Report of the Inception Workshop for the Project "Management of Mercury and Mercury-Containing Waste"

City Angkor Hotel in Siem Reap, Kingdom of Cambodia
4-6 March 2009

UNEP/DTIE
Chemicals Branch
April 2009

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1 OPENING AND WELCOME

The workshop took place from 4 to 6 March 2009 at the City Angkor Hotel in Siem Reap, Kingdom of Cambodia. Opening speeches were held by UNEP - Dr. Heidelore Fiedler, United Nations Environment Programme (UNEP), and the Government of Cambodia by H.E. Heng Nareth, Advisor to the Ministry of Environment, Cambodia.

In her opening speech, Ms. Fiedler explained that in 2008/2009, UNEP/DTIE Chemicals Branch is executing the project "Management of Mercury and Mercury Containing Waste" with the objective to increase the capacity of developing countries and other stakeholders in assessing, managing, and reducing the risks to human health and the environment posed by mercury and mercury-containing waste. The Norwegian Government is funding this project, which will be implemented in Burkina Faso, Cambodia, Pakistan, and the Philippines. Chile is also participating through additional funds from the UNEP Mercury Programme. The project's activities will build upon the national mercury inventories the participating countries had already developed. Another important element in the project will be the testing of the Draft Technical Guidelines on the Environmentally Sound Management of Mercury Waste developed by the Secretariat of the Basel Convention. Before starting the national activities, all participating countries, the international consultant and the back-up expert laboratory were invited to an inception workshop to be held in Cambodia from 4 to 6 March 2009 with the goal to set a common basis for the execution of the project. In closing she thanked the Government of Cambodia for organizing this workshop and H.E. Nareth for his presence at the opening ceremony.

H.E. Heng Nareth on behalf of the Ministry of Environment of the Kingdom of Cambodia welcomed the participants and wished the workshop fruitful and successful discussions. He addressed his country's commitment to support this project and the global actions against mercury.

Following the welcome addresses, the participants introduced themselves stating their affiliations and involvement in mercury issues. The participants included two experts from each of the pilot countries, the international expert and the mercury laboratory as well as stakeholders from other Ministries in Cambodia and UNEP. The list of participants is included in this report as chapter 10 - List of Participants.

Mr. Sambo Sarun, Cambodia, Ministry of Environment, gave some practical arrangements as to the flow of the workshop. The opening session concluded with a group photo.

The meeting proceeded in plenary according to the agenda (see chapter 9 - Agenda).

2 REVIEW OF EXISTING INFORMATION AND CONTEXT

2.1 Mercury waste: Project implementation and context

Ms. Fiedler, Chemicals Branch, presented the UNEP mercury program and the linkages between this project and mercury waste management partnership area. She also mentioned the outcome of the 25th session of the UNEP Governing Council and the GC decision to mandate UNEP Chemicals to initiate an intergovernmental negotiation process to develop a legally binding instrument on mercury. She presented the outline and the expected outcomes of this project and the sister project implemented by the Basel Convention regional Coordination Center in Montevideo, Uruguay for three Latin American countries, namely Argentina, Costa Rica, and Uruguay. The components of this global mercury waste management project can be briefly summarized as follows:

1. Review of quantitative and qualitative data from the national inventory for mercury sources;
2. Prioritization of mercury sources and the corresponding sectors;
3. Development of a national mercury waste management plan;
4. Environmentally sound management (ESM) application in selected sources and sectors;
5. Sampling and mercury analysis of environmental and human samples; and
6. Final national reports and final project report (including evaluation and lessons learned).

The presentation is annexed to this report as Chapter 12-1.

2.2 Initial observations from national mercury inventories

Dr. Mario Yarto, the international consultant, who will assist the pilot countries and UNEP throughout the project, summarized initial observations from the mercury inventories that the countries had developed in a previous UNEP project. The presentation is annexed to this report as Chapter 12-2. Initial observations include the following:

Cambodia: Stakeholder team established to undertake the inventory work; however, no specific information was provided. Cambodia used the minimum-maximum approach and estimated total emissions 800 kg to 15,000 kg per year. No own measured data were available to support the assumptions. Hot spots were not identified.

