

11 Options for addressing any significant global adverse impacts

11.1 Overview

1010. Chapter 11 responds to the request of the UNEP Governing Council to outline options for consideration by the Governing Council, addressing any significant global adverse impacts of mercury, *inter alia*, by reducing and or eliminating the use, emissions, discharges and losses of mercury and its compounds; improving international cooperation; and ways to enhance risk communication.

1011. As part of the implementation of Governing Council decision 21/5, UNEP established a Working Group to assist it in preparing for the Governing Council's discussions on the issue at its session in February 2003. The Global Mercury Assessment Working Group, at its first meeting held from 9 to 13 September 2002, finalized this assessment report for presentation to the Governing Council at its 22nd session. At this meeting, the Working Group arrived at a number of conclusions of relevance to the Governing Council's considerations:

- Based on the key finding of this report, the Working Group concluded that, in its view, there was sufficient evidence of significant global adverse impacts to warrant international action to reduce the risks to human health and/or the environment arising from the release of mercury into the environment. The reasoning behind its conclusion is described in section 11.2. While it was important to have a better understanding of the issue, the Working Group emphasized that it was not necessary to have full consensus or complete evidence in order to take action and therefore potentially significant global adverse impacts should also be addressed.
- The Working Group also agreed on an outline of options for recommendation on measures to address global adverse impacts of mercury at the global, regional, national and local levels. The options are outlined in section 11.3, while some additional aspects for consideration by the Governing Council are given in section 11.4. The options include measures such as reducing or eliminating the production, consumption and releases of mercury, substituting other products and processes, launching negotiations for a legally-binding treaty, establishing a non-binding global programme of action, and strengthening cooperation amongst governments on information-sharing, risk communication, assessment and related activities.
- Finally, the Working Group agreed to the need to submit to the Governing Council a range of possible immediate actions in light of their findings on the impacts of mercury, such as increasing protection of sensitive populations (through enhanced outreach to pregnant women and women planning to become pregnant), providing technical and financial support to developing countries and to countries with economies in transition, and supporting increased research, monitoring and data-collection on the health and environmental aspects of mercury and on environmentally friendly alternatives to mercury. These proposals for immediate action are given in section 11.5.

1012. By having initiated the development of this assessment report and the outline of options, the Governing Council will have a better basis for considering if any international action on mercury is called for in order to promote environmentally sound management of mercury and its compounds. The assessment report will contribute to increased awareness and understanding among decision makers of the major issues related to mercury and its compounds, thereby facilitating the debate on the issue at the next session of the Governing Council.

11.2 Conclusions with respect to significant global adverse impacts of mercury

1013. The Working Group confirmed the need for a global approach to address the issue of global adverse impacts of mercury, as there was evidence that mercury impacts on the environment have considerably increased globally due to human activities and that mercury was being transported globally to regions far from the source of release. The Working Group recommended that the Governing Council when considering any global adverse impacts of mercury at its next session, take into account the Working Group's conclusions with regard to significant global adverse impacts as set out below. (UNEP, 2002)

1014. For the reasons described below, the Working Group concluded that there was sufficient evidence of significant global adverse impacts to warrant international action to reduce the risks to human health and/or the environment arising from the release of mercury into the environment.

Hazardous properties of global relevance

1015. Mercury and its compounds are highly toxic substances. The potential toxicity of mercury for humans and other organisms varies widely depending on the chemical form, the pathway of exposure, the amount, and the vulnerability of the person exposed.

1016. An important factor about mercury is its ability to build up in organisms (bioaccumulate) and move up in the food chain (biomagnify). This is of particular relevance with respect to methylmercury, which accumulates to a greater extent than other forms of mercury and thus methylmercury is the primary species of concern.

1017. Once mobilized, mercury persists in the environment where it circulates in air, water, sediments, soil and biota in various inorganic and organic forms. It is capable of being transported over long distances, and releases on one continent can be deposited in other continents and elsewhere. Depending on local mercury pollution load, substantial additional contributions to the intake of total mercury can occur through air and water.

Human populations and ecosystems most at risk

1018. The general population is primarily exposed to methylmercury through diet and to elemental mercury through dental amalgam. Other routes of exposure include environmental releases and occupational activities. Exposure to mercury might also occur through the use of mercury-containing products, including vaccines containing mercury preservatives (Thimerosal/Thiomersal) and certain cosmetics.

