

## *International Mercury Treaty Enabling Activities Program (IMEAP)*

Following the signing of the Minamata Convention on Mercury (the ‘mercury treaty’) in 2013 and the release of the IPEN Minamata Declaration on Toxic Metals, IPEN expanded its Mercury-Free Campaign and developed a broad program of treaty-enabling activities to be implemented in conjunction with IPEN Participating Organizations (POs). The International Mercury Treaty Enabling Activities Program (IMEAP) is geared toward raising awareness about the mercury treaty while generating data on key thematic elements of mercury pollution to help enable countries to implement the Minamata Convention.

IPEN launched IMEAP in early 2014 and continues to mobilise resources for IPEN POs to conduct activities that support implementation of the mercury treaty<sup>1</sup>.

The key objectives of the IPEN IMEAP are:

1. *Preparing for Treaty Ratification & Implementation:* Creating synergies between NGOs in developing countries with ongoing UN agency or government-led mercury activities and NGO priority-setting.
2. *Enabling Activities to Prepare Countries for Treaty Ratification & Implementation:* Support to NGOs to carry out national and thematic mercury treaty activities.
3. *Communication of Issues Related to Mercury and Treaty Ratification & Implementation:* Global dissemination of project results & south-south collaboration.

The following project forms part of the overall IMEAP activities and contributes to the greater global understanding of mercury pollution issues while providing information that may contribute to Minamata Initial Assessments (MIA) and raise public awareness in preparation for early ratification of the Minamata Convention on Mercury.

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## **IPEN Mercury Treaty Enabling project: Russia**

**Name of the NGO:** Coordination Centre of Let's Help the River Movement of "Dront" Eco-Centre

**Date:** March 2016 (IMEAP: 2014 Phase)

**Country:** Russian Federation

**Title of project:** Provision of Preconditions for Organisation of Collection of Burnt Mercury-containing Bulbs from Residents of Nizhniy Novgorod and Nizhegorodskaya Oblast

### **Summary**

This report details the IMEAP activities of the Russian environmental NGO 'DRONT' in collaboration with IPEN's Eastern Europe, Caucasus and Central American (EECCA) Hub 'Eco-Accord' and another Russian NGO 'SPES' (see separate IMEAP report for parallel activities undertaken by SPES on mercury pollution from contaminated sites in the Nizhegorodsky district of Russia). DRONT focused their activities on pollution created by used ('burnt out' or discarded) compact fluorescent lamps (CFLs) that contain mercury, and on improving awareness of the health implications of this waste. In addition, DRONT engaged with waste collectors, government officials and other NGOs to help to develop a proposal to safely collect used CFLs in Nizhniy Novgorod and surrounding areas. DRONT prepared a range of awareness-raising materials, conducted detailed research into the dumping and collection of CFLs in the target area, and conducted well attended roundtable meetings on the issue in Dzerzhinsk and Kstovo (where proposals were developed to collect and manage used CFLs without creating mercury pollution). A detailed copy of the project report in Russian can be accessed via the links on the web page where this report has been posted.

### **Describe the specific products related to the activity:**

According to expert estimates, household use of products with liquid mercury, mercury vapour and mercury compounds is a major source of mercury releases to the environment.

In the overall amount of use of mercury-containing products, the largest share belongs to **mercury-containing lighting appliances** and thermometers.

Mercury vapour and mercury compounds are extremely hazardous, highly toxic chemicals that adversely affect human health (1 compact fluorescent bulb –CFB- contains about 3-5 mg of mercury).

The following types of Russian lamps contain mercury:

<b>Types</b>	<b>Hg content per unit (mg)</b>
Fluorescent tubular	40-65 (average 52)
Fluorescent compact (CFBs)	5
High pressure (DRL type)	75-350
High pressure (DRT type)	50-600
Metal halide	40-60
Sodium high pressure	30-50
Neon tubular	at least 10

Foreign lamps:

Types	Hg content per unit (mg)
Fluorescent tubular	10
Fluorescent compact	5
High pressure	30
Metal halide	25
Sodium high pressure	30
Neon tubular	10

**Summarise the toxic effects of the mercury contained in these products:**

Human exposure to mercury and mercury compounds is mainly associated with air (the respiratory route). Inhaled mercury vapour is easily absorbed and mercury actively accumulates in the human brain and kidneys. A human body absorbs about 80% of inhaled mercury vapour.

