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FORUM V

Fifth Session
of the
Intergovernmental Forum on Chemical Safety

Budapest, Hungary
25 - 29 September 2006

Final Report on the
Side-event on heavy metals
23 September 2006

Forum V side event:

Health and environmental concerns associated with heavy metals; global needs for further action?

Budapest Conference on Heavy Metals 23 September 2006 Report

During the preparation of IFCS Forum V, several developing countries proposed to discuss the challenges in addressing heavy metals at IFCS Forum V. Switzerland, in response to the request of developing countries, offered to sponsor a side event in the form of a conference on heavy metals prior to Forum V in Budapest, the Budapest Conference on Heavy Metals. This report summarizes the presentations and discussions of this conference.

1. Introduction

Reference to heavy metals in the context of international environmental and chemical policy making have increased over the recent years. The opinion has been expressed that dealing effectively with the challenges posed by the three heavy metals, mercury, lead and cadmium would require international coordination and action. Thus, several international institutions and processes have begun to address heavy metals. Namely, the WSSD Global Plan of Action promoted the reduction of risks posed by heavy metals (see below); UNEP decided to review scientific data so that in future it would be able to take an informed decision on the need for global action in relation to lead and cadmium and established a mercury programme; and the SAICM outcome documents include several references to heavy metals (SAICM OPS para 14.d; GPA Executive Summary 7(d), GPA activities 57-59) as well as the UN ECE Convention on Long-range Transboundary Air Pollution.

Plan of Implementation of the World Summit on Sustainable Development

23. Renew the commitment, as advanced in Agenda 21, to sound management of chemicals throughout their life cycle and of hazardous wastes for sustainable development as well as for the protection of human health and the environment, inter alia, aiming to achieve, by 2020, that chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment, using transparent science-based risk assessment procedures and science-based risk management procedures, taking into account the precautionary approach, as set out in principle 15 of the Rio Declaration on Environment and Development, and support developing countries in strengthening their capacity for the sound management of chemicals and hazardous wastes by providing technical and financial assistance.

This would include actions at all levels to:

(g) Promote reduction of the risks posed by **heavy metals** that are harmful to human health and the environment, including through a review of relevant studies, such as the United Nations Environment Programme global assessment of mercury and its compounds.

2. Presentations

The conference began with an excellent Overview Presentation by Ravi Agarwal from Toxics Link, India, who introduced the issue. He outlined the demand for, the sources and supply of, the uses of and the emissions and releases of lead, cadmium and mercury and underlined the multifaceted dimension that crosses many borders of the theme of this conference.

Kristof Kozak from the Hungarian Ministry of Environment and Water presented Hungarian Aspects Regarding Restrictions of Mercury in Products. He gave specific focus on the use of mercury in electronic equipment such as lamps and in thermometers in households and medical services, and he has shown that alternatives are possible.

Jules de Kom, toxicology focal point of Suriname, gave an introduction into the Management of Health and Environment Effects of Artisanal Gold Mining from a Developing Country Perspective. The concrete example of Suriname showed the complexity of the problem – which involves both high work-place exposure and environmental impacts – with several parties involved, conflicting interests, diverse driving forces such as competition, poverty and lack of resources and information, the difficulties to coordinate corrective activity and to raise awareness of those most concerned.

Ethelyn P. Nieto, Undersecretary of Health from the Philippines, presented the concrete example of the Long Term Toxic Effects of Mercury Contamination from tailings from an Old Abandoned Mine. The results from the monitoring and assessment of the long term effects of uncontrolled mercury wastes on human health, the environment, the ecosystem, drinking, river and marine water, air quality and sediment/soil, and contamination of food such as rice and fish are impressive and revolting at the same time and make it very clear that both prevention and action is needed.

Bjorn Erikson from the International Confederation of Free Trade Unions presented several concrete Case Studies of Occupational Exposures and Solutions involving mercury, lead and cadmium, ranging from hat making, chlorine-alkali factories, the exposure of dentist assistants or workers in crematories, to printing on plastic bags and the productions of batteries, concluding that a more holistic approach to problem substances might be necessary.