1019. Some populations are especially vulnerable to mercury contamination. These include pregnant women, the newborn, children and indigenous people exposed to methylmercury through the consumption of contaminated fish, and communities dependant on foods that may contain high levels of methylmercury, such as fish and marine mammals.

1020. Workers who may be occupationally exposed to high levels of mercury are also at risk.

1021. There are also particularly vulnerable ecosystems and wildlife populations. These include top predators in aquatic and terrestrial food webs (e.g., fish-eating birds and mammals), Arctic ecosystems, wetlands, tropical ecosystems and soil communities.

1022. Mercury also gives rise to socio-economic effects on countries dependant on fisheries as an important activity, and may have impacts on agricultural production and land and aquatic uses.

Sources

1023. There is clear evidence that mercury impacts on the environment have considerably increased globally due to human activities. The most significant environmental releases of mercury are air emis-

sions, but mercury is released in other ways, including discharges from various sources to water and land. The relative contributions to the releases of mercury from different source types vary between countries.

1024. Some examples of major sources of anthropogenic releases of mercury are:

(a) Releases from mobilization of mercury impurities:

- Coal-fired power and heat production (largest single source to atmospheric emissions)
- Energy production from other fossil carbon fuels
- Cement production (mercury in lime)
- Mining and other metallurgic activities involving the extraction and processing of virgin and recycling mineral materials, for example production of:
 - iron and steel
 - ferromanganese
 - zinc
 - other non-ferrous metals
- Petroleum production

(b) Releases from intentional extraction and use of mercury:

- Mercury mining
- Small-scale gold mining (amalgamation process)
- Chlor-alkali production
- Use of fluorescent lamps, instruments, dental amalgam fillings etc.
- Manufacturing of products containing mercury, for example:
 - thermometers
 - manometers and other instruments
 - electrical and electronic switches
- Biocides (e.g. seed-dressing, pesticides and slimicides)
- Use of other products, such as batteries, fireworks and laboratory chemicals

(c) Releases from waste treatment, cremation, etc. (originating from both impurities and intentional use of mercury):

- Waste incineration (municipal, medical and hazardous wastes)
- Landfills
- Cremation
- Cemeteries (release to soil)
- Recycling and storage

1025. Concern was expressed that highly contaminated industrial sites and mining operations continue to release mercury. It was also noted that land, water and resource management activities such as forestry and agricultural practices and flooding can make mercury more bioavailable. Methylation and bioaccumulation are also influenced by high levels of nutrients and organic matter in water bodies. Frequent extreme weather events can contribute to release of mercury through flooding and soil erosion. Concern was also raised regarding potential releases from surplus stocks of mercury and the need for proper storage.

1026. As uses are phased out in some parts of the world, mercury waste and recycling of mercury are on the increase. In this context, concerns have been identified regarding the export of mercury waste to other regions and the possible transfer of outdated technology to developing countries and countries with economies in transition.

Magnitude of the threat

1027. Mercury pollution has significant impacts at the local, national, regional and global levels. These impacts should be addressed through a range of actions at each of these levels, targeting both the supply of and demand for mercury.

1028. Mercury and its compounds have caused a variety of documented, significant global adverse impacts on human health and the environment throughout the world. Exposure studies from numerous geographic areas indicate that a significant portion of humans and wildlife throughout the world are exposed to methylmercury at levels of concern. Elevated methylmercury levels also have been measured in numerous freshwater and marine species throughout the world. Even areas with minimal local and national mercury releases, such as in the Arctic, are adversely affected due to the transcontinental and global transport of mercury.

1029. Some effects of mercury are linked to long-range transport while others are more local in character. Exposure through long-range environmental transport occurs where mercury released into air or water circulates and is transformed into methylmercury, which then comes into contact with humans and wildlife (e.g., through consumption of mercury-contaminated fish and mammals). By comparison, high exposures to inorganic mercury can occur through contact with mercury or mercury vapours at or near the source of use or release.

