



a toxics-free future

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International SAICM Implementation Project (ISIP)

In 2010, in an effort to demonstrate SAICM implementation via IPEN Participating Organizations, IPEN launched an International SAICM Implementation Project, also known as ISIP. ISIP aims to mobilize resources for initial enabling activities pertaining to national priorities, in keeping with the work areas set out in the strategic objectives of section IV of the SAICM Overarching Policy Strategy.

In particular, the ISIP supports the Governance objective of SAICM's Overarching Policy Strategy paragraph 26, which calls for enhanced "cooperation on the sound management of chemicals between Governments, the private sector and civil society at the national, regional and global levels."

In addition, ISIP builds on the 2008-2009 Global SAICM Outreach Campaign to raise awareness about SAICM and strengthen collaboration among the public interest, health and labor sectors.

ISIP Objectives

ISIP's four objectives include:

- Promoting the need for sound chemicals management
- Advancing National SAICM Implementation
- Promoting global SAICM implementation by global civil society
- Building capacity among NGOs developing countries and countries with economies in transition

Title of activity: Mercury country situation report and awareness-raising on SAICM implementation in Ukraine

NGO: MAMA-86-Kharkov

Country: Ukraine

Date: February 2011

Elements of SAICM Covered:

Promote reduction of the risks posed to human health and the environment (57); Help develop comprehensive national profiles or country situation reports about mercury (1, 166); Programs to monitor mercury to assess exposure (66, 82); Promote the development and use of products and processes that pose lesser risks (44); Take immediate action to reduce the risk to human health and the environment posed on a global scale by mercury in products and production processes (59); Participation in activities related to the negotiation of a legally binding instrument on mercury

Description of mercury that is available in the market:

Studies conducted during the preparation of *Mercury country situation report in Ukraine* showed that in consumer markets of Ukraine we can find the following product groups, which in their compositions contain mercury.

- I. Lighting devices:
 - Mercury lamps
 - Mercury-tungsten lamps
 - Fluorescent lamps
- II. Measuring devices:
 - Glass medical thermometers
 - Glass mercury thermometers for accurate measurements
 - Medical devices for measuring of blood pressure
 - Barometers and other measuring devices
- III. Chemical sources of power:
 - Mercury-zinc and other mercury batteries
- IV. Mercury compounds (salts, oxides), which have practical applications in engineering, chemical industry, agriculture:
 - Mercury (I) chloride or mercurous chloride (Hg_2Cl_2) (calomel) can be used in pyrotechnics and as a fungicide.
 - Mercury (II) chloride or mercuric chloride (HgCl_2) was used in medicine as a disinfectant; in engineering it can be used for wood treatment, for the production of some types of ink, etching and blackening of steel; in agriculture it can be used as a fungicide.
 - Mercury (II) Sulfide (vermillion) is a mineral pigment and is widely used.
 - Mercuric nitrate (II) is used for fur trimming and in other mercury compounds.
 - Red mercuric oxide (II) can be used in the manufacture of paints.
- V. Medical pharmaceuticals based on mercury:
 - Yellow mercuric oxide (II) is in the composition of eye ointments and creams for skin disease treatment.
 - Mercuric amidohloride (white precipitate of mercury) is in the composition of some ointments. Currently, due to high toxicity, it is practically out of use, with only a few exceptions.
 - Organic mercury compounds are used as diuretic agents (diuretics) - merkuzal, novurit.
 - Homeopathic products - mercuric acetate (I), mercuric iodide (I), mercuric nitrate (I), mercuric chromate (I), hydrogen phosphate of mercury (II), mercuric iodide (II), mercuric sulfate (II), mercuric cyanide (II), mercuric nitrate amide, mercuric bromide, mercuric dichloride, mercuric sulfide.
- VI. Dental Materials: In the modern scientific and medical literature, we found recommendations for the use of silver amalgam, which contain silver, mercury, tin and copper, in pediatric dentistry.
- VII. Beauty products: It is possible to detect mercury and mercury compounds in cosmetics of suspicious companies - whitening creams, mascara, lipstick and blush.

Description of the most common forms of mercury exposure:

In Ukraine, the presence of mercury in different concentrations is together with gas, oil and coal deposits. Thus, in the Donetsk mercury biogeochemical province and Vishkovsky region of Zakarpat'ya, mercury is a surplus element and poses a serious threat to the environment.

Description of human sources of mercury:

- I. Mercury production. Mining of mercury started in the Donbass region more than 130 years ago on Nikitovsky mercury deposits (Gorlivka town) at Nikitovsky Mercury Mine Plant – the flagship of the mercury industry of the former Soviet Union. Background mercury pollution from activities of Nikitovsky Mercury Plant is quite high, not only near the plant, but also far from it.
- II. Combustion of coal in thermal power-stations. On the territory of Ukraine there are 15 powerful thermal power-stations (mainly in eastern and central parts of the country near the sources of energy - coal deposits), which produce more than 50% of all electricity.