Pakistan: A stakeholder team was established although no detailed information was given. Among the national activities were surveys from local markets. No official records on mercury-containing products/equipment entering the country were available. The mercury emissions ranged from 10,800 to 37,000 kg per year. Specific guidance or management plan were not existent at national level. Pakistan has a number of mercury laboratories that undertook some analysis of matrices, jointly identified by the country team together with the international consultant for the inventory project. Certain sources could not be characterized in sufficient detail. Two chlor-alkali sites were identified as potential hotspots.

Philippines: Three consultation workshops were held; a multistakeholder team established. Inventory was developed on secondary data; shortcomings include the wide range of data in the Toolkit. Country profile was not included. Minimum-maximum estimates ranged from

13,000-24,000 kg per year. Major source was primary virgin metal production (32%) and extraction and use of fuel and energy (20%). No potential hotspots were identified at national level. Legislation on mercury in force that controls mercury import and distribution is in place.

Burkina Faso: Engagement of all sectors in the inventory project; technical groups were established according to specific category/subcategories. Questionnaire was used to gather data from the identified sources. Total releases estimated to be 4,500 kg per year. Barriers included lack of cooperation, non availability of certain associations, difficulty to adapt Toolkit to local conditions; lack of sensibilization at national level.

3 PRESENTATION OF NATIONAL MERCURY INVENTORIES

Each country presented their national mercury inventories; the presentations are available for download at the project's WebSite http://www.chem.unep.ch/mercury/Sector-Specific-Information/Waste_management_project_ppt.htm .

3.1 Burkina Faso

Mr. Desiré Oudragogou informed that 86% of the total mercury inventory is related to waste issues; *i.e.*, releases to land and water. Mercury to water is found in effluents from artisanal mining. The water can go to the river or is trapped in lakes; there are not many rivers in Burkina Faso. Wastewater will stay in small ponds and contaminants get concentrated; people would use these waters as drinking water or for irrigation; also for fish growing. Exposed is mainly the mining population living nearby. Until today, there are no mercury measurements from Burkina Faso available and data would urgently be needed for environment and humans.

Some products contain mercury like Jaribu (antiseptic soap), skin bleach, mercury containing batteries, have been identified. Mr. Yves Guibert was the international consultant to assist Burkina Faso in the inventory development. The presentation is annexed to this report as Chapter 12-3.

3.2 Cambodia

Mr. Sambo Sarun, Ministry of Environment, presented the outcome of the mercury inventory, which was developed with the assistance of Mr. Jacob Maag, COWI, as the international consultant. 11 Release categories were selected for the national inventory. Main release categories were 1. consumer products with intentional use of mercury (8,485 kg Hg yr^{-1}), 2. waste disposal (4,665 kg Hg yr^{-1}), and 3. primary metal production (1,182 kg Hg yr^{-1}); the total is 14,845 kg Hg yr^{-1}. Some input factors, such as for batteries were provided by the international consultant and based on data from Denmark.

In Cambodia, there are no sanitary landfills; waste disposal is mainly at dumps. These dumps do have neither wastewater or gas collection; therefore, taking an integrative sample may be difficult. Some mercury waste is deviated from landfilling; *e.g.*, acid lead batteries are taken up by scavengers that collect them for lead recycling; the same applies for plastic collectors.

The other batteries go to the dumpsite. The presentation is annexed to this report as Chapter 12-4.

3.3 Chile

Ms. Alejandra Salas of CONAMA reported about results from a CONAMA-coordinated joint UNEP, UNITAR, private sector (Chemicals Industry Association, cement industry, pulp and paper industry, power generation, *etc.*); NGOs (RAP-AL, Greenpeace and Participa); and academic institutions (for example, Atacama University and La Serena University) project. In the use of the Toolkit data from 2005 were considered.

The total mercury emissions range from 361,007 to 416,821 kg Hg yr^{-1}; throughout the inventory minimum and maximum values were used. Highest priority has primary metals mining (in the north of the country, specifically in Coqimbo region)). For two sectors, cement and mining sectors, own data have been used to develop the inventory. The work links to the PRTR project in Chile, regarding inclusion of releases to air and products with mercury in case of transfers. The presentations is annexed to this report as Chapter 12-5.

3.4 Pakistan

Mr. Ali Abid and Mr. Zhaigam Abbas presented the results of the Pakistan mercury inventory. Recommendations include: Hg-free alternatives should be encouraged; national environmental quality standards should be encouraged, mercury-free health-care should be encouraged; incentives by the government for manufacturer for non-Hg containing products.

