

**REGIONAL AWARENESS RAISING WORKSHOP ON MERCURY POLLUTION –  
A Global Problem That Needs To Be Addressed**

**Port of Spain, Trinidad and Tobago, 18-21 January 2005**

### **3. WORKING GROUP SESSIONS**

Guidance questions for Working Group session 1

**Identification of major issues, problems, challenges  
and priority information gaps at regional and national levels**

#### **Guidance Questions**

1. Is there sufficient knowledge of the main sources and quantities of mercury released into the environment in the countries of the region, and if not, what are the most important information gaps and how may they be filled?
2. Are the levels of mercury in different media (such as air, water, and soils) and biota (such as fish, marine mammals, and other wildlife) sufficiently known in the countries of the region and if not, what actions are needed to gain a better understanding?
3. Are there sufficient data on mercury exposures for humans and wildlife in the region and, if not, what are the most important information gaps and how may they be filled?
4. Based on existing data available, what issues and problems are of greatest concern for countries in region? For example, are there exposures to mercury for humans or wildlife that are of special concern in the region, are there certain source types of special concern, are there waste disposal issues, clean-up of hazardous waste sites, other problems, etc?
5. What are the barriers faced in trying to better understand mercury releases, levels of mercury in the environment, and extent of exposures in your countries and how can these barriers be addressed or removed?

## Reports from Working Group session 1

### IS MERCURY POLLUTION A PROBLEM RELEVANT TO THIS REGION/SUB-REGION? –

#### SUMMARY OF FINDINGS OF THE TWO GROUPS

<b>Question 1 Is there sufficient knowledge of the main sources and quantities of mercury released into the environment in the countries of the region, and if not, what are the most important information gaps and how may they be filled?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<p>Knowledge of possible natural and anthropogenic (intentional and unintentional) sources is good in some cases, but lacking in others. There are several data gaps:</p> <ul style="list-style-type: none"> <li>• Accurate data for import and export of products and species containing mercury;</li> <li>• Uptake of mercury in humans and biota;</li> <li>• Point and non-point source releases of mercury to air, water and soil;</li> <li>• Concentrations of mercury in air, water and soil;</li> <li>• Capacity – resource (technical, human and financial) sharing on a regional level.</li> </ul> <p>Resources which need to be mobilized to fill these gaps:</p> <ul style="list-style-type: none"> <li>• Assessment of potential sources (incl. ‘non-traditional’ sources: aquaculture, hydroelectric dams, burning of biomass, volcanoes);</li> <li>• Systems or mechanisms for capture of relevant data (including imports and exports) to establish background levels and build inventories;</li> <li>• Financial and technical resources for research purposes;</li> <li>• Political commitment to allocate the necessary budgetary requirements;</li> <li>• Legislation – drafting and enforcement to require reporting by relevant sectors on release, safe disposal of mercury-containing waste;</li> <li>• Education and raising of awareness at all levels leading to increased: <ul style="list-style-type: none"> <li>- advocacy (CBOs and NGOs)</li> <li>- compliance and adoption of best practices by the relevant public and private sector entities;</li> </ul> </li> <li>• Access to and exchange of information on national and regional level: <ul style="list-style-type: none"> <li>- Regional institutions will be instrumental in this exercise to act as Clearing Houses (Basel Regional Centre, CEHI, CARICOM).</li> </ul> </li> </ul>	<p>Yes, there is sufficient knowledge. Most sources were fairly visible e.g. mining, dental amalgam, etc., however, in some cases the sources are still unknown. E.g. Barbados was not aware that lime manufacturing is a potential source. Quantities are questionable.</p> <ul style="list-style-type: none"> <li>• Many presentations indicated no data due to a lack of inventories;</li> <li>• Information gaps;</li> <li>• Difficulty in tracing imports;</li> <li>• Need to start undertaking inventories;</li> <li>• Need to inventory health effects/impacts on humans;</li> <li>• Need to inventory Occupational Health and Safety as it relates to hazardous waste;</li> <li>• Formation of a Regional data base with regard to land, water, air (volcanic emissions) bathymetric data, current flows (land and water).</li> </ul>