In living organisms, metal mercury is transformed into mercury ions that are bonded by proteins. Some data suggests that mercury vapour may be absorbed by human skin. Mercury may cross the placental barrier and impact on the developing foetus. Children of mothers who had only light methylmercury poisonings at pregnancy, suffered from heavy cerebral palsy, as foetal development is particularly sensitive to mercury effects.

In addition to general toxic effects, mercury and mercury compounds have been found to cause gonad toxicity (impacts on gonads), embryotoxic (impacts on embryos), teratogenic (birth defects) and mutagenic effects (genetic mutations).

In urban settings, major mercury impacts on human health are associated with impacts of mercury vapour that might result in chronic mercurialism (mercury poisoning) that results in nervous system damage and manifests itself by asthenovegetative syndrome - mercury tremor (tremor of hands, tongue, eyelids and even legs and the whole body), uneven pulse, tachycardia, excitability, mental disorders and gingivitis. In addition, mercury poisoning might cause apathy, emotional instability (mercury neurasthenia), headaches, dizziness, insomnia, mercury eretism and memory impairments.

Inhalation of high doses of mercury vapour may be accompanied by symptoms of acute bronchitis, bronchiolitis and pneumonia, changes in blood and higher excretion of mercury with urine. Extremely acute mercury poisonings are associated with destruction of lungs. The above symptoms may be observed at mercury air concentrations over  $0.1 \text{ mg/m}^3$ , but mental disorders may develop at even lower mercury levels.

In the case of prolonged inhalation exposure to relatively low mercury levels (about  $0.01 \text{ mg/m}^3$ ) and lower (sometimes about  $0.001 \text{ mg/m}^3$  and lower), micro-mercurialism might develop. Its initial manifestations generally include work performance impairments, easy fatigability, hyperexcitability, and appetite loss. Later on, these symptoms become stronger and are accompanied by memory impairments, low self-confidence, irritability, headaches, etc.

Mercury, as a highly toxic element, easily enters a human body (via lungs and skin) and is only slowly excreted. As for organic and inorganic mercury compounds - the latter ones belong to the category of super eco-toxicants that can cross cellular membranes and accumulate in living organisms. Higher toxicity of organic mercury compounds is associated with their lipophilic (i.e. hydrophobic) organic groups that allow them to diffuse in cellular membranes. Organic mercury compounds were also found to affect synthesis of proteins and to react with DNA. Mercury interferes with the normal process of DNA replication, causing serious mutations.

**Explain how consumers are exposed to mercury in these products:**

Common energy efficient bulbs contain toxic metal mercury that evaporates at normal temperatures, and is easily absorbed by a human body and accumulates. Depending on technologies and types of commonly used bulbs in our country, they may contain from 20 to 300 mg of mercury (most often from 60 to 120 mg).

An intact bulb is safe. Problems emerge when a bulb is broken - mercury vapour is colourless, without any taste or smell.

A damaged bulb releases mercury vapour that might cause a heavy poisoning. Most often, mercury enters a human body by inhalation of odourless mercury vapour, with adverse impacts on the nervous system, liver, kidneys and gastric-intestine tract. Mercury accumulates in a human body and excretes only slowly, causing irreversible health damages.

Mercury-related hazards are further aggravated by its rather high evaporation rate. For example, evaporation rate of metal mercury in windless conditions at 20°C reach 0.002 mg per 1 cm per hour, while at 35-40°C and if exposed to sunlight, the evaporation rate increases by 15-18 times and may reach 0.036mg/cm per hour.

In addition, mercury may contaminate indoor items as it is easily adsorbed by different materials, particularly fuzzy surfaces (rugs and carpeting, upholstery, soft toys, etc.). Mercury vapour and microparticles are strongly adsorbed by clothes and footwear (including shoe soles) and hair, which act as moving, secondary contamination sources.

One damaged mercury bulb in a closed room (without ventilation) may release enough mercury in several hours to reach mercury levels in indoor air up to 0.05 mg, while its MAC is set as only 0.0003 mg.

