disposal of Mercury

- g. Institute the requirement for mercury to be stored in air-tight containers that are kept under a layer of water when not used
- h. Eliminate the placement of mercury into solid disposal systems or wastewater disposal systems

Additional Exposure Controls

- i. Institute the requirement that mine managers, where applicable, ensure that no pregnant women or children under the age of sixteen years enter the structure, facility or locale in which amalgamation is carried out
- j. Require that safety gloves be worn when handling mercury

Require the licensing of Mercury

- k. Require licensing for the sale and distribution of mercury
- l. Institute licensing requirement for the purchase of mercury
- m. Institute specific licensing requirements for mercury-amalgamation in ASM

Establish mechanisms for government enforcement and monitoring

- n. Clearly identify relevant government enforcement officials
- o. Establish specific and appropriate penalties for violations

Institute mechanisms for community-based enforcement and monitoring

- p. Stipulate that responsibility of compliance falls upon miners as well as mine managers and/or owners of operations where applicable; and
- q. Stipulate that mine managers, where applicable, keep records of all mercury brought onto the mining location, date acquired, and amount

**INDICATORS OF SUCCESS:**

Governments in the various partner countries review GMP-drafted policy measures and recommendations that address the above issues; the number of jurisdictions where these measures are reviewed and/or adopted into law; and the breadth of the measures included in the policies and regulations reviewed, developed and/or adopted.

**HIGHLIGHT**

**Working with the Zimbabwe Government on New Mining Law: Mercury Regulations & Related Issues**

The Zimbabwe Government recently initiated new vital capacity-building and regulatory measures in artisanal and small-scale gold mining (ASM) communities. In December, GMP experts worked with the Government to prepare preliminary draft Regulations on Mercury Management in ASM, as part of a series of issues addressed through meetings and seminars with authorities and stakeholders. These constitute multiple new steps in Zimbabwe, setting standards on practices to eliminate hazardous mercury emissions, exposures, and other environmental health impacts caused by ASM. Regulations also addressed the purchase, trade and storage of mercury.

Meetings, small workshops and large seminars were facilitated by the GMP team with national and local officials from the Ministry of Mines, the Ministry of Environment, and the Ministry of Health, as well as mining associations (e.g. Zimbabwe Panners Association and the Zimbabwe Mining Federation) and other organizations. These talks reinforced the shared commitment to support policies to phase out mercury in ASM over the next year and in the long term. In the short term, the policy efforts focus on instituting and enforcing clear regulations and codes of practice to minimize mercury-related problems and other environmental hazards in ASM. Most importantly, the draft Regulations on Mercury Management provide standards for amalgamation, including the use of retorts, and for reducing mercury in tailings. Specific provisions protect pregnant women and children from exposure. The regulations also include mechanisms for community-based enforcement and monitoring. These draft regulations, and other recommendations of the GMP experts, are being reviewed by the Government as measures that may be passed into law in 2006, as Statutory Instruments under the Mines and Minerals Act.



**Officials at the Zimbabwe Ministry of Mines with GMP policy experts**

## HIGHLIGHT

### **Environmental Responsibility and Multi-Actor Accountability: Proposed Legal Measures in Zimbabwe**

In addition to technical regulations on mercury management (described on the previous page), GMP policy experts prepared recommendations and draft regulation on Water Protections, the Duties of Milling Centre Managers and Claim-Holders, and other issues that resulted from the policy reviews and stakeholder consultations. These proposals were also presented and discussed on a preliminary basis with the national directors of the Ministry of Mining and Mineral Development as possible regulations to incorporate into law in 2006, subject to further discussions and revisions.

Most significantly, the draft measures propose clear lines of responsibility for miners as well as milling centre managers and claim-holders, with various environmental management issues addressed and penalties provided for legal infractions. In Zimbabwe, miners generally bring their ore mined to milling centers for processing. Mercury is used heavily on these premises, and tailings management and mercury handling often present serious risks to health and the ecosystem. Because the relationship of miners and millers is not generally of a formal employer-employee nature, traditional legal definitions of employer responsibility do not necessarily apply. The draft measures acknowledge the need for shared responsibilities among the different people involved in ASM mining and processing. Responsibilities addressed in the draft regulations relate to mine management, fair labor practice, safety, health and the preservation of the environment. Mercury issues are particularly emphasized, so that millers are responsible for sound mercury management on their premises and for ensuring compliance with regulations. Among the issues addressed, the draft regulations stipulate that milling centre managers must set aside a designated location for amalgamation and equip that facility with retorts. The provisions also stipulate that milling centers must not exist within 100 meters of water bodies, and the combined use of cyanide and mercury is prohibited.



**Miners in a Milling Centre in Kadoma District, Zimbabwe**

## **HIGHLIGHT**

### **Strengthening Mercury Regulations for Mining and Gold Shops in Kalimantan, Indonesia**

In November, GMP policy experts conducted a series of consultation meetings with officials from the Indonesian Ministry of Energy and Minerals, the Ministry of Environment, the Central Kalimantan Provincial Government (Mining, Environment and Health Offices), as well as the District Environmental and Mining Offices. Consultations were also held with other stakeholder organizations such as the Indonesian Mining Association, in the discussion and development of plans to strengthen mining and environmental regulations on mercury management in ASM.

Working principally with the National Director of the Legal Department of Ministry of Energy and Mineral Resources, the GMP has established plans to draft district-level mercury management regulations that could be applied nationally in the future as well under the Mining Laws. As noted by the Director of the District Environment Office, there is also an urgent need to regulate mercury in gold shops, which the GMP will also address by drafting proposed technical regulations.

Currently, the Government of the Province of Central Kalimantan has mercury regulations in effect under the Industry and Trade Department, addressing general aspects on the sale and use of mercury. GMP efforts will focus on adoption and implementation of these regulations at the local district level to address critical pollution point sources and health risks.



**Mining waste with mercury emitted into a water body in Kalimantan**

## HIGHLIGHT

### Towards National Mercury Legislation in Laos

GMP policy experts are currently preparing measures on mercury management to provide assistance to the Lao PDR Department of Geology and Mines in developing legislation and regulation on artisanal and small-scale gold mining. This is being formulated based on the health, environmental, technical, social and economic assessments of ASM communities in Laos and stakeholder consultations that were undertaken by the GMP. Various technical aspects of ASM are addressed in these proposed regulations: washing, sluicing, tailings management and disposal, mercury amalgamation, and other aspects. Examples of measures for incorporation are:

“...The holder of an ASM license shall not heat mercury amalgam to recover the gold without using a retort, which must be used to contain the mercury vapour releases...”

