

Artisanal and Small Scale Gold Mining (ASGM) Partnership Area

August 2013

This Business Plan describes the goals and some of the activities of the Artisanal and Small Scale Gold Mining (ASGM) partnership area of the United Nations Environmental Programme (UNEP) Global Mercury Partnership. It serves as a planning and communication vehicle both for Partners and others.

The purpose of the business plan is to provide a framework for articulating common goals, and to facilitate the development and implementation of projects by Partners whom are aligned with these goals. The business plan serves as a resource for providing a common, cohesive structure for implementing the UNEP Global Mercury Partnership.

The Partnership is open for participation from governments and other stakeholders. In UNEP Governing Council Decision 24/3 part IV paragraph 27, UNEP is tasked with working in consultation with Governments and stakeholders to strengthen the UNEP Global Mercury Partnerships. New activities and partners are encouraged within the UNEP Global Mercury Partnership.

I. SUMMARY OF THE ISSUE

- The artisanal and small-scale gold mining (ASGM) sector remains the largest global demand sector for mercury (estimates put ASGM mercury use in the range of 877-1940 tonne/year in 2011; see <http://www.mercurywatch.org/default.aspx?panename=globalDatabase>). Under typical practices, virtually all of the mercury used is released to the environment.
- This sector produces about 12-15% of the world's gold and involves at least an estimated 10-15 million miners, including 4-5 million women and 1 million children. ASGM is the largest employer in the gold extractive sector (estimated at 90% of employment in the sector). Further, another 50 to 60 million people are indirectly dependent on ASGM. With the price of gold rising to over \$1800 per oz as of August 2011, a gold rush involving additional poverty-driven miners is currently underway in many countries and the number of miners using mercury is likely increasing.
- Serious long-term environmental health hazards exist for populations associated with or downstream/downwind from mining and gold processing operations, often including indigenous peoples.
- ASGM sites are usually remote and scattered. The practice is typically informal and in some countries illegal. Reaching out to individual miners is challenging. Encouraging sustained behaviour change of miners and the gold supply chain infrastructure requires understanding and overcoming social and cultural barriers as well as political commitment.
- Mercury amalgamation is currently the most commonly used method to extract gold in artisanal and small-scale gold mining due to its ease of use, low cost, and abundant supply. Whole ore amalgamation dramatically increases the potential for the mercury that is used to be released to the environment. In some cases, this excess mercury approaches 90% of the total in use. Alternative techniques include many options for concentrating the ore prior to amalgamation, greatly reducing the amounts of mercury used and thus released to the environment.
- Alternatives to mercury use in artisanal gold mining exist, but at present most are not widely known in artisanal and small scale mining communities, and alternatives are generally ore-specific in their applicability. Cyanide chemical extraction, the only other widely-practiced method, also presents risks to human health and the environment, and its use can create additional problems. When cyanide is used with or after mercury the production of methylmercury can be enhanced. Widespread adoption of alternatives to mercury-based artisanal and small scale gold mining requires capacity building, which is currently lacking.
- Higher mercury prices (mercury rose ⅓ in the first 7 months of 2011 to \$1900 per flask) can act as an economic incentive for miners to reduce mercury releases and can create demand for alternative technologies.
- A market for fair trade artisanally mined gold is emerging. Associated with this market is the opportunity to generally raise awareness on this issue and promote cleaner ASGM practices. Supply of fair trade gold to the market is currently limited. However, there is now a Fair trade and Fair-mined standard for gold from artisanal and small scale gold mining, established by ARM/FLO. Having these kinds of clear standards may encourage the supply chain infrastructure and more artisanal/small-scale miners to produce gold for this market.

II. OBJECTIVE OF THE PARTNERSHIP

The objective of this partnership is continued minimization and elimination, where feasible, of mercury uses and releases in artisanal and small scale gold mining. The Partnership aims to complement and supplement existing programmes in strategically selected ways to ensure that mercury reductions on the ground are globally significant. Consistent with the United Nations Declaration on the Rights of Indigenous Peoples, the partnership area will meet its objectives by supporting activities that:

- Provide assistance to developing countries and countries with economies in transition to formalize / regulate the ASGM sector, and work with governments, NGOs and other stakeholders to develop financial, policy and regulatory options that improve the ability of mining communities to achieve significant reduction of mercury use and emissions.
- Provide economic, technical, and educational information / guidance and capacity building to miners and mining communities.
- Work within supply chains and use other market approaches to promote socially and environmentally sound gold products.

Where feasible, the Partnership will identify sources of, and facilitate access to, financial resources, and facilitate the leveraging of existing resources already available to Partners.

Target: As an aspirational goal, the Partnership promotes a target of a 50 percent reduction in mercury demand in ASGM (based on an estimated 2007 baseline of approximately 1000 tons) by the year 2017. As a key means to achieve this target, the Partnership seeks to eliminate three worst practices in ASGM: whole ore amalgamation; open burning of amalgam; and the use of mercury with cyanide. The Partnership will work to promote alternative practices, including changes in ASGM mining and processing techniques that enhance gold recovery and reduce the need to use mercury, thus achieving measurable reductions in mercury releases. This work will require promoting the formalization/legalization of the sector, which is a necessary condition to any sustainable mercury reduction program.

III. PRIORITY ACTIONS

The Partnership will focus on three priority action areas:

1. Support government efforts in setting national objectives/reduction targets for ASGM, which may include:
 - Facilitate the development of ‘Strategic Country Plans’ using a multi-stakeholder process, including NGOs and miners.
 - Provide tools to assist in understanding and addressing policy aspects of the ASGM issue, including establishing good communication with and formalizing the ASGM sector.
 - Help with methods to characterize the extent of mercury consumption and emissions, building on existing information where possible.

Any government of a country where ASGM is practiced, and who are members of the Partnership, can request assistance of the Partnership in the form of tools and examples (generally available from the Partnership website) and in the form of identifying potential sources of funding for these activities.

2. Eliminate the worst practices in ASGM (whole-ore mercury amalgamation; open burning without mercury capture; and use of cyanide with mercury or after mercury use) and

promote awareness and adoption of clean ASGM practices and technologies among governments, NGOs, miners, cyanide manufacturers, gold shops owners and workers, gold financier and gold processing service providers/suppliers and other stakeholders.