Five provinces were selected for mercury sampling and analysis. Sampling procedures were established for liquids, solids, sludge, *etc.* Some data are measured, some are modeled. In Pakistan, the main source is from chlor-alkali industry. Phasing out the mercury cell technology will reduce the present mercury inventory by 50%. Plans to phase out mercury cells are scheduled. Other sources of mercury emissions include from the production of 26.7 mio tons of cement produced per year;medical waste incinerated per year accounts for 1,076 tons per year in one province; overall it is 4,118 t yr^{-1}.; relevant mercury emissions have been estimated.

Discussions revealed that Pakistan has chlor-alkali industry but no VCM production; therefore, they are interested in some measurements from this sector. No other country in this project has VCM or chlor-alkali production. The presentation is annexed to this report as Chapter 12-6.

3.5 Philippines

Ms. Eva Ocfemia presented the mercury inventory from the Philippines, which has been developed according to the UNEP Toolkit. Primary virgin metal production was identified as the major source (74.7 kg yr^{-1} or 31%), second is extraction and use of fuel and energy resources (47.9 kg yr^{-1} or 20%), and third is the other intentional use, *e.g.*, thermometers (46.7 kg yr^{-1} or 20%).

The major drawback of the Toolkit is the wide range of input factors (75% uncertainty between minimum and maximum values; however, only a factor of less than 2!!). There is no default emission factor for geothermal power (2nd largest user of geothermal power); data gap that needs to be filled because the US technology may not be applicable to the PHL situation.

There are three large geothermal power plants in the Philippines; the waters are re-injected; therefore, the mercury is not released. Exposure data for the (il)legal gold miners are presently not available. The presentations is annexed to this report as Chapter 12-7.

3.6 Discussion

The discussion showed that all countries had some difficulties in the application of the UNEP Toolkit although in general it was found useful. The weaknesses of the Draft Toolkit include the wide ranges for the input factors, the risk of double accounting with input *vs.* output as could be seen at the example for the batteries. Since it can be assumed that through mercury reduction measures, Hg concentrations in products may already have come down, Hg in products may be overestimated; changes in Hg content in products are not reflected in the UNEP Toolkit.

For fuels, it was concluded that the mercury content depends on the origin of the fuel. Notable is the fact that also geothermal and gas fuels have mercury emissions associated and need to be accounted for in the inventory.

The question came up what is the preferred method for inventory estimation: using ranges or best estimate for input factors. Whereas most countries reported emissions providing the minimum and maximum estimate, some favored a central/best estimate approach. Although no definite answer could be given, UNEP mentioned that equally important to the Hg input factor would be the scale of the activity at national level, and that any uncertainty associated with the local/national activity has the same effect as the uncertainty for the input factor. The participants recommended to report to UNEP information as to the local/national input factors to improve the Toolkit.

A preliminary conclusion from the inventory project is that at the country level experiences with the mercury issue and stakeholder participation will improve, further it is assumed that the Toolkit will improve to that the subsequent mercury inventories will be improved and be closer to country's reality than the first, preliminary inventories. It was cautioned that because of improved methodology and broader participation, the second (and possibly more) inventories may come out with higher numbers than the first inventory despite efforts to control mercury.

In the discussions it was found that some value would be given to summarize the inventories and calculate a *per capita* equivalent since the population in these five countries differed largely. As a first orientation was created that summarizes the national inventory results and calculates population equivalents.

Table 1: Summary of mercury emissions presented as national totals and *per capita* equivalents

	Burkina Faso	Cambodia	Chile	Pakistan	Philippines
Min (kg Hg yr^{-1})		769	361,007	10,842	133,856
Max (kg Hg yr^{-1})	4,498	14,845	416,821	36,898	234,031
Population (*mio)	15.26	14.24	16.7	172.8	94.0
Min (g Hg $person^{-1}$ yr^{-1})	0	0.05	21.62	0.06	1.42
Max (g Hg $person^{-1}$ yr^{-1})	0.29	1.04	24.96	0.21	2.49