11.3 Conclusions with respect to possible options for addressing any significant global impacts of mercury

1030. The Working Group further recommended that the Governing Council should consider the outline of options for addressing those significant global adverse impacts of mercury as given in the text below. (UNEP, 2002)

1031. This outline lists possible options for recommendation on measures to address global adverse impacts of mercury at the global, regional, national and local levels. They can correspond to short, medium and long-term goals. Specific options may be adopted at different times in different countries or can be applied sequentially. In deciding which measures are most appropriate and effective at global, regional or national levels, varying socio-economic impacts should also be taken into account.

A. Measures to reduce and/or eliminate the use, emissions, discharges and losses of mercury and its compounds

1. Substituting products and processes

1032. Measures that involve substituting products and processes that contain or use mercury might include:

- (a) Limiting or preventing use of mercury in products where alternatives exist and promoting development of appropriate alternatives for remaining essential uses;
- (b) Limiting or preventing the intentional use of mercury except in artisanal mining activities until appropriate and affordable technology is transferred to the said sector;
- (c) Limiting or preventing use of obsolete technology and requiring use of best available techniques and best environmental practices to reduce or prevent mercury releases into air and water;
- (d) Gradual phasing-out of mercury already in use and mercury-containing products, after promoting the development of effective and affordable mercury substitutes and alternative technology.

2. Reducing mobilization of new mercury into the biosphere

1033. Measures to reduce production of raw materials and products that generate mercury releases might include:

- (a) Reutilization of recovered or recycled mercury for essential use in a strictly controlled manner as opposed to mining and smelting of virgin mercury and careless use and discharge of mercury;
- (b) Limiting or preventing the content of mercury present as impurities in fuels;
- (c) Reducing and, where feasible, phasing out the mining of virgin mercury.

3. Reducing consumption

1034. Measures to reduce consumption of raw materials and products that generate mercury releases might include:

- (a) Limiting or eliminating content of mercury present as such or as impurities in high volume materials, (for example, packaging);
- (b) Limiting or preventing products containing mercury from being marketed nationally;
- (c) Limiting or preventing products (for example batteries, pharmaceuticals, cosmetics etc) containing mercury from being exported and imported;
- (d) Limiting or preventing the marketing of used or commodity-grade mercury;
- (e) Establishing a “mercury bank” in order to keep account of the use of virgin mercury, recovered or recycled mercury in a strictly controlled system.

4. Controlling and monitoring emissions and releases

1035. Monitoring strategies should be defined with particular attention to the technical and economic capacities of countries. Each country may take measures to control mercury emissions and releases including through:

- (a) Limiting or preventing mercury from processes from being released directly into the environment, air, water and soil through emission control techniques (for example, industrial point sources, including the chlor-alkali industry, oil and gas production, metallurgic industry etc., other sources such as municipal and medical waste incinerations, and activities such as small-scale mining);
- (b) Limiting or preventing emissions of mercury from combustion of fossil fuels and processing of mineral materials by emission control technology, or by regulatory measures;
- (c) Limiting or preventing the release of mercury from processes into the wastewater treatment system (in order to limit releases to the water recipient and to permit use of sludge);
- (d) Controlling, confirming and improving the efficiency of measures for limiting or preventing mercury emissions and releases through end-of-pipe technology and to that end establishing emission standards and suitable cost-effective environmental monitoring.

5. Waste management

1036. Measures to reduce and/or eliminate mercury in wastes through mercury waste management might include:

- (a) Limiting or preventing mercury in products and process waste from being released directly into the environment, by efficient waste collection;

- (b) Limiting or preventing mercury in products and process waste from being mixed with less hazardous waste in the general waste stream, by separate collection and treatment;
- (c) Limiting or preventing mercury releases into the environment through treatment of household waste, hazardous waste and medical waste, by emission control technology;
- (d) Limiting the mercury content in sewage sludge spread on agricultural land and limiting the use of solid incineration residues containing mercury in road-building, etc.;
- (e) Limiting or preventing remarketing of wastes containing mercury;
- (f) Retiring excess mercury through long-term waste management (terminal storage);
- (g) Preventing mercury releases into the environment through the management of obsolete and waste pesticides and chemicals containing mercury;
- (h) Promoting legal commitments among producers of mercury containing products to take responsibility for adequate waste treatment and final disposal of their products;
- (i) Limiting or preventing the incineration of mercury containing products, materials and waste.

