User's guide

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GENERAL AWARENESS RAISING STRATEGIES

What does it mean to raise awareness about mercury?

The goal of awareness raising is to disseminate factual information to the people who are either affected by mercury or who are in some way responsible for caring for people who may be affected by mercury to inform them about the hazards associated with mercury.

Good awareness raising campaigns are optimistic and empowering. They relay responsibility and ownership of an issue to the target audience.

How does one launch an awareness raising campaign?

Before a full mercury awareness raising campaign starts, it is essential to assess the extent of the problem. For instance, it is important to understand the largest source of mercury, the number of people affected, the area or extent of the exposure, the mercury levels in local wildlife and humans, and actions to implement with the greatest potential for environmental benefit.

The overall objective is to promote the understanding of the related issue and associated risks. It is helpful to establish some goals for the effort so that progress can be measured over time.

It is likewise important to be aware of target audiences. You will want to consider who is using mercury, and which organizations can influence change. Target audiences often include healthcare providers, governments and parents as caregivers, as well as populations that use products containing mercury or that are directly exposed to the risk through their environment or activities. Schools are another major means to relay information. Awareness raising campaigns can also reach out to industry to urge them to take action on the issue.

The use of existing social networks may be one of the least expensive and most effective ways to get across information about mercury. Speakers can visit schools, and materials can be developed for students that they can then take home to their parents.

Awareness raising requires commitment of community leaders. Healthcare providers and religious leaders are very important sources of information for a community, since their advice is generally respected. They are important allies in awareness raising. There are many community-based organizations whose charter includes the dissemination of public health information and/or community economic development. Community-based organizations often communicate regularly with other groups with similar goals.

Who is the audience?

Once the objectives for awareness raising are established, target audiences will need to be identified along with specific sub-groups within that audience.

It may prove necessary to plan a variety of activities in order to reach out to the audience. Usually the message must be adjusted to fit the audience and priorities may have to be established. Some aspects to consider could include:

- Who needs the information the most?
- Are there existing networks in place to deliver the message?
- Who is positioned to make decisions?
- Who can influence the decision-makers?

What is the message to be delivered?

The character of the overall message to be delivered is very important. To be effective a message should be relevant to the audience and convince them that they need to take action on the issue. The message will vary according to the target audience.

For example, when addressing an artisanal mining community, the take-home message might be:

- Using mercury in gold mining practices involves risk to human health and the surrounding environment. You, your family and your community may be at risk of mercury poisoning.
- Mercury exposure for miners and their communities can be reduced by following safer practices that effectively extract the gold. Safer practices can be simple to use and cost-efficient.
- Even the storage, transport and handling of mercury for these purposes create a danger of spills and both of immediate and longer-term exposure to mercury vapour.

How does one deliver the awareness raising message?

One must consider what are the most effective means to reach out to the target audience. Messages ought to be delivered in local languages. The message can be delivered in a number of ways, for example:

- Public meetings and workshops are useful to deliver messages to small groups and can be effective in covering topics in-depth.
- Printed material such as leaflets, posters and/or stickers draw attention to the issue and can be made appropriate for most audiences.
- Large-scale publicity such as signs, radio or television advertisements or public service announcements can also be effective in drawing attention to an issue. Celebrities are often willing to play a role in selling the message.

- On-site training is appropriate when detailed information is required to make a difference. It is often best received from local people and most effective with repeated follow-up.

  Example: Calling a public meeting
  A public meeting may be called in a town or region and a group of people related by a common livelihood or industry invited to participate. In doing so, it is essential to inform and involve community or local government leaders when planning the meeting and to work with these leaders in advance to ensure a common understanding and widespread support for the event. Someone will need to ensure that everyone knows about the meeting and that relevant affected groups are represented.

  Good listening skills are one key to success at this type of meeting and in the follow-up. The attendees will likely be able to contribute additional information about the nature of mercury use and release in their community and provide insight into the local perspective.