Abiola Olanipekun and Alo Badjidi from Nigeria gave an overview of the exposure to heavy metals in Africa and presented concrete case studies from Nigeria. They showed that in the recent decades, there was a huge increase of the amount of heavy metal wastes and emissions in Africa and illustrated this increase with concrete examples from Nigeria.

Maria J. Doa from the US EPA presented the work of the Global Partnership for Mercury Reduction launched under decision 23/9 of UNEP Governing Council. This Partnership Initiative encompasses numerous activities aiming at reducing mercury in products, in the chlor-alkali sector, in gold mining, coal combustion and air transport.

The morning session was concluded by John Atherton from the International Council on Mining and Metals who presented an Industry Perspective on Prospects for Sound Chemicals Management of Cadmium, Lead and Mercury. He underlined that the health and environmental effects associated with cadmium, lead and mercury are well known and that many of the

problems faced by nation states may be common globally. He also highlighted that the solutions can differ significantly between developed and developing countries and that the required policy responses need an integrated approach in which partnership initiatives have an important place.

After lunch, Desirée M. Narvaez from UNEP Chemicals informed about the Ongoing Efforts at UNEP, including a brief overview of the findings of the new report on lead, cadmium and mercury. She informed about the establishment of UNEP's Mercury Programme and Mercury Partnerships; priority areas for technical assistance, UNEP's toolkit for inventory development. She also informed about UNEP's scientific review of lead and cadmium.

Jenny Pronczuk of WHO informed about the Ongoing Efforts at WHO and that there is new evidence on adverse effects of heavy metals, increasing the concerns for risks posed by these metals. She presented some of the numerous activities carried out by WHO in relation to lead, mercury and cadmium, including in the area of risk assessment, study methodologies, capacity building, prevention and response to specific problems related to lead, mercury and cadmium.

Zoltan Cziser from UNIDO presented the Ongoing efforts at UNIDO. He stressed that there are two reasons of mercury pollution: the point source where mercury is used and emitted, but there is also the underlying reason stemming from global economic forces. He then presented the GEF/UNIDO Global Mercury Project which succeeded to change the way miners extract gold and handle amalgam.

Finally, Brinda Wachs from UN/ECE informed about the Ongoing Efforts at UN ECE (LRTAP). She presented the work of the UN ECE Convention on Long-Range Transboundary Air Pollution (LRTAP) and its heavy metals protocol. This convention does not prohibit emissions, but obliges parties to reduce their emissions. Moreover, there is a time-bound obligation to apply Best Available Techniques. She concluded that while the convention was a success, further emission reductions will be needed.

3. Identified challenges

Through the presentations and interventions made during the conference, a number of common challenges faced by countries in dealing with the risks posed by the three heavy metals were identified. These commonalities relate to routes of exposure such as food, sites contaminated from abandoned mines, mine tailings, waste dumps and landfills, to the importance of the presence of mercury, lead and cadmium in products. Furthermore, trade in products has been identified as an important dispersal route. Also the concerns for effects, especially for vulnerable groups such as infants, pregnant women etc. have increased in recent years.

While long-range transport has been established for mercury, the importance of long-range transport of lead and cadmium for exposure of humans or ecosystems was discussed controversially and this was also identified as a knowledge gap.

A need for capacity building in chemical management, lack of harmonisation between national regulations relating to trade, lack of enforcement, as well as the problem of waste related issue (e.g. shipment of waste from developed countries to developing countries and associated disposal problems) were furthermore identified as commonalities between mercury, cadmium and lead.

4. Mercury

The following represents the results of the working lunch sessions on mercury. These lists were provided by members of individual breakout groups in mercury and do not reflect a prioritization or a consensus, but are simply a reflection of brainstorming and of the ideas presented by participants.

