Minamata Initial Assessment Report

REPUBLIC OF MOLDOVA

2017

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Glossary

AA	Association Agreement
ATULBD	Administrative-Territorial Units on the Left Bank of Dniester
BAT	Best available techniques
BEP	Best environmental practice
EU	European Union
EPPO	Environmental Pollution Prevention Office
GEF	Global Environmental Facility
GD	Governmental Decision
SAICM	Strategic Approach to International Chemicals Management
RM	Republic of Moldova
UNEP	United Nations Environment Programme
UNEP Toolkit	UNEP Toolkit for identification and quantification of mercury releases
WEEE	Directive 2012/19/EU on waste electrical and electronic equipment
WHO	World Health Organization

Foreword

It is with great pleasure that I make these introductory remarks on behalf of the Government of the Republic of Moldova for the Minamata Initial Assessment Report, which has been developed in frames of the UNEP/GEF supported project “Development of Minamata Initial Assessment in Moldova”.

The Republic of Moldova has undertaken the strong commitment to respond to the global initiative though promoting of the Presidential Decree no. 819-VII of October 4, 2013 approving the conclusion of the Minamata Convention on Mercury.

The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury. The Convention is named the "Minamata Convention" (hereafter, "Minamata Convention" or "the Convention"), after the name of the town where the worst ever case of mercury pollution occurred between 1950 and 1960. The Convention addresses the whole life-cycle of mercury, from primary mercury mining to the management of mercury waste, with the objective to protect human health and the environment from anthropogenic emissions of mercury and mercury compounds to air, water and land.

Although the Republic of Moldova does not produce mercury and has no natural resources to develop gold mining scale, however, the population is affected by the impact of mercury. Annually at the internal market are placed various mercury-containing projects number, such as fluorescent tubes, batteries and accumulators, measuring devices, which if treated improperly, present a high risk.

The present project was implemented by UNEP in partnership with Environmental Pollution Prevention Office within the Ministry of Environment of the Republic of Moldova, that is a strategic actor in the facilitation of the processes leading to the creation and strengthening of capacities, both at national and regional level in the field of sound management of chemicals and waste.

We must acknowledge that the enabling activities on MIA assessment in the Republic of Moldova, contributed to preparation of the country for ratification and early implementation of the Minamata Convention by providing key national stakeholders with the scientific and technical knowledge and tools needed for that purpose.

We believe that experience gained by our country in the process of preparation of the Minamata Initial Assessment, could to be an important contribution to other similar activities undertaken by the countries within the region.

The Republic of Moldova highly appreciates fruitful cooperation with UNEP Chemicals Branch and particularly of its long-standing association for chemicals management improvements within the countries of the region. We as well would like to acknowledge the support of the Global Environment Facility (GEF).

Valeriu MUNTEANU, minister of environment of the Republic of Moldova

Executive summary

Introduction

The text of the Minamata Convention on Mercury was adopted by the Conference of Plenipotentiaries on 10 October 2013 in Japan and was opened for signature thereafter.

The objective of the Convention is to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds and it sets out a range of measures to meet that objective. These include measures to control the supply and trade of mercury, including setting limitations on certain specific sources of mercury such as primary mining, and to control mercury-added products and manufacturing processes in which mercury or mercury compounds are used, as well as requirements on artisanal and small scale gold mining.

The Minamata Convention has a phased approach to reduce and, where possible, eliminate mercury use in key industrial sectors. Provisions of the Convention include phase out deadlines established for supply sources and trade, mercury added products, and manufacturing processes in which mercury or mercury compounds are used. Based on these targets, the Convention is designed to systematically reduce emissions and releases to land and water, and phase out the use of mercury where alternatives exist.

By December 2015, 128 countries signed the Convention, while only 19 countries ratified it so far. Among the EU member-states, only Romania ratified the convention. According to Art. 31, the Convention will enter into force on the ninetieth day after the date of deposit of the fiftieth instrument of ratification, acceptance, approval or accession.

The Republic of Moldova signed the Convention on 10 October 2013 in Kumamoto, Japan. Further with the support of UNEP/GEF Project “Enabling activity development of Minamata initial assessment in Moldova” the country has prepared the grounds for setting the ratification process the Minamata Convention on Mercury in Moldova, by conducting the comprehensive inventory of mercury releases and building the national capacity to meet reporting and other obligations under the Convention.

It is envisaged that by mid 2017 the Law on Ratification of the Minamata Convention on Mercury shall be approved by the Parliament of the Republic of Moldova and this instrument on ratification shall be deposited at Minamata Convention Secretariat.

The present report reflects the current status of mercury management in Moldova, the results of the mercury inventory and sets the measures needed for implementation of the Convention, including the estimation of the associated costs and impact upon population.

Chapter I: National Background Information

1.1 Geography and Population

The Republic of Moldova is located in the South-East of Central Europe and in the North-East of the Black Sea between Romania and Ukraine, the Prut and Dniester river basins. The territory of the country covers 33.8 thousand km2 stretching 350 km north to south and from 150 km west to east. In terms of the territorial – administrative organization, the Republic of Moldova is divided into 32 regions (raion), with the autonomous territorial unit of Gagauzia, and one territorial unit Transnistria located on the left bank of the Dniester River, with five cities with the status of municipality namely: Chisinau, Balti, Comrat, Bender and Tiraspol, as well of sixty urban settlements without city status, 1575 rural settlements administratively organized into 917 communes.