4 GUIDELINES AND TOOLS (INTERNATIONAL)

4.1 Overview on Basel Draft Technical Guidelines on Mercury Waste

Dr. Mario Yarto, UNEP International Consultant, presented an overview on the Draft Basel Technical Guidelines on Environmentally Sound Management of Mercury Waste. The Draft Guidelines have been prepared by the Institute for Global Environmental Strategies (IGES), Japan. Mercury is listed in the Basel Convention, Annex 1:

- Y1 – Clinical wastes from medical care in hospitals, medical centres and clinics
- Y17 – Waste resulting from surface treatment of metals and plastics
- Y18 – Residues arising from industrial waste disposal operations
- Y29 – Mercury; mercury compounds

One of the objectives of this project is to contribute to the further development and improvement of the Basel Technical Guidelines but not to duplicate their content; rather developing sector-specific information on developing country experiences and local conditions.

4.2 Mercury Analysis in Human and Environmental Samples

Dr. Jörg Feldmann, University Aberdeen, gave an introduction and overview on mercury analysis. He introduced his research group that ha an emphasis on instrumentation (mainly mass spectrometry). The presentation is annexed to this report as Chapter 12-9.

He described the instrumentation and methods used for the determination of organic and total mercury, the pros and cons of the matrices including the interlinkages in aquatic and terrestrial foodwebs. For humane exposure, not only fish but also rice can be am important source of exposure since rice is a methylmercury hyperaccumulator. Together with high amounts rice eaten in many developing countries, even quite low concentrations result in daily intakes above the recommended dose. Speciation of mercury plays an important role for toxicity and the movement of Hg in the environment. .

Hg in natural gas (⇐ large volumes). For diffuse sources, collection of an integral sample would be recommended, *e.g.*, coal, sewage sludge or effluents, furnace slags. For waste fractions from products, it is difficult to find a representative sample and would need large scale sampling and analysis project. HgS is insoluble and will stay in sediment; however upon methylation becomes mobile and enters into the foodchain.

Some time was spent on biomonitoring-human samples: for long-term exposure, liver or kidney or other organs would be the appropriate matrix. Hair samples reflect the exposure for some weeks or months (nails would be better but there is not much information for comparison); snap-shot analysis would be blood or urine (3-4 days; but not for longer). Hair analysis limitations: there may be external contamination, lack of correlation with health effects, lack of reference intervals. Hair-advantages: accumulates high levels of mercury (up to 300-times higher than blood), large database for comparison; stable specimen (not alive), easy to transport, can be used as an historical archive (can be segmented to give an archive).

Proposed Sampling and Analysis Plan:

1. Proficiency tests for THg and MeHg analysis for nationally identified expert labs
2. Collection of pooled human hair samples (controls and exposed subjects in each country)
3. Rice from exposed regions (5-10 samples per country)
4. Collection of integral waste streams (fly ash, sewage sludge)
5. Residues from extraction of energy (water geothermal or charcoal from natural gas, *etc.*);
6. Special samples (vaccines with Hg preservatives)

Hair samples:

a) Each country samples from three hotpots, each 20 hair samples (incl. two controls)

b) 200 mg each
- subdivide into 2 subsamples (not cutting)
- Clearly mark the start and end of the hair growth
- Take data (questionnaire, worker for how long, how many hours, sex age, fish/rice consumption; amalgam fillings)
- Ethic committee

Rice Samples

c) Rice from three hotspots and two control areas (from mill or farmer), each three samples (20 g)

d) Questionnaire about the pre-use of irrigation water (groundwater, rain water waste water)

5 POINTS FOR DISCUSSION AT PARTICIPATING COUNTRIES

A number of key issues were discussed in plenary (see section 11-Guidance Questions), allowing participating countries to inform and share information on current activities to address the sound management of chemicals at the National level. The first point of discussion focused on the existing regulation schemes and programmes in relation to mercury and mercury waste. All countries indicated that specific laws or plans are in place to address chemicals, solid and hazardous waste. The different strategies include laws, sub-decrees, management plans, standard setting on mercury emissions, *etc.*).

When discussing particular aspects of the legislative framework, a number of strengths were identified (although not for all countries), such as the effective implementation of regulations, progress on enforcement issues, analytical capacity for mercury determination, institutional cooperation and coordination mechanisms, development of the Stockholm Convention

National Implementation Plan on POPs, specific action plans or strategies for mercury and mercury waste, among others. Together with these areas of progress, several gaps were also identified, namely, the need to revise and update specific laws and regulations, the lack of regulatory framework for mercury containing products; lack of storage requirements; lack of infrastructure for sampling and analysis, as well as insufficient human and financial resources, just to mention a few.