  Such a meeting could serve to establish a common understanding of the mercury problem affecting the community. The meeting should assist participants in developing a plan to help solve the problem, for example, by persuading people to change certain practices or behaviours in their homes or workplaces. It would be helpful to give examples of solutions that are being successfully applied elsewhere. It is intended that the case studies in this Toolkit will be useful for this purpose.

What role can the media play?

If the right venue is chosen (newspapers, magazines, radio or television), a great number of people involved in, or potentially affected, can be warned of the risks of mercury exposure. There are many examples of the successful role of the media in community outreach in all regions of the world.

Groups or agencies hoping to effect change with media campaigns need to identify their target audience, which in this case could be both users of mercury, and others in their community who may be exposed to it through spills, waste disposal, or contaminated buildings. Organizers should then select the most effective media venue and provider (e.g., the local radio or TV station or the daily newspaper) most likely to reach the largest number of people in their target audience.

Media campaigns can be expensive if they involve advertising. Some newspapers, radio and television stations, however, may set aside space/time for free public service announcements.

Another effective method is to interest journalists in the campaign and encourage them to write or to report on it. One way of attracting interest is through a press release or writing an article for a community newspaper or magazine. Other effective strategies to attract media interest can include holding a press conference or writing a letter to the local radio or television company to suggest a story on mercury and to offer an interview with an expert.

Preparing a press release

A press release should be simple and direct. It should have a catchy headline and strong lead paragraph, answer the who, what, where, when and how, incorporate quotes of organization leaders or experts where possible, and provide contact details.

Below is an annotated example of a press release that can be used to relay your mercury message.

Letterhead
The press release should be on Ministry or other official stationary.

A standard introduction for a press release
FOR IMMEDIATE RELEASE

Who to contact for more information.
Contact:
Press Officer:
Government Communications Division, Lead Ministry:
Name and telephone contact:

Succinct title that attracts the reader's attraction
For example: Country X puts forth an action plan to protect citizens and the environment from mercury releases.

Begin with the location and date, followed by an introduction covering all major points
City name, Country name, date and year.

A quote by a government representative is helpful (a Minister is desirable)
A sample quote: 'The mercury action plan, once implemented, will be a concrete step towards sustainable development for our country and will protect our citizens from the harmful effects of mercury.'

[1]This information is extracted and modified from UNITAR Guidance on Action Plan Development for Sound Chemicals Management, 2005. It is available at www.unitar.org/cwg/publications/cw/ap/UNITAR_action_plan_gd_26_apr_05.pdf.

Include information about why this event is newsworthy

Sample background information: This action plan on mercury was developed as part of a XX project, with XX funding. This action plan was developed on the basis of the results of the inventory on mercury use and releases that was developed in our country for this project. The action plan was prepared in consultation with stakeholders and is designed to ensure that our country can plan and work together with all sectors of government and society to strengthen our laws, policies, and practices related to mercury. Every year, people and the environment are needlessly exposed to dangerous chemicals such as mercury. This effort, when implemented, will help to minimize and/or prevent harm from mercury, providing many benefits to our society both locally and globally. The project, which began in our country in XX (timeframe), will conclude in XX.

Conclude with further contact information

For more information contact (name, telephone number(s), and web address) (if available).

How will you know you have achieved the goal?

Evaluating an awareness raising campaign is an essential step in demonstrating success, enhancing future awareness raising efforts, and sharing lessons learned with others. It need not be complicated.

Setting specific objectives and performance indicators at the outset is critical in evaluating and measuring the success of any campaign.

Outcomes can be evaluated in terms of number of participants at an event, number of materials distributed, etc. Outcome measurements can be important measurements.

Measuring or judging the impact of the activity requires a “before and after” comparison and can be more difficult to measure. Surveys and follow-up visits are often used to evaluate whether the target audience learned and/or made changes as a result of the awareness raising activity.

References:

UNEP 1996, ‘Five Steps for Raising Awareness on Ozone Depletion’, 1996.