The largest part of the nation lies between two rivers, the Dniester and the Prut. The western border of Moldova is formed by the Prut river, which joins the Danube before flowing into the Black Sea. Moldova has access to the Danube for only about 480 m (1,575 ft), and Giurgiulești is the only Moldovan port on the Danube. In the east, the Dniester is the main river, flowing through the country from north to south, receiving the waters of Răut, Bâc, Ichel, Botna. Ialpug flows into one of the Danube limans, while Cogâlnic into the Black Sea chain of limans.

The relief of the country represents a hilly plain sloping from the Northwest to Southeast, with an average elevation of about 147 m above sea level. Woods is in the middle, the highest region with the maximum altitude of 429.5 m (Hill Balanesti, Nisporeni) and strongly fragmented by valleys and dales.



Figure 1. Map of the administrative division of the Republic of Moldova

The total area of land resources is 3.385 thousand hectares, of which 2.0087 million ha is agricultural land. Area of forests and other forest land is 450 900 ha. Chernozems occupy about 80% of the country.

Moldova is part of the Black Sea countries and also through the Southern border also has access to Danube. The country actively takes part in implementation of the EU strategy for Danube region. The country, maintains close mutually advantageous commercial ties.

National Bureau of Statistics informs that, the number of residential population of the Republic of Moldova on January 1, 2016 amounted to 3553,1 thousand, of which 1511,1 thousand (42,5%) consist the urban population and 2042,0 thousand (57,5%) - the rural one. Population distribution by sex is as follows: 51,9% (1844,0 thou. persons) - women and 48,1% (1709,1 thou. persons) - men.

While the poverty rate for the total population declined, the gap between rural and urban areas is widening and the situation of population, particularly among the vulnerable groups, has worsened, especially in rural areas. 38 percent of population in rural areas are below the poverty line, compared to 13 percent in urban areas, and these disparities are increasing.

Moldova continues to be the country with the lowest degree of urbanization in Europe: 41.6% of people living in urban and 58.4% - in rural areas. About half of the urban population lives in Chişinău.

In connection with the *Sustainable Development Goals (SDGs), "Moldova 2020"* National Development Strategy and several development frameworks agreed by the international community, the Government of the Republic of Moldova committed to make joint efforts to ensure an inclusive and sustainable development, to integrate into national strategies and programs the aspects related to population dynamics, reproductive health and gender relations, thus ensuring the country's medium and long term competitiveness. According to the contemporary concept of human development, an increased position of the human factor in the society, social equity, efficient employment and ecological security are the main priority.

1.2 Political and legal profile

The Republic of Moldova has gained its independence from the Soviet Union in 1991. The current Constitution of Moldova was adopted in 1994. The politics of Moldova takes place in a framework of a parliamentary representative democratic republic, wherein the prime minister heads the government, and of a multi-party system. The government exercises executive power. Legislative power is vested in the Parliament. The judiciary is independent of the executive and the legislature. The position of the breakaway region of Transnistria (a self-proclaimed autonomous region, on the left side of the river Nistru), relations with Romania and with Russia, and integration into the EU dominate political discussions.

The Government of Moldova regards European integration as a fundamental priority of domestic and foreign policy. In line with the government's objective to create a modern European public administration system, a series of reforms have been launched to streamline and enhance the efficiency of the civil service and several reforms have already been launched in the sphere of fighting corruption, justice reform, local administration reform, education and health reform.

Relations between the European Union (EU) and the Republic of Moldova are deep and multifaceted. The Republic of Moldova participates in many EU agreements and programmes.

The deepening of the relations took place with the signatory of the EU-Moldova Association Agreement, which was signed in June 2014. The new framework is innovative and ambitious, including a Deep and Comprehensive Free Trade Area (DCFTA) and an Association Agenda aimed at furthering economic integration and political association between Moldova and the EU. The Association Agreement replaces the previous Partnership and Cooperation Agreement, which had been in force since July 1998.

Local governments in Moldova play a significant role in the provision of public services and bear primary responsibility for water supply, health, sanitation, local roads construction, maintenance, and heating.

The general policy agenda of the Government is to ensure the living standards comparable to those in the EU, strengthen the rule of law, increase the quality of the business environment and education, invest in research and development, etc.

Membership in the regional and sub-regional organizations

The Republic of Moldova's foreign policy is designed with a view to establishing relations with other European countries, neutrality, and European Union integration. In 1995 the country was admitted *to the Council of Europe.* Moldova is also a member state of *the United Nations, the Organization for Security and Co-operation in Europe (OSCE), the North Atlantic Cooperation Council, the World Trade Organization, the International Monetary Fund, the World Bank, the Francophonie and the European Bank for Reconstruction and Development, teh Commonwealth of Independent States*, and other organizations.

In 2005, *Moldova and the EU* established an action plan that sought to improve collaboration between its two neighbouring countries, Romania and Ukraine. At the end of 2005 EUBAM, *the European Union Border Assistance Mission to Moldova and Ukraine*, was established at the joint request of the presidents of Moldova and Ukraine. EUBAM assists the Moldovan and Ukrainian governments in approximating their border and customs procedures to EU standards, and offers support in both countries' fight against cross-border crime.

On 29 November 2013, at a summit in Vilnius, Moldova signed an *association agreement with the European Union dedicated to the European Union's 'Eastern Partnership' with ex-Soviet countries.*

Moldova has signed the *Association Agreement with the European Union* in Brussels on 27 June 2014. The signing comes after the accord has been initialed in Vilnius in November 2013.