Further discussions to identify the main criteria to prioritize mercury waste, reflected the importance of focusing on the emission inventory outcomes. Among those mentioned were, the main contributors of mercury emissions (*e.g.*, chlor alkali, dental amalgams, informal waste disposal, small scale artisanal mining, landfill sites); existing capacity and resources to undertake actions; existing regulations and the need to update those addressing mercury; hot spots were populations are exposed; storage requirements; analytical and field data and related capacity building for mercury analysis, *etc.*

Participant counties also shared complementary and ongoing or planned activities regarding mercury and mercury waste. Some of these include, among others, the establishment of a National mercury task force to address activities on pollution prevention; mercury emission reduction efforts; coordination and cooperation at the international level on mercury issues; development of a National chemicals profile; update of preliminary inventory; priority list of mercury contaminated sites; projects for the rational handling of mercury containing lamps and for the elimination of mercury in hospitals; national workshops with stakeholders to address mercury issues; strengthening of institutional capacities; awareness raising for civil society and policy makers; mercury waste collection programmes; capacity building for inventory team and customs officials on control of mercury containing products; sensibilization activities; set up of data base on mercury related information; adapt mercury emissions toolkit to National socio-economic context.

One of the key points of discussion was the path forward for the development of a National action plan for mercury waste. Among those areas of work and related activities that were considered as priority by participant countries, included, but were not limited to:
Establishment of a National mercury task force with multi-stakeholder representation

- Development of strategies for source reduction, waste segregation, emission controls, dissemination
- Encouragement of monitoring activities and emission reduction at individual facilities
- Conducting consultations to assess progress and achievements at the National level
- Refining of mercury inventory by source and categories
- Prioritization of mercury sources and sectors
- Identification of alternatives for ESM actions in selected sources/sectors
- Conducting environmental and human sampling at identified priority sectors
- Training of Stakeholders team on mercury waste management
- Printing of material for awareness raising of policy makers, regulators, and stakeholders
- Governmental endorsement of National mercury waste management plan
- Implementation of BAT/BEP practices for mercury waste management
- Capacity building of Government officers on law and enforcement issues

- Promote cooperation efforts to handle second hand commodities
- Request technical assistance for a clearing house mechanism on chemical waste
- Utilization of standards for mercury containing products and materials
- Networking with National stakeholders and civil society
- Sensibilization of stakeholders
- Request of technical assistance for ASM (*e.g.*, gold extraction)
- Perform chemical analysis of mercury and mercury containing waste
- Promotion of BAT and BEP

The final point of the roundtable discussion consisted in identifying the main stakeholders that need to be engaged and involved, when developing and implementing the respective management action plan. Among those which were considered, include:

- Public sectors institutions including the following Ministries: Health, Environment, Agriculture, Mining and industries, Trade, Commerce and Customs, Education, Natural Resources, Science and Technology;
- Local authorities and state/provincial governments
- NGOs and community groups (*e.g.*, religious and indigenous groups)
- Private sector, including industry and chemical manufacturers
- Research institutes and academia
- International organizations
- Other relevant sectors

Finally, participants discussed the path forward to initiate the development of a National action plan for mercury waste management, as described in the following section of this report.

6 PROJECT IMPLEMENTATION AND DEVELOPMENT OF WORKPLAN AND TIMETABLE

The issues of workplan and timetable were summed-up in a table that was filled in plenary (Table 2).

Some time was spent on issues of sampling and analysis for mercury. More details will be provided within the next weeks and after initial indication by countries to TESLA what the preferred matrices will be. At this stage, it was emphasized that besides the potentially impacted/hotspot samples need to be correlated to controls from non-exposed populations (humans, animal species) or sites. For hair – as biomonitor for human levels – it was recommended to develop a questionnaire that includes information as to the presence/absence to discriminate between exposed and non-exposed populations. The control group should be characterized by no dental amalgams, no open air exposures. Fish and rice consumption are discriminators for human sample questionnaires. An age-dependence does not exist for mercury (in contrast to POPs).