UNITAR Guidance on Action Plan Development for Sound Chemicals Management, 2005.

KEY MESSAGES FOR CITIZENS

This section provides a brief summary of information aimed at citizens of developing countries and countries with economies in transition to give them a better understanding of local threats to human health and the environment from various mercury-containing products, emissions from mining or industrial processes, waste disposal practices, etc.

It also provides practical recommendations on how both communities and individuals can reduce the risks related to mercury exposure through their lifestyle choices and actions.

How are citizens exposed to mercury?

Most individuals are exposed to mercury through certain food sources, predominantly fish. Elemental mercury carried in the atmosphere is eventually deposited and taken up in bacteria in aquatic environments and converted from elemental mercury into methylmercury. Methylmercury bio-accumulates up the food chain and is the primary source of mercury in our food.

Other potential exposure to mercury through inhalation of mercury vapour is dangerous. Approximately 80% of inhaled mercury vapour is absorbed by the body. Potential exposure routes include:

- mercury spills.
- occupational exposures and/or living close to a facility/industry that emits mercury in its processes:
- gold mining or smelting of metal ores, manufacture of mercury containing instruments, chlor-alkali plant, a cement plant, a vinyl chloride monomer production plant, metal or electronic recycling activities, and/or burning waste.

Factors that contribute to the health effects of mercury exposure include the chemical form of mercury, the dose, duration of exposure, the age of the person exposed, route of exposure and the dietary pattern.

Other exposures can come from:

- mercury containing cosmetics and soaps, designed to lighten skin.
- exposure to some paints, pesticides or fungicides that contain mercury.
- mercury in products that may break or not be disposed of properly.

How important a problem is mercury?

In some areas and occupations mercury may be a significant problem, while in others it may not be, depending on lifestyle and habits, diet, surroundings, occupation. Many actions can be taken to minimise mercury exposure that require relatively little effort, and cost little or nothing. If one learns to take such

actions automatically during daily life, potential risks related to mercury may be reduced.

It is important to take whatever precautions are possible to minimise inhaling mercury vapours directly, either in the workplace or at home

With respect to mercury in food, many fish consumers have little or no choice in the type or source of fish they consume, but in general it is vital for people who eat a lot of fish to be aware that:

- Fish is an important source of protein, vitamins, and micronutrients in the diet.
- Smaller, younger or non-predatory fish will have lower mercury levels than large, older predatory species.

There are two general types of susceptible subpopulations in terms of mercury in food: those who are more sensitive to the effects of mercury and those who are exposed to higher levels of mercury:

- The foetus, the newborn and young children are especially sensitive to mercury exposure because of the sensitivity of the developing nervous system. In addition to in utero exposures, neonates can be further exposed by consuming contaminated breast milk. Thus, new mothers, pregnant women, and women who might become pregnant should be particularly aware of the potential harm of methylmercury. Individuals with diseases of the liver, kidneys, nerves, and lungs are at higher risk of suffering from the toxic effects of mercury.

- Other subpopulations may be at greater risk to mercury toxicity because they are exposed to higher levels of methylmercury due to fish and seafood consumption such as recreational anglers and subsistence fishers, as well as those who regularly eat fish and other seafood.

What can citizens do to reduce mercury pollution and exposure to mercury?

As citizens, we are sometimes able to do much more than we believe we can, once we become aware of what the risks are. In whatever way possible, we should reduce mercury uses, releases, trade and exposures. There are many things that individuals can do:

- understand the sources of exposure – combustion, products, processes.
- change your habits to reduce or avoid possible exposure, follow advice provided by government and health authorities (such as nutritional advice).
- understand the hazards of mercury exposure and the main symptoms of over-exposure.
- know which products contain mercury (especially old paints, thermometers, batteries, pesticides, etc.) and where to dispose of them separately in your region so they will not be burned and/or broken.