- Eliminating worst practices could include activities that encourage and implement use of Best Available Technology (BAT) and Best Environmental Practices (BEP), to reduce or eliminate mercury consumption and releases into the environment. This would include stewardship on cyanide use and its incompatibility with amalgamation. When possible, the BAT/BET also should cover the proper mining planning, operation, mining closure and post-mining activities. Ideally, the proven BAT/BET should be disseminated and replicated in member countries.
- Promoting alternatives could also include supporting projects that:
 - Create opportunities to locally manufactured, affordable ore concentrating equipment.
 - Expand the use of mercury vapour control technologies and retorting in small-scale gold processing, and establish chain of custody throughout amalgam processing from gold miner to end-user.
 - Document and make available, in a way that is helpful and convincing to miners, ways to increase gold yield from alternative practices compared to existing mercury-based practices.
 - Increase the availability and the dissemination of user-friendly information to communities and community-based groups regarding mercury risks and ways to reduce occupational/ environmental exposures and environmental contamination.
 - Increase cadres of trained local specialists to work in communities on a long-term basis to foster behaviour change among miners, through, for example, regional training centres.
- Where possible, all general awareness-raising and other materials should be available in English, Spanish and French, and Partners should also translate materials from specific country activities into local languages to encourage wide understanding and acceptance.

Capacity building is considered of essence to achieving the previous objectives. NGOs, which often work on the ground in close collaboration with communities, should be included in capacity building and other activities where possible.

3. Explore innovative market-based approaches, including:
 - Support the development and implementation of fair trade/fair-mined standards while also clearly articulating the advantages and disadvantages of such programs.
 - Build capacity among miners to meet mercury management components of fair trade programs.
 - Promote environmentally sound gold products locally, regionally and globally through, for example, raising awareness of gold buyers and consumers.

IV. EVALUATION

The ASGM Partnership Area will report periodically to all Partners regarding ongoing efforts (at least twice per year, but more often as warranted by Partners' news and activities) and will

report biennially to the UNEP Governing Council through UNEP on progress under the Partnership¹. Partners should also provide periodic reports to UNEP upon completion of priority activities. To the extent possible, results will be reported in terms of measurable results related to the Partnership objectives, consistent with the targets and milestones identified in the Partnership efforts. The particular metrics used for reporting will differ depending on the type of activity undertaken.

- On a field project level, the Partnership will encourage implementing Partners to report measurable field project results, such as:
 - Number of miners (or other target recipients) trained.
 - Production of awareness raising materials/ training materials.
 - Successful completion of demonstration of alternative technology.
 - Where possible, typical number of kilograms of gold produced by ASM for one kilogram of mercury used and/or typical emissions reductions achieved.
 - Typical amount of mercury purchased, used and traded by ASG miners before and after intervention.
 - Availability of environmental quality data in relevant areas.
- For broader policy-level activities, results indicators could include updates on:
 - Number of partners or member countries involved in the Partnership.
 - Numbers of projects/studies conducted by the individual partnership members, with clear indications of how the Partnership supported or facilitated the work, or if the work is independent activity that aligns with Partnership goals.
 - Number of developing countries involved/assisted.
 - Status of data gathering in assisted countries.
 - Delivery of tools and models on national strategies, formalization, technologies and other products that will assist governments and others to promote mercury reductions in ASGM.
 - Successful use of these tools by the intended audience.
 - New opportunities or initiatives that could benefit from Partnership support.

Measurement of the overall global reduction of mercury that results from Partnership activities will be difficult to track and measure, given the lack of reliable global trade and use data for this sector. Where data are available to support the evaluation, the Partnership should reflect on how the Partnership activities are contributing to the overall mercury reduction goal of the Partnership. For example, when tracking potential global reductions, the field level estimates of mercury used by ASGM in the target countries before and after interventions could be considered in light of the country-specific mercury inventory data for that target country (baseline is the 2005 data from the 2006 UNEP Trade Report).

In 2011, UNEP engaged David Murphy, an independent consultant with significant experience in partnership development and implementation, to undertake an independent strategic review of the work to date of the artisanal and small-scale gold mining (ASGM) partnership area of the Global Mercury Partnership (GMP). This review will be made available to the Global Mercury Partnership Advisory Group at its meeting in November 2011. The scope of the review is limited due to limited financing. The review will focus on

¹ UNEP will develop a systematic reporting format and timeline for the partnership areas to follow.

the following key elements with an aim to improve the partnership area effectiveness over time:

- Identification of the main achievements, challenges and lessons learned to date (including both partnership outcomes and the partnering process with a particular emphasis on communications and participation).
- Guidance on improving communication between partners, and enhancing the participation and engagement of current and prospective partners (in particular the private sector).
- Scoping of the most promising opportunities for financing, other forms of resource mobilization and the scaling up of ASGM partnership activity.

V. RECENT/CURRENT/ONGOING EFFORTS OF THE PARTNERS

Below is a description of various projects and activities of a number of Partners. These projects are not directly funded by the Partnership, as the Partnership is not a funding entity. However, many of these have been facilitated through provision of information, references, models and advice from the Partnership. Others are examples of projects carried out independently by Partners that align with Partnership objectives and provide examples/models of successful interventions that can be built on by other Partners. Information, reports and results from many of these projects are available on the Partnership webpage, where such information is made available to the Partnership. More information on the recent and future activities of the partnership can be found in Annex 1 of this document.

Priority Action 1: Support governments in setting national objectives/ targets

Strategic Action Planning: Several Partner governments have begun the process of developing national strategic action plans that describe a specific timeline of activities for achieving specified mercury reductions in their countries. The Partnership has played a role in providing advice on the structure of these projects and in mobilizing resources from donors:

Regional Strategic Planning Project for Francophone West Africa. This project kicked off in December 2009. The project was funded by UNIDO, US EPA (through UNEP) and Finland. Six countries participated: Burkina Faso, Mali, Senegal, Guinea, Cote d'Ivoire and Niger. The objective of the kick-off meeting was to collect data and raise awareness among stakeholders about the problems related ASGM in their countries. Countries were then provided funds to initiate national strategic action plans. Burkina Faso, Mali, Senegal, and Cote d'Ivoire have already provided draft plans. Due to local issues, Guinea and Niger are still in the process of producing drafts. As follow-on to these activities, Mali received funds from the SAICM Quick Start Program to create a more comprehensive national action plan. Also, a new regional project for this region will be implemented as part of a new GEF program on mercury.