The preferred sample pre-treatment for biological samples (except hair or rice), *e.g.*, fish, would be freeze-dry; alternatively air-dry. Soil/sediment: sieve and air-dry. Rice: from all countries (including "production", *e.g.*, irrigation water or wet season/rain water), from five sites, according to species.

6.1 Scheduling of training and training materials

Countries should notify Mario Yarto by end of March for agenda for national workshops and training including possible site visits.

It was proposed and agreed to have some sectoral training and use the model of the POPRC (POPs Review Committee) handbook; develop a particular guidance for the priority sectors. A skeleton document will be presented at the national workshop, which will be amended by the experiences from the developing countries. At the national level, some material, including questionnaires will be forwarded to the stakeholders before the national stakeholder WS.

6.2 Reporting progress of the project

UNEP promised to prepare a model for the interim report and the financial report at the end of the project to facilitate implementation of the projects. The final report will include central text describing the activities and main findings to be annexed by individual country reports summarizing their findings and lessons learned as well as a report from the International consultant and the Mercury Laboratory.

7 CONCLUSIONS AND FINAL DISCUSSION

The inception workshop reached its objectives and all participants welcomed the opportunity to come together in a face-to-face meeting, to learn to know each other better, and agree on a workplan and a timetable. The meeting was found to be productive and successful and it was recommended that the final results and lessons learned workshop to be held in early 2010 BEFORE the final national workshops be held.

8 CLOSURE OF THE WORKSHOP

After exchange of the usual expressions of courtesy and thanks, the workshop was closed at 12:15 hours on Friday, 6 March 2009.

Table 2: Summary table for activities within the project on Management of Mercury Waste
BKF=Burkina Faso, KHM=Cambodia, CHL=Chile, PAK=Pakistan, PHL=Philippines; IV=Int'l Consultant, HgLab=Mercury lab

	Activity	Country / Actors	Date	Objective / Remarks
1	Set-up project management structure and enter into agreement with countries, IC, and HgLab	UNEP		BKF, KHM, PAK, PHL, IC done; CHL and HgLab underway
2	Global inception workshop	BKF, KHM, CHL, PAK, PHL; IC; HgLab	4-6 Mar 2009 Cambodia	Project kick-off, review of inventories, introduction to methodologies, agree on workplan, timetable, networking
3	Set-up national project management structure: Assignment of nat'l personnel, review of relevant information, identification of stakeholders	BKF		Project team identified, contracts not yet
		KHM		Project team formed, other counterparts requested
		CHL		Project team identified, contracts not yet
		PAK		Nat'l team and stakeholders identified
		PHL		Nat'l project mgt structure established, stakeholders identified, ToRs under development
4	National stakeholders' meeting and orientation on the Draft Technical Guidelines on ESM of Mercury Waste; criteria, prioritization, and drafting of a national mercury waste management plan	BKF	Jun 2009	- All countries request the presence of the IC. - The draft workshop agenda including an indication of the priority sectors to be communicated to IC by end of Mar 2009; - Questionnaire of mercury issues to be distributed to WS participants in advance of the WS
		KHM	Jun 2009, wk2	
		CHL	Jul 2009	
		PAK	Late Apr 09	
		PHL	Apr-Jun 09	
5	Sector-specific activities and awareness-raising activities on the TG application	BKF		Back-to-back with WS; total of 1 week to start
		KHM		Together with (4), random activities, 1 month, combining sites, includes sampling
		CHL		Together with (4)
		PAK		Together with (4); combined with site visit
		PHL		Together with (4), total of 1 wk
6	Development of national mercury waste management plan	BKF		ASM, batteries, CFL, dental amalgams, medical waste incinerators, municipal waste incineration
		KHM		Hospital+municipal waste (open burn and dump), gold mining, batteries
		CHL		Hospital waste (thermometer), gold mining
		PAK		1-Chlor-alkali, dental amalgams
		PHL	Nov 2009	ASM gold, coal combustion, Hg-containing equipment (Handling storage, disposal)