B. International cooperation

1037. International cooperation might be improved through:

- (a) Promoting increased participation in existing regional and international conventions and agreements that deal with mercury and mercury compounds;
- (b) Exchanging information regularly among international organizations, including the member organizations of the Inter-Organization Programme for the Sound Management of Chemicals, to ensure coordination of activities relevant to mercury and avoid duplication of efforts and waste of available resources;
- (c) Supporting long-term monitoring and modelling initiatives at national, regional and international levels to ensure availability of comparable data and precise information that can guide policies and programmes aimed at reducing levels of mercury in the environment throughout the world;
- (d) Exploring collaboration with regional and subregional centers, such as those of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, and supporting collaborative research programmes and initiatives to improve understanding of mercury sources, impacts on human health and the environment impacts on the fishing industry, fishing groups and people dependant upon fish for their livelihood and cycling in the environment;
- (e) Supporting studies and clean-up programmes through international funding or financing initiatives for developing countries and countries with economies in transition;
- (f) Filling information needs to assist developing countries and countries with economies in transition in targeting and prioritizing national or regional actions and strategies to reduce mercury use and releases (e.g. source and emissions inventory assistance), including through possible use of the Rotterdam Convention;
- (g) Promoting surveys and information exchanges to identify international uses of mercury and to enhance our understanding of flows within and among countries from production through consumption and end-of-life storage or disposal;
- (h) Establishing an international plan for the prevention of illegal import of mercury and mercury compounds as a raw material and/or as a hazardous waste.

C. Risk communication

1038. Risk communication relevant to the adverse effects of mercury and mercury compounds might be enhanced through:

- (a) Raising awareness among policy and decision makers with regard to the adverse effects of mercury and mercury compounds;
- (b) Promoting public information, awareness and education on the health and environmental effects of mercury and mercury compounds and the alternatives available to reduce exposure and reduce or eliminate releases and emissions of mercury especially to those vulnerable populations such as indigenous people, women and children, workers and communities living around industrial and mining activities etc.;
- (c) Promoting curricula development in schools and training programmes of workers involved in mercury processing and handling;
- (d) Establishing a clearing-house for information relevant to mercury, for example, information on risk management strategies, appropriate alternatives and related costs, and ensuring easy access to this information, especially for developing countries and countries with economies in transition;
- (e) Establishing a network among Governments and other involved actors to exchange information on ongoing initiatives and efforts at national, regional and international levels to reduce or eliminate the adverse effects of mercury;
- (f) Providing, for the general population, awareness of exposure risks to mercury through effective fish consumption advisories and other information dissemination methods. Enhancing, for vulnerable populations such as indigenous people, pregnant women and children, outreach and risk communication about mercury exposure;
- (g) Promoting the awareness of the risks associated with the mobilization of mercury from geological sources and its accumulation in the biosphere;
- (h) Promoting the awareness of the persistence of mercury and its ability to be transported, transformed and accumulated in food-chains.

D. Additional measures to support the reduction or elimination of uses, emissions, discharges and losses and limit the adverse impacts on human populations and the environment

1039. In addition to the measures listed in the previous section, which aim directly at reducing emissions and releases of mercury, a broader range of measures and management tools exist that supplement the regulatory infrastructure and support implementation of agreed reduction strategies and policies.

1. National, regional and international action

1040. The development of national, regional and international action plans to address the use and release of mercury might be promoted through:

- (a) Developing inventories of uses, releases and possible global adverse impacts of mercury and mercury compounds as well as of existing sites polluted by mercury and mercury compounds to serve as a baseline for considering action on mercury globally, particularly in developing countries and countries with economies in transition;
- (b) Developing and implementing an action plan setting out the policies necessary within each sector to reduce uses and releases of mercury through multi-disciplinary approaches and involving major stakeholders;

- (c) Developing monitoring programmes including standardized measures linked to other international programmes through international networks, including training programmes and the exchange of expertise between on the one hand, developed and on the other, developing countries and countries with economies in transition;
- (d) Promoting studies on socio-economic effects of different measures related to varying national conditions;
- (e) Developing effective environmental policy tools based on integrated methodologies to assist in the management of mercury polluted sites resulting from anthropogenic activities;
- (f) Exploring collaboration with the Basel Convention to develop guidelines for affordable waste management options for mercury wastes and research into methods for definitive storage and encourage and promote research into the search for viable alternative technologies and substitutes.
- (g) Establishing a task force to coordinate and implement mercury action to resolve some of the uncertainties involving various issues.