- know where to get information and help with regard to mercury problems.
- always look for mercury-free substitutes if available, ask questions when making purchases.
- help raise awareness about mercury exposure risks with your family and in your community.

Who can help to address the important mercury issues?

The introductory booklet and the individual modules provide additional details on specific issues and also suggest references on where else to seek out information. Information resources are generally available, if one has access to the internet. In some places government officials are becoming more aware of mercury problems, and industries are generally taking better precautions in dealing with mercury in processes and wastes, and sometimes in phasing out the use of mercury completely.

Health care professionals are often the first to detect mercury exposure in a community. They can help to raise awareness in a community and to encourage the government to undertake an exposure assessment to determine the level of risk to a specific population. While this is being investigated, consumption rates and dietary preferences need to be analysed for individuals and the community, as well as for their exposure to other contaminants and pathways.

KEY MESSAGES FOR LOCAL GOVERNMENTS

This is a brief summary of information for governments to understand what they can do to protect human health and the environment from mercury. Governments need to gain an understanding of issues such as:

- where is mercury used in the country?
- which of these uses is most important to the national or regional economy?
- which industries could phase out most mercury quickly if aware of its social and economic impacts?

There are increasing resources available to assist governments and companies to find detailed information on industries and processes, including:

- UNEP (2005) Toolkit for identification and quantification of mercury releases http://www.chem.unep.ch/mercury/Toolkit/UNEP-final-pilot-draft-toolkit-Dec05.pdf
- UNEP (2006) Guide for Reducing Major Uses and Releases of Mercury. www.chem.unep.ch/mercury/SectorGuide2006.pdf
- Take part in the UNEP Global Mercury Partnership. Go to www.chem.unep.ch/mercury/partnerships/new_partnership.htm for more information.

Reducing anthropogenic mercury releases is a global challenge. The specific methods for controlling mercury releases vary widely, depending upon the application, but they focus mostly on striving to reduce both the supply of and the demand for mercury, including taking the following steps;

- Phasing out all mining of primary mercury;
- Reducing the use of raw materials and products that contain mercury;
- Promoting substitution of mercury-free alternatives for products and processes containing or using mercury;
- Controlling mercury releases through end-of-pipe controls;
- Ensuring long-term storage of surplus mercury; and
- Ensuring a high level of mercury waste management.

Mining of primary mercury

It has been demonstrated that there are sufficient quantities of mercury already in circulation in the global economy to satisfy all feasible demands for mercury. The additional removal of primary mercury from the Earth's crust will only serve to increase the total pool of mercury circulating in the global biosphere. More mercury circulating in the biosphere will, in turn, increase the deposition of mercury and up-take by living organisms, thereby increasing the well-known negative impacts of mercury pollution on human health and the environment.

Raw materials that contain mercury

The best-known raw material containing trace concentrations of mercury is coal. While the concentration is usually very small, the vast (and increasing) quantities of coal consumed, and the special characteristics of mercury that facilitate its volatilization, lead to large amounts of mercury being emitted to the atmosphere through coal combustion. The mercury content of coal varies greatly from one region to another, and it is often possible to mine coal from a deposit where the mercury content is lower.

Other raw materials responsible for large mercury emissions to the atmosphere include, especially, non-ferrous metal ores (e.g., zinc, lead, copper, gold), from which mercury is liberated during the refining or smelting process. As in the case of coal, different deposits may have very different levels of trace mercury contamination. These sources of mercury emissions deserve to be closely monitored as they may have serious health effects on local residents, depending on such diverse factors as the combustion or smelting process, the height of flue gas stacks, and the prevailing wind direction.

Products and processes that contain mercury

Since there are viable alternatives for nearly all products containing mercury, many countries are implementing a range of measures to reduce or eliminate mercury from products, to reduce or phase out the sale and use of products containing mercury, and/or to encourage measures that are mercury-free alternatives. As

long as mercury products continue to be produced and sold, they will lead to occupational and accidental exposures, improper disposal through incineration, and they will contribute to the global pool of mercury in the biosphere. The products already circulating should be separated from other waste and should not be burned or incinerated. Where hazardous waste management programs are in place, the mercury wastes must be properly managed as specified by these programmes.