	Activity	Country / Actors	Date	Objective / Remarks
7	Collection of relevant human and environmental samples and shipment to HgLab (including consultation with and notification to HgLab) (including survey on existing national capacity)	BKF		Discharges from ASM (wastewater, sludge), medical waste incinerators (soot from stacks), municipal waste open burn-ash samples), fish, hair, rice
		KHM		Soot from med waste incinerators, ash from burning MW, seepage water from dumps, sludge from gold mining, biological samples (fish, snails, crab, duck liver ~~and muscle~~)
		CHL		Disposal from hospital waste, mining wastewater, mining workers
		PAK		Environment and human samples; hair (questionnaire for chlor-alkali workers and control group), environ samples (air and wastewater)
		PHL	Aug 2009	Hair, fish, mussel (tahong)
		HgLab		Provide advice for sampling and shipment
8	Communication of Hg analysis results to countries	HgLab		Directly from lab to country including comments on scale of Hg content
9	2nd national stakeholder meeting to finalize management plan and communicate results	BKF	3-5/2010	(drafting to start x weeks before WS)
		KHM	3-5/2010	
		CHL	3-5/2010	
		PAK	May 2010	After 2nd global WS
		PHL	3-5/2010	
10	Global final project results workshop,	BKF, KHM, CHL, PAK, PHL; IC; HgLab	Mar/Apr 2010	including evaluation of project/lessons learned, Draft final report available
11	Submission of final technical and financial national reports to UNEP	BKF, KHM, CHL, PAK, PHL; IC; HgLab	Jun 2010	Electronically from country, IC, HgLab to UNEP Chemicals
12	Project final report published	UNEP		

9 AGENDA

Inception Workshop for the Project "Management of Mercury and Mercury-Containing Waste"

City Angkor Hotel in Siem Reap, Kingdom of Cambodia
4-6 March 2009

Wednesday, 4 March 2009		
8:30-9:00	*Registration*	
9:00-10:00	**Opening and Welcome** Remark by UNEP representative Opening remark by the Ministry of Environment's representative • Introduction of the participants • Practical arrangements • Group photo	Dr. Heidelore Fiedler, UNEP H.E. Heng Nareth, Advisor to the Ministry of Environment, Cambodia Mr. Sambo Sarun, Cambodia
10:00-10:30	*Coffee break*	
	Review of Existing Information and Context	
10:30-11:15	Mercury waste: Project implementation and context	Heidelore Fiedler, UNEP
11:15-12:15	Initial observations from national mercury inventories	Dr. Mario Yarto
12:15-13:45	*Lunch*	
13:45-16:15 16:15-17:00	**Presentation of National Mercury Inventories** • Burkina Faso • Cambodia • Chile • Pakistan • Philippines Discussion	30 min each
5 March 2009	**Guidelines and Tools (International)**	
9:00-12:30	Overview on Basel Draft Technical Guidelines on Mercury Waste	Dr. Mario Yarto, International Consultant
	Mercury analysis in human and environmental samples	Dr. Jörg Feldmann, University Aberdeen
12:30-13:45	*Lunch*	
	National situation in participating countries	
	• Legal framework, past and future activities and developments, synergies, *etc.*	Chair: Mr. Ali Abid, Pakistan; Rapporteur: Mr. Mario Yarto
	• Methods for prioritization, identification of stakeholders and sectors, needs identification	
6 March 2009	**Project Implementation**	
9:00-12:30	Development of Workplan and Timetable (including initial priority areas, identification of matrices and sampling methods, timing of workshops, reporting)	
	Closure of the workshop	

10 LIST OF PARTICIPANTS

Inception Workshop – Mercury Waste Management Project

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11 GUIDANCE QUESTIONS

1. Is a regulatory framework for waste management in place at the National level?
   - If yes, what does it consist of? E.g. laws; standard setting; PRTR; other schemes or programmes (including voluntary approaches), etc.
   - Strengths and gaps in regards to mercury and mercury waste regulation
   - Obstacles and barriers for its implementation

2. On mercury waste: what are the main criteria to prioritize at the National level (*e.g.*, when considering the mercury inventory outcomes?
   - Existing regulation
   - Sectoral/source/hot -spot approach
   - Exposed populations
   - Sampling and analysis needs
   - Storage requirements (interim, long term)
   - Availability of resources (technical, financial)

3. Parallel / complementary activities to mercury inventory development?

4. Main elements to include in a mercury waste management action plan
   - Reference to Basel Convention Technical Guidelines
   - Compliance and enforcement requirements
   - Others, according to National needs/context

5. Which stakeholders need to be involved?

6. Path forward
   - Initial and follow up activities at the National level
   - Planning of National workshop (participants, objectives, outcomes)