ASGM Asia Regional Strategic Planning Project. With the SAICM Quick Start Program funding, and with the assistance and advice of Partnership members, the governments of the Philippines and Cambodia participated in a regional strategic action planning project. Both countries prepared national plans as part of this process. The Philippines prepared an ASGM National Strategic Action Plan that commits specific agencies to specific actions. The Department of Environment played a key role in bringing the various government agencies and stakeholders to the table; importantly

the plan is also based on substantial consultation with miners and mining communities. Cambodia created a National Strategic Action Plan, but is still in the process of updating this plan with additional consultations. These plans were presented at the project conclusion workshop in March 2011, where several other countries from the Asia region were in attendance: China, Indonesia, Malaysia, Mongolia, Viet Nam, and Laos. The presence of these countries allowed the participants to identify additional opportunities for regional cooperation among the countries on ASGM.

Latin American Regional Strategic Planning Project. With the SAICM Quick Start Program funding, the governments of Peru and Bolivia are participating in a regional strategic action planning project. Both countries are preparing national plans as part of this process, which should be discussed at the project conclusion workshop scheduled to be taken place in Peru during the last week of September or first week of October 2011. Colombia and Ecuador will be joining complementary efforts to this project. An eight-month project entitled “Contribution to the development of a strategic regional plan for the reduction of the use of mercury in the ASGM sector” started on 1 August 2011, an activity between UNEP and Ministry of Environment, Housing and Territorial Development in Colombia.

In a related development, Peru’s Multisectorial Technical Commission has prepared a technical proposal document for the National Plan for the formalization of artisanal mining activity. This plan calls for the implementation of a management tool capable of linking organizational, technical, legal and environmental issues surrounding the value chain of artisanal mining and its stakeholders, as well as makes recommendations for facilitating this process.

(http://www.minam.gob.pe/index.php?option=com_content&view=article&id=1258:propuesta-plan-nacional-para-la-formalizacion-de-la-mineria-artesanal&catid=124:populares&Itemid=145)

Anglophone West Africa Regional Meeting on Mercury Use in ASGM. US EPA, with advisory support from the Partnership, supported a regional multi-stakeholder workshop for Anglophone West Africa sub-regional action planning on mercury use in artisanal and small scale gold mining. The meeting was held from 8-10 June 2011 in Lagos, Nigeria. The meeting provided an opportunity for very lively and important discussions and sharing of experiences among countries in the region, and also enhanced communication among the various stakeholder agencies and ministries (Environment, Mines, Health) who must work together on this issue. UNEP/USEPA will also support a limited number of follow-up planning activities in these countries. As an additional follow-up to this meeting, Nigeria and Liberia have requested UNEP to support them in the development of a SAICM Quick Start Regional Strategic Planning project, similar to and building upon the project funded in Asia. A project proposal was submitted to the SAICM Quick Start Fund for the August 2011 project submission.

Indonesia Training and Technology Transfer on Mercury Use in Artisanal and Small Scale Gold Mining. The project, funded by US EPA, will build on the success of the previous and existing project work of some partners in Indonesia. The project will support two national workshops to raise awareness among policymakers of the problems of ASGM and encourage the development of a national action plan, as well

as conduct field work in selected regions to promote better ASGM practices (mercury-free methods, retorts, etc.) and educate mining communities about health risks.

Review of National Strategic Action Plan Guidance Document. UNEP, in collaboration with the Partnership, has prepared a guidance document on the formulation of national strategic action plans for the ASGM sector. This guidance was prepared particularly for countries participating in the regional strategic action plan projects in South East Asia and Latin America but is broadly applicable to any country that wishes to create such a plan. The Guidance was updated in July 2011 based on the experience in applying it in Asia to date (this updated version is available in English only on the UNEP web-site). As needed, it will also be updated based on the experiences in the Latin American countries. The original draft document (in English, French and Spanish) can be found on the link below, under “Draft Guidance Document”:

<http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/ArtisanalandSmallScaleGoldMining/Reports/tabid/4489/language/en-US/Default.aspx>

Formalization/ Legalization Document. UNEP is developing an ASGM Formalization Guidance Document to examine the economic and social factors underpinning mercury use in ASGM, and to provide case studies of formalization and legalization in this sector. The creation of the guidance was first recommended at the Partnership Advisory Group (PAG) meeting in 2009. The creation of this guidance acknowledges that if progress is to be made on reducing harm from mercury use in this sector, social/ legal factors must be understood and considered when designing policies to reduce mercury use. UNEP engaged the Alliance for Responsible Mining (ARM) to act as the lead drafter and coordinator of the document. The document will include case studies on Mongolia, Peru, Ecuador, Tanzania and Uganda. There will also be a main document summarizing important issues and lessons from formalization, which will draw on experiences throughout the world. The draft document will be completed and circulated for comment in the second half of 2011, with aim for completion by the end of 2011.

Mercury Watch. The Mercury Watch Database is a project of the Artisanal Gold Council (AGC), with support from UNEP. The project (www.mercurywatch.org) is dedicated to collecting, analyzing, and publicly serving information needs about mercury use and emissions around the world, with a focus on artisanal and small scale gold mining (ASGM). This information is needed by governments and other stakeholders in order to prioritize actions on ASGM.

Economic Perspectives Document ASGM provides an important employment opportunity where alternative livelihoods are often not easily found or developed. ASGM is recognized as the largest job provider of the gold extraction sector. Yet, ASGM currently cannot reach its full potential to contribute to economic development, in part due to improper use and management of mercury in artisanal gold production. What is more, mercury-intensive ASGM operations, as well as the other segments (MSM, LSM) of the sector, also have negative external impacts on other economic sectors. To examine these issues, UNEP DTIE Chemicals Branch is conducting a desktop study, entitled “Environment for Development Perspectives: Mercury Use in Artisanal and Small Scale Gold mining”, to explore the potential environmental and development co-benefits from elimination, reduction and safer use of mercury. UNEP DTIE Chemicals Branch is working in close collaboration with members of the Global Mercury Partnership and other stakeholders. A draft version of the

study was circulated to the Partnership for comment in August 2011, the final draft is expected by the end of 2011.