“...No person shall amalgamate the entire ore, through the use of a mercury-copper plate or putting mercury into any gravity concentrator or ball mill...”

“...No person may discharge mercury, or mercury-contaminated tailings, into a water body...”



**Miners in Laos using a lake to pan gold**

## HIGHLIGHT

### Working with the Tanzanian Government on New Policies in Artisanal Mining

The Tanzanian Government recently initiated policies to take new steps promoting capacity-building and regularization in artisanal and small-scale mining (ASM) communities. In November, GMP policy experts held a series of meetings with officials from the National Ministry of Minerals in Dar es Salaam as well as local mines officers at the mining sites to discuss government and community-based policy issues. Working with the Office of the Commissioner of Minerals, meetings focused on environmental, health, technological, economic, social and legal issues from GMP assessments, which reinforced the importance of: a) having clear codes of practice in small-scale mining, and b) providing training and extension services in mining communities to promote the adoption of safer, more productive and environmentally sound.

The GMP plans to assist the government in developing a Code of Practice for Small-Scale Mining, which can offer clear standards and procedures of operation to supplement the 1999 Mining Regulations. Working with government and community stakeholders through a participatory process, the GMP aims to strengthen the Regulations with this Code, so as to serve two purposes: 1) show how miners can adopt good practices of small-scale mining and comply with the Regulations; and 2) assist government inspectors by identifying standards that relate to the Regulations and that will minimize risks to safety and the environment. The GMP also plans to assist the government in developing recommendations to incorporate mercury management in the Regulations, to address emission and exposure controls and strategies for minimizing mercury use by recycling safely and efficiently.



**GMP policy experts and the Geita District Mines Officer convene a meeting with the miners association on policy and micro-credit issues to gather perspectives from the mining community**



## **ACTIVITY 3**

### **Promotion of Compliance**

#### **Reinforcement of Government Capacity to Promote Compliance with Regulations in ASM Communities through Awareness-Raising, Monitoring and Enforcement Strategies**

##### **OVERVIEW:**

The GMP has been assisting governments in the development of both regulatory and capacity mechanisms to manage mercury in ASM. The capacity measures show miners benefits of reducing mercury use in terms of efficiency and cost-effectiveness. It is essential that governments be given assistance to conduct community awareness campaigns, as well as establishing sustainable monitoring and enforcement strategies.

##### **GOALS:**

The GMP aims to provide governments with tools and mechanisms to promote the following:

- National awareness of laws and associated requirements
- National awareness of mercury hazards
- National awareness of benefits of compliance through the use of environmentally sound and efficient technologies
- Integration of regulatory issues in GMP Education and Awareness Campaigns and Technology Demonstration Units
- National training of officers and enforcement agents
- National/local level strategies for monitoring/enforcing
- Identification of priority polluted sites for monitoring

##### **INITIATIVES:**

Some initiatives are already underway to assist governments to train government officials on enforcement of key regulatory issues, to develop monitoring and enforcement strategies, and to facilitate community training on relevant laws within the GMP Education and Awareness Campaign and Technology Demonstration Units, demonstrating benefits of adopting best practices. Other initiatives, tailored to each country's needs, will be finalized in the first half of 2006. Focus is placed on collaborative activities with miner associations and other community institutions.

##### **INDICATORS OF SUCCESS:**

Governments are provided by the GMP with tools and mechanisms that assist them to promote compliance with relevant environmental and safety measures, according to local priorities.

## HIGHLIGHT

### **Watersheds and Protected Lands in the Brazilian Amazon – Innovative Tools to Support the Law**

In regions across the Brazilian Amazon, mining causes significant mercury pollution, leaving profound environmental and social impacts. While the GMP's capacity building program works to reduce mercury-contaminated sediment movement into streams and develop proper native vegetation in the riparian zone, the project also undertook a review of Brazilian laws and policies of protected watershed areas and natural reserves. Additionally, the project has developed innovative GIS-based mapping techniques to assist the government in monitoring and protecting the designated lands.

Natural reserves are the foundation of the Brazilian Forest Code, which, in 2002, set new regulations for the establishment of natural protected areas along hilltops, ridgelines, riparian zones, and upland catchments, relying on key geographic features of watersheds. This new legislation deters all commercial land use on reserves and imposes severe restrictions for uses such as mining. While this represents a remarkable advance in environmental legislation, these increased protections still remain a reality only on paper. The lack of appropriate countrywide topographic datasets and the expertise required for manually mapping the reserves, along with difficulties of enforcing regulations "on the ground", were identified by government agencies as main barriers in enforcing the current legislation. Recent technological advances in Geographic Information Systems and high-resolution topographic satellite imagery, such as those provided by the Shuttle Radar Topography Mission, have allowed this issue to be revisited. The solution to this problem relies on accurately mapping and quantifying current and potential land use conflicts on a regional, watershed basis, thus enabling a reliable evaluation of its political and economic scope.

The GMP is developing the application of this methodology for mapping permanent preservation areas in the Tapajos River Basin, located in northern Brazil. This will allow new and innovative ways of monitoring mining activities and enforcing environmental legislation on protected lands. This GMP program is also developing the use of the satellite imagery to track the mobility of mercury from mining sites in the sediments of rivers and streams, in order suggest new policy measures to address this and reclaim impacted areas.



**Aquaculture in the Brazilian Amazon**

**HIGHLIGHT**

**Working with Sudanese Authorities to Raise Community Awareness of Mercury Hazards and Safe Practices of Mining**

In November 2005, a GMP educational campaign was implemented in Sudan. The objective was to teach local trainers, including the Geological Research Authority of Sudan (GRAS), local media professionals, and nurses trained in mercury poisoning, behavior change education strategies and family health issues. The action started in the village of Gugub, where trainers were taught by GMP experts how to deliver awareness campaigns to miners. Once on site, trainers demonstrated screening, sluicing, and panning technologies to miners working in the village.

The campaign received significant attention from local television when Blue Nile State television produced a 45 minute documentary of the events. The report featured interviews with community leaders, and was broadcast across the state in the week following the campaign. To create a public presence in the villages, educational materials about the use of mercury were translated to Arabic and distributed to miners as teaching aids. Meanwhile, the result of the 2004 health and environmental studies were delivered to the communities. Participants were provided health counseling based on their age and how much mercury they were exposed to.