4.1. Sources of exposure

Priorities may vary between regions. Concerns are with exposures/releases from:

Exposure routes

- food, in particular fish
- long-range transported deposition in lakes, and direct releases to/from rivers
- many diffuse sources, including combustion processes and coal-firing power plants
- dumping of waste
- abandoned mines
- contaminated sites
- natural non-anthropogenic releases
- artisanal gold mining
- crematoria
- schools
- other occupational exposures
- exposures far from sources, such as Arctic
- plants producing mercury-containing products
- secondary steel industry

Products

- dental amalgam
- cosmetics
- idols
- vaccinations
- thermometers and other medical devices

4.2. International dimension: Air transport, water transport, environmental fate

4.3. International dimension: Trade related dispersal

4.4. International dimension: are there other international dimensions, such as e.g. competition, that makes it difficult for one actor to act alone?

- Recognition that there are local, regional and global issues
- Action need to be done locally/nationally even if problems are global and transboundary in nature.
- Difficult to take concerted action internationally, need for more integrated approach at the international level

- Lacking an instrument for tracking movement of mercury, existing trade figures not sufficient
- Difficult to take action once released/mobilized
- Mercury moves internationally through products
- National bans on products difficult because of competitive reasons, and because international trade regulations on
- Many countries outlawed imports, but difficult to enforce, resulting in widespread illegal imports
- Transfer of outdated equipment to developing countries without sufficient capacity to handle the associated waste
- Excess mercury enter market, increasing supply and pushing prices down
- At micro level, low price of mercury decisive – at society level the external costs of mercury may still mean it is more costly to society
- Restrictions on use may encourage development of mercury-free items
- Mercury-free alternatives may be costly, discouraging transfer to these
- European export ban may be important
- For small mines, argument for benefits to local population is not valid

4.5. Management strategies

Management strategies may be short-term, mid-term or long term

- Management challenge that releases come from unknown sources outside country – needs regional/international solutions
- Applying
 - best practices, incl. mercury-free products/production
 - multi-sectoral coordination
 - enforcement
 - information exchange
 - capacity-building, including training programs
 - awareness – raising
- Educational programs
 - Fish consumption
 - Waste
 - Gold mining
 - Transition to mercury-free techniques in medicine
- Commitment at government, industry and civil society to mainstream actions to address mercury risks
- Primary mining facilities should be closed and remaining supply filled by recycled by-product mercury
- Need to strengthen health care systems, as in EU strategy
- Development, transfer and incentives/financing for alternatives and technologies
- Making inventories, using e.g. national profiles and existing activities under MEA
- National and international regulations are means to move towards mercury-free alternatives

4.6. Who are the major stakeholders

Everyone!

In particular,

- National governments
- IGOs
- Industry
- NGOs
- Worker and trade unions
- Health care institutions
- Local governments
- Research institutions
- Local Community groups
- Financial institutions
- Vulnerable populations

4.7. Would international cooperation / coordination be helpful / necessary to address the challenge?

Yes

- Need for more and coordinated action, and further international cooperation.
- Partnerships and existing instruments still to be utilized.
- Some argue for a separate legally binding instrument, others to pursue existing options, including Rotterdam-convention, SAICM, UNEP and partnerships.
- Need for tracking trade – database.

5. Lead

The following represents the results of the working lunch sessions on lead. These lists were provided by members of individual breakout groups in lead and do not reflect a prioritization or a consensus, but are simply a reflection of brainstorming and of the ideas presented by participants.

5.1. Sources of exposure

- Lead in gasoline
- Toys and toy jewellery
- Combustion Process (incineration, cremation, waste open-burning)
- Waste management practices
- Boat building
- Batteries
- Paint
- Battery recycling
- Mining & smelting
- Food packaging
- Cosmetics
- Ceramics

- Drinking water (pipes – historical)
- Electronics (solder)
- Welding
- Ammunition
- Plastics
- Fishing uses
- Cultural practices
- Food additives (spices)
- Traditional and non-traditional medicines
- Exposure from other industrial processes

Pay attention to traditional and non-traditional sources.