2. Chemicals management

1041. The use of life-cycle assessment and chemicals management tools and techniques for addressing uses and releases of mercury might be promoted through:

- (a) Setting environmental quality standards for maximum acceptable mercury concentrations in different media, such as air, water, soil and foodstuffs, in order to limit exposure of human populations and the environment (including occupational settings and vulnerable populations or ecosystems at special risk);
- (b) Using Pollutant Release and Transfer Registers to track the environmental performance of industrial facilities using mercury or generating mercury waste and to stimulate voluntary initiatives by companies to reduce their releases and transfers of mercury;
- (c) Using life-cycle assessment tools, facilitating the development and implementation of codes of conduct for various industrial sectors and producers, and promoting recognized environmental management systems, such as ISO 14.001, EMAS (the European Eco-Management and Audit Scheme), etc.;
- (d) Developing best environmental practices or guidelines for best available techniques for various industrial sectors;
- (e) Using economic incentives/disincentives to promote substitution of products, methods of analysis and processes that contain or use mercury or mercury compounds;
- (f) Developing a framework to manage the transboundary movement of mercury, its compounds and products containing mercury and technology in particular into developing countries and countries with economies in transition. This may be achieved by adopting the process used by the Montreal Protocol, or through other models such as the Rotterdam Convention;
- (g) Setting standards for maximum acceptable mercury emissions into the environment.

3. Voluntary measures

1042. Voluntary commitments and reduction programmes at national, regional and/or international levels to limit the use and release of mercury include:

- (a) Promotion of voluntary commitments among producers of mercury containing products to take responsibility for ensuring appropriate handling and waste treatment of their products (for example, through information and training of users, product take-back schemes, etc.);

- (b) Promotion of voluntary commitments among users of mercury containing products (for example, hospitals) to reduce or eliminate use and limit or avoid releases of mercury into the environment through appropriate handling and waste treatment;
- (c) Promotion of voluntary reduction programmes within different private sector industries or activities to reduce and/or eliminate their uses and releases of mercury, thus stimulating the sector to identify and implement appropriate and effective solutions.

4. Technical and financial assistance

1043. Measures to provide technical and financial assistance to enhance the capacity of Governments, especially developing countries and countries with economies in transition, to monitor and assess emissions and releases of mercury and implement appropriate control measures include:

- (a) Organizing training and capacity-building activities to support Governments in developing action plans and implementing the policies and strategies identified through the development of such plans;
- (b) Establishing a mechanism for addressing the needs for capacity-building and technical and financial assistance of Governments, especially of developing countries and countries with economies in transition, taking into consideration the resources and assistance available from bilateral and multilateral assistance and partnerships through rigorous application of the principles and practice of needs assessment.

11.4 Additional aspects with respect to possible options for addressing any significant global impacts of mercury

1044. When considering the possible options that might be applied to address the adverse effects of mercury, the Working Group developed some additional aspects that should be taken into consideration, such as efficacy of national and regional measures versus international measures and binding versus voluntary measures. Some considerations relevant to these aspects are given below. (UNEP, 2002)

A. National and regional measures versus international measures

1045. Chapter 9 of this assessment report documents a considerable range of measures that have been implemented at the national and regional levels to deal with mercury and mercury compounds. Through such measures, a number of countries have achieved substantial reductions in emissions and releases of mercury from products and industrial processes. In addition, a number of coordinated regional approaches, both binding and non-binding, such as the Convention on Long-range Transboundary Air Pollution, the Convention for the Protection of the Marine Environment of the North-East Atlantic and the North American Regional Action Plan on Mercury, have supported national measures and contributed to additional reductions beyond national borders.

1046. Despite these successful national and regional initiatives, some countries consider that they might not be sufficient to ensure adequate protection of human health and the environment from the adverse effects of mercury, and are calling for the consideration of coordinated initiatives at the international level.