Approximately 110,000 miners in the Blue Nile region are currently working by the river. The GMP aims to increase awareness of sustainable practices by promoting an understanding of ecosystem factors of health, and by building the capacity to embrace technological solutions that increase productivity and protect the environment.



**GMP Sudanese nurse discusses health awareness with the head of the Gugub village**

## HIGHLIGHT

### Working with Authorities to Raise Mercury Awareness in Brazil

The awareness campaign in Brazil started in November with the return of the health results to miners from Sao Chico and Creporizinho. The 704 medical exams and chemical analyses of blood, hair, and urine were delivered and explained to the affected communities. Several educational seminars were held, and interest in demonstration of retorts was high, in part because of the rising cost of mercury in the region. This stage of the campaign was designed primarily to announce the TDU and full awareness campaign that will be conducted in the first half of 2006. More than 1000 educational posters and brochures were distributed, and a local poet, Mr. Edmilson Santini, composed rhymes (locally known as “cordel”) to deliver 500 brochures entitled: “Don’t cry for the spilled mercury.” CDs with Mr. Santini’s songs were distributed, along with T-shirts given to miners.

Participating with the Center for Mineral Technology and the Ministry of Health were the Association of the Gold Miners of Tapajos (AMOT); the Vice-Mayor of the municipality of Itaituba, and representatives from the municipal departments of Mining and Environment, and Health. AMOT is currently coordinating interested parties to participate in next steps of the campaign



Awareness campaign in Brazil



## **ACTIVITY 4**

### **Capacity Building and Technology Transfer**

**Strengthening of Multi-Sector Cooperation with Government Agencies and other Organizations in Support of Capacity-Building, Science, Technology, Training, Awareness and Mobilization of Resources to Facilitate and Assist in Fulfilling the Aims of the Global Mercury Project**

#### **OVERVIEW:**

Just as legal and regulatory aspects play a key role in strengthening environmental governance in the ASM sector, policy development to address institutional and community capacities is fundamental. The GMP recognizes that strengthening cooperation amongst various government agencies is essential for success. Additionally, capacity-building must occur at all levels. Building local, regional and national capacity for the science and technology of improved mining techniques is essential, as is the mobilization of resources to ensure the uptake of the improved technology. This is not only important to ensure that regulatory standards can be met, but also to ensure that mining activities can evolve in sustainable ways and contribute positively to the economic development of the sector. The GMP has been working with governments to encourage policies that build government capacities at the local level and that enhance collaboration with different institutions. A critical policy objective of the GMP is to ensure that countries can build institutional functions that ensure the sustainability of capacity-building measures as demonstrated by the Awareness Campaigns and TDUs.

#### **GOALS:**

GMP goals are to build on the specific local strengths to address the following:

- Promotion of effective sustainable partnerships with major stakeholders and opportunities for joint environmentally sound management activities emphasizing mercury minimization and the strengthening of capacity building
- Cooperation and partnership at all levels between public authorities, international organizations, the industry sector, NGOs and academic institutions
- Participation in the implementation of GMP Education and Awareness Campaigns and Technology Demonstration Units in project sites; joint activities in other ASM regions; establishment of education centers for ASM located in critical ASM regions
- Enhancement of information exchange, education and awareness-raising in all sectors of society
- Identification of priority sites for future capacity-building
- Development of national inventories of technology capabilities, production centers and support mechanisms



**INITIATIVES:**

Considerable effort has been underway to build capacity and promote technology transfer. Details are available in reports on the GMP Education and Awareness Campaigns and Technology Demonstration Units. In keeping with the above policy objectives, these initiatives have included the involvement of various public authorities in addition to NGOs, academic institutions, and other stakeholder institutions.

**INDICATORS OF SUCCESS:**

Local and national governmental and non-governmental organizations are effectively engaged in technology transfer, strong relationships are built, and human and financial resources are mobilized to promote technology transfer

**HIGHLIGHT**

**Working with Indonesian Authorities on Technology Support and Capacity Building**

In Indonesia, implementation of the Transportable Demonstration Units and the Awareness Campaign activities began in February. For North Sulawesi, where the majority of miners mix both cyanide and mercury, the focus will be on promoting mercury-free cyanidation techniques. This will be followed by a public awareness and media campaign to increase knowledge about health hazards related to mercury and cyanide exposure. The GMP will be partnering with local NGOs to implement the campaign over the next year. Meanwhile, in Galangan, Central Kalimantan, the GMP is concentrating on training and building capacity of local partners to become facilitators for the campaign activities. This includes working with local community development NGOs, as well as provincial and district health, environment and mining officers.



**GMP experts planning with community members near the mining sites in Sulawesi**

## HIGHLIGHT

### **Building the Capacity of Miners and Government Institutions in Laos**

In Laos, the implementation of GMP capacity-building activities will take place within the eight villages of the Nam Ou and Mekong rivers. These rivers were the subjects of the environmental and health assessments. Implementation will kick-off this Spring with stakeholder workshops in Vientiane and Luang Prabang. The Vientiane workshop will target government ministries and departments, including the Department of Geology and Mines, Ministry of Health, and Ministry of Science, Technology and Environment. The Luang Prabang workshop will be dedicated to training local officials, especially village heads, the Women's Union and Youth Front, and a subcontractor who will carry out the TDU and Awareness Campaign activities.

Other potential partners in GMP implementation could include the World Bank, World Wildlife Fund, Earth System Laos, and Ecalao. Field implementation will follow the stakeholder workshops, focusing on introducing simple manual sluice boxes, a variety of carpets, and retorts.



**Demonstrations of model retorts in Laos**





## **ACTIVITY 5**

### **National Mercury Trade**

#### **Development of Knowledge and Tools for the Reinforcement of National Capacities to Track, Monitor and Regulate the Domestic Trade and Distribution of Mercury Used in ASM**

##### **OVERVIEW:**

In addition to strengthening cooperation amongst various government agencies, the GMP recognizes that tools are needed to reinforce national capacity to track, monitor and regulate the domestic trade and distribution of mercury.