Options Document on Financing the Transition away from Mercury. One of the panels of the Global Forum (described in the “Completed Efforts” section) focused on measures for financing ASGM operations, in particular mechanisms for financial assistance to help miners in the transition away from the use of mercury. UNEP has initiated the development of an options document that explores different approaches for financing the mercury transition in artisanal and small scale gold mining based on existing models. A draft version of the work will be made available for public comment during the second half of 2011.

Priority Action 2: Eliminate worst practices and promote alternatives

Mercury Use in Colombia. UNIDO, with the University of British Columbia, is implementing a project in the Colombian province of Antioquia. The project, financed by the state of Antioquia, aims at raising awareness of the mining communities on the risks involved with the use of mercury amalgamation and at introducing mercury recycling and alternative methods. The expected results will be the replication to other regions. Initial successes of this project have led the Government of Antioquia to renew its support for the project and the Government of Choco has now provided funds for a similar action in its area of jurisdiction.

Mercury Emissions Control from Gold Shops. US EPA has demonstrated with measureable results a simple and an affordable (\$450) mercury capture system for gold shops in Brazil and in Peru (see “Completed Efforts”), with at least 80% efficiency of mercury capture, and will now continue to provide information to enable other ASGM projects to incorporate the Mercury Capture System in their outreach and implementation efforts, including the UNEP regional projects. In a related effort, USEPA recently conducted speciated monitoring and assessment around gold shops in a variety of settings in Peru to provide comprehensive characterization of airborne mercury emissions from small-scale gold processing shops based on a longitudinal study of the mercury aerosol and vapor releases of gold shops, data on the ambient mercury concentrations in the study communities, and qualitative estimates of human health risk from the gold shops to adjacent populations. Training and outreach videos about the Mercury Capture System are available from US EPA.

Tanzania Mercury Emissions Reduction Project. Three Partners, the Artisanal Gold Council (AGC), European Environmental Bureau (EEB), and AGENDA, have commenced a project to reduce mercury emissions in two small scale gold mining communities in Tanzania. Following an in-depth assessment exercise performed by AGENDA, the project aims to install mercury vapor condensers into gold shops. The condensers capture mercury vapor that would otherwise be released directly to the environment during the burning of amalgam. The overall goal of the project is to encourage the spread of this technology by demonstrating its economic and health benefits.

Demonstration Projects in Peru and Francophone West Africa. The US State Department is funding a project in Peru to (a) promote more efficient gold mining methods that help artisanal and small-scale gold miners recover more gold from the ores they process using less mercury, and (b) implement awareness campaigns to educate miners and mining communities about the hazards of mercury exposure. In Francophone West Africa, the State Department is funding a project to develop and implement an intervention model that self-replicates, to reduce and eventually eliminate mercury use in small scale gold mining operations, while improving health, environment and wealth of ASGM communities. Self-replication requires

incentives and education. Measures of success for the intervention model will include: improvement of economic opportunities for miners and their communities, increased knowledge of health safety, and environment, and a measured reduction in mercury use. Both of these projects were developed in consultation with the Partnership and both involve Partners as implementers.

Ghana Direct Smelting Project. The Artisanal Gold Council (AGC) is working with University of Mines and Technology (UMaT) in Tarkwa, Ghana, to replace mercury amalgamation in gold shops by introducing direct smelting kits. The kit consists of an efficient furnace, a few common compounds, and some other tools which enable gold concentrates to be directly smelted, thereby avoiding the mercury amalgamation step. In this project the direct smelting kits are being subsidized in order to introduce the approach to a wider audience, and to continue to test, adapt, and improve the technology. Education on the negative health impacts of mercury will be delivered along with training on the direct smelting technology.

Technical Guidance Document for ASGM. UNEP has commissioned the development of a Technical Document on Artisanal and Small-Scale Gold Mining (ASGM) through the Artisanal Gold Council (AGC). The development of the document was recommended to UNEP in the 2009 PAG meeting. The purpose of the document is to provide examples of existing technologies that can reduce mercury use and emissions in ASM communities. The document will cover various aspects of the mining process where operations could be improved to recover more gold and reduce the need for/use of mercury, including: gold liberation (crushing, grinding and milling); avoiding whole ore amalgamation and improving concentration (sluicing, panning, centrifuges, spiral concentrators, vortex, shaker tables, and flotation circuit); mercury retort /mercury capture systems; cyanide use and mercury; direct smelting; and promising but unproven techniques for reducing or eliminating mercury, such as new leaching technologies. This document will assist governments with the development of mercury reduction programs but is also being designed to be an easy-to-access source of basic education regarding ASGM processing considerations. A draft of the document is scheduled to be completed before the third session of the Intergovernmental Negotiating Committee Meeting in October 2011. The draft will be circulated to the Partnership and to the ASM community widely, for comments.

Artminers, Institute for Sustainable Mining. Introduction of Cleangold (mercury free) mining products to ASM communities. Cleangold, a mercury-free technology for artisanal and small scale gold miners, is now in 32 countries and new distributors in South and Central America have emerged. More information can be found at <http://www.artminers.org> and <http://www.cleangold.com>

Priority Area 3: Exploring innovative market-based approaches

Alliance for Responsible Mining/ FLO : The Alliance for Responsible Mining (ARM) and the Fairtrade Labeling Organization have developed a set of standards that cover social, economic, labor, environmental, and trading aspects of artisanal and small scale gold mining which includes strict mercury use criteria (pre-concentration required, retorting compulsory, contaminated tailings management) and even a chemicals free label — Fairtrade & Fairmined Eco — rewarding the nonuse of mercury nor cyanide and stricter restoration criteria. Miners that adhere to the standards can be certified as Fair-trade and Fair-mined Certified gold. These standards underwent substantial public consultation, including input from several of

the ASGM Partnership members. The Fairtrade & Fairmined Gold was launched in February 2011 in the UK and Canada. FLOCERT is the third party certifier for compliance with the standards. The standards are available at the ARM website www.communitymining.org and the FLO website www.fairtrade.net. Any Artisanal and small scale mining organization (ASMO) wanting to become certified under these standards, can now apply to FLO-CERT.

