

Development of National and Regional Approaches  
to Environmentally Sound Management of Mercury  
and Mercury Monitoring in Southeast Asia:

**Learnings AND Final Report**

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BALIFOKUS

# About the Report

This Final and Learnings Report (Report) is part of the deliverables under the US Department of State (USDOS) project, Development of National and Regional Approaches to Environmentally Sound Management of Mercury in Southeast Asia, Award No. SLMAQM-11-GR-0027.

BAN Toxics (BT) and BaliFokus (BF) are the implementing partners of the project in the Philippines and Indonesia respectively.

The Report provides a summary of the quantifiable outputs and qualitative report on the outcome and impacts the project has generated. Moreover, this Report also attempts to put together three years of significant learning and insights into the mercury issue in the Philippines and Indonesia and serves as a guide for civil society organizations, national and local government units, and other interest groups who may wish to undertake the same of type of initiative in their own countries or communities.

BT and BF recognizes the different context of each country/community and that not all examples or insights gathered in this Report will be appropriate to every cultural, social or political situation. Nonetheless, we enjoin the reader to use and apply the approaches according to the context of their country or community.

## Notes on the Report

When reading this Report, please note that the Project was developed and undertaken in 2011 and completed at the end of 2014. During this period the Minamata Convention on the Control of Mercury (Minamata Convention) was signed on the 10th of October 2013. Thus, the reader may find some concepts in the project and terminology, at times inconsistent with those used under the Minamata Convention.

Foremost is the concept of mercury storage under the Project, which covered both elemental mercury and mercury wastes or wastes containing mercury. However, during the Project implementation, the Minamata Convention was finalized and the concept of storage and long-term storage or disposal was bifurcated resulting in:

1. Non-waste mercury is covered under Article 10; and
2. Waste mercury is covered under Article 11 of the Minamata Convention.

The effect of the above bifurcation affected the scope, requirements, and obligations under storage of non-waste mercury.

Another concept that has differed slightly when the Project was developed is the concept of a National Strategic Plan on ASGM (NSP) which was introduced by UNEP in 2009-2011 before the mercury negotiation took place.

Under the Minamata Convention, instead of an NSP, a National Action Plan for ASGM is required under specific conditions (Article 7 and Annex C of the Minamata Convention).

With the two key differences noted above, readers of the Report must keep in mind that the mercury storage concept, which the Project pursued, covered both non-waste and waste mercury. Further, Project efforts to pursue the development of an NSP were ultimately made to align with accomplishing the Minamata NAP requirement a NAP for ASGM or for mercury waste.

## Structure of the Report

The Report is comprised of 4 sections.

**Section 1** gives a brief overview of the original project and a brief description of the succeeding amendments, namely: Project Extension -Mercury Monitoring Project (June 15, 2012-December 31, 2013) and Project Extension - Strengthen ASGM community phase-out and storage of mercury by recognizing the unique role of key stakeholders in the community (June 1, 2013 - December 31, 2014).

**Section 2** discusses the Outcomes and Cumulative Results of the corresponding projects. A summary of the Outputs will be presented as annex to this Report.

**Section 3** presents the Unexpected Results resulting from the Projects initiatives in Indonesia and the Philippines and the corresponding knowledge products produced during the project period.

**Section 4** elaborates on the insights gained in implementing the projects as well as description of opportunities, challenges, and recommendations [including a roadmap for the establishment of a Southeast Asian regional cooperation on mercury] and on particular aspects or elements of the appropriate project.

Lastly, included in the Annex of the Report are the relevant information on outputs and deliverables per project, an RBM log-frame for the project, media logs indicating successful media pick-ups in the respective countries, and selected project photos.

# TERMS and ACRONYMS

APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASGM	Artisanal Small-scale Gold Mining
BT	BAN Toxics
BF	BaliFokus
CFL	Compact fluorescent lamp
CISU	Civil Society in Development
DENR	Department of Environment and Natural Resources
GEF	The Global Environment Facility
Hg	Mercury
LGU	Local government unit
MEA	Multilateral Environmental Agreements
MeMo Project	Mercury Monitoring Project
Minamata Convention	Minamata Convention on Mercury
MOU	Memorandum of Understanding
NAP	National Action Plan
NGO	Non-governmental organization
NSC	National Steering Committee
NSP	Philippine National Strategic Plan on the Phase out of Mercury in ASGM
TWG	Technical working group
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Environment Organization
US Embassy	United States Embassy
US DOS	United States Department of State

# Table of Contents

About the Report	2	SECTION 3: Unexpected Results and Knowledge Products	13
Notes on the Report	2	3A. Unexpected Results	13
Structure of the Report	2	3B. Knowledge Products	15
Terms and Acronyms	3		
Section 1: Project Description	5	SECTION 4 – Opportunities, Challenges and Recommendations (Sustainability and Way Forward)	16
Development of National and Regional Approaches to Environmentally Sound Management in Southeast Asia	7	Mercury Storage	16
		Mercury Monitoring	16
		Strengthening Participation of ASGM Stakeholders	17
Succeeding Project Amendments	8	Recommendations and Strategies for Sustaining the Project Gains	19
Figure 1. Logical framework of the Project using the Result-Based Management (RBM) Approach	6		
SECTION 2 - Project Outcomes and Cumulative Results	7	ANNEX A – Outputs and Indicators	
<i>OUTCOME 1: Improved capacity to manage mercury storage in ASGM and Health Care sector</i>		A.1 Storage Project	20
A. Indonesia	7	A.2 MeMo Project	21
B. Philippines	8	A.3 Project Stakeholder	23
		ANNEX B. Media Logs	25
<i>OUTCOME 2: Improved Indonesian and Philippine capacity at the national and local levels to monitor mercury pollution from the ASGM and Health sectors leading to reductions in emissions and releases.</i>		ANNEX C. Project Implementation Pictures	26
A. Indonesia	9		
B. Philippines	10		
<i>OUTCOME 3: Increased key stakeholders capacity to reduce mercury pollution from the ASGM and Health Sectors</i>			
A. Indonesia	11		
B. Philippines	11		
<i>OUTCOME 4: Improved capacity of the project to sustain gains and learnings by leveraging and complementing with other relevant programs and initiatives of BT and BF</i>			
A. Indonesia	12		
B. Philippines	12		

# Section 1: Project Description

The original project entitled, Project: Development of National and Regional Approaches to Environmentally Sound Management in Southeast Asia (Storage Project) is an innovative and first of its kind project in Southeast Asia.

Pioneered before the completion and adoption the Minamata Convention on Mercury (Minamata Convention), the Storage Project recognized the challenge of managing excess mercury in the region and preventing it from making its way to the highly polluting artisanal and small-scale gold mining (ASGM) issue. The Storage Project also considered the challenge of managing mercury trade among the shared and porous borders of the Southeast Asian countries where ASGM is prevalent.

With this backdrop, BF and BT experimented on various interventions – due to lack of available knowledge and experiences in ASGM in terms of proven strategies and community development approaches, and launched the pioneering Storage Project.

The following project descriptions not only provides a summary of the projects but also reflects the evolution of the projects and the collaborative approach that the project proponents had with the US Department of State OES.

1. Project Title: Development of National and Regional Approaches to Environmentally Sound Management in Southeast Asia  
Amount of Grant: \$204,630.00

The purpose of the Storage Project was to promote the development of national strategic approaches to sequester, rather than export or use mercury in the Philippines and Indonesia, with specific attention towards the ASGM and healthcare sectors.

To achieve this goal BT and BF will be utilizing the Philippine experience BT gained in developing the National Strategic Plan on Artisanal Small-Scale Gold Mining process (NSP), when it successfully brought key stakeholders, and use this as a model to develop a National Plan for Mercury Storage (NAP) for the two project countries.

Since the Philippine NSP model has been tested, both Indonesia and the Philippines can benefit from its re-application and “leap-frog” obstacles allowing for quick and effective project implementation. The Storage Plan was slated to contain the following elements:

- a. Creation of a National Steering Committee composed of key stakeholders to guide the process, a Technical Working Group composed of local experts from various fields and agencies including business, to provide technical and specific programme advice, and a Secretariat to manage the administrative and logistics part of the Storage Plan.

- b. Regional Consultations with key stakeholders will be conducted. The consultation will be utilized to generate and verify data on site selection, costs estimates for the facility and building requirements, outreach, among others, as well as identifying elements that can be included in the business model to incentivize the surrender of mercury.

- c. Development of a Memorandum of Understanding among respective government agencies and stakeholders to ensure commitment to the Storage Plan implementation.

To establish the Indonesian NAP, the Storage Project will attempt to transpose the Philippine NSP Process to Indonesia through the development of a guidance document on developing a National Storage Plan for Mercury based on the Philippine experience. The Indonesian coordinator of the Project will then implement the guidance document.

Lastly, the Project will add a novel element by undertaking parallel work wherein the Indonesia component can begin developing a blueprint for a national plan for ASGM and healthcare sector because of the converging elements and stakeholders of storing excess mercury. By undertaking a parallel process, the Storage Project aimed to add value to the NAP by further minimizing use of mercury in ASGM as well as in the healthcare sector and facilitate in the recovery and storage of mercury in Indonesia.

## 2. Succeeding Project Amendments

- a) Project Amendment: Mercury Monitoring Project  
(June 15, 2012-December 31, 2013) (MeMo Project)  
Amount of Grant Funding: \$158,400

The Storage Project was conceived acknowledging that the Philippines and Indonesia were at different points in the development of policy and legal infrastructure with respect to mercury. The Philippines may be considered advanced because it has passed specific regulatory and policy instruments on mercury in the areas of healthcare, schools, and ASGM.