The main processes that continue to use and release mercury, other than the use of mercury in artisanal gold mining, are the mercury cell process for producing chlorine and caustic, and the acetylene process for producing VCM/PVC, which uses mercuric chloride on carbon pellets as a catalyst. The use of mercury for chlor-alkali production is an obsolete technology, but its replacement has been retarded by the significant investment required to install an alternative mercury-free technology. Nevertheless, many countries have recognized that the overall socio-economic benefits of phasing out the mercury process appreciably exceed the economic costs, and have actively committed themselves to phasing it out. The use of a mercury catalyst to produce VCM is more difficult to replace in some regions as it relies on inexpensive and large supplies of coal as a raw material. Again, depending on various operating and other factors, both the chlor-alkali and VCM processes may pose a significant mercury risk to local residents, and should be carefully monitored.

Controlling mercury releases through end-of-pipe controls

End-of-pipe controls should be encouraged in order to keep mercury out of the environment in combustion or heating processes giving off significant mercury emissions (e.g., coal burning, smelters, incinerators), in production processes using mercury (e.g., chlor-alkali, VCM), and in the manufacture of products containing mercury. In some cases the mercury wastes from these end-of-pipe controls may be recycled and the mercury recovered, which contributes to preventing pollution and is one source of mercury that helps to replace the primary mining of mercury.

Long-term storage of surplus mercury

One important initiative is the recognition that certain large sources of mercury (e.g., government stocks, mercury recovered from decommissioned chlor-alkali plants) are not needed on the world market, and should be relegated to long-term safe storage. Their sale on the global market increases global supply and drives mercury prices lower, hindering a range of efforts (especially in artisanal gold mining) to reduce the uses and releases of mercury.

Ensuring a high level of mercury waste management

Finally, once mercury is removed from process gases, wastewater, etc., government agents need to ensure that it will stay out of the environment by encouraging a high level of mercury waste management. Otherwise, depending on

the treatment and final disposition of mercury wastes, these wastes may continue to pose a very significant risk to the public or to the environment.

Government officials should have a good understanding of the mercury waste produced in their region. How much waste is generated, what type of waste (sludges, filtercake, tailings, ash, slag) is generated, what is the approximate mercury content of the different types of waste? Furthermore, adequate mercury waste disposal facilities (normal landfill, special waste landfill, underground disposal) should be made available whenever possible, and government agencies should require documentation recording the disposal of such wastes. Meanwhile, it should be kept in mind that excessive waste disposal costs may encourage undesirable or illegal waste disposal practices. Mercury waste should not end up in a situation where it could be burned or incinerated – this will result in the release of the mercury to the atmosphere.

What about artisanal and small scale gold mining?

Artisanal and small scale gold mining (ASGM) is a particularly complex sector. Governments should provide ways to legalize the artisanal and small-scale miners in order to formally recognize and address this issue, including educating miners on environmental management. Governments should actively work with stakeholders to identify where mercury is being used in ASGM and take steps to educate miners and communities, including encouraging miners to reduce mercury use and to reduce releases through use of retorts, mercury vapour collection systems, and other best practices. See Module 3 for more information.

KEY MESSAGES FOR SMALL AND MEDIUM SIZE COMPANIES

This section is aimed at small and medium size companies using or emitting mercury to permit them to understand the impacts of their business operations, emissions from industrial processes, waste disposal practices, etc., on human health (occupational health as well as impacts on local citizens) and the environment.

Image or reputation of the company in its community

First, it is very useful for a company to have a good working relationship with the local community. If the relationship is good, problems can be more easily resolved, and the local community will be more inclined to trust the proposals or actions of the company.