Artisanal Gold Fund. The Artisanal Gold Council (AGC) has launched the Artisanal Gold Fund, a development fund dedicated to improving small scale gold mining communities worldwide. The fund has been launched with a symbolic coin now available from the AGC (www.artisanalgold.org/artisanal-gold-fund). The fund will be partly monetized through trade in gold that entered the global pool from artisanal mining over the last 150 years. Proceeds contribute directly to AGC projects on environmental stewardship, poverty alleviation and health improvement. Reduction in the use of mercury is a strong focus of these projects.

VI. COMPLETED EFFORTS OF PARTNERS

This section of the business plan highlights key activities that the Partners completed in the past. Although many of these (though not all) were carried out independently of the Partnership (some prior to the formation of the Partnership), these activities are noted here because they provide important information on successful approaches to improving the ASGM sector and reducing mercury use, and represent valuable knowledge and experience that Partners possess, which can be built upon by other Partners for future activities.

Priority Action 1: Supporting governments in setting national objectives

UNEP Global Mercury Partnership Meeting on Approaches to Reduce the Use of Mercury in Artisanal and Small Scale Gold Mining, Tanzania. In collaboration with the World Bank, the Partnership held a meeting on Approaches to Reduce the Use of Mercury in Artisanal and Small Scale Gold Mining in Dar Es Salaam, Tanzania on October 15, 2010. The purpose of the workshop was to gather a cross sector of organizations involved in the ASGM sector in Tanzania (the Tanzanian government, the World Bank, local and international NGOs and the private sector) to share their experiences and plans for work, with emphasis on activities to reduce mercury pollution. Through this dialogue, the partnership identified areas of potential collaboration and developed recommendations for potential cooperation.

UNEP Global Forum on ASGM, Manila. From 7 - 9 December 2010, UNEP and the Global Mercury Partnership hosted a Global Forum on ASGM. The meeting brought together approximately 100 delegates representing 17 governments, NGOs and mining communities from many of the important ASGM regions. The meeting provided a venue for concrete dialogue on ASGM and in raising awareness among the participants. The meeting identified and discussed significant technical, social, economic, financial, legal and regulatory issues associated with ASGM. The meeting was organized into four panels: (1) Mercury Use in ASGM; (2) Legal and Regulatory Issues; (3) Social Issues; and (4) Financing the Transition Away from Mercury. The panels were followed by a session to discuss the INC process and the implications of a future legally binding instrument on mercury for the ASGM sector.

The meeting conclusions were:

- ASGM is a complex global development issue that presents challenges and opportunities in many countries.

- A number of technical solutions exist that can significantly reduce the use of mercury in ASGM and there is a willingness by the miners to adopt these technologies.
- In order to facilitate the transition, the following steps can be taken:
 - Establishing baseline information on ASGM;
 - Creating a favorable climate to move towards low-mercury and mercury-free alternatives;
 - Formalizing the sector; and
 - Building upon model financing schemes.

Commission for Sustainable Development(CSD) Learning Center and Training: USEPA, with help of UNIDO, and Partnership member Sam Spiegel, organized a "Learning Center" at the U.N. Commission for Sustainable Development, May 2010, on the topic of mercury use and mercury reduction in ASGM. The Learning Center provided three hours of training to participants from all over the world on best practices and strategic planning to address mercury use in the sector. Also, the Partnership co-lead presented information about the Partnership during a UNEP training session at CSD. Materials can be found on the UNEP Partnership website under “Meetings and Meeting Documents” at: <http://www.unep.org/hazardoussubstances/Mercury/InterimActivities/Partnerships/ArtisanalandSmallScaleGoldMining/tabid/3526/language/en-US/Default.aspx>

Priority Action 2: Eliminate worst practices and promote alternatives

UNIDO Global Mercury Project (GMP). The Global Mercury Project focused on reducing mercury use and enhancing clean production practices for ASGM in six pilot countries: Brazil, Sudan, Indonesia, Lao’s People’s Democratic Republic, Tanzania and Zimbabwe.

Many lessons were learned from the first round of UNIDO’s GMP efforts with relevance to future application:

There is no single solution that can be applied to all sites.

Identifying the needs of the miners proved helpful but other issues may have prevented a complete solution.

Artisanal miners will only implement any process if they feel that there is economic advantage associated with environmental practices.

Creating a greater presence in the field allowed for better implementation.

Solutions happen with a continued, not short-term, presence.

Flexibility in implementation and connectivity to other projects are essential.

Mercury replacement will take time; in the interim promoting better operations will achieve substantially reduced releases.

US EPA Small-scale Gold Processing Project. USEPA and the Argonne National Laboratory (ANL) developed and disseminated low cost, easily constructible Gold Shop Mercury Capture System (MCS) for gold processing shops. The MCS was first piloted and tested in the Amazonian gold producing region of Brazil. Pilots were also conducted in several areas of Peru, in both Amazonian and Andean regions. Field tests in Puerto Maldonado and Laberinto, located in the Amazon, and in Madre de Dios, a major ASGM gold producing region of Peru, showed that mercury emissions from participating gold shops were reduced about 80%. Similar results were shown at high altitude in Puno, in the Peruvian Andes. The technology was disseminated through a series of workshops and demonstrations around the country, hosted by the Ministry of Energy and Mines of the Government of Peru. Informational materials in Spanish were developed by Peruvian partners and are available. A total of 24 systems were installed in Brazil and Peru as a result of this

pilot. The construction manual and informational brochure for the MCS have been translated into Portuguese, Spanish and French. A final report, a construction manual, outreach pamphlets and videos are available at: <http://www.epa.gov/international/toxics/asgm.html>

Training of Trainers on alternatives of mercury and Best Available Techniques (BATs) and Best Environmental Practices (BEPs) in Artisanal and Small Scale Mining in

Tanzania (Phase III). AGENDA for Environment and Responsible Development (AGENDA) of Tanzania implemented this project from February 2010 to June 2010. The objective of the project was to ensure that important information on available alternatives of mercury as well as Best Available Techniques (BATs) and Best Environmental Practices (BEPs) is shared and passed on to artisanal and small scale miners through their regional associations as well as zonal mining officers (representatives of the Ministry of Energy and Minerals) and hence feed into government policy planning system for effective and efficient mercury phase out on mining activities in Tanzania. The project built upon the outcome of the scoping first phase that based on analyzing the extent of use and impacts of mercury pollution from artisanal gold mining activities in Tanzania. Furthermore, the project also liaised with the World Bank funded project ‘Tanzania Sustainable Management of Mineral Resources Project’ which has one component (Component A) aimed at helping artisanal and small scale miners, including gold miners. Part of this work will entail helping the miners improve environmental practices, including improving mercury management.