The *EU Association Agreement (AA)* was initiated on 29 November 2013 in Brussels. It was signed on 27 June 2014 and was being provisionally applied starting 1 September 2014. On 1 July 2016, the Association Agreement (AA) between the European Union and the Republic of Moldova fully came into force, following ratification by all 31 signatories.

Multilateral Environmental Agreements in the field of sound management of chemicals and waste.

The ecological crises and effects of it such as intensification and diversification of pollution, general degradation of environmental factors have stimulated, the undertaking of actions at national level, and Bi and Multilateral cooperation between states for the solution of these problems. It is well known that any significant impact on environment has it repercussions outside of national frontiers of one country. In this context the international community has agreed to globalize certain environmental problems which affect entire human race, such as: more visible climate change, destruction of the ozone layer, impoverishment of global

genetic heritage, pollution caused by heavy metals and persistent organic pollutants, etc.

Regional and international cooperation is useful for solutions to common environmental problems among many states, involving cultural, legal and environmental common actions, which more often require numerous financial resources. Such cooperation is referred to in the implementation of international conventions and treaties in the field of chemicals management.

The Republic of Moldova is a signatory to a number of **international instruments in the field of chemicals and waste management**. The status of the agreements is presented in the table below:

Year	Treaty	Status/year	Focal point
1985	(VIENNA) Convention for the Protection of the Ozone Layer 1987 (Montreal) Protocol on substances that Deplete the Ozone Layer 1990 (London) Amendment to Protocol 1997 (Copenhagen) Amendment to Protocol 1997 (Montreal) Amendment to Protocol	Ac/1996 Ac/1996 Ac/2001 Ac/2001 Ac/2005	Ministry of Environment/ Ozone Office
1989	(BASEL) Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Ac/1998	Ministry of Environment
2001	(STOCKHOLM) Convention on Persistent Organic Pollutants	Ra/2004	Ministry of Environment
1998	(ROTTERDAM) Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals concerned applicable and Pesticides in International Trade	Ac/2005	Ministry of Environment/ Ministry of Agriculture and Food Industry
1979	(GENEVA) Convention on Long-Range Transboundary Air Pollution 1984 (GENEVA) Protocol-financing of Co-operative Programme (EMEP) 1985 (HELSINKI) Protocol –Reduction of Sulphur Emissions by 30% 1988 (SOFIA) Protocol Control of Emissions of Nitrogen Oxides 1991 (GENEVA) Protocol – Volatile Organic Compounds 1994 (OSLO) Protocol – Further Reduction of Sulphur Emissions 1998 (AARHUS)Protocol on Heavy Metals 1998 (AARHUS) Protocol on POPs 1999 (GOTHENBURG) Protocol to Abate Acidification, Eutrophication and Ground-level Ozone	Ac/1995 Ra/2002 Ra/2002 Si/2000	Ministry of Environment
1992	(HELSINKI) Convention on the Transboundary Effects of Industrial Accidents	Ra/1994	Ministry of Environment
1998	(AARHUS) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	Ra/1999	Ministry of Environment

	2003 (KIEV) Protocol on Pollutant Release and Transfer Register	Si/2003	
2013	(Minamata) Convention on Mercury	Si/2013	TBC at ratification

AC = Accession; Si=Signed; Ra= Ratified

1.3 Profiles of economic sectors with particular focus on mercury

The Republic of Moldova is a lower middle-income country in transition with GDP $6.408 billion (2017). Sustaining growth is a challenge as the GDP gains are led by remittances and export growth through increased access to external markets, which in turn are subject to the effects of the global financial crisis.

The economy of the Republic of Moldova is characterized by predominance of the agricultural and agribusiness sector and by dependence of socio-economic development of small towns by a limited number of large industrial enterprises. The agricultural and industrial sector occupies a central place in the national economy, its contribution in creating GDP constitutes about 9,9% and 14,8%. Together with the manufacturing industry of agricultural raw materials, the agricultural sector contributes about 32% to the creation of GDP and almost 38,6% in the total volume of exports. Over 32,8% of the country's working population labours in the agricultural sector.

The Moldovan economy has strongly recovered from the drought-related contraction in 2012. Following a decline of 0.7 percent in 2012, the economy expanded by 8.9 percent in 2013, led by strong rebound in agriculture and related industries, private consumption and exports. Inflation remained within the NBM's (National Bank of Moldova) target range of 5 percent ± 1.5 percentage points. The overall budget deficit narrowed to 1.8 percent of GDP in 2013 from 2.2 percent of GDP in 2012, partly reflecting the under execution of investment projects. The external accounts continued to improve with the current account deficit narrowing to about 5½ percent of GDP, reflecting strong export performance, contained import growth, and still strong inflow of remittances. International reserves increased to US$2.8 billion (5 months of imports or 105 percent of short-term debt).

The unemployment rate at the country level for the fourth quarter of 2016 registered 3.8%, being 0.4 p.p. lower than the fourth quarter of 2015.

In 2016 exports rose by 4%, while imports - by 0.8%. The negative balance of trade amounted to 1975 mln. US dollars, compared to 2020 mln. USD in 2015.

The industrial production volume in 2016 (in comparable prices) was higher (0.9%) than in the same period of 2015. The volume of manufacturing production increased by 1.8%, while mining and quarrying output and production and provision of electricity, gas, steam and air conditioning supply decreased by 15.8% and 1% respectively.

Agricultural production in 2016 increased by 18.6% (in comparable prices) compared to the same period of 2015. The increase of agricultural production was driven by both increased crop production by 26%, as well as livestock production 3 1%.