After a year of implementing the Storage Project, the project has already brought together various stakeholders and has jumpstarted a comprehensive process to address mercury storage. It also showed that certain critical variables that needed to be addressed. Early on the Storage Project, convincing miners/mercury users in healthcare to give up their mercury was seen as an important variable in the success of the project. In order to ensure that mercury users will be incentivized and for local officials to be able to evaluate and monitor emissions, the technical monitoring of mercury use and concentrations in the environment was developed. This will help officials monitor and verify if indeed usage has stopped in an area and to create momentum among users and regulators to continue pursuing planned phase out or reduction targets.

A second variable of the MeMo Project is to capacitate concerned community members so that they can support local efforts at monitoring mercury use and emissions in the environment. To address this variable, the MeMo Project sought to develop a non-technical approach to mercury monitoring in ASGM and the HealthCare sector through the use of site indicators, such as type of sluice box for ASGM, for healthcare facilities a review of the institutional purchasing policy, etc.

- b) Project Amendment: Strengthen ASGM community phase-out and storage of mercury by recognizing the unique role of key stakeholders in the community (June 1, 2013 – December 31, 2014) (Stakeholder Project)  
Amount of Grant: \$ 202,000

The Stakeholder Project proposes to set up an additional tool to sustain the project results. The purpose of the proposed project extension is to strengthen ASGM community phase-out and storage of mercury by recognizing the unique role of key stakeholders in the community, fostering dialogue, promoting and building their capacity to support and sustain the national strategic approach to sequester and store mercury, particularly in the ASGM sector.

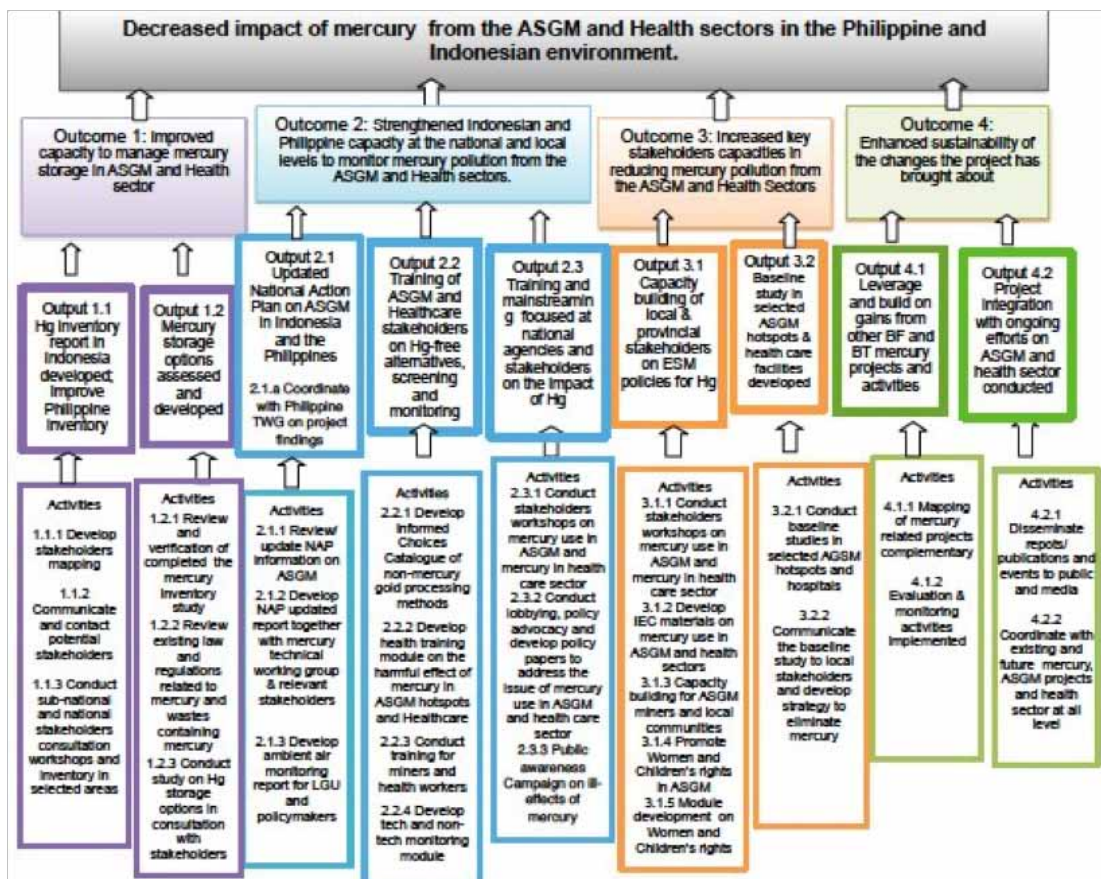
In Indonesia the focus is on developing local strategic approaches and engagement with mining communities. The effort attempts to bring together indigenous groups and miners to further work on sequestering and storing excess mercury.

In the Philippines, the focus will be on women. BT has studied the role played by women in two mining areas and study results show that women are untapped resource in fostering and sustaining change at the community level. BT aims to build steps to change gender dynamics in the mining community by enhancing women's economic contribution and capacitating them to change their perception of their role in the community.

### c) Logical framework of the Project

The log-frame of the project is shown in Figure 1 below. The log-frame described the goal of the Project and the outcomes intended to achieved and relevant activities and output that helped BT and BF accomplish the project accordingly.

Figure 1. Logical framework of the Project using the Result-Based Management (RBM) Approach





## SECTION 2 - Project Outcomes and Cumulative Results

The objective of the Storage Project serves as the impact statement that all three projects strive to achieve, that is developing national strategic approaches to sequester, rather than export or use mercury in the Philippines and Indonesia, with specific attention towards the ASGM and healthcare sectors.

To achieve the desired impact, various outcomes need to be identified and achieved. Outcomes are generally understood to mean a change that logically occurs once one or more outputs (direct product or service arising from the project) have been achieved. A result, on the other hand, is a change which is describable, measurable or calculable as a consequence of a cause and effect relationship.

As the Project grant documentation including past progress reports have been unclear on the expected project outcomes and results are, this section was developed in order to better describe and highlight these aspects of the various Projects that the reports were not able to properly show.

The section will enumerate the various Outcomes achieved under various Projects and the Results that accompanied the respective Outcomes. The Results discussion will elaborate on those achieved for Indonesia and the Philippines respectively.

**OUTCOME 1: Improved capacity to manage mercury storage in ASGM and Health Care sector.**

### A. Indonesia

#### Cumulative Results

##### 1. Enhanced capacity of local and national stakeholders in Healthcare and ASGM sector on mercury

- o Established an informal group of local stakeholders on mercury in healthcare sector established in Bali, Central Java and Jakarta.
- o Conducted awareness raising workshop on the mercury-free hospitals for healthcare workers and hospitals workers in Bali, Central Java, Yogyakarta, Jabodetabek and Jakarta Provinces.
- o Conducted awareness raising activities on the harmful effect of mercury use in ASGM sector for miners, local stakeholders and local governments conducted in Palu, Balikpapan, Jakarta and Lebak Regencies.
- o Trained healthcare workers to handle mercury spills and broken/unused mercury-containing devices conducted in 4 provinces.
- o Introduced and promoted best practices gained from Bali pilot hospitals to other cities.

Helped establish a National Technical Working Group on mercury consisting of relevant national agencies representatives and facilitated by the Ministry of Environment

- o An informal group of mercury stakeholders network on mercury in ASGM established consisted of community representatives, miners representatives, NGOs, and academia.
- o Some potential partners and collaborators in several provinces identified and mapped out

##### 2. Inventory of mercury emissions and releases developed and published

- o Consultation with national stakeholders conducted to get the agreed data and references for the mercury inventory study purposes.
- o The report of Indonesia's Mercury Emissions Inventory 2012 developed using UNEP mercury inventory toolkit level-1 version 1.
- o From the Inventory Report, the Indonesian stakeholders could identify the major sector considered as the biggest source of mercury emission and releases to the environment: 1) Gold extraction with mercury amalgamation; 2) Oil and gas production; 3) Coal combustion and other coal use; 4) Waste incineration and open waste burning; 5) Use and disposal of other products and, 6) Informal dumping of general waste.

##### 3. Relevant regulations regarding mercury reviewed and compiled

- o A study to review the existing regulatory framework on mercury trade, import, emissions and standard of mercury releases to environment from relevant sectors was developed, reviewed and discussed with relevant stakeholders.
- o The report has published and distributed to relevant mercury stakeholders.

##### 4. Mercury storage options assessed and developed

- o Assessment of options for managing the excess mercury supply and costing components of mercury storage in Indonesia and the Philippines developed and distributed to the stakeholders in both countries.
- o The inventory study revealed that the ASGM sector and the oil and gas sector will be the main beneficiaries of the mercury storage facility.

## B. Philippines

### Cumulative Results

1. BT was able to enhance the capacity of critical stakeholders in understanding important elements in the storage of mercury namely: mercury supply, trade, use, and disposal.