Due to lack of an organised system of collection, consumers dispose of burnt compact fluorescent bulbs with other household waste - causing mercury contamination of waste chutes, landfills, etc. and polluting the environment - air, soils and water. In contrast to some other toxic waste, mercury vapour may generate cumulative effects, posing a threat to plants, animals and people. Accumulating outdoors and at landfills, mercury from waste flows undergoes biotransformation by microorganisms into much more toxic methylmercury, which is soluble in water and contaminates the environment.

According to expert assessments, in recent years, more than 72 million mercury-containing bulbs have become unusable annually and 95% of them belong to "standard" tubular fluorescent bulbs.

Therefore, burnt CFBs pose a major threat to human health and the environment if damaged - as mercury vapour causes severe and diverse toxic effects, resulting in irreversible damages to human health.

**Note the extent of product sales:**

Accounting for the scale of production of lighting appliances in Russia, domestic demand for them and the scale of import of mercury-containing bulbs to the country, we may assess their overall number as about 25-35 million units/year (with these bulbs, about 0.5-0.6 tons of mercury are supplied to Russian annually).

The scale of application and economic significance of mercury-containing lamps (particularly fluorescent ones) are very high. In Russia, these lamps account for up to 65-70% of light generation by all lighting appliances. Now, in the country, at least 140 million lighting appliances are in operation (mainly with low pressure tubular mercury-containing lamps) plus about 13 million lighting appliances with high pressure lamps. Moreover, due to many reasons, their numbers will increase every consecutive year. Mercury-containing lamps are used by almost all residents in urban and rural settlements, and they will continue to buy and use them.

**Characterize the consumer groups who purchase the products:**

According to Federal Law # 261 on Energy Saving and Energy Efficiency, sales of incandescent bulbs with power consumption over 75W were prohibited since January 1, 2013. Consumers switched to mercury-containing lamps in large numbers, or (to a lesser extent) to more expensive LED lamps. Mercury-containing energy efficient bulbs have serious advantages in comparison to incandescent ones - they are about 5 times more cost efficient and have longer service life (up to 20 times longer).

Russia is undergoing a switch from traditional incandescent lamps to energy efficient mercury-containing ones that need a specialised waste management system. Annual sales of such lamps in our country reach tens of millions. One can claim that energy efficient lamps have entered every Russian house. Energy efficient lamps have already been used for a long time and have become fairly common. Their advantages include extended service life and lower power consumption.

What are the results? Due to the lack of an organised collection system, people dispose of compact fluorescent bulbs with other household waste - causing mercury contamination of waste chutes, landfills, etc.; polluting the environment and adversely affecting their own health.

The lack of any system to ensure mercury security, including lack of control over mercury circulation in the country, has become a real national threat in contemporary Russia.

**Define the manufacturers and distributors of these products:**

In 2000-2004, production of tubular low pressure fluorescent lamps in Russia reached 69-71 million/year, while production of high and extra-high pressure lamps reached 6.5-7 million/year.

Main producers of fluorescent lamps (with production capacity of about 35 million/year) included "Lisma" JSC (Saransk, Mordovia Republic) and "Svet" JSC (Smolensk).

Small batches (up to 500 - 600 thousand/year) of compact fluorescent bulbs were produced by "Lisma-VNIIS" JSC and by Moscow Electric Lamps Plant ("MELZ" JSC). In addition, Saransk Electric Lamps Plant ("Lisma-SELZ" JSC), Saransk Special Lighting Sources and Lamp Glass Plant ("Lisma-SIS-EVS" JSC) and "Lisma-VNIIS" JSC produce high and extra-high pressure mercury-containing lamps (about 5.8 million lamps/year).

Other Russian producers (5-6 producers of mainly high pressure and special purpose mercury-containing lamps) have low production capacity (usually up to 150-200 thousand lamps/year). According to available information, some of these producers produce high pressure lamps with use of ready-to-use imported discharge tubes. In general, activities of these facilities do not substantially affect the Russian market of mercury lamps and mercury consumption by Russian lamp producers.