##### **GOALS:**

GMP goals for this activity are to:

- Develop national inventories on quantities of mercury used in ASM, primary international sources, quantities imported, reported use of mercury where imported, domestic channels, primary dealers, prices, other purposes of mercury, and marketing mechanisms to, and within, the ASM sector
- Develop and implement tools to support sustainable monitoring of the import, sale distribution, and use of mercury
- Reinforce national capacities to detect and halt illegal traffic in mercury and stockpiling of mercury
- Develop and implement national legislation and institutional frameworks, including a legal base for regulating mercury trade and for the conduct of inventories and related activities, e.g. hazardous substance audits, disposal and phase-out plans, etc
- Assess regulatory options to address particular mercury trading systems, such as setting standards for market mercury prices; limiting free mercury dealing by gold purchasers; licensing traders; centralized control of mercury sales, etc

##### **INITIATIVES:**

- Initiatives are underway to investigate the mercury flow into and throughout the various countries aimed specifically at creating national inventories on quantities of mercury used in ASM, primary international sources, quantities imported, prices, domestic channels, primary dealers, other purposes of mercury.



## INDICATORS OF SUCCESS:

Comprehensive information is gathered and tools are developed to ascertain quantities of mercury being distributed and their source; and tools are developed to track, monitor and regulate mercury in each of the participating countries.

### HIGHLIGHT

## Regulating Mercury Trade to Miners: Proposed Legal Provisions in Zimbabwe

Numerous reports have emphasized that the development of monitoring and regulation of mercury trade would be a crucial step to decrease the negative health, social and environmental impacts caused by mercury in Zimbabwe. In December 2005, GMP policy experts prepared draft regulations under the Mining Laws to address trade and distribution of mercury within the ASM sector. These were discussed with Senior Directors of the Ministry of Mines and Mining Development as measures that could potentially become part of a larger national effort, including other sectors besides mining, to regulate that trade of mercury that is used for ASM. The draft measures address licensing for the purchase of mercury and for amalgamation purposes. Measures are also proposed to institutionalize community monitoring of the quantities of mercury used for ASM.

Provisions for amalgamation licensing include:

- “1) The use of mercury for amalgamation purpose shall require an amalgamation license, which shall be applied for by the manager of the mining location at which the amalgamation is being contemplated;
- 2) An amalgamation license shall be issued by the Mining Commissioner and shall specify the mining location at which amalgamation is being licensed, to whom the license is granted, and the site within the mining location at which amalgamation shall take place, designated by a plan.
- 3) An amalgamation license shall be valid for 1 (one) year and may be renewed.
- 4) In the event of breach of these regulations, the Mining Commissioner may cancel the amalgamation license for the mining location for which the breach has taken place.”

Provisions for purchase of mercury include:

“...no person may purchase mercury for amalgamation purposes unless they hold an amalgamation license.”

The drafted regulations include penalties for contraventions of provisions of these regulations.



## **ACTIVITY 6**

### **Transboundary Mercury Trade**

#### **Assessment and Recommendations on the Transboundary Trade of Mercury with a View of Reinforcing Government Capacities for Regulating the Export and Import of Mercury Used in ASM**

##### **OVERVIEW:**

Mercury trade is of considerable international concern. The GMP recognizes that its policy activities, therefore, must not only address the capacity of countries to track and regulate internal mercury trade, but also to regulate the export and import of mercury. Thus, in addition to developing and promoting regulatory mechanisms within the country, policies addressed at transboundary mercury trade are also extremely important. These must be addressed both from the perspective of countries that are importing mercury as well as the perspective of countries that are exporting mercury.

##### **GOALS:**

GMP goals for this activity are to:

- Build on the analysis of data submitted by Activity 5 (sources and quantities of mercury imported, etc.) to reinforce and/or develop national plans to reduce transboundary trade of mercury to a minimum
- Review and compare reported use of mercury domestically and exported mercury statistics
- Review national waste management infrastructure and systems in the context of transboundary trade by national authorities and tools to measure effectiveness; review/develop frameworks that recognize mercury as a hazardous substance
- Develop national regulation and institutional policy to restrict imports of mercury
- Assess regional and global patterns of transboundary trades of mercury with a view to improving coordination among governments in developing standards or common approaches to reduce export and import
- Promote awareness about mercury in ASM as a means of encouraging industrial countries to ban or restrict the export of mercury to developing countries

##### **INITIATIVES:**

The GMP policy team was recently expanded to focus on these goals (specific initiatives and indicators shall be elaborated upon in the future.)



**INDICATORS OF SUCCESS:**

International actions taken to support the restriction of mercury trade; and governments of the participating countries are able to regulate export and import of mercury across their borders.

**HIGHLIGHT**

**GMP Contributes to Global Awareness of International Mercury Trade Reduction Measures**

The GMP has been contributing to the awareness of the landmark decision of the European Union Council of Environment Ministers in 2005 to end all international trade of mercury by the European Community. The EU decision, reached June 24<sup>th</sup> in Luxembourg, calls for a phase-out of mercury trade by no later than 2011. It also reiterates the EU commitment to achieving a global phase-out of all mercury production, use and trade, and reinforces the need for binding international law.

The EU trade restrictions are the first effort to prevent the spread of mercury to countries in Africa, Asia, and South America, where mercury use is prevalent, particularly in small-scale gold mining. The EU, U.S., and China are the main exporters of mercury. A phase-out of mercury use in North America and Europe has made the developing world the primary destination for the world's mercury.

The GMP has been active in raising awareness of this initiative in international policy arenas. The GMP has also been using various media sources internationally, including newspapers, scientific journals, conference presentations, etc. to promote awareness of the issues and the policy initiatives underway.





# **ACTIVITY 7**

## **ASM Sector Policy**

### **Development of Recommendations to Governments on Policy to Enhance Organization, Coordination, and Empowerment in the ASM Sector**

#### **OVERVIEW:**

As ASM activities continue to proliferate in Africa, Latin America and Asia, the need for heightened attention on policy measures to promote sustainable livelihoods and protect the environment is increasing rapidly. ASM activities are highly unorganized around the world, often operating illegally, outside formal economic marketing systems, and with little access to public services. An important component of the strategy to reduce mercury use in this sector is to support the transformation of ASM into formal and organized activity, so as to better promote health, environmental stewardship and social and economic well-being.