- o BT, in partnership with three major local government units (LGUs) in the Philippines, conducted a pioneering Household Hazardous Waste study (HHW Studies) covering 3 major cities of Cebu (pop. 2,619,362), Davao (pop. 1,363,337) and Marikina (pop. 424,610). Please see Annex 1 for list of number of participants and breakdown of activities. The HHW Studies provided the LGUs with a concrete baseline on the amount of mercury waste that could be generated in their localities.
- o The national multi-stakeholder technical working group (TWG) on ASGM and National Steering Committee (NSC) created under EMB Special Order series of 2010, "Creation of an inter-agency TWG, A National Steering Committee and a Secretariat for the development and implementation of a national strategic plan on ASGM relating to improving practices and working conditions and reducing the sector's impact on the environment" organized by the Department of Environment and Natural Resources extended its term to be able to address the issue of the Project on mercury storage.

The TWG comprises of several agencies, namely, the Department of Environment and Natural Resources (DENR), Health, Finance, Customs, Labor, Central Bank, Trade and Industry, Interior and Local Government, National Commission for Indigenous People, and other stakeholders from small-scale mining, NGOs, large-scale mining, and healthcare workers.

- o The Mercury Trade Report provided the first data on how mercury is traded in the Philippines which included sources and supply routes (see Section 3 for more details of the work product). This was submitted to the TWG and NSC for consideration.
- o Pioneered and mainstreamed the issue of mercury storage and sequestration in 5 Regions in the Philippines through regional consultations with stakeholders and the national media.
- o The following Studies have been submitted to the TWG and NSC which now serve as baseline data in developing the national action plan:
  - Environmentally Sound Management of Mercury in the Philippines
  - HHW Studies A2D
  - Mercury Trade Report

facility in the Philippines – for example, geographical limitations of the country in meeting full storage requirement.

The Studies also helped push greater emphasis on sound disposal of mercury. Lastly, the Studies have been endorsed to the NSC for a more improved policy on mercury.

2. BT's Storage Project activities helped enhance implementation of government policy and regulations on mercury controls, phase out, disposal and addressing ASGM

- o The Storage Project helped implement provisions of the Philippine National Strategic Plan on the Phase out of Mercury in ASGM (NSP), particularly furthering Objective 6: To develop and promote the safe handling and long-term storage of excess mercury coming from the ASGM sector which may include, but are not limited to, mercury suppliers, dental shops, gold dealers, freight forwarders, etc.
- o The Storage Project also helped enhance implementation of the following mercury regulations by sharing inventory data, updates on Minamata Convention negotiations, and information sharing from regional stakeholder consultations and fieldwork.
  - DOH Administrative Order 21 – highlighted need for secured storage of phased-out of thermometer and sphygmomanometers in healthcare facilities and its linkage with ASGM demand.
  - DENR Chemical Control Order Administrative Order 97-38 – prescribing the limits and regulates the use, manufacture, import, export, transport, processing, storage, possession and wholesale of mercury compounds. The Storage Project provided greater pressure for government to enforce law with the results of the Mercury Trade Report.
  - Republic Act 9003 or the Ecological Solid Waste Management Act of 2000 – LGUs in charge of the segregation and collection of household waste starting from the barangay (village) level as well as facilitating the operation of sanitary landfills and material recovery facilities (MRFs) > engaging LGUs to apply and implement the law
  - Executive Order No. 79 prohibiting the use of mercury in ASGM – assisted policymakers and enforcers to implement the law at the local level especially in BT project areas.



### 3. Enhanced capacity of several LGUs to manage mercury storage in BT project areas.

- o The Storage Project was able to motivate 2 major ASGM provinces (Kalinga and Romblon) to work on addressing the issue of storage. The development of a provincial ordinance in Kalinga and the development of a storage design for Romblon province are key results for the Storage Project.
- o Mobilized 100 volunteers to conduct the HHW study in 3 cities.
  - 134 LGU personnel underwent training as enumerators
  - 3,630 Households were surveyed and completed
- o Conducted additional inventory on mercury use in ASGM (Kalinga, Camarines Norte, Romblon, Masbate, Mindanano), healthcare sector (Cordillera Administrative Region and National Capital Region), and schools in several provinces and cities.

**OUTCOME 2: Improved Indonesian and Philippine capacity at the national and local levels to monitor mercury pollution from the ASGM and Health sectors leading to reductions in emissions and releases.**

## A. Indonesia

### Cumulative Results

#### 1. Development of a National Action Plan on ASGM in Indonesia

- o Several meetings held to initiate the development of Indonesia's NAP on ASGM.
- o Adopted the UNEP Guidance to develop NSP ASGM by National Mercury Technical Working Group.
- o The National Action Plan was developed, facilitated by UNEP and the Blacksmith Institute and lead by the Ministry of Energy and Mineral Resources, and the US DOS Project contributed in this national endeavor.

#### 2. Conducted several mercury emission, releases and ambient mercury monitoring studies conducted in various ASGM hotspots to build the case for the need to develop the NAP on ASGM and National Storage of mercury wastes.<sup>1</sup>

#### 3. The mercury monitoring results were presented and discussed with the local stakeholders to identify the interventions and develop local action plans.

- o Ten hospitals in Bali signed the Memorandum of Understanding (MOUs) with the Mayor of Denpasar City and BF and agreed to develop their Hospital Action Plans to phase out mercury-containing devices. The Hospital Action Plans were presented and shared to other cities.

#### 4. Developed and distributed a policy paper on mercury-free healthcare sector to all relevant stakeholders. The policy paper helped build the case for the need to phase out mercury-containing devices from the health care sector. Some preliminary activities were implemented jointly with Health Care Without Harm.

#### 5. The Mayor of Denpasar released two regulation and action related to mercury as a result of the piloting in Bali with 10 hospitals, and covered 50% of the disposal cost of the ensuing waste.<sup>2</sup>

#### 6. The City of Denpasar also conducted a preliminary study to identify a centralised temporary hazardous wastes at the city scale.

#### 7. Developed an Informed Choices Catalogue (ICC) to provide options and interventions of non-mercury methods in ASGM sector to complement the Life-Cycle Approach of ASGM.

- o The ICC shared and discussed with the BT team;
- o The ICC was developed based on the discussion and consultation with several groups of stakeholders and community leaders in ASGM hotspots; and,
- o The ICC provides information and reference on several non-mercury gold extraction methods that are suitable for mostly the primary rock gold mining.

#### 8. Facilitated and organized follow up consultations with local stakeholders to develop a systematic and programmatic approach on mercury monitoring conducted after the mercury monitoring activities conducted in several cities.<sup>3</sup>

#### 9. Produced and discussed with all relevant stakeholders a life-cycle approach to ASGM practices and Informed Choices Catalogue of non-mercury methods document has been stakeholders. The document was introduced and discussed with local stakeholder in 7 major regions and provinces.<sup>4</sup>

#### 10. Developed a health training module and mechanism to identify the early symptom of mercury intoxication in ASGM hotspots.<sup>5</sup>

<sup>1</sup> - Mercury monitoring in ASGM hotspots in Poboya, Palu City, Central Sulawesi; Cistitu Village, Lebak Regency, Banten Province; Sekotong, West Lombok, West Nusa Tenggara; Taliwang, West Sumbawa, West Nusa Tenggara; Hampalit, Central Kalimantan

- Mercury monitoring in gold market of Palangkaraya City, Central Kalimantan

- Mercury vapour monitoring conducted in several health care facilities and hospitals to build the case and the need National Storage of mercury waste: Sanglah Hospital; Wangaya Hospital; Bhayangkara Hospital; Udayana Hospital; Puri Bunda Hospital; Puri Raharja Hospital; Bali Royal Hospital; BaliMed Hospital; Surya Husadha Hospital; and Indera Hospital.

<sup>2</sup> These regulations are: a) Peraturan Walikota Denpasar No.21 Tahun 2013 tentang Penyelenggaraan Pelayanan Perijinan di wilayah Kota Denpasar - regarding the permit to keep hazardous wastes including wastes containing mercury for 90 days at the generator sites; and b) Allocated fund to send some mercury-containing wastes to the hazardous wastes facility in Gileungsi, Bogor. The City of Denpasar covered 50% of the disposal cost.

<sup>3</sup> Palu City, Balikpapan City, Denpasar City, Taliwang City (West Sumbawa Regency), Cistitu community in Lebak Regency, Gerung City (West Lombok), Bombana (Southeast Sulawesi) and Jakarta.

<sup>4</sup> Pidie Regency, Aceh Province; Cistitu, Lebak Regency; Sekotong, West Lombok Regency; Taliwang, West Sumbawa Regency; Bombana, Southeast Sulawesi Province; Wonogiri Regency, Central Java; Jakarta, Bogor, Depok, Tangerang; and Bekasi areas (Jabodetabek).

<sup>5</sup> Tried out the module in Cistitu village, Lebak Regency, in February 2015 with local health workers and community leaders in Cistitu.