Imported mercury-containing lamps to the Russian domestic market are supplied by *Osram, Philips, General Electric, Tungosram, Sylvania, Narva, OMS, BLV Licht, Vakuumtechnik, Aura*, and Poltava Gas Discharge Lamps Plant (Ukraine), etc.

Mercury-containing lamps are widely sold in supermarkets, hardware and food shops.

**Describe how the mercury bearing waste from the product is handled:**

**Demercurisation** is the main method of **utilisation of mercury-containing waste**, including CFBs and thermometers. The method incorporates processing of pre-grinded waste with application of special reagents (calcium hypochlorite, iron chloride, etc.) that neutralise mercury. At a processing facility, mercury-containing bulbs are ground in special containers at high temperature and mercury is removed. The glass is recycled and the mercury is reused.

**What information (or level of information) is available to consumers about the mercury in the product and its hazards?**

Every lamp package is marked by the warning sign shown at right:



In the majority of cases, labels marking mercury-containing lamps sold in Russia do not contain easily understandable information for consumers on mercury contents, potential risks of mercury releases, rules of behaviour in the case of lamp damage, or the need to deliver discarded lamps to specialised collection facilities, etc.

**What form of regulation (if any) applies to this product and its mercury content including provisions for phase-out?**

1) Federal Law # 261 on Energy Saving and Energy Efficiency and on Amending some Legislative Acts of the Russian Federation of November 18, 2009 (as amended by Federal Law # 44-FZ of 05.04.2013).

Incandescent lamps with power consumption over 75 W are prohibited for sale from January 1, 2013, while lamps with power consumption over 25 W are prohibited for sale since January 1, 2014. As a result, Russian consumers are forced to switch to energy efficient technologies.

2) Decree of the Government of the Russian Federation # 681 of September 3, 2010 on Approval of Rules of Consumption and Production Waste Management as Pertains to Lighting Appliances, Electric Lamps, Inadequate Collection, Accumulation, Use, Neutralisation, Transportation and Disposal of which May Adversely Affect Life and Health of People, Animals, Plants and the Environment.

The Governmental Decree clarifies that people have to deliver lamps to housing management companies in places of residence.

3) Discarded fluorescent lamps are also incorporated into the List of Hazardous Waste banned for import (transit) to/via the territory of the country, while export is subject to state regulation (RF Government Decree # 442 of July 17, 2003).

4) On Approval of the State Environmental Program of the Russian Federation for 2012 - 2020. The General Description of Main Actions of the State Program and its Sub-programs: Decree # 2552-r of the RF Government of 27.12.2012.

5) Instruction Manual for Handling of 1st hazard class waste - mercury lamps, discarded and defective fluorescent tubes.

6) Regulation on Procedures of Collection of Discarded Mercury-containing Lamps at the Territory of Kstovo # 2 of March 15, 2012.

7) Decree # 1029 of 21.03.2012 on Approval of Procedures for Organisation of Collection of Discarded Mercury-containing Lamps at the Territory of Dzerzhinsk Municipal District.

**Specify similar products that are available on the market, including safer alternatives:**

Incandescent and LED lamps.

**Project Outcomes:**

**Describe the activity conducted:**

In the course of the project the following activities were implemented:

In Nizhniy Novgorod:

1. In order to analyse the situation with collection of mercury-containing lamps from residents of Nizhniy Novgorod, information requests were sent to seven housing management companies of the city:

- Moskovskiy

- Sormovskiy
- Leninskiy
- Avtozavodskiy
- Kanavinskiy
- Sovetskiy
- Nizhegorodskiy
- Priokskiy (see sample request in the Annex)

We did not get written responses, but 5 housing maintenance companies called us and provided explanations on their arrangements for collection of discarded mercury-containing lamps from residents. We organised visits to 4 housing maintenance companies to check the information provided (Sormovskaya, Moskovskaya, Kanavinskaya and Nizhegorodskaya housing maintenance companies - HMCs).