<b>Question 2 Are the levels of mercury in different media and biota sufficiently known in the countries of the region and if not, what actions are needed to gain a better understanding?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<p>There is a paucity of data regarding mercury loading in these media. The following actions should be taken:</p> <ul style="list-style-type: none"> <li>• Institute monitoring and research programmes to establish background levels, identify point and non-point sources, build databases and provide a basis for modeling exercises;</li> <li>• Consultation with affected communities, relevant sectors (industrial, medical etc.) to obtain anecdotal and scientific data;</li> <li>• Make existing information more accessible to researchers and policy-makers;</li> <li>• Encourage cooperation between stakeholders at the local, national, regional and international levels to share financial, technical and human resources;</li> <li>• Build capacity at the technical and policy levels (training programmes for specific groups);</li> <li>• Apply resources to put required infrastructure in place to undertake assessment.</li> </ul>	<p>No, levels are not sufficiently known.</p> <p>Actions needed to gain a better understanding of mercury levels in various media are:</p> <ul style="list-style-type: none"> <li>• Implementation of some permitting body so that foreign researchers share data collected and final research;</li> <li>• Suggestion that a student be assigned to the International Research Team so as to monitor the sharing of information;</li> <li>• Regional universities should steer potential post graduate research to relevant topics so that data gaps can be filled;</li> <li>• Implementing research to establish background levels and further research and monitoring;</li> <li>• Funding;</li> <li>• Training;</li> <li>• Existing Conventions that address mercury and other hazardous substances;</li> <li>• Other regions have already done work. We in the region can utilize these existing models to develop our framework for dealing with the problem;</li> <li>• Standardization of collection of mercury data so that correlation of data can be relevant;</li> <li>• Identification of hot spots.</li> </ul>
<b>Question 3 Are there sufficient data on mercury exposures for humans and wildlife in the region and, if not, what are the most important information gaps and how may they be filled?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<p>No. The information gaps are:</p> <ul style="list-style-type: none"> <li>• Risk assessment studies;</li> <li>• Information on the uptake of mercury by humans, particularly vulnerable groups (workers, indigenous persons) and biota;</li> <li>• Movement of mercury between different environmental compartments.</li> </ul> <p>The required actions are the same as in questions 1 and 2.</p>	<p>No, sufficient data is not available. E.g. how does one know to test for mercury poisoning when someone goes to the hospital and does not know what they are ailing with.</p> <p>Gaps can be filled by doing the following:</p> <ul style="list-style-type: none"> <li>• Establishment of baseline data;</li> <li>• Account for the variation of species in the Caribbean and South American continent when researching baseline data;</li> <li>• Education on impact of mercury poisoning on humans;</li> <li>• Individual v/s state unaware of what resources are available in terms of toxicology labs (mercury);</li> <li>• Electronic information network.</li> </ul>