11. Conducted training for health workers in ASGM hotspots to identify the early symptoms of mercury intoxication conducted in:
  - o Jakarta, Feb 2014 for 25 participants from 5 ASGM hotspots of Indonesia and the Philippines
  - o One BT staff and one health official from the Philippines LGU partner participated in the training and shared their experience in the Philippines.
12. In collaboration with BT, BF facilitated a field visit for 6 people from Indonesia to the Philippines to learn about ASGM miner organizations and non-mercury option methods practiced by the ASGM miners in the Philippines. A representative of local community leader, two geologists, a leader of a miner community and two BF staff participated in this visit. BT staff facilitated and organized the trip to several sites and meetings with relevant stakeholders.
13. BF helped facilitate a representative of BPPT (Badan Pengkajian dan Penerapan Teknologi), the Director of Mineral Technology Centre and a representative of the Ministry of Energy and Mineral Resources to participate in the ASGM Summit in Mongolia on August 2013.
14. Facilitated UNEP to disseminate the issue of mercury emission from coal-fired power plants to the Indonesian stakeholders.
15. Engaged with more donors and relevant stakeholders:
  - o US Embassy in Jakarta, Health, Environment and Science Division
  - o CIDA and Canadian Embassy in Jakarta
  - o Ford Foundation Indonesia office
  - o DFID Jakarta Office
  - o DANIDA and the ESP3 Indonesia Project
3. Formed knowledge base which stakeholders can utilize to conduct mercury monitoring, at a technical and non-technical/practical manner at the community level, health care facilities level and the city/region level and ASGM processing.
  - o Created replicable modules and materials on practical steps to monitor and evaluate mercury use in the ASGM and health care sectors (Technical and Community-based Monitoring Modules).
  - o Established benchmark on levels of mercury in ambient air in at least 7 project areas.
  - o Local ASGM partners gained greater skills and knowledge on various community-based mercury-monitoring approaches and as well as deeper understanding of the importance of forming as a group to closely steer the process through research and advocacy.
  - o Data and information on levels of mercury in the mining community provided greater push for local leaders to draw up local policies to reduce and eliminate mercury use.
4. Conducted training workshops on mercury monitoring, Hg-Free ASGM processing for miners (with special focus on women), and handling of confiscated mercury mine sites. BT also provided mercury vapour monitoring tests using the Lumex in the temporary mercury storage areas.
5. Mainstreaming of issue through national media – generated over US\$10,000 worth of PR Value of articles with the mainstream press. This value is very conservative as it does not yet take into account regional news pick-ups, TV and radio guesting, as well as social media activities conducted by BT.

6. The following proposed legislation/resolutions have been filed as a result of BT's mainstreaming activities:

- a. 2011 Senate Resolution: Urging the Senate Committees on Environment and Natural Resources and Local Government to Conduct an Inquiry in Aid of Legislation, on the reported high mercury vapor levels detected in Tondo, Manila with the end in view of enforcing mercury pollution prevention measure to ensure public health and safety;
- b. 2014 Senate Resolution: Directing the Proper Senate Committee to Conduct an Inquiry, in Aid of Legislation, on the reported high levels of mercury vapors detected in dental schools, stores, and institutions in the country, according to a study conducted by environmentalist group Ban Toxics;
- c. 2014 Senate Resolution: Directing the Proper Senate Committee to Conduct an Inquiry, in Aid of Legislation, on the need to increase the penalty for the practice of Compressor Mining and the use of mercury in small-scale mining to effectively ban this deplorable practice; and
- d. 2014 House of Representative Resolution: Directing the Committee on Health to Conduct an Inquiry, in aid of legislation, on Reports that Dentists Sell Mercury to Small Scale Mining Firms.

## B. Philippines

### Cumulative Results

1. Supplemented efforts of the DENR in the environmentally sound management of mercury wastes.
  - o Invited DENR Hazardous Waste division to attend TWG on ASGM to appreciate data on Hg storage.
  - o BT's ASGM partners (Kalinga, Camarines Norte, Masbate, Romblon, Compostela Valley, South Cotabato, Cebu City, Davao City, Marikina City, and MIMAROPA Region) understood the need for storage of mercury and mercury waste; and strengthened and shared resources to establish short-term storage options for their areas.
2. Storage and MeMo Projects activities helped implement Philippine NSP Objectives 4 and 5 (build and strengthen institutional capacity of LGUs and other ASGM support institutions; and, Enhance cooperation and partnership at all levels among miners, public authorities, industry sector, NGOs, church, academic institutions, and other stakeholders).

### OUTCOME 3: Increased key stakeholders capacity to reduce mercury pollution from the ASGM and Health Sectors

## A. Indonesia

### Cumulative Results

1. Conducted several workshops/meetings with ASGM local stakeholders to discuss methods to reduce mercury consumption and non-mercury options.<sup>6</sup>
2. Developed and distributed IEC materials to the local and national stakeholders of ASGM and healthcare sectors.
3. Developed, communicated, and integrated a baseline study developed in several ASGM hotspots and communicated to relevant stakeholders in several project areas.<sup>7</sup>
4. Developed and communicated a baseline study on mercury vapour in 10 hospitals and stakeholders in Bali. The baseline report was used as the reference to develop the Hospital Action Plan to phase out mercury in 3 years.
5. A policy paper on mercury-free hospitals has been developed and submitted to the Ministry of Health to advocate and justify the mercury-free hospitals program. The result is that the Ministry of Health launched the mercury-free hospitals program by the end of 2014.

## B. Philippines

### Cumulative Results

1. Re-framed the role of women in several small-scale mining areas and highlighted children as a critical stakeholder in the community.
  - o Researched and released a study on women's situation and role in ASGM highlight the realities faced by women in the sector.
  - o Fostered increase in understanding of the areas where women can be empowered and can contribute to the development of the community in the immediate and long-term.
  - o Highlighted the conditions of children in ASGM as well as raising capacity of local ASGM partners in steering measures to protect children in mining areas through the development and introduction of a children's module for ASGM communities.

### 2. Strengthening women and children's role in ASGM communities

- o Conducted pioneering, 1st Women Miner's Summit in the Philippines.
  - o Increase training of women and children on knowledge of Hg toxicity.
  - o Encouraged partnership with women and children as partners in raising awareness on Hg toxicity.
3. Cross-pollination of skills between BT and BF and our local partners. Trained BF personnel on the use of the Lumex and monitoring techniques; guided BF and their local partners on mercury monitoring in the field, and shared information and experience with BF partners during their Indonesian activities.
  4. Increased capacity of local academic institution, particularly with Ateneo de Manila University, on the issue of mercury storage.
  5. Trained the Department of Health personnel in the use of Lumex in the field and assisted them with the bio and environmental monitoring work in several ASGM areas.
  6. Helped instil citizen science in several ASGM communities. There were concerns over water contamination in one ASGM village, and the villagers took the initiative to inquire and seek laboratories that can help them identify possible contaminants in their drinking water. This action came about after BT's information, education, and communications campaign in the area.
  7. Developed a Life-Cycle Approach Module for local governments through consultations with experts and miners.

<sup>6</sup> Cisitu Village, Lebak Regency, Banten Province; Sekotong, West Lombok Regency, West Nusa Tenggara Province; Taliwang, West Sumbawa Regency, West Nusa Tenggara Province; Geumpang village, Pidie Regency, Aceh Province and BPPT, Technology Assessment Agency, Jakarta.

<sup>7</sup> Cisitu Village, Lebak Regency, Banten Province; Sekotong, West Lombok Regency, West Nusa Tenggara Province; Taliwang, West Sumbawa Regency, West Nusa Tenggara Province; and Bombana Regency, Southeast Sulawesi Province.

<sup>8</sup> Kalinga province, Jose Panganiban, Camarines Norte, Romblon province, and South Cotabato.

**OUTCOME 4: Improved capacity of the project to sustain gains and learnings by leveraging and complementing with other relevant programs and initiatives of BT and BF.**

## A. Indonesia

### Cumulative Results

1. BF has leveraged the US DOS Mercury Storage and Monitoring Project to gain support and collaboration of the following organizations/donors:
  - o Local government of Denpasar City, in-kind contribution of US\$15,000 for the mercury-free hospitals pilot project;
  - o KEMI, through Health Care Without Harm, US\$ 25,000 for the mercury-free hospitals program;
  - o IPEN Global Mercury Monitoring, through International SAICM Implementation Project (ISIP), US\$ 5,000 for the assessment of safer alternative to mercury-containing devices and mercury waste management in health care facilities;
  - o IPEN Global Mercury Monitoring, through ISIP, US\$ 5,000 for the mercury monitoring in ASGM hotspots;
  - o World Alliance for Mercury Free Dentistry, US\$5,000 to support for mercury monitoring and workshop for dental sector.
  - o Charles Darwin University (CDU) supported by the Department of Foreign Affairs and Trade (DFAT) funding through the Government Partnerships for Development Program (GFPD) US\$10,000 to support the capacity building on mercury monitoring in Bombana Regency ASGM hotspots, Southeast Sulawesi Province.
2. BF is currently in the process of further leveraging the US DOS projects on mercury inventory and trade in SEA Region with a new grant from the US Department of State grant award No. S-LMQM-14-1251, amounting US\$ 202,000 for the period of 2014-2016. The project is implemented jointly with BT.
3. Recently, BF received a grant from the Goldman Environmental Foundation amounting US\$40,000 to expand the health training to identify the mercury intoxication symptoms for the local health workers and community monitoring on mercury trade and mercury contamination based on the materials developed from the MeMo project.
4. Following up the mercury monitoring and health impact in ASGM communities, BF is in the process of preparing a birth cohort study in several ASGM hotspots with the University of Munich, supported by the Bavarian Government.
5. BF is also in the process to develop a responsible and ethical community-based ASGM model in selected ASGM areas from the mercury storage and Project MeMo participants with the support of several private funding entities.

6. BF is working with IPEN and WECF (Women in Europe for Common Future) to expand activities, disseminate the knowledge products and prepare to replicate it in some ASGM countries.