1047. If it is found that there are global problems related to mercury that should be addressed, it might be essential to the effectiveness of any reduction measures for the substantive commitments to be discussed and agreed at the international level. Any specific regional or national considerations may be addressed taking into account common but differentiated responsibilities within the commitments agreed to.

1048. Should countries within a region consider it necessary to set more stringent requirements than those in an international instrument, provisions for such regional agreements might be incorporated into an international initiative.

B. Non-binding versus binding measures

1049. As can be seen from chapter 9 of this assessment report, both voluntary non-binding and binding measures have been implemented successfully to address the negative effects of chemicals. Both approaches represent positive steps towards obtaining environmental aims and should be considered complementary rather than mutually exclusive.

1. Non-binding measures

1050. Examples of some non-binding measures specifically relevant to mercury are described in chapter 9 of this assessment report. Other measures relevant to chemicals management that have been successfully implemented at national, regional and international levels include:

- (a) Codes of conduct, such as the UNEP Code of Ethics on the International Trade in Chemicals (1994) and the Food and Agriculture Organization of the United Nations (FAO) International Code of Conduct on the Distribution and Use of Pesticides (amended 1989);
- (b) Voluntary reduction programmes with set reduction goals, for example, the United States of America Chlorine Institute's measures to reduce mercury use within United States mercury cell chlor-alkali facilities, the Euro Chlor voluntary commitments to OSPAR and the Great Lakes Binational Toxics Strategy;
- (c) Ministerial/high-level declarations setting reduction goals, such as the North Sea Ministerial Declarations of the North Sea Conferences and the Nordic Environmental Action Programme of the Nordic Council of Ministers;
- (d) Action programmes setting out detailed recommendations for responsible mercury management and control, such as the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities and the North American Regional Action Plan on Mercury.

1051. There might be some advantages to such non-binding measures. Binding instruments are often negotiated over a number of years, while non-binding instruments often may be adopted within a shorter time period. Because of their more flexible character, non-binding instruments can often be more ambitious in the goals they set. A non-binding instrument can incorporate measures to promote reporting, access to information, capacity-building and technical assistance. Although implementation is voluntary, States feel obliged to respect as far as possible the political commitments they have made. Non-binding instruments do not require a subsequent ratification or acceptance procedure and might contribute to a rapid implementation of commitments. Finally, participation in implementation might often be broader than for binding instruments that require ratification.

1052. As mentioned before, binding and non-binding measures are complementary rather than mutually exclusive. Non-binding commitments might also be used to ensure rapid implementation of environmental goals in expectation of the development and entry into force of binding measures. An example is the voluntary prior informed consent procedure of the UNEP London Guidelines for the Exchange of Information on Chemicals in International Trade (amended 1989) and the FAO Code of Conduct on the Distribution and Use of Pesticides (amended 1989), which was implemented on a voluntary basis from 1989 until the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade was adopted in 1998. This voluntary implementation is being continued during the interim period before the Convention enters into force, through the implementation of an interim prior informed consent procedure, based on the provisions of the Rotterdam Convention.

2. Binding instruments

1053. A binding instrument establishes firm legal commitments for those countries that ratify it and contains mechanisms to support implementation in accordance with the instrument's requirements. A binding instrument also requires the establishment of the administrative and technical procedures and structures required at national level.

1054. A binding instrument will often also have some benefits incorporated into it, such as the promotion of capacity-building and technical assistance as well as access to information and advice on substitutes and appropriate technology that might promote broad participation. Furthermore, a binding instrument can include elements, which are more or less voluntary such as recommended measures and commitments to long-term goals.

1055. When considering the advantages of a binding instrument, two options might be envisaged: developing a new instrument, or using an existing international instrument to address the adverse effects of mercury and mercury compounds. Some considerations relevant to these two options are given below.

(a) Option 1: Developing a new, binding instrument to address mercury

1056. Negotiating a separate, new international instrument on mercury might allow for the detailed regulation of all aspects Governments would find necessary to address, but would also require the establishment of the necessary infrastructure at the national and international levels to implement the provisions of the instrument. Negotiating an international, legally binding instrument often requires a number of years and substantial funding before the instrument can be adopted. Of the two most recently adopted international instruments regulating chemicals, the Rotterdam Convention took 30 months to negotiate and adopt (March 1996 to September 1998), while the Stockholm Convention on Persistent Organic Pollutants took 35 months (June 1998 to May 2001). Both conventions require 50 ratifications to enter into force, and neither has yet done so. In its deliberations, the Governing Council may also wish to give special priority to actions which the Working Group considers should be taken immediately and which appear in annex I, part C to the present report.