#### **GOALS:**

GMP goals for this activity are to assist governments in the following areas:

- Develop / strengthen the legal recognition of ASM activity and its associated categories (mining types – e.g. medium-scale, small-scale, artisanal, alluvial, panning, etc)
- Incorporate poverty reduction dimension in mining policy, recognizing both the constraints and the potential of ASM as an economic sector
- Formalize ASM activity with incentives for registration
- Simplify registration and licensing procedures
- Promote the establishment of national programs for technology assistance and training, (dovetailing with Activity #4)
- Promote the strengthening of, and implementation of, regulatory frameworks on environmental management, health and safety; and associated codes of practice, (dovetailing with Activity #2 related specifically to mercury control.)
- Implement standards from the ILO Convention on Health and Safety in Mines and other relevant standards



- Promote the granting of mining titles and designated areas for ASM, to discourage illegal mining in other territories; review the effectiveness and possible policy challenges of such existing programs (e.g. Brazil's "Reservas Gampeiros", created in 1988)
- Promote the development and implementation of incentive-based mechanisms to discourage illegal mining and illegal trading
- Promote access to formal markets and marketing mechanisms
- Address issues of concern for women and children in particular
- Address the functioning of various institutions, promoting coordination amongst government agencies and local participation in policymaking, as consistent with Activity #4, but for broader sectoral issues.
- Promote the development and implementation of pertinent law enforcement strategies
- Mobilize resources to support local delivery functions

#### **INITIATIVES:**

Preliminary legal studies on ASM sector policies were completed in four countries: Indonesia, Tanzania, Zimbabwe and Sudan.

Recommendations from these preliminary reviews were delivered to the governments of these countries. Currently, the GMP team is conducting follow-up investigations to determine next steps and specific policy focuses for prioritization in each jurisdiction.

#### **INDICATORS OF SUCCESS:**

Well-developed policy recommendations are submitted and reviewed by the participating governments. Further details on indicators shall be elaborated upon in the coming months.



## HIGHLIGHT

### **ASM Policy Recommendations Submitted to the Indonesian Government**

In November, GMP policy experts conducted a series of consultation meetings (pursuant to both GMP Activity 2 and GMP Activity 7) with officials from the Indonesian Ministry of Energy and Minerals, the Ministry of Environment, the Central Kalimantan Provincial Government (Mining, Environment and Health Offices), and the District Environmental and Mining Offices. Consultations were also held with other stakeholder organizations such as the Indonesian Mining Association, in the discussion and development of plans to strengthen mining and environmental regulations.

Working principally with the National Director of the Legal Department of Ministry of Energy and Mineral Resources, the GMP has established plans to draft district-level mercury management regulations that could be applied nationally in the future as well under the Mining Laws. Discussions with authorities also focused on the GMP Indonesian legal expert's report, including the following preliminary recommendations:

#### 1. A Special Provision on ASM in New Mining Law

The Indonesian government is now seeking to produce a new Mining Law to replace the old Mining Law No. 11 of 1967. By establishing this law, the Government wishes to create a new paradigm of mineral development in Indonesia. The GMP legal report recommends the development of special provisions that facilitate the legal framework for ASM recognize its prominence and to promote the formalization of informal ASM activity, as well as the development of accompanying regulatory frameworks.

#### 2. Regional Environment Act and Local Authorities

It is recommended that Indonesia apply a flexible national environmental policy system that leaves monitoring environmental protection powers to local authorities. It is also recommended that local district and provincial authorities be given greater powers to introduce local legislation on certain mining issues.

#### 3. Environment Administrative System

It is recommended that environmental administration be clarified so as to ensure coordination among the relevant ministries and agencies.

#### 4. Community-Based Environmental Management

Mechanisms for community-based environmental management are proposed.

#### 5. Special Environmental Court

It is recommended that Indonesia establish an environment court as a judicial instrument for controlling disputes, incl. impacts from large-scale mining and ASM

#### 7. Government Assistance to ASM

Measures are proposed for regulating ASM, developing alternative livelihood opportunities, supporting formal-ASM activities as a contributor to poverty alleviation, economic mechanisms, promoting women's rights, reducing child labor, etc



### HIGHLIGHT

## ASM Policy Recommendations Submitted to the Tanzanian Government

In November, GMP policy experts conducted a series of consultation meetings (pursuant to both GMP Activity 2 and GMP Activity 7) with the Mining Commissioner and associated directors from the Tanzanian Ministry of Energy and Minerals as well as local district officials in Geita District. The GMP has established plans to draft a code of practice to supplement the 1999 Regulations. Discussions with authorities also focused on the GMP Tanzanian legal expert's report, including recommendations on:

- 1) improving the economic contribution of ASM to poverty alleviation
- 2) women's participation in mining
- 3) child labor in mines
- 4) implementation of the Mineral Policy
- 5) legal and regulatory framework
- 6) licensing and registration procedures
- 7) technology assistance and capacity-building

The recommendations were incorporated into the government's 2006 policy review process, and next steps are being planned.

### HIGHLIGHT

## ASM Policy Recommendations for the Government of Sudan

In March, 2006, the GMP will be undertaking efforts to consult with national and district officials in the Geological Research Authority of Sudan (GRAS) and other government agencies in the Ministry of Mining as well as the Ministry of Environment, to follow up on the recommendations prepared by the Sudanese GMP legal expert. Key focus areas include:

- 1) Updating and revising the 1972 Mining and Quarries Act
- 2) Legal and regulatory framework
- 3) Coordination of government agencies – GRAS, the Higher Council of the Environment and Natural Resources (HCENR), Ministry of the Environment, in the Mines and Quarries Board, etc.
- 4) Enhancing rights of artisanal and small-scale miners and building capacity
- 5) Recommendations for law enforcement



## HIGHLIGHT

### **Governance Issues Related to Mercury and Gold-Purchasing in Mozambique: Recommendations Submitted to the Minister of Mines**

In 2005, the GMP conducted a pilot project in Mozambique to remove barriers to mercury reduction in Manica District. The initiative was supported by Blacksmith Institute, in conjunction with GEF, UNDP, UNIDO and the Mozambique Ministry for the Coordination of Environmental Affairs. In addition to the implementation of a capacity-building program focusing on technology transfer, the fieldwork also yielded various policy recommendations for the government. These recommendations were prepared in the form of a report which was delivered and discussed with MICOA as well as the Minister of Mines and various directors in the Ministry. The recommendations, and the context for them, are discussed below.