In 2016 the volume of investments in long-term tangible assets totalled about 19.4 billion. lei, a decrease of 13.9% (in comparable prices) compared to 2015. Of these, construction-assembly constituted about 9.9 billion. lei and decreased 10%, respectively.

The Government's national development strategy highlights the lack of sustainability of revenue-led GDP growth by stating that the revenues from Moldovans' work abroad have fuelled the disposable income of households, thus leading to an increased aggregate demand for consumption. Constrained by the limited capacity of domestic production, this demand was largely met by imports of goods and services. The central government has benefited from this situation, but the trade balance has turned into a problematic trade deficit.

The EU and Moldova signed a Deep and Comprehensive Free Trade Area (DCFTA). This provides substantially improved access to the EU market of over 500 million consumers for Moldovan goods and services, as well as improved investment opportunities. Economic cooperation extends to numerous individual sectors.

Mercury related economic sectors

Although the Republic of Moldova doesn't have primary mining of mercury and industrial and manufacture processes with intentional use of mercury, that would be the biggest areas of concern, an analysis undertaken for the period 2005-2014 with reference to key sectors relevant to presence of mercury as source of emissions at national level revealed the following:

- *Extraction and use of fuels/energy sources*
- *Production of other minerals and materials with mercury impurities* (cement and clinker production)
- *Consumer products with intentional use of mercury*
- *Production of recycled metals* (ferrous metals)
- *Waste management sector*
- *Waste water treatment*

For each key sector with reference to mercury the comprehensive assessment has been done at the National Mercury Releases Inventory Report for 2014, available within the www.eppo.md

With reference to chemicals production, it should be mentioned, that Republic of Moldova **produces a narrow range of chemicals**, largely oriented towards the domestic market, namely pharmaceuticals, dyes, paints and varnishes, and perfumery products. Presently in the country, there are 187 enterprises specializing in the manufacture of rubber and plastic products and 69 chemicals industry enterprises (19 pharmaceutical and medicine factories, 12 factories producing soap, detergents, perfumery and cosmetic products, etc). As well the chemical substances are used in the manufacture of paper, in light industry, in the construction materials industry, in manufacture of food products, including wine, etc. The main chemical substances imported into the country were: petroleum products, fertilizers, pesticides, diverse raw materials, products and substances for the manufacturing industry and for other industries.

The Republic of Moldova is dependent on energy imports and more than 95% of its energy needs are covered by imports. The dependency on external energy sources has contributed to a constant increase in energy prices and the accumulation of large debts to foreign suppliers.

Electricity consumption in Moldova remains unbalanced due to major consumption by the population (30-40%), industry holding a share lower - about 25-35%.

The energy sector is vital to Moldova's economic development. The Government committed itself to reform the energy sector by increasing energy security, diversifying the energy sources, and attracting investments in the sector. Authorities wish to achieve a renewable target of 20% energy generation in the country by 2030 – a target set in the National Energy Strategy.

Extraction and use of fuels/energy

With reference to this economic sector, the following categories of sources were analysed:

Coal combustion in large power plants& Other coal combustion

Within the energy system of the Republic of Moldova exists only one facility that falls under the category on **Coal Combustion large power plant**, situated in Dnestrovsk, on the left bank of the Dniester River. The Moldavian Thermal Power Plant (MTPP) in Dnestrovsk has an installed capacity of 2520 MW, it is equipped with eight energy groups on coal, with an electric power of 200 MW each (in service from 1964-1971, of which only five are currently operational); 2 energy groups on residual fuel oil and natural gas with an electric power of 210 MW each (in service since 1973-1974, both operational) and two energy groups on natural gas, operating on gas-steam combined cycle, with an installed capacity of 250 MW each (in service since 1980, both operational). The technological processes used by MTPP are based on the classical cycle of steam turbines with condensation and involve combusting fossil fuels for electricity generation, heat production representing only a secondary process.

The other coal use in the country covers coal combustion in smaller combustion plants (below 300 MW thermal boiler capacity), including industrial combustion/boilers in various sectors (cement production plants, metallurgical plants, food processing industry, etc.), district heating plants, household use of coal and coke for heating and cooking as well as production and use of coke (from coal) for other uses, such as metallurgical processes.

Extraction, refining and use of mineral oil

The oil exploration in the Republic of Moldova is present in Valeni village, Cahul district is refined at Comrat refinery (set into exploitation on July 15, 2005) which has a capacity of 30 thousand tons per year (this refinery can produce diesel oil, gasoline, residual fuel oil, lubricants, as well as bitumen and bitumen for road construction, but is focused mainly on producing residual fuel oils, diesel oil and

lubricants). The inventory revealed that between 2010 and 2014, the annual oil production in the country has not exceeded 13 thousand tons per year.

Extraction, refining and use of natural gas

The Republic of Moldova mainly imports natural gas from Russian Federation. At the same time, there is small national gas extraction facility, present within the country. During 1945-1972, about 700 wells were drilled to depths up to 3000 meters in order to identify fossil fuel resources. Natural gas reserves have been identified nearby Victorovca village, Cantemir rayon. Natural gas reserves at a depth of 400 meters are estimated at around 70-90 million m^3, at a depth of 600 meters - around 0.7-1.2 billion m^3, while at a depth of 4 km - about 7-10 billion m^3. Natural gas extracted from the respective reserves at Victorovca field is of good quality, containing about 86-92% methane.

The inventory revealed that between 2010 and 2014, the annual natural gas production in the RM has not exceeded 118 thousand m^3 per year.

Biomass fired power and heat production

Moldova has great potential to produce energy from renewable sources, particularly the biomass, which, used for energy purposes, is enough to cover 20% of the total annual energy consumption in the country.