## B. Philippines

1. BT has successfully leveraged the US DOS Projects to gain support of the following donors for the following projects:
  - o Global Environment Facility (GEF) and United Nations Industrial Development Organization (UNIDO) (total funding approx. US\$500,000) – mercury elimination in ASGM, healthcare training, miner organizing, and mainstreaming of mercury issues in 3 provinces in the Philippines.
  - o Danish Aid Agency thru its Danish partners CISU and Dialogos (approx. US\$500,000)– mercury elimination, healthcare training, and mainstreaming of mercury issues in 3 provinces in the Philippines.
  - o Foundation for the Philippine Environment and Asian Institute for Science and Technology (US\$ 20,000) – mercury monitoring in other areas in the Philippines, including study on mercury uptake in rice in selected areas.
  - o World Alliance for Mercury Free Dentistry (US\$10,000) – support for mercury monitoring in dental clinics.
  - o Federal Ministry for the Environment, Switzerland (\$40,000) – study on toxic waste trade and the Basel Convention in Philippines and Vietnam. BT leveraged its skills gained in the conduct of Mercury Trade Report research.
  - o Swedish Aid Agency through its Swedish Partner the Swedish Society for Nature Conservation (approx. US\$200,000) – programmatic funding for BT activities including but not limited to mercury elimination in ASGM.
2. BT is currently in the process of further leveraging the US DOS projects for an extension of the GEF-UNIDO grant for another 3 years for an approximate amount of US\$ 500,000.
3. Further, BT is in negotiations with UNIDO, Japan Ministry of Environment and local partners in the islands of Visayas and Mindanao on a proposed US\$2 million project that addresses environmentally sound management of mercury waste from CFLs, healthcare facilities and ASGM. This proposed project builds on US DOS the Storage Project.
4. BT has also leveraged its information and experience derived from the US DOS Project in helping develop the United Nations Environment Programme Guidance Document in the Development of National Action Plans for ASGM. This guidance document is designed to be the template for Annex C of the Minamata Convention.
5. BT leveraged its experience gained under the US DOS Projects in writing a legal guide for the Minamata Convention, entitled, “Minamata Convention on Mercury: Ratification and Implementation Manual”.

## SECTION 3: Unexpected Results and Knowledge Products

### 3A. Unexpected Results

Through the course of the Project, both BT and BF have been fortunate to work with individuals, organizations, communities, policy makers, miners, and various stakeholders that made the work meaningful and fulfilling. This section of the Report attempts to map out the unexpected results arising from the interaction and activities of both BT and BF.

The catalogue of the unexpected results found below also is an indicator of the depth and breadth of the achievements the Project has attained in the three years since it was launched.

#### Indonesia

- o The Project has enabled BF to elevate the mercury issue in Indonesia especially on ASGM and healthcare sector that did not exist before. Not only did the Project raise awareness it helped reach out to some groups that have not been engaged before on mercury issues, such as the indigenous peoples alliance, forest-based NGOs, health researchers, oil and gas sector, coal-fired power plant sector, mercury traders, local universities, major national and international media such as the New York Times, the Pulitzer Centre on Crisis Reporting, Philadelphia Star, NHK, Asahi Shimbun, etc.
- o During the Diplomatic Conference and the signing of the Minamata Convention in Kumamoto, 10 October 2013, BF-IPEN co-lead with Women in Europe for Common Future and in collaboration with the Network of Women Environmental Ministries and Leaders, organized a High-Level Side Event titled “Women and Mercury in Artisanal and Small-scale Gold Mining (ASGM) - Health impacts on women and future generations”. WHO Director for Public Health and the Environment, Dr. Maria Neira and Dr. Tsuda together with 5 women environmental ministries from South Africa, Malawi, Mozambique, Tanzania and Kenya, the Ambassador for Sustainable Development from Sweden, and a representative of Swiss Government, addressed the issue of mercury impact to women in ASGM areas. The high-level side event raised the awareness of the delegates and diplomats and attracted attention from some UN agencies, stakeholders and international organization.
- o The Project allowed BF facilitated the establishment an Indonesian association of community miners called APRI (Asosiasi Penambang Rakyat Indonesia). Before the project started, ASGM miners are considered illegal and regarded mostly as criminals. Before the project, there is no formal organization representing real miners. The leader of APRI, before the association established, had participated in an exchange trip to the Philippines in May 2014 together with a representative of a community leader and other participants from Indonesia.
- o All of the knowledge products from this Project are widely disseminated, distributed and well appreciated by the local, national and international stakeholders and used as the main references in most mercury related studies/project. BF is recognised as the expert of mercury especially in ASGM and health care sectors in Indonesia and the region.
- o The Lumex that is operated by BF, made possible through this project, has helped elevate BF’s profile as a competent and resourceful NGO expert on mercury. BF also has been asked to deliver a training workshop on mercury vapour measurement and monitoring using the Lumex.
- o The mercury inventory report of 2012 has been reviewed by a UNEP consultant who had developed the mercury inventory toolkit. The consultant provided inputs and comments but regarded the Indonesia’s mercury inventory report as among the best report he ever seen. Although the inventory report has not been officially adopted as a national report by the mercury technical working group, the report has been used as the main reference of mercury status and baseline in Indonesia.
- o The inventory and mercury storage reports were also used by Dutch investors as one of the references to conduct a feasibility study to build a mercury recovery facility in Indonesia targeting mainly the oil and gas sector. This development will trigger another policy reform on hazardous chemicals and wastes especially mercury.
- o The pilot project and exercise on mercury-free health care in 10 hospitals in Bali attracted the support and alliance built with the medical devices manufacturers association called ASPAKI (Asosiasi Produsen Alat Kesehatan Indonesia) or Indonesian Association of Medical Devices Producers. The industry supported the initiative because it supports the industry to shift from mercury to non-mercury medical devices productions. The industry representative considered BF as their strategic partner in advocating the regulatory framework and policy changes regarding the procurement and distribution of mercury-containing devices to tap a bigger export as well as domestic market opportunities for non-mercury medical devices.
- o The project dissemination, coverage and publications attracted many students and researchers from Indonesia as well as from abroad to have their academic final papers and or their research on mercury in ASGM and health care sectors. BF had developed several cooperation and collaboration with several universities.<sup>9</sup>
- o The findings from mercury monitoring and environmental sampling activities, revealed the shocking severe impact of mercury in ASGM especially on communities’ health and the food chain. Children with birth defects and other symptoms similar to Minamata Disease have been found in several ASGM hotspots.

<sup>9</sup> Environmental Engineering Department, Bandung Institute of Technology; Faculty of Medicine, University of Mataram; Faculty of Medicine, University of Halu Uleo; Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine, WHO Collaborating Centre for Occupational Health, University Hospital Munich; Research Institute for the Environment and Livelihoods, Charles Darwin University; Fenner School of Environment and Society; and Australian National University.

- Very high mercury in rice was also detected in one of the ASGM village and elevated mercury concentration above the safe level in rice and fish have been detected.
  - Opened up a contact with a pharmaceutical company that is working on a new drug to reduce the body burden of mercury
  - Established contact with the Open Research Centre for Minamata Studies
- o The collaboration with the University Hospital of Munich and Charles Darwin University led BF to a more systematic and user-friendly application to monitor the health and mercury pollution in ASGM hotspots. A free text/SMS application and GIS jumpstart is now being used to document the mercury monitoring data.
  - o BF received a lot of support from the NGOs communities in Indonesia, at the local level as well as at the national level such as from WALHI, JATAM (Mining Advocacy Network), AMAN (indigenous people alliance), ICEL (Indonesian Centre for Environmental Law), YLKI (Consumers Association), Greenpeace Indonesia, Hospitals Association (PERSI), etc. The Indonesian NGOs supported the establishment of a knowledge-sharing platform for mercury issue.
  - o Several local governments have expressed their interests to work with BF to develop the baseline study and Local Action Plan to improve ASGM practices and eliminate mercury in the area.
  - o The health impact findings led to the establishment of a National Quick Response Team on mercury coordinated by the Ministry of Health under the Directorate of Occupational Health and Sport. The MoH established the team in November 2014 consisted of 21 people representing several relevant divisions within the Ministry of Health office and from other relevant agencies.
  - o As a result of BF's strong advocacy on mercury trade in ASGM hotspots and its illegal importation and trade in the country, the Ministry of Trade issued a new regulation to ban mercury importation, trade and use in gold mining sector last October 2014. The new regulation, Permendag No.75/M-DAG/PER/10/2014 was not announced officially yet but BF welcomed and shared this new regulation to all ASGM stakeholders.
- o The speed to which the national mercury prohibition in ASGM was passed was unexpected. During the term of the project the Philippines passed Executive Order No. 38, which strictly prohibits the use of mercury in ASGM in the country. The regulation was passed in part to the work and information generated from the US DOS Projects coursed through the TWG and NSC.
  - o The LGU partners and some stakeholders provided co-financing to the studies/activities of the Project by contributing additional resources, such as manpower, logistical support, and bridge-building with community members to ensure quality output delivery.
  - o Shifting away from developing a business or economic model in the sequestration of mercury produced two unexpected results:
    - Better appreciation of the challenge in creating incentives for the sequestration of mercury, especially if mercury has a negative value. Without going through this process, the Storage Project would not have a firm understanding of how difficult it would be to create an economic model for mercury sequestration, particularly in a scenario where it has no value for the business model to be created.
    - The Storage Project not only helped produce a pioneering study but also a critical tool for policy advocacy in the Philippines and the Minamata Convention negotiations on the issue of trade.
    - Established BT as a key source on Hg Trade in the Philippines and the Southeast Asian region.
  - o The Mercury Trade Report capacitated BT to:
    - Leverage, together with BF, the development of another project with US DOS on mercury trade with ASEAN Regional focus.
    - Utilize it as a guide and reference during INC 6 Minamata Convention workshop on trade.
    - Establish linkage with the UNEP's Regional Office for Asia and the Pacific's Regional Enforcement Network on the enforcement of Multilateral Environmental Agreements and bring the issue of mercury trade to a broader audience of customs and police officials in the region.
  - o BT was able to utilize Storage Project information and products in the furtherance of its advocacies in other areas not directly linked to the US DOS Projects.
    - For instance, mercury storage in schools in the cities and other provinces and discussions on mercury emissions from dental amalgam trade and use. This gave BT broader geographic and issue reach.
    - Strengthened BT's capacity to manage and deal with gender issues in ASGM communities.