5.2. International dimension: Air transport, water transport, environmental fate

- Air
 - Ultra-fine particulate transfer (estimated at around 5%)
 - Mostly regionally and locally.
 - Leaded fuel burning.
- Water
 - River and marine (bioaccumulates)

5.3. International dimension: Trade related dispersal

- Product transfer and used goods (e.g. used automobiles, electronics, batteries, children's toys)
- Leaded gasoline
- Water craft (marine fuels)
- Waste transport
- Human transport!
- Food transfer

5.4. International dimension: are there other international dimensions, such as e.g. competition, that makes it difficult for one actor to act alone?

- Non-uniform standards – causing non trade restrictions internationally
- Poverty and capacity problems (technology transfer)
- Non implementation of WTO and other international agreements

5.5. Management strategies

- Promote unleaded gasoline in all sectors
- Need for monitoring (particularly in children), biomonitoring
- Identify uses and best available less toxic substitution and technologies
- Risk assessment
- Promotion of Best Practice and case studies
- Increasing expertise, capacity for awareness raising, pilot projects

- International inventories of contaminated sites (all old mines, landfills)
- Health impact and related costs assessment
- National policies on chemical safety
- International labelling schemes
- Regional programmes of action – internationally coordinated
- Research and Development for environmentally friendly technology

5.6. Who are the major stakeholders

- Children (vulnerable populations)
- Women of child bearing age
- Physically challenged etc.
- Teachers, educator
- Health care, and environmental and other professionals
- Mining companies
- Workers (informal and non-informal sectors)
- Lead compound producers
- Government ministries and decision makers
- Trading business
- Consumers
- Civil society
- NGOs
- Customs official
- Development agencies,
- Waste management industry
- Research Institutions

5.7. Would international cooperation / coordination be helpful / necessary to address the challenge?

Yes – international coordinated cooperation is essential.

Regional and local actions are important to address the problems including development interventions.

Recommendations

- Strengthening and participate in SAICM and other similar international chemicals conventions.
- Global action is needed to phase out lead in gasoline

6. Cadmium

The following represents the results of the working lunch sessions on cadmium. These lists were provided by members of individual breakout groups in cadmium and do not reflect a prioritization or a consensus, but are simply a reflection of brainstorming and of the ideas presented by participants.

6.1. Sources of exposure

- Emissions from natural sources
- Mines (zinc...)
- (Sea) Food
- Tobacco Smoking
- Toys
- Waste such as Cd-contaminated toys
- Batteries that are not properly disposed of
 - Landfill (leaking)
 - Incineration
 - Open burning
- Phosphate fertilizers
 - Cd can get into food
 - some types of plants can take up relative large amounts of Cd (Australia)
- Solar cells (cadmium telluride)
- Combustion of fossil fuels
- Road dust, possibly from car tires
- Cd-based pigments, particularly in non-OECD countries
- Incense

6.2. International dimension: Air transport, water transport, environmental fate

- Knowledge gap
- National / regional / global ???
- Cd found in Greenland ice cores
- Long-range transport – magnitude?
 - Established under Convention on Long Range Transboundary Air Pollution (LRTAP, Heavy Metal Protocol)
- Via rivers, aquifers, ocean currents
- Through wildlife (e.g. cetaceans)
- Air deposition

6.3. International dimension: Trade related dispersal

- Trade in products e.g. toys, batteries
- Trade in fertilisers is major dispersal route (South Pacific)
- Trade with contaminated food and feeds
- Trade in products that are no longer allowed in exporting country
- Traditional medicines

6.4. International dimension: are there other international dimensions, such as e.g. competition, that makes it difficult for one actor to act alone?

- Regulations on import/export are not harmonised between countries – double standard

- Small Island Developing States (SIDS) do not have much choice in what comes into the country (no market power)
- Lack of capacity to effectively prohibit illegal imports
- National regulations may be undermined by international trade rules
- Challenge to regulation due to lack of information about imports, spec. chemicals in imports
- Lack of inexpensive techniques for detecting Cd in products
- International rules for trade of waste may hinder legitimate trade for recycling purposes