In the Republic of Moldova is currently present the combustion of various biomass sources (wood, including twigs, bark, sawdust and wood savings; and/or agricultural residues, such as straw, pellets, shells, animal excretes and litter) for power and heat production. In order to increase the use of this alternative energy source, the Republic of Moldova has received the significant support from EU-UNDP in the frames of Biomass and Energy project implemented in 2 stages (phase 1 (2011-2014) - 14.56 million Euro, Phase 2 – (2015-2017) – approximately US$ 10,859,505. Thus during the 1st stage of the project implementation, the following key results have been already achieved:

- 126 villages have been selected to connect their public institutions to alternative biomass heating systems.
- Modern biomass heating systems are being installed in 143 public buildings, such as schools, kindergartens, community centres.
- More than 89.000 people, including 26.519 children, benefit from securely supplied energy and more heating comfort.
- 1 million Euro was provided for the purchase of biomass fuel production and processing equipment through a leasing mechanism.
- 30 local entrepreneurs already benefited from this program and received the briquetting, pelleting, grinding and balling equipment for the biomass.

It is expected that as a results of the 2nd phase of project implementation, the next outputs will be accomplished:

- 60 modern biomass boiler plants installed in villages and small towns public buildings
- In 45 sites biomass heating systems will be complemented with solar hot water systems (kindergartens, medical facilities, other social institutions)
- 300 locally produced/assembled biomass boilers

- 250 households and 50 small businesses supported to procure and install biomass boilers under preferential conditions
- Co-finance the creation of the first Biofuel Quality Assurance Center

At the end in a short term perspective, the country shall increase the use of renewable energy technology significantly through fuel switching and energy efficiency. Besides the equipping with biomass boilers of the public buildings at a short run actions will be taken to stimulate local markets for improved household heating, industrial cogeneration, and biomass-based briquetting, as well as raise local capacity in the biomass sector, and promote the benefits of biomass energy.

Production of other minerals and materials with mercury impurities

Under this economic sector in the Republic of Moldova are present only *Cement and Lime production*.

In the case of the Republic of Moldova, activity data on cement production was analysed for 2 major industrial facilities: Lafarge Cement Moldova JSC in Rezina and Cement and Slate Combined Works in Ribnita (ATULBD). Thus for the reference year 2014 production reported by these 2 installations amounted 1,086,152 tons (cement production) and 871,860 tons (clinker) respectively.

With reference to **lime production**, it has been reported to being present within the country, including in ATULBD and the total production estimated to 8.378 tons for 2014.

Consumer products with intentional use of mercury and other intentional product use

The recent data reveals that the Republic of Moldova doesn't have any production or the mercury containing products and the small quantities of organic and inorganic mercury compounds (0.01 t in 2013; 0.004 t in 2014) and there specifically used by national clinic - the Institute of Phthisiopulmonology „Chiril Draganiuc" of the pure mercury were imported only for the scientific / laboratory purposes.

Production of products involving the use of liquid mercury or mercury compounds has not been identified in the Republic of Moldova.

Mercury is still a key part of some modern technologies, including LCD screens and fluorescent lights, etc, thus mercury containing products are imported within the country. The spectrum of such products include: thermometers, batteries/accumulators, light bulbs, electrical switches and relays, PU, Their exact quantities, brands and dynamics of the imports are fully described within the national inventory on Hg emissions for 2014, developed by the Environmental Pollution Prevention Office and available for download at www.eppo.md/publications/

Important sector there the mercury / mercury compound and mercury containing products are present in the Republic of Moldova is the health sector. Besides use of mercury compounds for the laboratory purpose (see information above for Institute of Phthisiopneumology „Chiril Draganiuc") well known is use of the mercury in such medical devices as clinical thermometers (country records big

number of approximate import of 180.000 units/ year), the health sector uses blood pressure gauges and manometers. Also with reference to health sector the Use of Cantor and Bougie tubes has not been reported as present in the country.

Yet, at the mercury containing products present in the Republic of Moldova, there is a certain share of the antiques and old home appliances, that many people still keep at their homes, such as used in "tilt switches" in TVs, thermostats, space heaters, old batteries, light switches, that contain mercury and could potentially leak it as vapor.

With reference to attesting the other intentional product use, the greatest difficulty in collecting activity data for the country for products included in this category (manometers, chemicals and laboratory equipment) is the fact that import data is provided in aggregate form, without specifying separately mercury-containing and non-mercury containing devices.

Dental mercury amalgam fillings

Even though for numerous countries within the region the use of dental filling with mercury amalgam presents a serious issue, however in case of the Republic of Moldova based official confirmation from competent national authorities, such as Stomatological association confirmed the lack of such source at national level. Even during the Soviet times the use of dental amalgam among children was prohibited and was only used until 1982, further mercury containing dental fillings haven't been imported within the country.

The present dental care system in the Republic of Moldova is well developed, primarily represented by private practices, that constantly modernize the equipment and materials that use. The materials used for teeth restorations are mostly polymers.

Production of recycled mercury

In the Republic of Moldova mercury recycling activities are at the initial stage of development and the estimation of activity data and potential emissions from this category was rather complicated. However as set in implementation provisions of the Law on Waste no. 209 of 29/07/2016, the country shall create in the upcoming future the Center for Hazardous Waste Management, where natural and legal persons could submit mercury- containing products or wastes for disposal. This would allow mercury-recovery from these products, while being limited and potential emissions.