<b>Question 4 Based on existing data available, what issues and problems are of greatest concern for countries in region?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<p>Countries can be divided into three categories:</p> <p><b>Category A – Guyana and Suriname -</b>            These countries need immediate strategies to mitigate release and limit human exposure to mercury. They have small-scale gold and bauxite mining industries which release mercury to the environment. Suriname also has a chlor-alkali plant. They also have indigenous populations which are at risk as their diet is dependent upon fish consumption from mercury-polluted areas. Gold-miners and jewelers are exposed to mercury vapors with resulting occupational health and safety issues;</p> <p><b>Category B – Trinidad and Tobago, Jamaica and Barbados -</b>            These countries have “heavy” manufacturing sectors – bauxite in the case of Jamaica and natural gas, oil extraction and refining in Trinidad and Tobago. Cement manufacture in all three islands;</p> <p><b>Category C – Bahamas, OECS and Belize -</b>            The primary source of mercury in these countries is from mercury-based products which are not properly disposed of.</p> <p>All countries have waste disposal issues. Also, in many instances:</p> <ul style="list-style-type: none"> <li>• There is no designated site/facility to manage (treatment and disposal) hazardous wastes;</li> <li>• Incinerators do not have emission control technologies in place;</li> <li>• Mercury-based products are disposed of with the domestic waste. There is no waste segregation or recycling initiatives.</li> </ul> <p><b>Comments -</b></p> <ul style="list-style-type: none"> <li>• Barbados, the Bahamas (in select islands), Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines have sanitary landfills. Some of these countries have the capacity to deal with certain capacity of hazardous waste, but not mercury;</li> <li>• Some countries have some policies in place to deal with mercury-containing products e.g. Trinidad and Tobago with recycle mercury in fluorescent bulbs. Cooperation between islands for collective waste treatment would be beneficial in this case;</li> <li>• Guyana, Suriname, Trinidad and Tobago and the Bahamas can identify some hot spots (known human exposure and environmental contamination) within their countries. There are financial constraints to cleanup. Problems must be addressed with a comprehensive Waste Management Plan;</li> </ul>	<p>The following are the issues and problems of greatest concern in relation to mercury:</p> <ul style="list-style-type: none"> <li>○ In larger countries such as Guyana and Suriname transportation costs are too high to ensure proper disposal of mercury;</li> <li>○ Difficulty enforcing and monitoring / human capacity to inspect and monitor is also a challenge;</li> <li>○ Cultural attitudes hard to change as this is a practice that they have known forever. Illiteracy also a barrier in Suriname;</li> <li>○ Larger countries with diverse ethnic backgrounds make it hard to communicate and do implement change e.g. interior population v/s coastal population;</li> <li>○ Socio-economic issues with respect to salaries; lack of incentives for tribal population to work as they can obtain higher wages as a labourer;</li> <li>○ Dengue /Typhoid/Malaria are risks in getting population to go into the interior to monitor the actions of miners as well as educate the indigenous tribes;</li> <li>○ Other pressing diseases e.g. STDs, water borne diseases take precedence over the effects of potential mercury poisoning.</li> </ul> <p><b>NB Bahamas ---Hazardous Waste Disposal Facility to come on stream by end of year</b></p> <p><b>Concern with waste disposal -</b></p> <ul style="list-style-type: none"> <li>• Dumps/land fills in the region are not sanitary and therefore leachate, which can potentially contain mercury, is not contained;</li> <li>• No hazardous waste sites;</li> <li>• Safe disposal of existing stockpiles;</li> <li>• A system needs to be developed for proper disposal. What avenues are open to the region for safe disposal;</li> <li>• Suggestion of “Cradle to Grave” tracking system of all importation of mercury as well as hazardous waste. Getting NGOs involved in terms of cooperating.</li> </ul> <p><b>NB Bahamas ---Hazardous Waste Disposal Facility to come on stream by end of year</b></p> <ul style="list-style-type: none"> <li>• Other problems- Political mandate does not always conform with developing a sustainable environment.</li> </ul>