During the pilot project activities, it was observed that the government buys only 1kg out of 40kg of gold being produced monthly in the region. In spite of the better price being offered by the government, miners are overwhelmingly selling their gold to the private buyers in the area because of three factors: 1) the private buyers are more present than the government in the mining sites; 2) the private buyers are providing mercury for free (in exchange for a guaranteed gold sale) in an area where mercury is difficult to obtain; 3) the miners are not confident that the government scheme will pay them for all the gold they produce

In light of the above factors, the GMP recommended that the government should buy gold on site. If the government is unable to travel to the mining sites to buy gold, then it is recommended that the government should receive the gold in an appropriate place where (a) mercury exposure is limited and (b) miners can see the gold being cleaned with acid from impurities. Currently, government gold buyers are being contaminated when they buy gold with residual mercury in offices in the town of Manica. One of the solutions is that the government gold buyers should receive the gold in the lab, i.e. under the fume hood and dissolve residual mercury with nitric acid, instead of receiving the gold in the confined office space where contamination is a factor. Doing this, these employees will be able to reduce their exposure to mercury fumes and this would also allow miners to see the mercury being leached directly and immediately see the gold that is recovered. This will increase the credibility of the government gold buyers and will attract more miners to sell gold to them. Additional fieldwork should identify and work with the gold buyers (both government and private) to promote the establishment of cleaner and more efficient technologies, improved facilities and better practices.

The 4 benefits of the recommendations, if implemented, would be:

- 1) improved occupational health in gold-purchasing facilities (less mercury exposure)
- 2) enhanced trust between miners and government gold-purchasers
- 3) increased government revenue from gold produced in the region
- 4) increased prices for miners for their gold



## **ACTIVITY 8**

### **International and Regional Law and Policy**

#### **Promotion of Standards and Guidelines on Mercury Management and Trade as well as ASM Development Issues in Relevant Regional and Global Laws, Conventions and Agreements**

##### **OVERVIEW:**

International law and policy, as noted for Activity #6 with respect to the transboundary trade in mercury, is an area of extreme importance for the Global Mercury Project. Because, as noted with respect to Activity #7, the ASM sector is so poorly unorganized around the world, often operating illegally, and usually conducted as a poverty-driven activity, promoting of standards and guidelines is needed not only with respect to mercury management per se, but for the health, safety and environmental practices in the sector as a whole. The GMP sees that attention to the well-being of the sector as a whole will enhance its ability to manage mercury itself.

##### **GOALS:**

GMP goals for this activity are to:

- Promulgate mercury management standards and pollution prevention and remediation measures in international law, conventions, and agreements on sustainability and the environment, chemical safety, and water protection - e.g. Basel Convention, Rotterdam Convention, Stockholm Convention, GEF Nile Basin Initiative, etc;
- Promote ASM development concerns in regional and global development agendas

##### **INITIATIVES:**

The GMP is promoting the provision of assistance on policy implementation strategies regarding the ban on exporting mercury out of European Union, set to take into effect by 2011. The GMP is also encouraging other countries to phase out mercury exports by 2011, particularly those identified as sources of mercury used for ASM. GMP assessments have generated recommendations for the UNEP Chemicals Program's Global Mercury Assessment. Further strategies are currently under consideration by the GMP policy team, including regional partnership policy frameworks with the Nile Basin Initiative, for instance.

##### **INDICATORS OF SUCCESS:**

International standards and conventions are developed or amended to reflect the needs of the ASM sector.



## **ACTIVITY 9**

### **Microfinance Initiative**

#### **Development of Pilot Programs Enabling ASM Communities to Access Credit and Finances to Support Technology Transfer**

##### **OVERVIEW:**

The GMP recognizes that in order to successfully implement many of the above activities, and achieve the goals desired with respect to technology transfer and mercury control, many ASM communities will need improved business skills and financial assistance. While the establishment of access to micro-credit for the tens of thousands of artisanal and small scale gold miners is beyond the scope of the GMP, the GMP recognizes the importance of promoting business skills and developing some pilot programs to test the feasibility of various options in this regard.

##### **GOALS:**

The main goals of the GMP Micro-credit Initiative are to:

- Identify and assess the viability of micro-economic development / poverty alleviation models to assist the ASM sector to transfer to cleaner technologies - e.g. village banking, loan-based and equity-based financing schemes, hire-purchase schemes; donor and government support programs; finances through cooperation of ASM miners and mining companies
- Discuss with mining communities about specific micro-credit models and opportunities to develop economic strategies to support technology transfer
- Implement pilot micro-credit programs in GMP project sites, integrated with GMP Education and Awareness Campaigns and Technology Demonstration Units; and
- Develop sustainable long-term community-based financing mechanisms for ASM in GMP sites and nationally

##### **INITIATIVES:**

Meetings with micro-credit institutions and banks have been underway in the GMP countries to explore different financial schemes and best opportunities for ASM financing based on interactions with the banks as well as with miner associations and



cooperatives. Preliminary reports have been produced for Tanzania, Sudan, Indonesia, and Zimbabwe.

Results obtained thus far reveal a number of strategic opportunities. Some banks expressed interest - potentially - in opening new branches in ASM communities. In other cases, banks indicated that they are already providing some funding to some miners for certain purposes (but only on a very limited basis); in other cases, banks have branches already in ASM areas and are very ready to evaluate applications for loans from miners.

All the banks and institutions with which the GMP team met emphasized that they are interested in developing these programs, keeping in mind that they are profit-based and have particular requirements for assessing any loan applications. Usually, criteria for accessing individual loans involves having collateral, however, many banks also have programs allowing groups without collateral to take out shared loans on a collective basis where each member of the group holds the other accountable (based on "village banking" models and other models). The GMP team has indicated that the different options would be discussed with the miners to identify best opportunities.

The information regarding the banks' programs are being discussed in education workshops with mining associations and cooperatives in Educational Workshops. Additional plans for training on business skills, equipment sharing, cooperatives, collective lending, savings, etc. are also underway. In cases where miners are able to qualify for loans, they need to be able to keep records in order to function in a micro-credit institutional framework. Micro-credit institutions have some book-keeping materials that they use once a program is operational. However, the GMP believes that business skills are important even for miners who are not taking out loans, as "micro-savings" is also an important approach to build the capacity of miners to adopt substantially cleaner technologies that reduce mercury and improve gold recovery.