The mercury content in the coal of Donbass reaches 0.5 g / per tonne or more, and in the area of Nikitovskiy mercury deposits - more than 20 g / per tonne.
- III. Coke production.
- IV. Cement production.
- V. Chlor-alkali production
- VI. Production with the use of mercury electrodes (Plant “Radical”)
- VII. Non-ferrous metallurgy.
- VIII. Polluted soil and water objects. Contaminated territories and water bodies appeared mainly as a result of washouts from the fields treated with mercury organic pesticides and fungicides (granozan, agrozan, agronal, mekurgeksan, mekurbenzol, etc.) that were widely used in agriculture in Ukraine.
- IX. Mercury-containing wastes, including used fluorescent lamps.
- X. “Unrecorded Mercury”. Changing of ownership of industrial enterprises, led to weakness of control over the mercury-containing devices, which now could be in landfills and in the hands of uninformed people and even children.

Description of the levels of mercury release and exposure:

In terms of classes of danger, mercury belongs to the first class (extremely hazardous chemical).

Hygienic standardization of the concentrations of mercury (maximum concentration limit (MCL) of contamination of metallic mercury and its vapors):

- MCL in settlements (daily average) — 0,0003 mg/m³
- MCL in residential area (daily average) — 0,0003 mg/m³
- MCL of air in the working area (maximum one-time) - 0.01 mg / m³
- MCL of air in the working area (shift average) - 0,005 mg / m³
- MCL of wastewater (for inorganic compounds in recalculation of divalent mercury) - 0,005 mg / l
- MCL of water objects of drinking and cultural water use, water reservoirs - 0.0005 mg / l
- MCL of fisheries reservoirs - 0.00001 mg / l
- MCL of sea reservoirs — 0,0001 mg/l
- MCL of soil — 2.1 mg / kg

Mercury is included in the list of a few harmful substances (about 2 %) for which now in the sanitary legislation of Ukraine the so-called group norms (the maximum possible single and per shift) are established. This fact is the factor of harmonization of the legislative base of Ukraine and EU.

Description of the damage caused by mercury:

I. During the working period of Nikitovskiy mercury plant (about 100 years) a significant amount of mercury was emitted into the atmosphere from emissions of plant (on the average about 10 tons of metal per year). In groundwater nearby Nikitovskiy mercury plant the mercury content is 0.01 mg / per liter (20 times exceeding the norm). A rather high content of mercury was found in atmospheric air, soil, in classrooms, at schools, as well as in urine and hair of children who are living in Gorlovka (area of Nikitovskiy mercury plant). The level of morbidity of children living there was also higher than in a control group of children.

II. High concentrations of mercury (15 - 20 MCL) were fixed near the coke chemical and metallurgical plants, as well as in areas where the waste dumps of coal mines are burning.

III. Organomercury pesticides are a significant source of mercury pollution. Currently, they are one of the main sources of emissions of mercury compounds in water, air and soil. In some districts of the Odessa region the mercury concentration in water was: Lyubashevsky district - $0.0068 \pm 0,001$; Belyaevsky district - 0.0093 ± 0.003 ; Tatarbunarskiy district - $0.0078 \pm 0,002$ mg / per liter. The main sources of water supply in these regions are artesian wells and the local water supply networks with water from the rivers of Turunchuk, Dniester.

IV. Plant "Radical" (Kyiv) was one of ten chemical giants of the former Soviet Union. Since 1952 the plant produced chlorine, caustic soda, sulfuric and hydrochloric acid, bertolettya salt, DDT, foam rubber and other chemical products. However, from 1996 - 2000 the plant "Radical" became bankrupt. In 2000 the first reports about the tons of mercury spilled at the plant territory appeared. According to some information in 1996 there was an emergency situation at the plant - in one of the workshops for the production of chlorine, the roof had fallen off. The collapse led to the destruction of the electrolyzers, in which there was mercury, which was spread on the working territory. In 2003 the process of demercurization of the factory's territory was started and for the next four years about 100 tons of the visible mercury were collected. Estimations and analyses show that there still remains about 200 tons of mercury, and it was "absorbed" literally into everything - in the ground, concrete, wood and even metal construction. It continues to pose a real threat. Soil contamination at the plant's territory (according to the official data) is 10 mg / per kg and more (excess of 5 or more times).

In all cases described above the local population, especially children, are exposed to negative impacts of mercury.

V. Until now in Ukraine, the problem of collecting (from the population) and recycling used mercury and luminescent lamps and other mercury-containing measuring devices, is still unsolved. Frequently these waste goods get into the bins with household garbage.