<ul style="list-style-type: none"> <li>• Rehabilitation of mined out areas is also an issue in some countries (Guyana, Suriname, Trinidad and Tobago, the Bahamas and Jamaica) is also an issue.</li> </ul>	
<p><b>Question 5 What are the barriers faced in trying to better understand mercury releases, levels of mercury in the environment, and extent of exposures in your countries and how can these barriers be addressed or removed?</b></p>	
<p style="text-align: center;"><b>GROUP A</b></p>	<p style="text-align: center;"><b>GROUP B</b></p>
<ul style="list-style-type: none"> <li>• Limited resources to undertake assessment in some instances;</li> <li>• Lack of commitment and awareness at the political, policy and sectoral levels. Hence, mercury is not recognized as a significant problem in the region;</li> <li>• Lack of awareness at the community level (need for increased advocacy by people at risk, NGO and CBO communities);</li> <li>• Accessibility to contaminated areas is a problem for certain countries (Guyana and Suriname);</li> <li>• Cultural practices using mercury (quicksilver) are still a problem, but these harmful practices are being abandoned in some instances;</li> <li>• Religious beliefs in some instances limit the collection of certain types of body samples for analyses;</li> <li>• Language barriers are an issue for certain countries and populations (Maroons in Suriname);</li> <li>• Lack of data and data management systems;</li> <li>• Lack of appropriate legislation and weak enforcement mechanisms;</li> <li>• Fragmentation of coordinating bodies (national authorities) at the national and regional levels;</li> <li>• Issues of poverty, in some instances, make it difficult to convince affected persons to adopt safe practices (need for viable economic alternatives or better environmental practices within operations).</li> </ul> <p>Ways to address this:</p> <ul style="list-style-type: none"> <li>• Reform of school curriculum to improve awareness;</li> <li>• Institute Pollutant Release Transfer Registers, encourage voluntary reduction programmes for relevant sectors and codes of practice (“each-one-teach-one”);</li> <li>• Utilization of appropriate technologies and adopting best practices/technology transfer;</li> <li>• Implementation and enforcement of appropriate legislation;</li> <li>• Inter-ministerial coordination at national level and enhance cooperation at regional and international levels;</li> <li>• EIA (Health Risk Assessment and Closure Plans should be primary features);</li> <li>• Sustainability of monitoring programs needs to be</li> </ul>	<p>Barriers faced are:</p> <ul style="list-style-type: none"> <li>• We are not fully aware of sources, therefore unintentional release is possible;</li> <li>• Unaware of what symptoms to look for. Mercury poisoning can be mistaken for something else;</li> <li>• We need to be educated on how to treat mercury poisoning;</li> <li>• However, there has to be the political will to address this problem;</li> <li>• We need to make it more of a priority as in some cases mercury poisoning is important but not a priority in terms of issues that need addressing in the region.</li> </ul>

<p>addressed to ensure continuity of data;</p> <ul style="list-style-type: none"><li>• Inclusion of the private sector, NGOs and wider community in the decision-making process (development of waste management plans);</li><li>• Promote partnerships between stakeholders, including the private sector, academia and NGO community to address the problem.</li></ul>	
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## Guidance questions for Working Group session 2

### **Possible national, regional and international actions, policy approaches and regional or international cooperation that might be needed to reduce the risks posed by mercury**

1. What mercury pollution problems are common throughout the region?
2. What actions should be taken nationally to deal with these problems?
  - a. Short-term?
  - b. Long-term?
3. Where are there opportunities for regional cooperation?
  - a. Short-term?
  - b. Long-term?
4. How can national and regional actions be implemented and what kind of support or assistance (technical, financial or other) may be needed?
5. What actions and support might be needed from intergovernmental and non-governmental organizations, such as public interest groups and industry, to support government action?
6. How can you, as workshop participants, engage your respective governments to become active in the mercury policy discussions prior to and during the UNEP Governing Council session in February 2005?