6.5. Management strategies

- Substitution
- Environmentally sound recycling (e.g. zinc-recycling and NiCd battery)
 - Voluntary recycling standards
- Mandatory emission standards
- Information sharing
 - Market-based compliance through mandatory information requirements related to product content (imports)
 - Market-based approaches
- Risk communication
- International labelling schemes
- Capacity building
 - Educational / Information material for judiciary, parliament
 - Technology
- How to manage Cd-containing products that are already in the country?
 - Landfill
 - Incineration (very expensive)
- Priority substance lists (e.g. Norway, EU Water Framework Directive)

6.6. Who are the major stakeholders

- Human beings
 - NGOs
 - Industry and trade associations
 - fertilizer, mining, waste treatment, electronics, recycling, pigments/dyes, toy makers....
 - Agricultural organisations and institutions
 - IGOs
 - Authorities / Governments
 - Consumers
 - Scientists

6.7. Would international cooperation / coordination be helpful / necessary to address the challenge?

- Yes
 - Global trade in products means that an international instrument is needed to harmonize national regulations / setting international standards
 - Some participants called for a framework convention on heavy metals;

- Others believed LRT is unclear, thus a binding instrument is not appropriate;
 - Others suggested that a convention may not be the correct instrument; we should look at already existing / ongoing instruments / activities (e.g. EU Regulation 2002/95/EC) on the Restriction of the use of Certain Hazardous Substances in Electrical and Electronic Equipment, ROHS)
- Initiate / strengthen capacity building efforts e.g. labelling, information exchange
 - Enhance global cooperation, incl. south – south cooperation
 - Research

7. Summary of the Main Outcome of the Conference and Further Procedure

The lists represent thoughts of participants made during individual presentations, brainstorming and discussion sessions of the Conference and do not represent a consensus, nor are they meant to imply that a consensus was reached on any approach or recommendation for further action.

7.1 Existing processes and activities

In the conference, it was demonstrated that several international institutions and processes have developed activities to deal with heavy metals, including UNEP, WHO, UNIDO and regional processes such as the UN/ECE LRTAP Convention Protocol on heavy metals. In addition to the international initiatives presented, heavy metals are also addressed by OECD, which has adopted recommendations on lead and cadmium, and by the WSSD and by SAICM. Moreover, heavy metals will be on the agenda of the upcoming UNEP Governing Council. These efforts by international institutions and processes are complemented by national and bilateral or partnership initiatives and NGO programmes and activities that address the challenges posed by heavy metals.

At the same time, presentations and interventions underlined that focus and scope of these initiatives and activities have so far been limited and that they have yielded mixed results.

- some of these activities tend to have a focus on environmental concerns;
- others have so far not yet developed their full potential
- additional discussion and/or additional scientific evidence is needed before taking a decision on certain activities; and
- other initiatives lack a global scope and do not sufficiently address the needs of developing countries and countries with economies in transition.

7.2 Need for further action

Despite these international, bilateral, national and partnership initiatives, there is a clear need for more concrete activity on the ground to effectively address – and support developing countries and countries with economies in transition in their efforts to address – the many still unsolved challenges posed by heavy metals.

The presentations and many interventions during the discussions have underlined:

- that mercury, lead and cadmium pose a serious risk to both human health and the environment and that developing countries and countries with economies in transition are specifically challenged to effectively address these risks;
- that the challenges and problems posed by mercury, lead and cadmium clearly have an international dimension and that these challenges and problems cannot be addressed efficiently, effectively and sufficiently by unilateral and / or merely voluntary initiatives;
- that there is a global need for further action;
- that while several international processes and institutions are addressing heavy metals, at this moment none of these institutions and processes are offering a framework that is sufficiently comprehensive, engaging all necessary stakeholders and binding enough to catalyze sufficient action to address the problems posed by heavy metals.

However, a few interventions have also stressed:

- that additional discussion or scientific evidence is needed before considering the need for further action.
- that there is a need to avoid pre-empting the review and decision-making associated with initiatives addressing concerns associated with mercury, cadmium and lead already underway in other fora, in particular UNEP and the SAICM process.