## Philippines

- o The Project results and information that were shared through the TWG and NSC provided the Philippine government with the basis to take strong policy position in the Minamata Convention negotiations especially on ASGM and mercury trade and wastes that helped shape the current articles of the Convention.

- o The project is scaling up by itself in the following manner:

- Other NGOs are beginning to copy the work that BT has been doing. In the Philippines, there are 2 NGOs copying the methodology BT uses in conducting mercury monitoring as a means to push for local policy change in the use of mercury in ASGM communities. Thus, there is now an unexpected scaling up of the project in other areas pushed by other groups.



- The government of Mozambique requested BT for a learning visit to BT ASGM project areas – to get insight, strategies and first hand knowledge of working with ASGM communities to monitor and eliminate mercury in the mining process.
  - At the global level NGOs from countries such as Nepal, Lebanon, Pakistan, Ivory Coast, Australia, and Armenia have contacted BT to request assistance on how to use the Lumex for mercury monitoring purposes in their countries. Some NGOs have also requested to partner with BT to help them replicate the MeMo Project in their own countries.
  - Two ASGM provinces inquired about the possibility of purchasing BT's Lumex equipment so they can do the technical monitoring of mercury in their own jurisdictions. At least one province has included a budget to purchase their own Lumex, an initiative that is directly linked to their participation in the MeMo Project.
  - One ASGM province sought BT's further assistance on how to properly gather evidence of mercury use in their jurisdiction so they can properly enforce and prosecute violators of the law against the prohibition of mercury.
  - The women miner training has been quickly accepted by the women miners enthusiastically. They are now motivated to make changes in their community without BT prodding.
- o Strengthened BT's advocacy and participation during the Minamata Convention Intergovernmental Negotiating Committee meetings in pushing for stronger and practical approaches to trade, use, supply, storage and disposal of mercury based on experience and information learned from the US DOS Projects.
  - o The Philippines is also poised to take a tough stance on dental amalgam. The MeMo Project has contributed to this greatly, as the Lumex has been instrumental in providing data on mercury vapor readings in dental clinics, dental schools, and waste management areas. BT has developed two reports on dental amalgam in this regard.
  - o The Project also gave BT opportunity to work with journalists from the US, Denmark and Sweden. For instance, BT Executive Director Richard Gutierrez was interviewed by Rick Paddock from the Philadelphia Inquirer and Larry Price from the Pulitzer Centre for Crisis Reporting for an article on ASGM in the Philippines, while Richard was on the field for mercury monitoring work in October 2013. The article for the Pulitzer Centre for the Crisis Reporting was released in January 2014, and the piece on compressor mining was broadcast on PBS TV across the US and on the PBS website in the same month as well.
  - o BT has become the NGO source of information on the use of Lumex mercury vapor analyzer. BT has been teaching other NGOs from around the world on how to use the Lumex analyzer in the conduct of their sampling or monitoring activities.
  - o Mercury readings and findings in the ASGM project areas provided local government units with concrete basis to implement the ban on mercury.
- The Provincial Government of Romblon continuously works with BT (through the environmental monitoring results provided) in gauging its position on complete mercury ban all throughout its jurisdiction;
  - The local government unit of Jose Panganiban in Camarines Norte considers the possibility of monitoring mercury usage at the village level and especially in areas where people live, gather and converge (e.g. public places, schools and housing areas); and
  - The local government of Labo in Camarines Norte forged partnership with BT and provided funds to build a gravity concentration facility to teach miners and raise public awareness on mercury toxicity.

### 3B. Knowledge Products

#### Indonesia

1. Indonesia mercury inventory report 2012.
2. Review of existing regulations in Indonesia on mercury.
3. Informed Choices Catalogue using the Life Cycle Approach.
4. Health Training module to identify the early symptoms of mercury poisoning
5. Mercury monitoring and baseline report in 10 hospitals hospitals of Bali
6. Mercury monitoring in several ASGM hotspots
7. Video on ASGM and mercury for awareness raising activity for miners and ASGM communities.

#### Philippines

1. Technical Approach in Monitoring Mercury in ASGM (2013/2014);
2. Participatory Research and Action Guide to Monitoring Mercury Use in the Philippines: A Community-based Monitoring Approach (2014);
3. The Situation and Roles of Women in Artisanal and Small-scale Gold Mining Communities: in Jose Panganiban, Camarines Norte and Gaang, Balbalan, Kalinga;
4. A Guide to Understanding the Life Cycle Approach as Applied to Artisanal and Small-scale Gold Mining: A Resource book for Local Governments and ASGM Communities in the Philippines (2014);
5. Working with Women and Children in ASGM: A Training Module (2013/2014);
6. Policy Paper on the Environmentally-Sound Management of Mercury and Mercury Compounds in the Philippines (2012/2014);
7. Mercury Trade in the Philippines (2011);
8. Household Hazardous Wastes and Items Baseline Inventory in Cebu City (2011); and
9. Household Hazardous Wastes and Items Baseline Inventory in Davao City, and Marikina City (2011).

This section discusses project sustainability and the major learnings and insights BT and BF garnered in the implementation of the various Projects.

## SECTION 4 – Opportunities, Challenges and Recommendations (Sustainability and Way Forward)

### 1. Mercury Storage

#### A. Main Challenges

- The novelty of the issue of mercury storage is a considerable challenge in itself. National level stakeholders and more so, provincial and municipal stakeholders were unprepared and ill-equipped to deal and understand the issue BT and BF were pushing.
- Organizing TWGs need substantive funding to sustain initiatives. For instance, even though BT was able to dovetail the Storage Project in the Philippines to the DENR's TWG and NSC bodies, the meetings stalled due to their lack of funding. In order to resume their work, BT helped look for funding to help the TWG resume its work.
- Once the NAP process was placed in the government's hand, pushing work to continue became difficult as the project proponents had to allow governmental process to take over. Thus, meeting project schedules and expectations became uncertain to a large extent as it relates to the NAP.
- In Indonesia, the national agencies reluctant to take further steps to develop the National Approach to Mercury Storage due to lack of consensus and supporting data. The Ministry of Environment, as the focal point of the mercury treaty, preferred to wait and conduct more studies to justify the need to develop a mercury storage in Indonesia. However, they did not pursue with a proper study due to some resistance of the idea from the landfill management.
- Technological uncertainty on long-term disposal options also exacerbated the challenge in pushing for proper storage and disposal of mercury in ASGM. Most local officials wanted answers to this issue immediately. The lack of a definite solution for them on how to manage mercury permanently, other than temporary storage, was quite deflating. The reaction is similar with miners.
- The lack of external push also presented a considerable challenge. BT and BF has observed that left alone, the government would not have prioritized the mercury issue given other issues competing for their attention. An external push was needed to get mercury on the radar screen.
- The lack of data on mercury usage in ASGM because of illegal trading on mercury limits BT and TWG to design a full-scale storage facility.
- The ongoing illegal trade of mercury in ASGM areas in the Philippines weakens the full implementation of the mercury ban. In the southern part of the Philippines in Mindanao, illegal trading of mercury is a main source of living and threatens the livelihood of Muslim Communities in Mindanao.

#### B. Opportunities

- The Minamata Convention provides a great avenue for countries to continue work in eliminating mercury and sharing of technical resources – policy and implementation of related activities. The Convention alone helps eliminate the major challenges the Storage Project faced.
- Member countries can apply for funding under the Minamata Convention to help develop National Action Plans to phase-out mercury. In the case of the Philippines, it provides an opportunity to elaborate and refine its NSP and mercury storage plan.
- Local engagement with the US Embassy, USAID, and other adjunct US agencies can be a boon not only to mainstreaming the project but to help emphasize its importance. The involvement of the US Embassy in Manila, for instance, at the start of the Storage Project, helped shore up BT's reputation in bringing the issue to the provinces. Without the initial US Embassy support, BT would probably not have had the initial success in reaching out to local provinces it enjoyed.

### 2. Mercury Monitoring

#### A. Main Challenges

- Growing challenge of access to sites. In a way, the success of the project in mainstreaming the mercury issue becomes its worst enemy. Miners become aware of the technical means of monitoring mercury emissions, thus they look for ways to prevent or obfuscate efforts to properly monitor releases.
- Technical challenge in operating and maintaining the Lumex equipment. The training given by the Lumex company in using the Lumex is wholly insufficient. Moreover, the application of the Lumex in the field is not touched upon in the training. Thus, BT and BF had to learn things along the way.
- Moreover, the cost of maintaining, insuring, and securing the machine was not factored in initially, and thus the project will need address this after the end of the project.
- Geographic and climactic conditions are constant challenges for any mercury monitoring activities designed for ASGM and should not be underestimated.
- Data on mercury exposure, at times, is not sufficient to push government and stakeholders to action. Interventions must consider supplemental activities in this situation.
- The national standard of mercury vapour or indoor ambient standard in Indonesia and the Philippines need to be reviewed/updated and refer to the WHO and or international standard.