## Reports from Working Group session 2

### HOW CAN THE REGION ADDRESS ANY MERCURY RELATED PROBLEMS?

#### SUMMARY OF FINDINGS OF THE TWO GROUPS

<b>Question 1      What mercury pollution problems are common throughout the region?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<ul style="list-style-type: none"> <li>• Inadequate “cradle-to-grave” management of materials containing mercury.</li> <li>• Hazardous waste management e.g. landmining, medical waste incineration, cremation, spill control;</li> <li>• Mining and production (small-scale artisanal gold, bauxite, limestone) activities:               <ul style="list-style-type: none"> <li>- emissions</li> <li>- waste disposal</li> </ul>               which result in occupational health and safety issues, development of hot spots, human and environmental health issues;             </li> <li>• Transportation of mercury throughout the region via water bodies, air and biota;</li> <li>• Combustion of fossil fuels and biomass;</li> <li>• Natural sources (volcanoes, Sahara dust).</li> </ul>	<ul style="list-style-type: none"> <li>• The issue of inadequate disposal facilities and improper handling techniques;</li> <li>• The lack of a proper inventory;</li> <li>• Lack of awareness/ impact on health and environment;</li> <li>• Accessibility to affected areas is difficult (with regards to larger countries like Guyana and Suriname);</li> <li>• Transport of mercury via currents from the Amazon basin into the wider Caribbean region.</li> </ul>
<b>Question 2      What actions should be taken nationally to deal with these problems (short-term and long-term)?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<p><b>a.      Short-term</b></p> <ul style="list-style-type: none"> <li>• Seek political commitment;</li> <li>• Form an multi-stakeholder committee/working group to:               <ol style="list-style-type: none"> <li>i) Establish current status (situational analysis)                   <ul style="list-style-type: none"> <li>- identify possible pollution sources</li> <li>- streamline existing data from multiple sources;</li> </ul> </li> <li>(ii) Compile an inventory;</li> <li>(iii) Identify potential technical, financial, human resources;</li> <li>(iv) Identify probable hot spots and populations which are at risk;</li> <li>(v) Develop a detailed national strategy and action plan (NSAP).</li> </ol> </li> </ul> <p><b>b.      Long-term</b></p> <p>Implementation of an National Strategic Action Plan, including:</p> <ul style="list-style-type: none"> <li>• Public education;</li> <li>• Build partnerships – develop proposals to solicit regional/international aid;</li> <li>• Perform initial research to quantify the extent of effects on human and environmental health and socio-economic factors;</li> </ul>	<p><b>a.      Short-term</b></p> <ul style="list-style-type: none"> <li>• Public awareness about products containing mercury;</li> <li>• Listing of mercury containing products used in the respective countries;</li> <li>• Inventory of the mercury stockpiles;</li> <li>• Definition of mercury sources/ hotspots in the respective countries;</li> <li>• Review of existing legislation regarding mercury.</li> </ul> <p><b>b.      Long-term</b></p> <ul style="list-style-type: none"> <li>• Quantify impact of mercury on health and environment (land, air and water);</li> <li>• Research - quantify sources of mercury coming out of disposal sites/ landfills and other point sources;</li> <li>• Monitoring via extensive sampling of human, environmental (land, air and water);</li> <li>• Infrastructure needs to be improved to gain access to remote regions affected by mercury pollution;</li> <li>• Institutional strengthening and capacity building in terms of training and communication/ identification of a focal body overseeing mercury issues;</li> <li>• Funding - equipment, research programmes/ projects, technical assistance , public awareness</li> </ul>

<ul style="list-style-type: none"> <li>• Long-term monitoring and creation of a database;</li> <li>• Dissemination of information;</li> <li>• Develop and institute policies/programmes to guide national response and measures to mitigate damage to human and environmental health.</li> </ul>	<ul style="list-style-type: none"> <li>• campaign/ community participation;</li> <li>• Legislation update - based on findings of research;</li> <li>• Introduce economically and viable alternatives to curb mercury use and then phase in a ban with exemptions on beneficial products (florescent lamps);</li> <li>• Policy/ action plan.</li> </ul>
<p><b>Question 3 Where are there oppourtunities for regional cooperation (short-term and long-term)?</b></p>	
<p style="text-align: center;"><b>GROUP A</b></p>	<p style="text-align: center;"><b>GROUP B</b></p>
<p><b>a. Short-term</b></p> <ul style="list-style-type: none"> <li>• Establish informal networks using contacts made at this conference;</li> <li>• Engage regional private sector organizations (including media associations, trade unions);</li> <li>• Engage regional educational institutions e.g. UWI.</li> </ul> <p><b>b. Long-term</b></p> <ul style="list-style-type: none"> <li>• Establish bilateral and/or multilateral arrangements to share expertise and exchange information on issues such as best practices;</li> <li>• Establish a clearinghouse (perhaps via the Basel Regional Centre);</li> <li>• Utilize the regional bodies such as the Basel Regional Centre, CEHI, CARICOM, OECS;</li> <li>• Establish a regional fund.</li> </ul> <p><b>Comment:</b></p> <ul style="list-style-type: none"> <li>• Formalize networks;</li> <li>• Establish regional monitoring programmes;</li> <li>• Establish regional training programmes;</li> <li>• Develop a regional action plan;</li> <li>• Harmonization of regional policies/ legislation/monitoring.</li> </ul>	<p><b>a. Short-term</b></p> <ul style="list-style-type: none"> <li>• Standardization of data base;</li> <li>• Existing Basel Regional Convention Centre/CEHI/ CARICOM/ OECS/ CARIRI;</li> <li>• Regional universities;</li> <li>• Establishment of regional clearing houses;</li> <li>• Develop cooperation among heavy industries (petroleum refining, bauxite production, gold mining) - nationally and regionally.</li> </ul> <p><b>b. Long-term</b></p> <ul style="list-style-type: none"> <li>• Establishment of a regional toxicology centre which would lead to the development of a medical database so that symptoms and remedies can be shared;</li> <li>• Regional fish advisories;</li> <li>• Harmonization of standards.</li> </ul>
<p><b>Question 4 How can national and regional actions be implemented and what kind of support or assistance (technical, financial or other) may be needed?</b></p>	
<p style="text-align: center;"><b>GROUP A</b></p>	<p style="text-align: center;"><b>GROUP B</b></p>
<p><b>Implementation:</b></p> <ul style="list-style-type: none"> <li>• Obtaining political, private sector, NGO, CBO and other stakeholder support at national and regional levels;</li> <li>• Integrated approach to monitoring;</li> <li>• Assessment of existing health and environmental projects and frameworks (legal and institutional) to see if mercury can be included.</li> </ul> <p><b>Support:</b></p> <ul style="list-style-type: none"> <li>• Strengthening of institutional (infrastructure and technical expertise), legal and regulatory frameworks;</li> <li>• Education and awareness raising at all levels.</li> </ul>	<p><b>National:</b></p> <ul style="list-style-type: none"> <li>• Networking;</li> <li>• Establishment of an inter-agency, multi-disciplinary body to deal with mercury issues;</li> <li>• Public awareness.</li> </ul> <p><b>Regional:</b></p> <ul style="list-style-type: none"> <li>• Through CARICOM/ACS / OECS/ CEHI/ CARIRI/ Basel Regional Convention Centre.</li> </ul> <p><b>Support needed:</b></p> <ul style="list-style-type: none"> <li>• Financial in terms of adopting clean appropriate technology, best practices and logistical support;</li> <li>• Improvement of infrastructure will initiate a domino effect.</li> </ul> <p><b>Technology:</b></p> <ul style="list-style-type: none"> <li>• Equipment;</li> </ul>