The following 4 phases of initiatives are being implemented:

***Phase 1: Identification of Micro-Credit Opportunities and Challenges in ASM***

- a) conduct a preliminary itemization of the equipment and supplies (as well as costs) to be targeted for ASM capacity-building programs and assessment of the local accessibility of the equipment
- b) review literature and readily-available resources to identify micro-credit schemes used in the country
- c) consult miners' associations, government institutions, and relevant NGOs to identify their perception of opportunities for financial assistance and barriers to access, as well as contacting management of local financial institutions (micro-financing agencies and banks) to compile information on individual operating procedure



d) incorporate all readily-available knowledge on micro-credit schemes that are already in place into the community training in the Education and Awareness Campaigns and TDUs .

***Phase 2: Development of Models of Microfinancing for ASM***

- a) conducting consultations with miners, miners' associations, government institutions, and relevant NGOs to assess and explore opportunities for developing credit programs and removing barriers to access.
- b) conducting consultations with management of institutions (government, banks, micro-financing agencies, NGOs involved in micro-credit work, etc.) to compile information on individual operating procedures, identifying key elements that make them suitable or unsuitable for ASM applications and possible modifications for adaptability to ASM.
- c) design micro-credit programs based on the results of these consultations.

***Phase 3: Implementation of Micro-Credit Pilot Programs***

Based on findings in Phase 1 & 2, Phase 3 will begin by consolidating a group of stakeholders who will implement a micro-credit program for a 3-6 month pilot period. The equipment demonstrated in the GMP training campaigns will be used for testing since the cost of them will be known and supply channels established. This program will be implemented and monitored with the goal of establishing longer term programs.

***Phase 4: Establishment of Sustainable Financial Programs to Support Small-scale Miners***

Once a trial of micro-financing has been conducted and success factors have been identified, a final report will be presented to possible donors/creditors to micro-financing programs indicating results of the field trials and giving recommendations for full-scale implementation.

**INDICATORS OF SUCCESS:**

Knowledge to improve business practice is effectively conveyed to ASM communities; information about micro-credit opportunities is effectively conveyed to ASM communities; micro-credit pilot programs become operational and can be evaluated so that lessons from this experience can be shared; long-term institutional initiatives are developed or planned

## HIGHLIGHT

### **Microfinance Initiative Underway in Tanzania, Zimbabwe, Indonesia, Sudan, Laos and Brazil**

November marked the launch of the GMP Microcredit Initiative in Tanzania, Zimbabwe and Indonesia. Consultations with local banks and microcredit institutions were conducted to identify best opportunities for supporting economic loans-based development initiatives to support miners in adopting better technology. Specific technology has been itemized, with efforts underway to build local capacities for fabrication.

In Tanzania and Zimbabwe, following the consultations with banks, GMP held education workshops with miners to present and discuss different financial options for community empowerment through micro savings and loans. The workshops focused on how “village banking” can support technology transfer to increase productivity and earnings and improve safety. Working with officials from the Zimbabwe Ministries of Mining and the Tanzanian Ministry of Minerals and Energy, the GMP also linked these workshops to discussions of local community policy concerns, to gain community perspectives for the development of legal and regulatory issues on which the GMP is focusing. Miners expressed strong interest in pursuing micro-credit opportunities through individual and collective lending programs.



**Mines Officer speaking at GMP seminar with miner associations in Geita District**



## **ACTIVITY 10**

### **ASM Cooperative Organizations**

#### **Development of Community Strategies to Encourage the Formation of ASM Cooperative Organizations and Programs for their Support**

##### **OVERVIEW:**

Based on field experiences as well as policy analyses, the GMP has concluded that the promotion of ASM cooperative organizations is a vital component to the empowerment of the sector and towards building community capacities to address health, environmental and economic concerns. As an extension of Activity #7 (ASM Sector Policy), which addresses the importance of legalizing, organizing and empowering the ASM sector, the GMP wishes to specifically develop strategies that encourage the formation of ASM cooperative organizations and programs for their support. Also, as an extension of Activity #9 (Microfinance Initiative), it is recognized that strategies for the promotion of technology transfer are rendered significantly more effective by the establishment of collective institutions for lending and/or saving, which will lead to greater productivity and the minimization of mercury. In addition, government programs for awareness-raising, and for promoting compliance with regulatory initiatives, would be aided considerably by the existence of ASM cooperatives.

##### **GOALS:**

The main GMP goals for this activity are to:

- Develop core organizational and trust building activities and training in GMP project sites, following from assessments and consultations with communities, to build capacity for collective transfer to improved technology
- Build capacity for cooperatives, guilds, associations, etc.
- Develop basic business principles awareness and training for community-based organizational development, including issues of shared ownership of equipment, production strategies, cooperative mining and economic behaviours

##### **INITIATIVES:**

The GMP policy team was recently expanded to focus on these goals. Specific initiatives will interrelate with Activity 9, focusing upon activities that show miners the benefits of technology sharing, collective savings and loans programs, and group organization.

##### **INDICATORS OF SUCCESS:**

Knowledge to improve organizational capacities of ASM communities is effectively conveyed, with lessons applied pursuant to the specific goals identified.



# **ACTIVITY 11**

## **Fair Trade Gold**

### **Establishment of Certification Criteria and Processes for Fair Trade Gold in ASM**

#### **OVERVIEW:**

As is well-documented in GMP reports and other published literature, artisanal and small-scale gold miners are often paid very little for the gold they produce. As this is a poverty-alleviation activity, the miners involved are ill-positioned to demand better prices. Indeed the desperation leads many ASM gold miners to accept very low prices in exchange for free mercury – which they need to produce the gold, in the absence of capacity and resources to utilize mercury-free technologies or dramatically reduce mercury through the use of retorts, as presently promoted by the GMP. In addition to Activity #7, which promotes legalizing, organizing and empowering the ASM sector, the GMP wishes to encourage the international community to promote fair gold trade, key not only to poverty-alleviation but also to controlling global mercury contamination.

#### **GOALS:**

Main GMP goals for this activity are to:

- Develop environmental, social, and economic criteria for Fair Trade gold, including mercury-related criteria
- Develop organizational capacity in mining communities for meeting progressive Fair Trade Criteria
- Development niche markets for Fair Trade gold by building on previous experience with fair trade markets and establishing supply chain networks which deliver gold from small-scale producers more directly to refineries and linkages between ASM producers to international markets.
- Communicate widely and promote the initiative's findings and program of action, including the identification of models of certification and an international certifying agency

#### **INITIATIVES:**

New experts have recently been added to the GMP policy team to assist in investigating the establishment of market incentives for good environmental practice in mining by developing standards for a Fair trade Gold certification process.