(b) Option 2: Using an existing international binding instrument to address mercury

1057. Using an existing international instrument to address the adverse effects of mercury might present two possibilities: incorporating mercury and mercury compounds, in accordance with existing provisions, into an existing instrument, or developing a protocol covering mercury and mercury compounds under an existing instrument.

1058. Relevant conventions, such as the Rotterdam Convention and the Basel Convention, aim at regulating transboundary trade in unwanted chemicals and hazardous wastes. The most recent international convention adopted and aimed at reducing releases from anthropogenic sources and minimizing or ultimately eliminating the use and production of certain chemicals is the Stockholm Convention. In addition, there are a number of binding instruments limited to a specific geographic area that address mercury, such as the Convention on Long-range Transboundary Air Pollution, the Convention for the Protection of the Marine Environment of the North East Atlantic and the Convention for the Protection of the Marine Environment of the Baltic Sea. Descriptions of all the above-mentioned instruments can be found in chapter 9 of this report.

1059. If considering this option, thought should be given as to whether the overall objectives of the specific existing convention and the control measures stipulated therein are appropriate to address the concrete issues identified with regard to mercury.

11.5 Proposals for immediate action to be considered by the UNEP Governing Council

1060. The Working Group also identified some special priority actions that it suggested the Governing Council might want to consider implementing immediately. These are described below. (UNEP, 2002)

1061. The Governing Council should consider inviting multilateral financing agencies, Governments and other partners to mobilize technical and financial resources to support national and regional efforts and capacity-building in areas such as the following:

- (a) Begin the process to establish national implementation plans to examine:
 - (i) Public awareness of the adverse effects of mercury and its compounds on health and the environment through training and workshops;
 - (ii) An inventory of uses and release of mercury and mercury compounds as well as existing polluted sites to serve as baseline information;
 - (iii) Establishment, where necessary, of legislation and regulations for enforcement;
 - (iv) Regional information exchange;
- (b) Build capacity through;
 - (i) Training and workshops for a wide range of topics, including pollution prevention actions or key mercury use sectors (e.g., chlor-alkali facilities);
 - (ii) Technical assistance in the development of facilities for analysis and monitoring;
 - (iii) Provision of facilities for proper disposal of waste containing mercury including obsolete pesticides containing mercury;
- (c) Promote awareness of alternative livelihood options and promote transfer of appropriate technology for the small-scale artisanal mining sector;
- (d) Initiate one or more pilot projects in developing countries and countries with economies in transition to look at issues (a) to (c) mentioned above;
- (e) Support research in order to better understand routes and nature of exposure and mercury cycling (transport and transformations, in particular the formation of methylmercury) in various environmental conditions in particular tropical and dry regions, for which limited information is available in developing countries and countries with economies in transition, and promote research on mercury (differentiation of natural and anthropogenic mercury in the air, in water and in soil, and in Arctic regions) in developed countries;
- (f) Support research on the development of standardized analytical procedures and methods to support meaningful and cost-effective monitoring and modeling programmes (trends, health-related, hot spot monitoring and biomonitoring) as an essential component of mercury control measures;
- (g) Assist countries in building broad based public awareness through incorporation of the subject "environmental education" in school curriculum;
- (h) Establish a data bank regarding uses, sources, chemistry, import, export, health hazards, and research conducted in various areas of the world of mercury and its compounds. This data bank should be accessible to everyone;
- (i) Undertake immediate research into best available environmentally friendly alternatives;
- (j) Develop strategies for enhanced outreach and risk communication to reach sensitive populations (example pregnant women);

(k) Promote information exchange and collaboration, including scientific and technical information exchange on various topics such as long-range transport, monitoring and modelling, health and ecological risks, source characterization, source control technology, alternatives, pollution prevention techniques, nutrition and genetic factors among Governments in partnership with other public and private organizations;

1062. In so doing established organizations and existing international frameworks and infrastructure should be relied upon to the extent possible.