#### B. Opportunities

- The Lumex analyzer is an empowering tool for government and civil society to take action.
- Non-technical monitoring provides ASGM community an effective tool to proactively take part in monitoring mercury use and lobby for relevant policies.
- Power of information (Data) – data helped steer some LGUs to make an informed decision about the issue for the most part.
- Massive public awareness campaign on mercury toxicity increased understanding on the state of ASGM in the Philippines highlighted the conditions of use of mercury, including vulnerable groups most affected by the pollution.
- Combining the various approaches under the Storage Project beneficial to replicating the project in other locales, as it is able to address technical and social issues making it relevant to a lot of stakeholders..

### 3. Strengthening Participation of ASGM Stakeholders

#### A. Main Challenges

- The Indonesian NAP ASGM has been developed but there is lack of public consultation. Moreover, the content of the Indonesian NAP undermined the guidance and provisions in the Article 7 and Annex C of the mercury treaty and need to be reviewed.
- Ministerial responses on mercury issue varied. The Ministry of Energy and Mineral Resources of Indonesia is reluctant to reach out and engage NGOs in all of the process related to mercury and ASGM. In contrary, the Ministry of Environment and Forestry is fully supportive and welcomes the NGOs involvement and contribution in the program. Similarly, the Ministry of Health as well as the Ministry of Trade welcomed BF and NGOs involvement in mercury related issues and programs.
- BT encountered an unfortunate incident in the implementation of the 1st Women Miner's Summit, when participants were robbed in the hotel they were staying at. The unfortunate event had a major impact not only with the relationship with BT and the participants who were allies in the Project areas, but also caused internal problems within BT. Both issues caused delays in the delivery of services for the Project.
- Bipartisan politics limits most local government units in ASGM project sites to fully implement the ban on mercury and institute through a local ordinance. Some politicians have a personal stake on ASGM mining and have been known to exercise extra-judicial power to influence decision-making process.

#### B. Opportunities

- Pivotal role of women in community development in ASGM (increase economic capacity of women means more children in school and less child labor).
- Educating women on mercury toxicity as women and children are more vulnerable to mercury impacts, has a huge upside in minimizing, if not, avoiding mercury use in ASGM communities. For example, there are many cases where women are in charge of smelting, if women can have a say in the operations, this can help wean miners away from mercury use.
- The prospect of bringing other groups that have not traditionally engaged in the mercury issue is very high. Groups involved in gender, development, transparency, children's rights, etc. can be critical sources of support not only for mercury monitoring but substantial change in behaviour and development approach in communities.
- BT's project in the ASGM Communities in Camarines Norte, Kalinga and South Cotabato provide women, children and the youth with greater opportunities to participate in the decision-making process and development of their communities. This model of ASGM development provides local and international ASGM partners with workable strategies to scale up best practices, advocate for favourable legal environment and livelihood opportunities for women miners.



# Recommendations and Strategies for Sustaining the Project Gains

## a. Regional Cooperation

The resurgence of Asia as mercury trading hub post-Minamata presents a huge challenge to the Asian region, especially countries with a burgeoning ASGM problem. The ability of the region to come together and manage mercury issues particularly trade, supply and disposal at a regional level will be paramount.

Utilizing existing mechanisms such as the UNEP-REN, ASEAN, or even APEC mechanisms will be important. However, there are certain challenges in linking the regional work to these bodies and that is ensuring that the focus or issues fits the mandate of the institution and that there is political support behind it.

Without these two factors, other entities or platform will need to be considered.

## b. Utilize Minamata and other MEAs

The Minamata Convention not only provides financial support for Parties, but technical support and information sharing as well. It behooves Asian member countries to take advantage of the suite of support the Convention provides in order to address the mercury challenges in the region.

The same goes for other MEAs – Basel, Stockholm, Rotterdam Conventions and the Montreal Protocol. Lessons or structures within these MEAs can serve a dual purpose and include mercury.

## c. Make it real

It is important for lawmakers and concerned stakeholders to keep the mercury issue grounded on what is relevant. All too often the technicalities of the issue or questions prevent action from happening. Further, there is a need to keep the issue real for the stakeholders. Thus, policymakers, NGOs, and those interested in addressing the mercury issue in ASGM and healthcare facilities need to ensure that people are engaged so that there is support for activities undertaken. By keeping the issues real and relevant, stakeholders can be easily engaged.

## d. Start with the basics

A key lesson from the mercury storage issue is that the Project was not able to invest in baseline studies in many cities and provinces. This hindered progress of the project to some extent, as the fundamental issue facing environmentally sound storage of mercury is the question of quantity.

Thus, it is important for any project to map out and analyse the context and background of the situation; and ensure that the basics or building blocks of the issue are covered before working on other compounding problems surrounding the issue.

## e. Build on Success

The learning in this instance is that people are attracted to success. Thus, it is important to start with project elements that can be managed effectively and can produce a modicum of success. It is important to have this because there will be a lot of failures and challenges along the way. The successes will balance or, hopefully, erase the stigma of the failures the project will meet along the way.

## f. Go to grassroots level and exercise it to really push change

Project proponents will need to get mud on their boots and walk the same roads and paths their target audience takes to understand the situation faced by the latter. Only by understanding the target audience at a very close level, can insights to changing their behavior be revealed.

## g. Sustained Mainstreaming Efforts

Efforts to mainstream need to be sustained over a period of time even after the desired change has happened, especially in ASGM communities. Due to the ambulatory nature of small-scale miners, mainstreaming efforts focused at a community may not necessarily be reaching the right people, especially if the miners are new to the area. Thus, mainstreaming efforts need to be sustained over a period of time or perhaps even expanded to reach the target audience.

- END -

# ANNEX A

Outputs are the direct products or services arising from a project. As the Outputs are clearly outlined in the Project Reports and documentation, this Annex summarizes these and has tabulated the Outputs per project and per country.

## A.1 Storage Project

Output / Deliverables	Indicators	Status at End of Project	
		BT	BF
1.1 Hg inventory report in Indonesia developed; enhanced Philippine inventory  1.2 Mercury storage options assessed and developed for the 2 countries	1. Creation of a National Steering Committee with varied stakeholders	Utilized existing government entity DENR to take on the project EMB Special Order series of 2010 - Creation of an inter-agency TWG, A National Steering Committee and a Secretariat for the development and implementation of a national strategic plan on ASGM relating to improving practices and working conditions and reducing the sector's import on the environment.	Not specifically as Hg Storage committee but as part of the National Mercury Technical Working Group
	2. Creation of a Technical Working Group	Utilized existing government entity DENR to take on the project EMB Special Order series of 2010 - Creation of an inter-agency TWG, A National Steering Committee and a Secretariat for the development and implementation of a national strategic plan on ASGM relating to improving practices and working conditions and reducing the sector's import on the environment.	Support the establishment of the TWG by the Min. of Environment
	3. At least two rounds of regional consultations are held in selected areas.	Philippines: Cordillera Administrative Region (CAR); Region IX, Region VII, and National Capital Region (NCR)	Not specifically as Hg Storage committee but as part of the National Mercury Technical Working Group
	4. National Strategic Plan for Mercury	Ongoing deliberation at the TWG and Steering Committee level where BT provides an advisory role	Not specifically as Hg Storage committee but as part of the National Mercury Technical Working Group
	5. Stand alone Criteria Document for Storage Facility	Accommodated in the Hg Storage Options Report	
	6. Business model incentivizing miners to relinquish mercury	Dropped	
	7. Cost estimates for building and operating a storage facility.	Accommodated in the Hg Storage Options Report	
	8. Signed MOA on the Implementation of the National Strategic Plan for Mercury (existing entity – TWG)	government initiative.	initiative
	9. Strategy document is produced elaborating on Philippine and Indonesian experience and suggested strategies on how to expand to Southeast Asian sub-region or other regions.	Accommodated in the learning document	



## A.2 MeMo Project

Output / Deliverables	Indicators	Status at End of Project	
		BT	BF
<p>Output 2.1 Updated National Action Plan on ASGM in Indonesia and the Philippines</p> <p>2.1.Coordinate with Philippine TWG on project findings</p> <p>Output 2.2 Training of ASGM and Healthcare stakeholders on Hg-free alternatives, screening and monitoring</p> <p>Output 2.3 Training and mainstreaming focused at national agencies and stakeholders on the impact of Hg</p>	Conduct of at least 2 TWG meetings	Conducted 4 meetings with the TWG	<p>Conducted 2 meetings with the TWG:</p> <ul style="list-style-type: none"> <li>• 20.04.2012 in Jakarta, participated by 19 people (10 men and 9 women)</li> <li>• 05.09.2012 in Jakarta, participated by 43 people (21 men, 22 women)</li> </ul>
	1 National Consultation is held	Series of consultation in 5 regions (159 participants)	<ul style="list-style-type: none"> <li>• 05.09.2012 in Jakarta, participated by 43 people (21 men, 22 women)</li> </ul>
	Number of FGDs held <ul style="list-style-type: none"> <li>• women miners, children and youth, health care workers, teachers</li> </ul>	<p>Focus Group Discussions in Kalinga and Camarines Norte (18 women miners)</p> <p>IEC in schools: Cam Norte 272 teachers and 307 pupils - reached out to 23,385;</p> <p>Balbalan in Kalinga -32 school secondary teachers, 80 elementary school teachers, and 190 students.</p> <p>Reached out to 1,072 students</p>	<p>1) Hg-free hospitals: 04.10.2011 in Jakarta. participated by 44 people (5 men, 39 women)</p> <p>2) 11.02.2012 in Sekotong, 50 person (all male)</p>
	Number of consultations with experts held <ul style="list-style-type: none"> <li>• medical practitioners, Geologists, BFSSM technical trainers</li> </ul>		<p>1) Hg-free ASGM: 10.02.2012, Mataram, participated by 67 people (47 men, 20 women)</p> <p>2) Hg-free hospitals: 19.04.2012 in Jakarta, participated by 11 people (7 men, 4 women)</p> <p>3) Hg-free hospitals: 06.09.2012 in Semarang, participated by 33 people (16 men, 17 women)</p>