Senegal Improved Artisanal Mining Technology and Training Project. Senegal partnered with the United States EPA, UNIDO, the Blacksmith Institute, and local NGOs to reduce the use, emissions, and health effects of widespread mercury use in the gold mining region of eastern Senegal, near Tambacounda. Beginning with a baseline assessment of mercury use by field miners, partners developed and implemented a plan to train community-based NGOs and health workers on appropriate technologies for mercury capture and reuse, and safe mercury management techniques. The work resulted in the construction and purchase by miners of 985 retorts, adapted by the local communities for their use. Over 3000 people in mining communities in Senegal have been trained on mercury risks and best practices through the project.

Mongolia Mining Project. Mongolian NGO Sans Frontiers Progress (SFP) and PACT partnered with the United States government on an awareness and education and training campaign about mercury use, harm reduction strategies, and alternative technologies including a non-mercury sluice in the South Gobi mining region. A data collection component assisted in assessing the national mercury picture. Key results include broad dissemination of public awareness materials, development and dissemination of guidance on mercury free extraction methods, and completion of a baseline data survey.

Communities and Artisanal & Small Scale Mining (CASM) conference workshop on use of mercury in artisanal and small scale mining. At the annual CASM meeting held in Mozambique in 2009, several of the ASGM Partnership members organized a workshop on reducing the use of mercury in small scale mining. Participants represented a cross-section of miners and mining associations, government officials, and academics. In addition to the workshop, the Artisanal Gold Council also presented a half-day hands-on demonstration of mercury capture and gold refining for small scale gold miners. They also invited local miners to come to the conference venue and demonstrate their mining techniques.

Priority Action 3: Exploring and promoting innovative market-based alternatives

No Dirty Gold Comparison of Responsible ASM Initiatives. EARTHWORKS conducted a

comparison of standards of several leading initiatives working on responsible Artisanal and Small-scale Mining of gold. This publicly-available report, "The Quest for Responsible Small-scale Gold Mining," included a comparison of initiatives' standards on mercury use in small-scale gold mining. This report is available on www.nodirtygold.org

Meeting on Addressing the Social and Financial Challenges of Artisanal and Small Scale Gold Mining. In September 2010, the Partnership hosted an afternoon meeting on social and financial issues associated with ASGM in Geneva, Switzerland. The meeting was intended for members of the international community, private sector and other stakeholders located in Geneva, to encourage them to become more engaged in the ASGM issue. The meeting examined, among other issues, the role of the markets and other economic incentives in creating change in the ASGM sector. The meeting report can be found here (click under the second bullet):

<http://www.unep.org/hazardoussubstances/Mercury/PrioritiesforAction/Meetings/tabid/4490/language/en-US/Default.aspx>

VII. OPPORTUNITIES

In the context of the 5th GEF replenishment, funds have been earmarked to address the issue of mercury. Early discussions by Partnership leads with the GEF secretariat indicated that a few Medium Size Projects could be developed for Artisanal and Small-Scale Gold Mining. The partnership is now identifying project concepts. The projects should address the priorities of the partnership business plan as well as provide input to the intergovernmental negotiations. It should be noted that because GEF projects require an important co-financing component, Partners who are able to identify resources to complement the GEF proposed activities are more likely to be successful. To date, with the financial support of the GEF, the FFEM, SAICM, the US State Department and the USEPA, UNIDO, the Blacksmith Institute, ARM, AGC and UNEP have developed complementary projects to address the issue of mercury in ASGM in Francophone West Africa.

VIII. RESOURCE MOBILIZATION

The Partnership is a way of identifying and facilitating the mobilization of funding in a manner that is systematic, focused and harmonized. While the Partnership itself does not have resources to independently fund Partner projects, individual partners, having decided to work to advance the Partnership's objectives and business plan, may fund specific activities. The Partnership's objectives and business plan help provide clarity for potential donors and finance institutions who would like to share/pool their existing resources to work toward common goals. The Partnership also provides networking opportunities for practitioners in the field who would like to identify partners for collaboration on existing and future activities. The Partnership encourages donors to support activities of the Partners and provide a tool to leverage funds. Working with UNEP, the Partnership helps facilitate communication to ensure that individual activities or projects are connected to the larger, overall strategic goals of the Partnership, and to ensure that experience can be shared and lessons learned from Partners' activities in the sector.

Funding for Partnership Activities:

The Partnership does not serve as an independent funding mechanism for projects. Rather, through the voluntary collaboration and information sharing of the Partners, the Partnership

can help Partners develop specific initiatives, work with non-partners, or pursue projects consistent with Partnership objectives. It is hoped that the Partnership will serve as a mechanism to consolidate and leverage funding for large, strategic projects, with Partners working together to pursue such projects from donors. Partners are encouraged to discuss project ideas during Partnership discussions, include project ideas in updates to the Partnership business plan, and apply for funding to relevant funders and regional organizations (seeking to collaborate regionally).

As one potential source of funding for activities, developing countries and countries with economies in transition can submit requests for funding to UNEP under the UNEP Mercury Small Grants Program (see www.chem.unep.ch/mercury/Overview-&-priorities.htm).

UNEP also stands ready to assist countries to develop proposals addressing mercury issues under the SAICM Quick Start Programme (see www.chem.unep.ch/saicm/qsp.htm).

Currently the Partnership Leads contribute their time on a voluntary basis, and are assisted by the UNEP Secretariat in the administration of the Partnership.

Administration² and Management Support		Value	Source of Support
Partnership Lead ³	Facilitation and support of the partnership.	¼ person year	UNIDO (self supported) and NRDC (self-supported)
Organization Point of Contact	<ul style="list-style-type: none"> • Preparing Business Plan. • Preparing for meetings. • Logging meeting notes, tracking action items. • Collaborating with partners to strategically link to overall partnership goals and objectives. • Developing activity proposals in collaboration with partners. 	¼ person year	UNIDO (self supported) and NRDC (self-supported)
UNEP Secretariat Support	<ul style="list-style-type: none"> • Managing the website. • Taking in funding from multiple sources to fund projects. • Developing activity proposals in collaboration with partners. • Assisting the lead in following up activities by partners. • Other tasks as requested. 	¼ person year	In-kind support from UNEP

² Administrative support doesn't cover the cost of administering individual projects.