#### **INDICATORS OF SUCCESS:**

Fair trade for gold initiative can be successfully launched and that lessons from this experience can be shared.



## **ACTIVITY 12**

### **Global Partnership for Development**

#### **Strengthening and Expansion of Global Partnerships for Development - Joint Activities, Regional Network Capacity-Building, Global Awareness and Resource Mobilization**

##### **OVERVIEW:**

The world-wide reduction of mercury use and pollution in mining, as called for by the Global Mercury Project, requires action at all levels of society – by the 55 developing countries where ASM is prominent as well as industrial nations. To sustainably address the challenge of mercury contamination for artisanal and small-scale gold mining, a broad-based approach to development is needed. The GMP is committed to work closely with other agencies, and governments of other countries, to strengthen and expand global partnerships for working together in joint initiatives – regionally and internationally, to promote global awareness of the situation in ASM, mobilize resources, and contribute to sustainable development.

##### **GOALS:**

GMP goals are to:

- Consolidate strategic partnerships to support regional and global action plans with major stakeholders and opportunities for environmentally sound management activities emphasizing mercury minimization and the strengthening of capacity-building and technology transfer in ASM and related developmental issues
- Develop joint activities with other initiatives of UNIDO, UNDP, GEF, UNEP and other international agencies; public authorities; international organizations; the industry sector; mining companies, NGOs; and academic institutions, identifying opportunities and synergies
- Identification of opportunities and implementation of programs that replicate GMP capacity-building in other countries (e.g. Mozambique, etc); formation of partnerships with other organizations and developing knowledge on mercury, ASM infrastructures and future needs and priorities
- Disseminate the produced GMP results and identify opportunities that will allow the project to continue beyond 2006 through self-financing, including conducting donor conferences to solicit financing and workshops with potential contributors; and



- Enhance awareness of mercury and ASM issues on a global scale through public media and media directed at donor communities

**INITIATIVES:**

The GMP policy is currently developing regional and global partnerships with various intergovernmental agencies (UNEP and other UN agencies, etc); companies (such as AngloGold Ashanti, Newmont, etc); the USEPA (in Brazil); and various governments from around the world.

**INDICATORS OF SUCCESS:**

Partner organizations are working together to promote sustainable development in ASM communities.

## HIGHLIGHT

### **Preventing Mercury Pollution in Manica District, Mozambique: Community Capacity-Building with the Ministry for the Coordination of Environmental Affairs**

The environmental health impacts of artisanal gold mining have been growing concerns in Manica District, Mozambique. Currently, more than 12,000 people in this region are involved in ASM, and most people extract gold using mercury. With support from Blacksmith Institute, experts from the GMP and the Ministry for the Coordination of Environmental Affairs carried out a pilot program to reduce environmental and occupational hazards by promoting safer and more efficient uses of mercury. Training methods were adapted from those being implemented in the 6 main GMP countries.

Assessments in Manica revealed that mercury management practices cause significant pollution hazards in this area; human exposure was a severe problem because miners burned the mercury amalgams in open-air bonfires throughout the community. Based on breath test samples, the average level of mercury in the miners in Munhena, the main training site, was  $8.23 \mu\text{g}/\text{m}^3$ . Some burners had above  $50 \mu\text{g}/\text{m}^3$  (50 times higher than the WHO guideline for maximum public exposure to mercury vapor). A training curriculum was conducted to introduce miners and their families to retort technologies and related ways of reducing mercury emissions. Tests performed with home-made retorts, made of salad bowls, showed that mercury emissions can be contained to allow 95% of the mercury to be reused. Miners effectively adopted the retorts and expressed that the relatively inexpensive nature of this technology, costing less than US\$4, was feasible, especially after acknowledging the economic benefits that arise by reusing the mercury. The high price of mercury in Munhena (US\$100/kg) is resulting in heightened attention on the need to minimize mercury losses.

Through discussions with community members and the government, the team identified follow-up plans including the establishment of a community amalgamation centre. The GMP recommends further capacity building in Mozambique and is planning further collaborative initiatives with the support of Blacksmith Institute, UNDP, GEF, and UNIDO in other countries as well, such as Guinea. This pilot initiative with Ministry for the Coordination of Environmental Affairs also generated policy recommendations that were delivered to, and discussed with, the Minister of Mines (see highlight under Activity 7 – ASM Sector Policy).



**GMP Team demonstrating how to re-use mercury efficiently**



## HIGHLIGHT

### **Managing Environmental Health Risks in Ecuador: Partnering with Universities and Canada’s Development Initiatives**

Artisanal gold mining is the main profession of more than 60,000 people in Ecuador, who often use significant amounts of mercury in addition to cyanide. In 2005, the Global Mercury Project began a partnership with a project in Ecuador supported by the Canadian International Development Agency, entitled “Sustainably Managing Environmental Health Risks in Ecuador”. The project is applying an ecosystem approach to health in strengthening core skills, knowledge-exchange, and community empowerment to address environmental determinants of health in selected regions of the country. The GMP has utilized its knowledge-base to contribute to this project by developing training curricula on environmental management in mining, with emphasis on mercury. These curricula are now being utilized by various university-community development programs in Ecuador.

The project is based at the Center for International Health at the University of British Columbia (UBC) and works with three main universities in Ecuador – the University of Cuenca, the University of Machala and the University of Bolivar - to establish capacity to sustainably manage environmental health risks. In undertaking this challenge, partnerships were formed with institutes in Cuba and Mexico to reinforce “South-South” linkages that can enhance sustainability through regional networks of excellence. The project, which has received the BC Centre for International Education Innovations Award, calls for multidisciplinary approaches to promote institutional capacities and community development. Innovative training curricula were developed to manage not only problems of mining contaminants, but also pesticide exposure and vulnerability to vector-borne disease such as dengue and malaria. A series of problem-based learning modules were developed, thus breaking down the barriers between universities and communities and reinforcing local leadership through on-site community training. For the modules on mining and the environment, emphasis is placed in two regions in the country - Machala and Portovelo.

The national scope of the endeavor provides an exciting platform for building interregional, intercultural and inter-university links as well. These elements reflect what the GMP has contributed based on its experience in the six main GMP countries. Involving graduate and undergraduate students from UBC as well as Ecuador’s universities provides an invaluable educational opportunity for integrating the lessons of the GMP into the knowledge and capabilities of community learners and leaders. Partnership talks are further exploring how this program could continue to develop in collaboration with Canada’s Global Health Research Initiative.