As a result, we ascertained that residents of Nizhniy Novgorod can deliver their discarded mercury-containing lamps (free of charge) to the following collection points:

- Sormovskiy district HMC - 2 collection points: 12 Ivanova St., phone 226-05-38; 6 Zavodskoy Park St., phone 270-41-28
- Moskovskiy district HMC - a collection container installed at 3 Lyukina St.
- Kanavinskiy district HMC - a collection container installed at Ivana Romanova St.
- Nizhegorodskiy district HMC - a collection container installed in "Karusel" Trade Centre (Media Market at 2 Komsomolskaya Sq., access from 10:00 - 22:00, 7 days/week)
- IKEA shop, "Mega Trade Centre", Fedyakovo
- "Ecoservice" JSC collects max. 2 burnt lamps per a private person (address: 302/2 Moskovskoye Highway, trolley stop "Gardens", trolley route # 10, bus route # 22)  
Phone: (831) 274-91-91, (831) 274-94-93, (831) 274-94-95  
Access: Mondays to Fridays, from 9.00 to 17.00

So, in 2015 only, 8 collection points for mercury-containing lamps became operational in Nizhniy Novgorod (earlier, only 2 such collection points were available - in Sormovskiy district HMC and in IKEA shop). Naturally, these numbers are too low, but the "ice has broken up".

Based on our communications with employees of housing maintenance facilities, we can conclude that awareness-raising of the city residents is now the main problem, as their coverage is very low. On the other hand, housing maintenance companies cannot collect discarded lamps from all residents of their districts.

In order to inform the city residents, a booklet, posters, stickers and leaflets for garbage containers were produced. Some of these materials were distributed in Nizhniy Novgorod, while remaining materials (for Kstovo and Dzerzhinsk) still wait for distribution.

Three topical radio broadcasts were aired (2 by Radio of Russia and 1 by "Obraz" Radio). Four press releases for mass media outlets were distributed.

## **2. Lukoyanovskiy district**

On June 14, 2015, in the course of a topical environmental forum on "Future Energy" in "Lesnaya Skazka" children's summer camp (June 2 - June 22, 2015), a day of information was conducted for the participants. A roundtable on management of discarded mercury-containing



lamps in the district was also carried out with representatives of Lukoyanovskiy district administration.

In the framework of the information day, all summer camp inhabitants, working in small teams (9-10 persons in each), examined their living houses and administrative buildings and calculated the overall numbers of energy efficient lamps, including mercury-containing ones. In addition, the children asked the camp personnel about eventual fate of discarded mercury-containing lamps. Then, by the end of the day, the teams presented their findings on posters. All teams produced almost the same results and made similar conclusions.

On June 15, a roundtable session was conducted with participation of representatives from Nizhniy Novgorod, Sarov, St. Petersburg, Sergach, Lukoyanovo, Arzamas, Kstov, Pochinky, Stepan Razin township of Lukoyanovskiy district, Volodarskiy district, young journalists from Pochinkovskiy, and Pavlovskiy and Shatkovskiy districts of Nizhegorodskaya oblast.

In the course of the roundtable discussion, the Deputy Chief of Lukoyanovskiy district administration informed the participants that now mercury-containing lamps are not collected, due to lack of understanding and finance; moreover, it is unclear what to do with the problem and how to address it. The roundtable participants developed proposals on collection of discarded lamps from local residents - see the roundtable agenda, decisions, the list of participants and photos in the Annex.

### **3. Kstovskiy district**

In August - September 2015 we negotiated with Kstovskiy district administration, including the chief of PR Department, the district level environmental advisor and the Housing and Utilities Department.

Based on the negotiations results, we submitted a proposal to conduct a roundtable discussion on potential options to organise collection of discarded mercury-containing lamps from the district residents. We did not get a written response but after a series of phone conversations and personal meetings with the administration officials (the chief of the PR Department and the district environmental official) we agreed to conduct a roundtable. However, the administration postponed the roundtable date three times.

In order to finally settle the roundtable-related matters, we sent a letter to the chief of the district administration asking for a personal meeting and got a positive response. The meeting was held on February 8 - as a result, the roundtable was supported and the district administration officials were instructed to participate in the roundtable proceedings.

The roundtable was held on February 29, 2016, in Kstovo. The roundtable was dedicated to "Organisation of Collection of Discarded Mercury-containing Lamps from Residents of Kstovskiy Municipal District" and it was organised by the administration of Kstovskiy Municipal District jointly with the Coordination Centre of Volga Protection Movement ("Let's Help the River" Dront) and the Russian Socio-environmental Union.

