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**United Nations  
Environment  
Programme**

**Lead and Cadmium Working Group**

First meeting

Geneva, 18–22 September 2006

Item 4 of the provisional agenda\*

**Preparation of technical summaries of the key findings of each review**

**Consideration of any significant global adverse impacts of lead and cadmium**

**Note by the secretariat**

**I. Background**

1. The Working Group is to prepare technical summaries of the key findings of the draft reviews of scientific information on lead and cadmium that were circulated in advance of the meeting. In accordance with Governing Council decision 23/9 III, the Working Group will accord special attention to the information on long-range transport when preparing the summaries. The Working Group may also wish to consider drawing conclusions as to whether there is sufficient evidence of any significant adverse impacts on health and the environment of global concern arising from the release of lead and cadmium into the environment. The present note and its annex, which contains lists of the main categories of uses and sources of emissions and releases of lead and cadmium based on the information contained in the draft reviews of scientific information on lead and cadmium, are intended to facilitate the Working Group's discussion with regard to the issue.

**II. Significant global adverse impacts of lead and cadmium**

2. The Working Group may wish to consider drawing conclusions with regard to the following:

(a) Whether there is sufficient evidence of any significant global adverse impacts of lead and cadmium of global concern to warrant action to reduce the risks to human health and the environment arising from the release of lead and cadmium into the environment;

(b) If so, which types of risks to human health and the environment and which types of uses, emissions, releases and losses of lead and cadmium and their compounds might be addressed.

\* UNEP(DTIE)/Pb&Cd/WG.1/1.

3. When considering the risks posed by lead and cadmium to health and the environment throughout the world, the Working Group may wish to take into consideration the hazardous properties of lead and cadmium, the potential and real exposures caused by natural and anthropogenic releases of lead and cadmium and documented adverse effects on human populations and ecosystems.

4. The points set out below are suggested to assist the Working Group in organizing its discussions and in structuring its summaries of the key findings:

- (a) Hazardous properties of global relevance:
  - (i) Toxicity or eco-toxicity;
  - (ii) Persistence in the environment;
  - (iii) Long-range environmental transport through air and water, indicating circulation in the global environment and accumulation in locations far from the sources of release;
  - (iv) Bioaccumulation in aquatic and other species.
- (b) Human populations and ecosystems that might be most at risk from the adverse impacts of lead and cadmium:
  - (i) Routes of exposure;
  - (ii) Human populations and ecosystems at risk;
  - (iii) Vulnerable populations subject to special risk.
- (c) Sources that are the main contributors to emissions and releases of lead and cadmium into the environment:
  - (i) The role of naturally occurring releases of lead and cadmium into the environment;
  - (ii) Main contributors to anthropogenic releases of lead and cadmium;
  - (iii) Essential uses (where no alternatives exist) and non-essential uses;
  - (iv) Uses of particular concern in relation to long-range transport;
  - (v) Releases or emissions of particular concern needing special attention;
  - (vi) Emissions contributing in particular to long-range environmental transport.
- (d) Magnitude of the threat of lead and cadmium to human populations and ecosystems:
  - (i) Documented effects to human health or ecosystems;
  - (ii) Limited geographic effects or global effects;
  - (iii) Global threat versus local concern.

5. Any diverging views with regard to the conclusions that may be drawn will be reflected in the technical summaries and in the report of the Working Group's deliberations.

6. The technical summaries of the key findings prepared by the Working Group will form the basis of the UNEP report on implementation on Governing Council decision 23/9 III as it relates to lead and cadmium. The reviews of scientific information on lead and cadmium will be provided to the Governing Council at its twenty-fourth session, in February 2007, as background information in English only.

## Annex

### Main categories of uses and sources of emissions and releases of lead and cadmium

#### I. Lead

1. Provided below is a list of the main categories of uses and releases of lead that occur or have been known to occur, based on the information contained in the draft review of scientific information on lead. The list is of relevance to paragraph 4 (c) (ii) of the note by the secretariat contained in the main part of the present document.

#### A. Lead impurities

- (i) Energy production – power and heat production; residential and commercial boilers, gasoline combustion;
- (ii) Mining (especially coal) and other metallurgic activities involving the extraction and processing of virgin and recycled mineral materials;
- (iii) Cement, lime, plaster and concrete production.

#### B. Industrial and manufacturing processes involving lead

- (i) Ceramics production;
- (ii) Glass and glass products production;
- (iii) Iron and steel production;
- (iv) Non-ferrous metal production;
- (v) Plastic product industry;
- (vi) Other industrial sources.

#### C. Principal uses of lead in products

- (i) Ammunition;
- (ii) Batteries;
- (iii) Brass, bronzes, tin solders and other alloys;
- (iv) Cable sheathing;
- (v) Flashing and roofing;
- (vi) Lead glass in cathode ray tubes and crystal glass;
- (vii) Plastic additives.

#### D. Minor uses of lead with potential for releases during the use phase

- (i) Balancing weights for vehicles;
- (ii) Brake linings for vehicles;
- (iii) Candle wicks;
- (iv) Fireworks;
- (v) Fishing equipment;
- (vi) Gasoline additives;
- (vii) Pigment in paint and rust inhibitive primers;
- (viii) Pipes, solders and joints for drinking water supply;
- (ix) Weights, for example, scuba diving weights;
- (x) Wine foil wrappers and lead solder in food cans.

#### E. Waste treatment

- (i) Landfilling, waste incineration and waste water treatment;
- (ii) Recycling of lead, for example from batteries.

## **II. Cadmium**

2. Provided below is a list of the main categories of uses and releases of cadmium that occur or have been known to occur, based on the information contained in the draft review of scientific information on cadmium. The list is of relevance to paragraph 4 (c) (ii) of the note by the secretariat contained in the main part of the present document.

### **A. Cadmium impurities**

- (i) Energy production – power and heat production; residential and commercial boilers, gasoline combustion;
- (ii) Mining and other metallurgic activities involving the extraction and processing of virgin and recycled mineral materials;
- (iii) Cement, lime, plaster and concrete production;
- (iv) Agricultural chalk and fertilizers;
- (v) Zinc products and zinc plated products.

### **B. Industrial and manufacturing processes involving cadmium**

- (i) Iron and steel production;
- (ii) Non-ferrous metals production;
- (iii) Plastic products production.

### **C. Principal uses of cadmium in products**

- (i) Alloys;
- (ii) Nickel-cadmium batteries;
- (iii) Pigments;
- (iv) Plating;
- (v) Stabilizers in polymers.

### **D. Waste treatment**

- (i) Landfilling, waste incineration and waste water treatment;
  - (ii) Recycling of cadmium, for example from batteries.
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