Output / Deliverables	Indicators	Status at End of Project	
		BT	BF
	Translation of expert advice into concrete action <ul style="list-style-type: none"> <li>Mercury Free/Gravity Concentration Method</li> </ul>	Drafted a manual for technical trainers on the Gravity Concentration Method	Accommodated in the ICC document
	Briefing paper covering the monitoring and use of mercury in ASGM and health care sectors and its monitoring <ul style="list-style-type: none"> <li>Mercury Fact Sheet</li> <li>HCW slides</li> <li>Technical and non-technical monitoring guides</li> </ul>	<ul style="list-style-type: none"> <li>Mercury Fact Sheet</li> <li>HCW slides on mercury toxicity</li> <li>Technical and non-technical monitoring guides</li> <li>Report on mercury readings in the ASGM project areas (<i>see technical mercury monitoring manual</i>)</li> </ul>	Available in Bahasa Indonesia.  Printed and distributed to stakeholders.
	Business model incentivizing miners to relinquish mercury	Done but economists consulted suggested mercury trade study instead	Not applicable
	Cost estimates for building and operating a storage facility	1.1. Kalinga: Temporary storage design (architect) 1.2. Draft Hg long-term storage plan presented to the TWG. Awaiting review and approval of the Steering Committee	Accommodated in the Hg Storage Options
	Report produced; video or teaching modules produced	Byaheng Asoge Video (Mercury trip video)	Awareness raising video material for miners and ASGM communities available in Bahasa.
	Report to be produced and submitted to LGUs/appropriate government agency; conduct verification of baseline study	Reports on mercury readings presented to TWG and ASGM partners in Kalinga and Camarines Norte	stakeholders

### A.3 Project Stakeholder

Output / Deliverables	Indicators	Status at End of Project	
		BT	BF
<b>INDONESIA</b>			
<p>Output 3.1 Capacity building of local &amp; provincial stakeholders on ESM policies for Hg</p> <p>Output 3.2 Baseline study in selected ASGM hotspots &amp; healthcare facilities developed.</p>	Two assessment reports produced and distributed to local and national stakeholders.		Report provided as the minutes of the meeting distributed to the stakeholders
	<p>2. Two inventory, baseline and mercury action plan in 2 ASGM hotspots in Indonesia developed, adopted and disseminated.</p> <p>a. Technical modules on ASGM management from the upstream to downstream available and disseminated.</p> <p>b. Technical informed choices of non-mercury techniques available and disseminated.</p> <p>c. Health modules for health practitioners available and distributed</p>		<p>Baseline report and preliminary ideas for local action plans for Cisitu Village and West Lombok Regency developed, adopted and disseminated to the local stakeholders.</p> <p>a. Technical modules available in form of an Informed Choices Catalogue doc.</p> <p>b. Health modules for health practitioners available and distributed</p>
	3. Capacity building on technical and health aspect of mercury and ASGM delivered in 2 ASGM hotspots in Indonesia.		<p>Technical capacity building conducted in:</p> <ul style="list-style-type: none"> <li>- Mataram, 11.02.2012, participated by 67 people (47 men, 20 women)</li> <li>- Cisit Village, 20.11.2013, participated by 32 men</li> <li>- Pidie, Aceh, 10.09.2014, participated by 12 men</li> </ul>
			<p>Health capacity building conducted in</p> <ul style="list-style-type: none"> <li>- Jakarta, 04.10.2012, participated by 44 people (5 men, 39 women)</li> <li>- Denpasar, 17.04.2012, participated by 45 people (27 men, 18 women)</li> <li>- Jakarta, 05.09.2012, participated by 43 people (21 men, 22 women)</li> <li>- Cisit Village, 17.02.2014, participated by 6 people (4 men, 2 women)</li> <li>- Jakarta, 20-22.09.2014, participated by 26 people (16 men, 10 women)</li> </ul>

Output / Deliverables	Indicators	Status at End of Project	
		BT	BF
	4. Conducted at least 3 media events to disseminate 3 activities above.		More than 3 media events were conducted to disseminate the activities above.
<b>PHILIPPINES</b>			
<p>Output 3.1 Capacity building of local &amp; provincial stakeholders on ESM policies for Hg</p> <p>Output 3.2 Baseline study in selected ASGM hotspots &amp; healthcare facilities developed</p>	<ol style="list-style-type: none"> <li>1. At least 2 miner-to-miner trainings for women workers; (Diwalwal and Kalinga)</li> <li>2. 100 women workers from the province of Kalinga are trained in mercury-free processing techniques;</li> <li>3. Organize 1 provincial summit for women miners;</li> <li>4. At least 2 training on women and children's health with participants coming from the mining community and local government units;</li> <li>5. Conduct at least 2 media events to introduce the project to the public.</li> <li>6. Partnership with local governments in the project areas to support initiatives on women and children in mining areas.</li> </ol>	<p>Conducted 4 miner to miner trainings in Kalinga and Diwalwal</p> <p>500 women miners reached out in Kalinga; 27 women miners directly trained in Diwalwal</p> <p>Presented ESM report to TWG and an agreement to present the report to the Steering Committee</p> <p>Series of media press conferences organized (see media logs) from 2011 - 2014</p> <p>Provincial Summits in Baguio City, Camarines Norte and Kalinga held</p> <p>Children's Development Theater Workshop: for Public Awareness Campaign on the hazards of Mercury at the community level (40 youth leaders; 700 children reached out)</p> <p>Women and children's rights in ASGM conducted in Diwalwal (40 participants)</p> <p>2 Consultations on children in mining co-facilitated with the Department of Labor and Employment (200 participants)</p> <p>Partnerships forged with ASGM local government units in Camarines Norte, Kalinga, Diwalwal and South Cotabato</p>	

## Annex B. Media Logs

Please see attached Excel File for the documented Media Log for the press pick-up in the Philippines and Indonesia.

# ANNEX C. Project Implementation Pictures

## Project implementation in pictures: INDONESIA



Fig. 1. Mercury contaminated pond in Cisitu Village, Lebak Regency, Banten Province. Community discharged the processed water from the ball-mills into the fish pond.



Fig. 2. A miner in Bombana, Southeast Sulawesi, member of a kongsi, used 7 kg of mercury per day to produce 20 gram of gold



Fig 3. Sucking the earth to get gold using water jet/ compressor



Fig. 5. Ban Toxics staff trained BaliFokus staff how to operate the Lumex.



Fig. 7. Some children with birth defect and disabilities, suspected mercury poisoned, in 3 different ASGM hotspots.



Fig. 8. BaliFokus presented the findings and results of the mercury monitoring in several spots and discussed it with local stakeholders of West Lombok Regency to develop the Local Action Plan to eliminate mercury and improve the ASGM practices.



## Project implementation in pictures: PHILIPPINES



Image 1. US DOS Project Launch with DENR Official, US Embassy Staff and Ban Toxics at US Embassy, Manila.



Image 4. Woman burning amalgam. Women are usually tasked to burn the amalgam. Camarines Norte.



Image 2. Jane Dennison of US DOS with partners and stakeholders in Manila for the US DOS Project launch.



Image 5. BT Women miner training. Women are given hands-on training by BT trainers.



Image 3. Gold amalgamation during panning, Camarines Norte.



Image 6. Woman panning in the river, Camarines Norte. Image (c) Luis Liwanag



Image 7. Child miner delivering supplies. Mt. Diwata, Compostela Valley



Image 8. Children burning amalgam, Mt. Diwata, Compostela Valley.



Image 9. BT one-on-one training on use of Lumex. BT Exec. Dir. Richard Gutierrez training Dominique Bally of Cote d'Ivoire.



Image 10. Children panning in the river. Camarines Norte.



Image 11. Storage Project regional consultation, Baguio City.



Image 12. Children panning in the river. Camarines Norte.



Image 13. Village of Sesecan embraced BT's Hg-Free advocacy and declares their mining village a Hg-Free Zone.





Image 14. Woman burning amalgam. Women are usually tasked to burn the amalgam. Camarines Norte.



Image 15.



Image 16.



Image 17. BT Team conducting Lumex Hg vapor sampling in the field. Kalinga.



Image 18. BT Storage Consultation in Quezon City with City Mayor Herbert Bautista, left.



Image 19.



Image 20. BT, Executive Director, Richard Gutierrez at INCS with ZMWG and Prof. Philippe Grandjean (middle).



[www.bantoxics.org](http://www.bantoxics.org)