The range of the roundtable participants included the chief of Kstovskiy municipal district administration, representatives of the PR Department, the Housing and Utilities Department of Kstovskiy municipal district, representatives of the Committee of Ecology and Natural

Resources Use of the Legislative Assembly of Nizhegorodskaya oblast, "Ecoservice" JSC, the environmental public reception office of Dzerzhinsk, gymnasium # 4 of Kstovo, secondary school # 8 of Kstovo, preschool education facilities, secondary school # 1 of Kstovo, Blizhneborisoglebskiy secondary school, residents of Bezdnoye village and media representatives.

Overall, 30 persons participated in the roundtable.

The roundtable participants developed the following recommendations:

- To establish a working group on matters of organisation of a system for collection of burnt mercury-containing lamps from residents of Kstovskiy municipal district, with participation of representatives of the administration of Kstovskiy municipal district, "Ecoservice" JSC and the general public.
- The working group should account for proposals of the roundtable participants: use of a specially equipped truck that should follow a prescheduled route and make prescheduled stops for collection of discarded mercury-containing lamps from residents; installation of special containers in garbage collection areas for solid household waste; and organisation of fixed collection points.
- To ask the working group to prepare a meeting on matters of organisation of a system for collection of discarded mercury-containing lamps, including fixed collection points at the territory of Kstovskiy district.
- To launch - after installation of fixed collection points and other collection outlets - a broad information campaign for the district residents on the need to collect discarded mercury-containing lamps, with involvement of schools and NGOs of the district.

Now, "Ecoservice" JSC is developing a project proposal for Kstovskiy district and prepares to meet the chief of the district administration. Their pilot project stipulates establishment of 2 fixed collection points (shops). In its turn, the administration expressed its interest in the establishment of a stable system for collection of hazardous waste (mercury-containing lamps and batteries) and its transfer for utilisation. The district environmental official also participated in the next roundtable in Dzerzhinsk.

#### **4. The roundtable in Dzerzhinsk**

The roundtable in Dzerzhinsk was held on March 10, 2016. It was dedicated to "Organisation of Collection of Discarded Mercury-containing Lamps from Residents at the territory of Dzerzhinsk" and it was organised by Dzerzhinsk city administration jointly with the Coordination Centre of Volga Protection Movement ("Let's Help the River" Dront, Nizhniy Novgorod).

Overall, 18 persons participated in the roundtable: representatives of the Committee of Ecology and Natural Resources Use of the Legislative Assembly of Nizhegorodskaya oblast, "Ecoservice" JSC, departments of strategic urban development, industry, investment policy and ecology, environmental protection and forestry, housing and utilities of Dzerzhinsk city administration, housing management companies of Dzerzhinsk, Eco-biological Centre of Dzerzhinsk, the environmental public reception office of Dzerzhinsk, the Housing and Utilities Policy Department of Kstovskiy municipal district, Kstovo gymnasium # 4, and media representatives.

The roundtable sought to discuss:

- Problems of management of energy efficient fluorescent mercury-containing bulbs (CFBs) and options to address them
- Risks associated with use of CFBs
- Current arrangements for CFBs collection and treatment in Dzerzhinsk
- Public awareness of CFBs-related risks for human health and the environment
- Decisions to organise collection of CFBs from residents and their transfer for utilisation

The roundtable agenda included 5 reports, discussion of problems of organisation of collection of discarded mercury-containing lamps and relevant decisions, as well as efficient provision of information to Dzerzhinsk residents on the need to collect and utilise discarded mercury-containing lamps.

Issues that were under discussion at the roundtable are of major importance for the health of Dzerzhinsk residents, for reduction of environmental pollution by mercury and its compounds, and for implementation of the Minamata Convention (the Convention seeks to reduce human use of mercury by 2020).

In the course of the roundtable, the participants noted that:

1. The issues under discussion are fairly relevant as mercury and its compounds pose threats to human health and the environment.