Production of recycled ferrous metals

In the Republic of Moldova, around 20% of ferrous scrap collected by the single licensed enterprise in the country comes from used vehicles. Used vehicles are first dismantled at small collection points, where all non-ferrous parts are removed from the automobile, including electronic wires or devices that may be present. The remaining ferrous part is crushed locally by the same collection company and sent for smelting to the Rybnitsa metallurgical company in ATULBD. Same steps apply to scrap originating from home appliances. The ratio of scrap originating from the

last category has not been estimated, however it is assumed to be less than that from automobiles.

Waste management sector

The mercury emissions are specific to waste management sector.

In the Republic of Moldova the issue of sound management of waste still remains unsolved. The special waste collection and disposal services are rendered in municipalities, in all the district centres, therefore the municipal waste management is relatively well organized. The separate waste collection system is at initial phase of implementation in urban area, with a few exceptions for some waste flows. However, this system covers only the 60 – 90% of the generators of municipal waste from the urban areas.

Almost no organized services of waste management exist in the vast majorities of rural settlements, therefore the transportation of waste to the waste deposits is done individually by the generators, except for waste collection services established in some of the rural areas. The number of persons from the rural areas who use these services is relatively low because of the lack of financial sources. Only a small part of the rural settlements, and namely those situated in the neighbourhood of district centers, benefit of waste collection services.

In the Republic of Moldova, there are no authorized facilities for incineration of municipal/general waste, neither there are no authorized medical waste incinerators.

Thus all the mercury emissions with reference to open burning of waste/controlled landfills were done based on IPCC Guidelines for National Greenhouse Gas Inventories (2006). Possible mercury concentration in municipal solid waste disposed of in the Republic of Moldova can be inferred on the basis of available statistical data on imports of mercury containing products, such as fluorescent lamps, thermometers and batteries with mercury and appropriate input factors for each product category (see section on consumer products with intentional use of mercury). Estimated amount of mercury to be released in Moldova with mercury-added products in 2014 presented 95.7 Hg (based on value recommended by UNEP toolkit 1 g Hg / tonne waste.

Waste water system/treatment

The Republic of Moldova doesn’t have the waste water sludge incineration. Total amount of wastewater conveyed in the Republic of Moldova has been calculated by summing up the data on wastewater discharged to surface water reservoirs in the Republic of Moldova. The most important factors determining releases of mercury from waste water are the amount of mercury-containing wastes that are discharged to the system and the concentration of mercury in those wastes. Thus the volume of conveyed waste water in the Republic of Moldova 2014 is 149,373,000m^3

1.4 Environmental overview

Environmental protection is an issue of global importance, which must become a national priority, as it directly concerns the living conditions and health, economic interests and capacities for sustainable development of society.

The major goals and strategic objectives for the development of the environmental protection of the Republic of Moldova are reflected within the National Strategy on Environmental Protection (2013-2023) – approved by Governmental Decision 301 from 24 April 2014.

Like other countries in the region, Moldova is facing many significant environmental problems. Inadequate management of solid waste causes pollution of soil, air and water; inadequate management of forests and agricultural practices irrational causes soil degradation and biodiversity loss; small rivers, wells are heavily polluted because of farming, water treatment infrastructure outdated, illegal storage of waste and manure; industrial activities and the large number of old cars cause air pollution in urban areas, and the lack of renewable energy sources and energy insecurity induce contributing to climate change.

Developing of the environmental strategy was dictated by political vector of European integration of our country, the current requirements of aligning national legislation to the EU directives and ensuring sustainable development of the country by promoting the green economy.

European integration process is a challenge to the environmental sector and includes two major directions: harmonization of national environmental legislation with the *acquis communautaire* in the sector and institutional reform, which involves developing an institutional mechanism able to implement the legal framework newly adopted. The environmental strategy for the years 2014-2023 (hereinafter - Strategy) aims precisely these challenges and tends to be the key document in the strategic planning of actions to be taken in the next decade.

Chapter "Environment" of the EU-Moldova Association Agreement provides for commitments and concrete actions of the Moldovan government in environmental protection, such as:

a) drafting legislation, norms and standards harmonized with the EU directives, and institutional capacity building and the establishment of new structures necessary;

b) development of a national environmental strategy, including institutional reforms planned by the deadline set for the implementation and compliance with environmental legislation;

c) development of sectoral strategies in the field of water, air, biodiversity conservation, climate change adaptation and mitigation phenomenon etc.

d) strict and clear division of responsibilities between environmental bodies at national, regional and local level;

e) the integration of environment into other policies, promote green economic development and eco-innovations.

State intervention in environmental protection is determined by the need to achieve the objectives set out in the Final Document adopted at the Conference on Sustainable Development in Rio de Janeiro "The future we want" Declaration of Environment Ministers in Astana; the principle of the Stockholm Declaration on the Human Environment; Millennium Development Goals (especially Goal 7 "Ensure environmental sustainability"); UN assistance program for Moldova for the period 2013-2017, which includes priority 3 "Environment, Climate Change and Risk Management", intended to protect the environment and natural ecosystems, regulation and conservation and sustainable use of resources and minimizing the impact on the natural environment and human health.

The section 8a of the present strategy relates specifically to waste and chemicals management.

Waste management is an integral part of all programs of environmental protection. The problems of waste management can be adequately addressed if they were developed environmental standards for regulating the activities of waste management.

Another negative aspect of the improper waste management is the fact that many recyclable materials and useful are stored together with the non-recyclable, so they are losing is a large part of their potential to be recycled and reused later (paper, glass, metals, plastics). Various fractions are being mixed and contaminated chemically and biologically, that makes their recovery difficult.