³ For the ASGM Partnership, the lead is UNIDO. The partner lead and the point of contact may be merged, pending the case

Other	Communication materials		In-kind support from Partners.
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IX. BUSINESS PLANNING PROCESS

Reviewing and updating of the business plan is an ongoing process that responds to the needs of the Partnership over time. Ideas and thoughts for improving the plan are welcome on means to identify and establish priorities; how best to take stock of efforts; determine whether the direction of the Partnership needs to be reconsidered; and measure the productivity of the Partnership.

Updating the business plan is an open virtual process, where the current version of the plan is circulated electronically to all members for contributions; direct information about Partners' activities and results is particularly encouraged. The plan is also reviewed annually at the Partnership Advisory Group meeting.

The initial business plan for the ASGM Partnership was produced in 2008. This updated plan reflects refined objectives, as recommended at the 2010 Partnership Advisory Group meeting, and reflects recent activities of the Partners that align with Partnership objectives.

All partners have an equal voice in participation. When possible, financial support should be provided to partners from developing countries to attend Partnership meetings (such as the Global Forum) and call in to teleconferences when these are held.

X. LINKAGES

Development of Emission Inventories.

UNEP continues to undertake field testing and implementation of the 'Toolkit for Identification and Quantification of Mercury Releases' and will begin new work in the Africa region in summer 2011. Information about supplies and trade can help support estimates of the amount of mercury used in ASGM. UNEP will report on this activity to the ASGM Partnership.

Mercury Fate and Transport Partnership.

The ASGM Partnership has a strong interest in improving emissions monitoring, data collection and reporting of mercury use in ASGM; including contributing to published data dissemination to support modelling efforts assessing extent of problem, and against which to demonstrate progress. The ASGM Partnership should link closely with the Fate and Transport Partnership.

Mercury in Waste Partnership.

The ASGM Partnership has a strong interest in reducing the amount of mercury present in tailings and other mining wastes. As appropriate, the Partnership will continue to interact with the Waste Partnership on this issue. Further, projects carried out in the field by our partners are likely to identify ongoing and historical contamination. Information about the nature and extent of contamination, where available, should be collected and communicated to those working on the waste partnership and contaminated sites.

Mercury Supply.

Currently, mercury is easily available with abundant supply from withdrawal from chlor-alkali plants, release of stockpiles, and production as by-product. In this circumstance, market forces are working against the development and adoption of alternatives to mercury use. Greater limitation on trade is likely to increase the price of mercury, resulting in increased financial viability of alternatives, an incentive for research into alternatives, and pressure on mercury users to ensure that it is used in the most efficient and effective manner, with minimal environmental releases. In comparison to an increased mercury price, the cost of technology to minimise or prevent releases to allow re-use also becomes more financially attractive. However, trade restriction program should be coupled with efforts on formalization and capacity building and technology transfers. The Partnership will liaise with the Mercury Supply partnership area as necessary to support reducing supply and safe sequestration of mercury.

Cost of Inaction Report

Balifokus is developing a QSP Proposal together with UNEP Cost of Inaction Mainstreaming team on Sound Chemical Management. The proposed study will be an assessment on the Cost of Inaction on Mercury in Artisanal and Small-Scale Gold Mining in Indonesia, will look at the socio-economic impacts of mercury in ASGM focusing on four sectors (agriculture, fisheries, forestry and public health) tested in four key ASGM sites in Indonesia. The study is part of the four case studies developed by UNEP within the framework of the Cost of Inaction.

World Bank Mining Sector Loan Projects

The World Bank has made mining sector loans to several African countries that include components on ASM. The Partnership will continue to track these activities and to interact with them where possible to ensure that mercury use and ASGM is addressed.

Sound Management of Mercury in ASGM Sector in Asia

US Department of State recently awarded a grant to Ban Toxics! and BaliFokus for a regional project on the development of national approaches on environmentally sound management of mercury in the Southeast Asia, focusing on Philippines and Indonesia, with special attention to ASGM sector and Health Care Sector. The results of this study will have significant implications for management of mercury in the ASGM sector.

XI. PARTNER CONTACT INFORMATION

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Annex 1

Priority Action 1: Support governments in setting national objectives/ targets

- a) The Partnership is assisting UNEP in planning and organizing the second Global Forum to reduce mercury use and emissions in ASGM. As of now, the forum is going to be held on the 3-5 of September 2013 in Lima, Peru.
- b) The Philippines recently received funding from the Global Environment Facility (GEF). This GEF project focuses on strengthening local and national capacity to effectively reduce mercury use, emissions and exposure in ASGM communities in the Philippines through demonstration and replication of mercury reduction and elimination projects. Local and national stakeholders will receive health, techniques, and technology trainings, and promote policy reforms based on the lessons learned.
- c) Through UNIDO, SAICM, has provided funding to Mali and Cote d'Ivoire to establish an inventory of the extent of the sector in the countries as well as finalizing their National Action Plan. The Artisanal Gold Council (AGC) has commenced work in the Ivory Coast by carrying out two-day training sessions with government officials, academics, civil society, and ASGM

representatives. A key component of this training was the elaboration of ASGM inventory methodologies.

- d) Through a U.S. State Department grant, the Environmental Law Institute is working in Nigeria with various stakeholders to assess the ASGM sector and develop legal and policy recommendations to assist the Nigerian government to address mercury and lead poisoning issues associated with ASGM.