In particular, extended exposure to mercury vapour at levels of 0.01 - 0.03 mg/m<sup>3</sup> results in micro-mercurialism - the first stage of the disease is manifested by the following symptoms: muscle performance impairments, easy fatigability, hyperexcitability and (sometimes) nasal mucosa swelling. At the second stage, these symptoms get stronger and are accompanied by headaches, memory impairments, irritability and low self-confidence (with parallel catarrhs of the upper respiratory tract, stomatitis and gum bleeding). Finally, the third stage of the disease manifests itself in cardiac disorders, stomach secretory dysfunctions, dizziness, hyperhidrosis, hyperthyroidism, and disorders of the peripheral nervous system.

2. In general, hazardous waste generation rapidly accelerates - in particular, in Dzerzhinsk, a heavy truck load of hazardous waste is generated every week.

3. In 2011, a procedural document was approved on Organisation of Collection of Discarded Mercury-containing Lamps and Public Information on Collection Arrangements in Dzerzhinsk. The document defined that housing maintenance companies are responsible for organisation of collection of mercury-containing lamps.

Now, in Dzerzhinsk, housing maintenance companies cannot organise collection of discarded mercury-containing bulbs from residents, and have no idea how to do it. Representatives of housing maintenance companies noted that Decree # 681 of the RF Government of September 3, 2010 (the one making housing maintenance companies responsible for collection of mercury-containing lamps) does not work in practice.

4. The majority of residents are not aware of the hazards of mercury-containing lamps and the need to collect and utilise them.

Therefore, it is important to launch a large-scale information campaign to raise public awareness via adverts, posters, leaflets, and calendars, via Internet, printed media outlets and TV. The information campaign may be launched after the selection of lamp collection points.

5. Collection of hazardous waste may be arranged by means of fixed collection points (shops) that operate daily with permanent staff presence, mobile collection units (a collector truck follows a schedule with permanent staff presence), and/or installation of containers for hazardous waste (accessible 24/7, no presence of staff is needed).

6. Now, organisation of fixed collection points (shops) for exchange of burnt/used lamps and batteries to new ones is an appropriate, sustainable and convenient option for residents of Dzerzhinsk. Such fixed outlets may collect hazardous waste from residents (free of charge) and sell new lamps and batteries with some discount.

7. "Ecoservice" company is ready to construct and equip a collection point (shop), to organise free collection of hazardous waste directly from residents of Dzerzhinsk, and to safely transport hazardous waste to processing facilities.

8. Dzerzhinsk city administration and housing maintenance companies, promoting implementation of Decree # 681 of the RF Government of September 3, 2010 and the Minamata Convention, could support establishment of fixed collection points (shops) by means of provision of land plots or appropriate premises, as well as by production and distribution of information leaflets and posters for residents, and by airing TV and radio ads, etc.

9. In Dzerzhinsk, it is necessary to organise fixed lamp collection points (with sale of different types of new lamps), which should be located in the most densely populated district. To stimulate collection of discarded lamps, new lamps should be sold with some discount. Organisation of such collection points does not need allocation of budgetary funds.

**The roundtable participants approved the following recommendations:**

1. To recommend Dzerzhinsk city administration to conduct a working session on organisation of collection of discarded mercury-containing lamps from residents of Dzerzhinsk, with participation of representatives of Dzerzhinsk city administration, housing maintenance companies, "Ecoservice" JSC, and the general public.

2. To establish a working group for organisation of collection of mercury-containing lamps from residents of Dzerzhinsk.

3. To recommend "Ecoservice" JSC to prepare a project proposal to Dzerzhinsk city administration for organisation of fixed collection points (shops) in Dzerzhinsk.

4. To launch - after establishment of fixed collection points - provision of information to Dzerzhinsk residents on the need to collect discarded mercury-containing lamps, with participation of NGOs and schools of the city.

5. To recommend Dzerzhinsk city administration to develop a draft comprehensive program for collection of mercury-containing lamps from residents, accounting for proposals of the roundtable participants:

- ✓ Installation of specialised containers in places for collection of solid household waste;
- ✓ Organisation of operations of fixed collection points; and
- ✓ Organisation of operations of a mobile collection truck.

6. To involve environmental NGOs and mass media outlets in the information campaign on the need to collect and utilise discarded mercury-containing lamps.

**The resolution was approved by the roundtable session on March 10, 2016**