Mercury management plan

Second, any company that uses mercury in its operations should have a specific written plan for dealing with mercury. This plan ought not only to demonstrate

compliance with all government regulations, but cover all of the issues listed below, together with deadlines or milestones for taking certain specific actions or meeting environmental standards, as necessary. In general, the management plan should promote ongoing reductions in mercury uses, releases, trade, and human exposure to mercury. At the same time it should also include emergency management procedures, such as how to deal with mercury spills and with workers who have been exposed to high levels of mercury.

Occupational exposures

The company must determine what occupational exposures to mercury may be experienced by workers. It should have a program for monitoring air concentrations of mercury in the workplace, worker exposures and for dealing quickly with any evidence of harmful exposure. It should also have a plan for ongoing reduction and, if possible, eventual elimination of occupational exposures through changeovers to mercury-free products and processes.

Mercury emissions

Each company should have a fair idea, at any time, of the quantity of mercury used and released through its practices and products. It should be aware that releases may vary significantly depending on the production or process activity rate, the raw materials used, the age and maintenance of equipment, and even the ambient weather conditions.

The factory management should also be generally aware of where its emissions are going – what part of its emissions go into the upper atmosphere and are then deposited far away, what part go into the local atmosphere and are deposited locally, the direction of the prevailing winds, emissions to wastewater, etc. It is only in such a way that a company can have a reasonable idea of the possible impact of its mercury emissions on the local population and the environment.

Whatever the circumstances, the company also requires a program for ongoing reduction of mercury emissions, possibly linked to the level of production, with milestones and target dates and annual reviews of its mercury monitoring and reduction strategies.

Mercury wastes

The company should have a good understanding of its mercury waste situation. How much mercury waste is generated, what type of waste (sludges, filtercake, tailings, ash, slag, etc.) is generated, what is the approximate mercury content of the different types of waste, under what conditions may waste be stored?

Furthermore, in order to manage mercury wastes adequately, the company has to know precisely where and how its mercury wastes are disposed of. For example,

due to the known risks of mercury on human health and the environment, it is no longer acceptable merely to transfer mercury wastes to another person or company and forget about them. Are the mercury wastes going to a landfill, and if so, is it a municipal landfill or a special landfill? What is the chance that these mercury wastes may be burned on the landfill or elsewhere? What is the risk of mercury exposure to people who may be scouring a waste dump in search of reusable materials?

If the mercury waste is treated, what kind of treatment is used, and how is the waste disposed of after treatment? Is final disposal environmentally sound and no longer a concern, or is it possible that mercury wastes may still be burned or incinerated? With mercury emissions, the company ought to have a mercury (and other) waste reduction program that targets ongoing decrease of the volume and mercury content of wastes, as well as gradually improving treatment and disposal practices which meet gradually higher standards.

Resources and costs

While some improvements referred to above are obvious, other measures that may be implemented to achieve ongoing reductions in mercury occupational exposures, emissions and wastes are not always evident. However, there are increasing resources available to assist the company to move in this direction, such as:

UNEP (2005) Toolkit for identification and quantification of mercury releases http://www.chem.unep.ch/mercury/Toolkit/UNEP-final-pilot-draft-toolkit-Dec05.pdf

UNEP (2006) Guide for Reducing Major Uses and Releases of Mercury. www.chem.unep.ch/mercury/Sector Guide 2006.pdf

There is often a general concern that improvements of various types designed to reduce mercury releases will be prohibitively expensive. While this is certainly true in some cases, there are frequently a great number of cleaner production and housekeeping measures that may be taken for very little or no cost. Employees may be very happy to help out in various ways when they know that such measures can reduce mercury exposure to themselves or their community. Furthermore, the reduction or elimination of mercury or mercury wastes has often been shown to save money for a company because it no longer has to devote funds to filter flue gases or wastewater leaving the building. The firm can also economize on costly mercury waste disposal.

Industry trade groups are encouraged to pool information and expertise among industry members and to partner with people at the local level in order to implement recognized steps in mercury management.

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