Priority Action 2: Eliminate worst practices and promote alternatives

- a) A GEF project, developed in Ecuador and Peru, aims to demonstrate and replicate mercury emission reduction methods and non-mercury gold extraction for the artisanal and small-scale gold mining sector located in the Puyango-Tumbes river basin region. The project is implemented by UNIDO with strong involvement of other partners, including INIGEMM, the national counterpart in Ecuador; ALA, the local water authority in Tumbes, Peru; and the University of British Columbia.
- b) Ban Toxics, together with the Danish NGO, Dialogos, the Department of International Health, Immunology and Microbiology (ISIM) of the University of Copenhagen (Faculty of Health Sciences), International Committee of Environmental, Occupational and Public Health (Danish Society of Environmental and Occupational Medicine), Geological Survey of Denmark and Greenland, and the Benguet Federation of Small-Scale Gold Miners, Inc. have embarked on a multi-year, multi-pronged project to introduce mercury-free techniques utilizing miner-to-miner and rural health worker trainings. The project focuses on indigenous expertise and excellent progress has been made in convincing and motivating miners to move away from mercury, particularly in indigenous communities. At least 1,100 miners have been trained in the project area. Currently the project is beginning to monitor the amount of mercury reduction induced by the project and create local structures that will sustain the achievements long after the project's end.
- c) The US State Department has an ongoing demonstration project in Francophone West Africa to develop and implement an intervention model that self-replicates, to reduce and eventually eliminate mercury use in small scale gold mining operations, while improving health, environment and wealth of ASGM communities. Self-replication requires incentives and education. Measures of success for the intervention model will include: improvement of economic opportunities for miners and their communities, increased knowledge of health safety, and environment, and a measured reduction in mercury use. In Francophone West Africa, AGC has been able to: develop detailed inventories of 36 different ASGM sites in Burkina Faso; strengthen the Burkina Faso ASGM national estimates and supply chain mapping as a result of the collection of additional information; comprehensive ASGM inventory training of our Burkina Faso representative; select the Burkina Faso mercury-free processing plants and develop the technical and feasibility of logistical requirements for ordering, importing, assembling, and maintaining them.
- d) The US State Department is funding a project on reducing mercury use and release in Andean Artisanal and Small Scale Gold Mining. This project includes: (1) evaluating mercury levels in the air in Piura mining operations, (2) educating and training miners in Suyo, Servilleta, Morocho and San

- Sebastian on techniques to reduce mercury use and exposure, (3) promoting the establishment of the International Training Center of Artisanal Miners (ITCAM) in Portovelo, Piura, and (4) educating and training miners in Bolivia on techniques to reduce their mercury use and release. Continuing its work in the Andes, the U.S. State Department is preparing to fund the Biodiversity Research Institute to further promote the International Training Center of Artisanal Miners and to develop on-line educational tools for miner training.
- e) Since 2011, now extended to 2014, the U.S. State Department has funded a sub-regional mercury storage project in the Philippines and Indonesia. This project brought stakeholders together to develop a national approach to the environmentally sound management of mercury, with focus on the storage of mercury from the ASGM sector. The project will also include nationwide mercury monitoring in ASGM hotspots, development of technical and non-technical methodologies to identify mercury use, and understanding gender roles in small-scale mining and contribution of women to mercury-free transition in the sector.
 - f) UNEP, with funding from US EPA and in collaboration with its project partner (Blacksmith Institute) has completed implementing a training and technology transfer project on reducing mercury use in ASGM in Indonesia. The project primarily focused on technical interventions to significantly reduce mercury emission from ASGM. Since the inception of the project, ninety retorts, ten sluices (to ore processors) and fifty water-box condenser systems have been distributed, helping in reducing mercury use in specific regions of the country. The project also worked on promoting health awareness, training of miners and outreach through media. During project implementation, a National multi-stakeholder workshop was held to promote the development of a national strategic plan. A second national workshop was held in the last quarter of 2012. As a result of the national action planning workshops, the Government of Indonesia is moving ahead with producing their first national action plan for addressing mercury use in ASGM. US EPA has already offered to provide guidance to the Government of Indonesia as they undertake this effort.
 - g) PLAGBOL (Bolivia) together with Blacksmith Institute, the Danish NGO, Dialogos, Geological Survey of Denmark and Greenland, the Danish NGO ICOEPH and the Federation of Small-Scale Miners, in La Paz Bolivia, have embarked on a one year (April 2013 to April 2014) pilot project to introduce mercury-free techniques utilizing miner-to-miner trainings, training of health care workers and awareness raising in mining societies in Bolivia. The project is financed by Empleomin (a EU funded entity in Bolivia) and the Danish Embassy. The project is bringing miners from the Philippines to reach out to Bolivians miners to train them on the adoption of mercury-free techniques. The project is focusing on indigenous expertise that improve upon gravitational methods (e.g. use of sluice box and panning) and the use of direct smelting at the refining stage of the process, as demonstrated in the Philippines project mentioned above. The project has started a mapping of problematic mercury polluted areas and later this year trials with the mercury free method is taking place alongside the trainings and awareness raising. If the pilot proves to be successful then funds for a second phase for several years will be pursued.

- h) The U.S. Department of State is funding a project in Nicaragua implemented by the Artisanal Gold Council to develop and implement a technical and governance model to reduce and, where feasible, eliminate mercury use in Nicaragua's ASGM sector without diminishing economic opportunity; build capacity and raise awareness on mercury reduced/free technologies, and health and safety; and implement activities to build institutional capacities in ASGM policy development.
- i) The U.S. Agency for International Development (USAID) is working to support the efforts of Colombia's national, regional and local authorities and local miners' organizations in promoting economic and social development in the gold mining regions of Northern and North-eastern Antioquia, through the formalization of small illegal/informal mining operations. This includes strengthening the capacity of informal miners' organizations in Northern Antioquia to assist members in adopting environmentally sound technologies, accessing legal services and markets that reward best practices (including certification if feasible), and enhancing their ability to negotiate agreements and contracts with formal mining operations on fair and equitable terms; and improving the environmental and economic performance of small-scale mining operations through the generation and transfer of environmental best practices and technologies to lower costs, increase recovery efficiency, and mitigate negative environmental impacts (including pilot initiatives to develop and disseminate alternatives to decrease the amount of mercury per unit of gold produced, as well as the restoration of degraded areas).

Priority Area 3: Exploring innovative market-based approaches

- j) A Global Environment Facility (GEF) project is underway for Francophone West Africa (Burkina Faso, Mali and Senegal). By transferring technologies that eliminate mercury emissions from the sector and introducing the Fairtrade/Fairmined standard at selected sites in the three countries. This project has collected data; initiated discussions on formulating a National Action Plan; distributed, and where feasible, demonstrated the Technical Guidance document in the field. A mercury-free processing plant is planned for a pilot community in Senegal by the end of 2013.