7.3 Options for the future and possible actions

The Budapest Conference on Heavy Metals has generated a substantive list of possible further actions to address the challenges posed by heavy metals. It has also made clear that several options seem to be available for the future, some of which refer more to the institutional policy-framework, others to concrete actions needed. While some possible further actions received general support, others were supported by a large number of participants. A few participants disagreed with those relating to the mandate of ICCM and the possibility of a legally binding instrument.

Activities relating to the institutional policy-framework include i.a.:

- existing regional instruments such as the heavy metal protocol to the LRTAP convention could be further strengthened;
- the regional scope of existing instruments could be expanded;
- new regional instruments could be developed;
- UNEP could expand the focus and its partners/participants of its work in the mercury programme beyond primarily environmental concerns;
- UNEP could take a decision at its up-coming Governing Council to launch a process for a more committing policy framework for mercury and other metals of concern than the existing voluntary partnership programme on mercury;
- A global convention on mercury and other metals of concern or on Persistent Inorganic Pollutants (PIPs) could be adopted.

Some argue that in the light of international trade, an international instrument to harmonize regulations, set standards, require labelling, information exchange or ban/regulate trade is necessary, others think more information is needed or that existing instruments should be used.

In this context, while some delegations argued that there is sufficient scientific evidence of the long-range transboundary air pollution of lead and cadmium, others argued that this evidence is not sufficient proof of significant long-range transboundary air pollution. There was general agreement that there is global dispersal of lead and cadmium through products.

- the framework for partnership initiatives could be strengthened;
- interagency cooperation could be enhanced, e.g. within UNEP's mercury programme or within SAICM;
- a process could be initiated to make sure that the next ICCM will include specific commitments and activities on heavy metals;
- IFCS could take up the issue of heavy metals, the challenges posed by heavy metals and possibilities to address this challenge, and it could help to further deepen the common understanding of the underlying facts and contribute to the emergence of common approaches and submit this to ICCM.

Possible further activities with regard to concrete actions that have been proposed and discussed include:

- measures to better control international trade of products containing heavy metals;
- prevention measures relating to best available techniques and best environmental processes (BAT / BEP);
- financial support to implement concrete activities and programmes in developing countries and countries with economies in transition;
- capacity building;
- further strengthening partnership approaches;
- activities to close the knowledge gap;
- substitution and promotion of alternatives with lower risks;
- promote environmentally sound recycling
- develop recycling standards;
- develop emission standards;
- introduce information/labelling schemes;
- awareness raising;
- establish priority substances lists;
- promote / prescribe unleaded gasoline in all sectors;

- establish inventories of contaminated sites;
- establish national implementation plans;
- create a mechanisms for tracking movement of heavy metals;
- assess the social and environmental costs of heavy metals;
- close primary mining facilities and meet the remaining demand by recycled mercury and other problematic heavy metals;
- reduce the demand for mercury, lead and cadmium;
- reduce the supply of mercury, lead and cadmium;
- strengthen health care systems to ensure that products and wastes containing mercury will not be used and will not present risks respectively;
- expand the list of problematic heavy metals to include also arsenic;
- a global action plan to phase out lead in gasoline;
- strengthen the GHS framework.

7.4 Further procedure and next steps

The Budapest Conference on Heavy Metals was organized in order to respond to the urgent request formulated by several developing countries to discuss heavy metals in a broader but at the same time less politicized context through a case study approach. Accordingly, the goal of the conference was to enhance the common understanding of the challenges posed by heavy metals, the obstacles countries – especially developing countries and countries with economies in transitions – face, their needs and the global need for further action, through presentations and discussion of concrete examples and lessons learnt. The conference demonstrated that there is not only a global need for further action, but that there are also several options available for complementing existing, but still not yet sufficient, frameworks and activities.

It was decided that the Intergovernmental Forum on Chemical Safety should be informed of the constructive discussions of the Budapest Conference on Heavy Metals and of the needs and proposals that have been formulated during the Conference. The hope was expressed that this information will stimulate the Forum and its participants and give them a better understanding of the relevance of heavy metals for international chemicals policy making, and that this better common understanding will result in further action at the global and local level.