Description of the laws currently regulating mercury:

National environmental legislation of Ukraine regulates the monitoring of mercury content in air, water, and soil (ground). The state policy provides: implementation of measures for prevention of environmental pollution caused by heavy metals, including mercury. The Law of Ukraine «About baby's food» (2006) provides an interdiction for the use of raw materials that contain heavy metals, including mercury and other hazardous substances. Their presence is not permitted by the state health standards at levels that exceed the maximum allowed for the production of baby foods. In 2008 Ukraine adopted the Technical Regulation of restriction of use of certain hazardous substances, including mercury, in electrical and electronic equipment. In 2009 – 2011 the Plan of measures on application of this Regulation was created.

Description of the efforts to deal with mercury:

There is some information that in 2011 the Ministry of Environment of Ukraine and the Kyiv City State Administration (KCSA) collaborated about the terms of the joint financing plan to eliminate the threat coming from the plant "Radical". To implement the first phase of work on neutralization of dangerous objects (dismantling and removal for processing of 200 thousand tons of metalware), the Ministry of Environment of Ukraine and the KCSA plan to provide about 3,2 mln. hrn (400 thousand \$). At the second stage, full cleaning of the polluted territories will be carried out, and at the third, the protective structures around the plant will be built.

Description of what forces support and oppose the Mercury Treaty, the public participation consultation process, and the level of public awareness of the treaty process:

Official representatives of Ukraine participated in the negotiation process for the preparation of a global agreement on mercury. The work on the project «*Mercury country situation report and awareness-raising on SAICM implementation in Ukraine*» provides the opportunity to significantly improve public awareness on the importance of preparation of the future convention on mercury.

Project Outcome:

Description of the activity conducted:

- Prepared Mercury Situation Report in Ukraine as part of the ISIP activity.
- Presented the Mercury Situation Report during the conference "Chemical education in the context of chemical safety: the problem and prospects".
- Prepared the Recommendations on reducing and eliminating the impacts of mercury on human health.

Impact on target groups:

The following target groups were involved in the work on the project: teachers, representatives of academia and university science, experts, representatives of ministries and departments, representatives of NGOs and the media that deal with issues related to modern aspects of chemical safety.

The result of cross-sectoral synergies of the target groups was the elaboration of the Recommendations on reducing and eliminating the impacts of mercury on human health in Ukraine.

Impact on target policies:

We believe that as a result of work on the project «*Mercury country situation report and awareness-raising on SAICM implementation in Ukraine*» we received an opportunity to influence the position of Ukraine in the negotiating process on the creation of the future convention on mercury, to promote its adoption in 2013 and to lobby the urgent creation of a national sphere for handling mercury wastes.

Outreach to stakeholders:

The main stakeholders of this activity were non-governmental organizations and civil society organizations, media representatives and experts, which in the future plan to continue the support for actions directed on refusal of mercury use.

Deliverables, outputs and/or products:

The Mercury Situation Report in Ukraine as part of the ISIP activity.

Communication efforts:

A publication for the newspaper "Uriadovyi Kurier", devoted to the problem of collecting (from the population) and recycling used mercury and luminescent lamps, was prepared.

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Recommendations, from a public interest, NGO perspective, on reducing and eliminating human sources of mercury:

Delegates of the Conference «*Mercury country situation report and awareness-raising on SAICM implementation in Ukraine*» support the global campaign of IPEN «Mercury-free: you, me and babies», which aims to reduce and eliminate the impact of mercury on health and promote the use of safer materials and encourage:

- To raise public awareness on the impact of mercury and its compounds and the availability of safe alternatives.
- To initiate and raise public interest and the interest of stakeholders on problems related to negative effects of mercury and assist individuals who are the decision makers on policies at the local and national level aimed at reducing the use of mercury-containing materials.
- To obligate appropriate authorities through amendments to existing regulatory acts concerning mercury-containing materials and products to provide a mandatory procedure for its recycling / disposal:
 - 1). These amendments primarily concerned with “Rules of use of electric energy for the population”, approved by the Cabinet of Ministers of Ukraine on July 26th, 1999 1357.
 - 2). To add the Act of Cabinet of Ministers of Ukraine "On measures on reducing of electricity consumption by budget institutions" on October 16th, 2008 1337 with proper rules of disposal “of energy efficient lighting devices”.
 - 3). To prepare the request to the Department of Economy and Finance of Ministry of Education of Ukraine on the prediction procedure of collection and utilization of energy saving compact fluorescent lamps (CFL) of domestic production under the brand “Lummax” within the framework of programme of joint implementation measures in accordance with the requirements of the Kyoto Protocol in accordance to the letter on June 17th, 2010, 1/9-439.
- To promote public control over the process of turnover of mercury-containing materials and products from their manufacture (import) to recycling / disposal facilities.
- To promote an adoption of a strict global treaty on mercury in 2013 and lobby the accession of Ukraine.