	<ul style="list-style-type: none"> <li>• How to deal with abandoned small mines/ final disposal.</li> </ul>
<b>Question 5 What actions and support might be needed from intergovernmental and non-governmental organizations, such as public interest groups and industry, to support government action?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<ul style="list-style-type: none"> <li>• Assist in public education exercises and raising awareness at the local level;</li> <li>• Assist with training and institutional strengthening;</li> <li>• Mobilize financial, technical and human resources;</li> <li>• Networking;</li> <li>• Lobbying.</li> </ul>	<ul style="list-style-type: none"> <li>• CBOs, NGOs are important at organizing at the community levels;</li> <li>• Memorandum of understanding among governmental agencies with respect to their functions;</li> <li>• Funding from NGOs;</li> <li>• Promote self-preservation at the base level through community groups as well as extending public awareness at the primary school level.</li> </ul>
<b>Question 6 How can you, as workshop participants, engage your respective governments to become active in the mercury policy discussions prior to and during the UNEP Governing Council session in February 2005?</b>	
<b>GROUP A</b>	<b>GROUP B</b>
<ul style="list-style-type: none"> <li>• Create a proposal for informing the government about the scope of the problem and make recommendations;</li> <li>• Engage the media to raise public awareness of the issue;</li> <li>• Inform government as to threats to health, biodiversity and sustainability of food sources in the region;</li> <li>• Engage CARICOM to get buy-in from individual governments.</li> </ul> <p><b>Comments:</b></p> <ul style="list-style-type: none"> <li>• Trade Unions are an important advocacy group with regards to Occupational Health and Safety. They should be included as a support group in question 5;</li> <li>• Our region is at a disadvantage with regards to the short time left to prepare for the UNEP Governing Council session.</li> </ul>	<ul style="list-style-type: none"> <li>• Based on information gleaned from the workshop presentations can be made to politicians/ policy makers, mass media- wider population;</li> <li>• Involvement of all public health professionals and industry related personnel;</li> <li>• Establishment of a status report on mercury related issues for each of our countries;</li> <li>• Strengthening on the country presentations that were made at this forum.</li> </ul>