Worsening the problem of waste, particularly the municipal waste is generated by the faulty manner in which they are settled in present difficulties arising at different stages of processing waste.

The most common method of treating waste – landfilling that is a major source of soil and groundwater pollution. In this context, establishing of the proper waste management urban and rural areas is an important objective of the central and local authorities.

Chemicals and their stocks. Currently, a wide range of chemicals are used in various economic activities and household sector. If some chemical substances and products are inadequately managed throughout various stages of manufacture, storage, storage, distribution, use and disposal, they pollute the environment, causing harmful effects on environmental ecosystems, human health and wildlife.

According to statistics, in Moldova manufactures a narrow spectrum of chemicals in relatively small amounts (up to 1000 t / year - pharmaceuticals, detergents and essential oils; between 1,000 and 10,000 t / year - paints and varnishes, etc.) , most of the needs being covered by imports. The main imported chemicals are: fertilizers, pesticides, detergents, pharmaceutical and cosmetic products, different raw materials, products and materials for the processing industry and other industries, which constitute 13.5% of all imported products.

A negative impact on the environment and population exerts large stocks of chemicals, including obsolete pesticides, including persistent organic pollutants ranging from organizational persistent pollutants. Following the inventory conducted in 1997 in 344 stores located across the country were stored 1712

tonnes of obsolete pesticides accumulated in Soviet times. During 1997-2007, the amount had grown to 3300 tons. About 4,000 tons of waste pesticides are buried at the shooting of pesticides in the town Cismichioi Vulcanesti district. The situation is worsened by the accumulated stocks of other dangerous chemicals, including chemical reagents for laboratory, kept at businesses, organizations, academic institutions and education. Simultaneously, over the past few years, several issues related to items containing mercury and other heavy metals and unknown substances were also revealed by the population and special entities of the country. This issue shall as well be addressed in the nearest future.

The current legislative framework does not ensure integrated management of chemicals throughout the life cycle, classification, packaging, labeling, registration of substances and mixtures, restrict certain chemicals, including hazardous and regulate insufficient responsibilities across from providing information to consumers about qualities hazardous chemicals on their classification and labeling.

The new Law on Chemicals is currently within the parliamentary commissions that transposes key EU directive shall create the full system on chemicals management within the country.

To address key challenges associated with chemicals, it is necessary both legislative and institutional problem solving, as well as awareness raising and environmental education on the impact of chemicals, inventory and waste on the environment, its ecosystems, human health.

Chapter II: Mercury Inventory and Identification of Emissions and Resources

2.1 General summary of the mercury inventory results

The **national inventory on mercury releases in the Republic of Moldova** has been developed for the reference year 2014 based on UNEP Toolkit Level 2 (version April 2015)[1]. The inventory has been elaborated by the Environmental Pollution Prevention Office within the Ministry of Environment of the Republic of Moldova (EPPO) in the frames of the project *UNEP/GEF Project "Enabling activity development of Minamata initial assessment in the Republic of Moldova".*

The results of the inventory of sources of mercury releases in the Republic of Moldova (based on Level 2 methodology) **for the reference year 2014** show that **977** Kilogram of mercury per year (Kg Hg/y) are released, in which:

- 43% are from the consumer products with intentional use of mercury (whole life cycle),
- 28% are from the waste deposition/ landfilling and waste treatment,
- 10% from waste incineration and burning,
- 6% are from the extraction and use of fuels/energy sources,
- 4% are from production of other minerals and materials with mercury impurities;
- 4% are from the use of other intentional product/process, and
- 4 % are from crematoria and cemeteries.

An important part of the inventory exercise was to track the **releases within the various media**. Thus from the 977 kilogram mercury per year (Kg Hg/y) of **mercury released within various media** are:

- 294 Kg Hg/y are released to air;
- 99 Kg Hg/y to water,
- 164 Kg Hg/y to land,
- 11 Kg Hg/y in product and impurities,
- 92 Kg Hg/y into sector specific treatment / disposal and
- 318 Kg Hg/y to general waste.

Reference data that has been collected using the official data of the Republic of Moldova for all the sectors / categories concerned, that comprises of the Statistical Yearbooks, Energy Balances, import-export data provided by the customs office and other sectoral publications and official requests submitted to various national institutions.

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1 http://www.unep.org/hazardoussubstances/Mercury/MercuryPublications/GuidanceTrainingMaterialToolkits/MercuryToolkit/tabid/4566/language/en-US/Default.aspx

In addition the official data available for Administrative Territorial Units on the Left Bank of Nistru River (ATULBD) for various categories was incorporated within the report and the spreadsheets.

The present mercury release inventory was made with the use of the **"Toolkit for identification and quantification of mercury releases"** made available by the Chemicals Branch of the United Nations Environment Programme (UNEP Chemicals). The Toolkit is available at UNEP Chemicals' website:

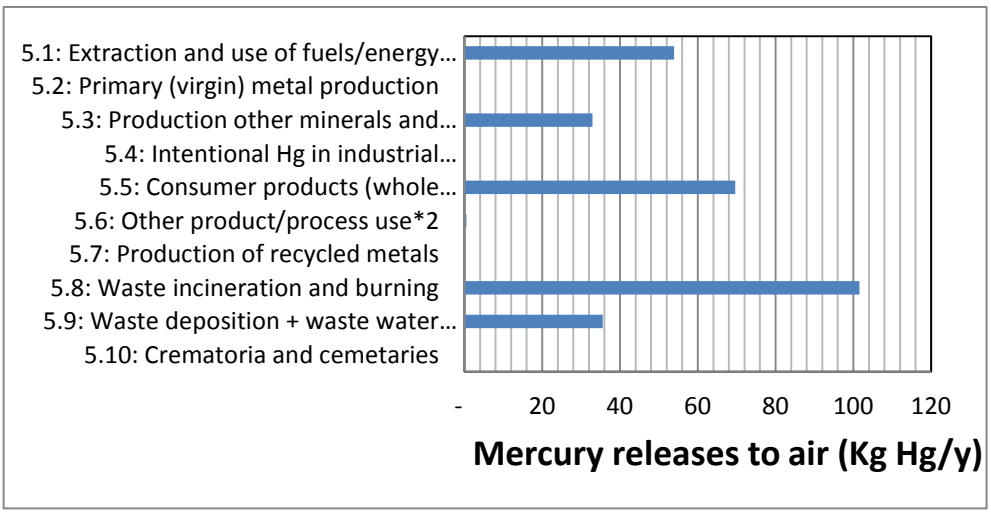
http://www.unep.org/hazardoussubstances/Mercury/MercuryPublications/GuidanceTrainingMaterialToolkits/MercuryToolkit/tabid/4566/language/en-US/Default.aspx

An aggregated presentation of the results for main groups of mercury release sources is presented in Figures 1.1- 1.6- Table 1.1 below.

The **CATEGORIES** of highest sources of **mercury release to air** were:

- the waste incineration and burning 101.6 (Kg Hg/y)
- the consumer products with intentional use of mercury 69.6 (Kg Hg/y)
- extraction and use of fuels/energy sources 53.9 (Kg Hg/y)

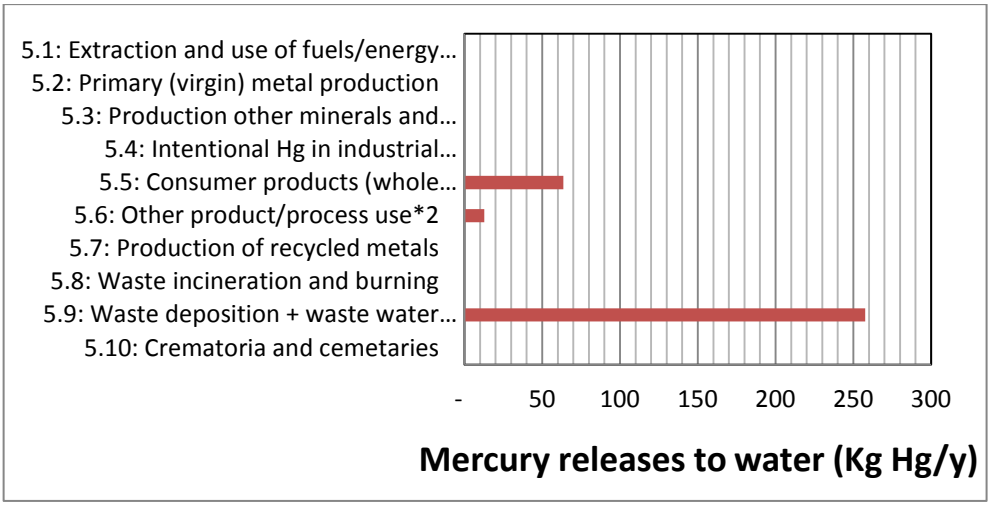
Figure 1.1: Mercury releases to air (Kg of Mercury per year)



The categories of highest sources of **mercury release to water** were:

- waste deposition and waste water treatment 257.7 (Kg Hg/y)
- consumer products with intentional use of mercury 63.6 (Kg Hg/y)

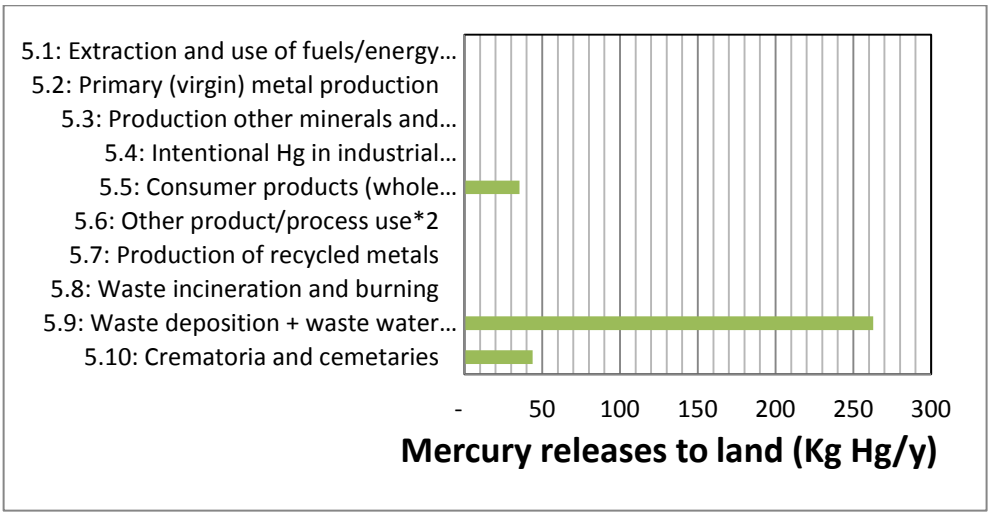
Figure 1.2: Mercury releases to water (Kg of Mercury per year)



The categories of highest sources of **mercury release to land** were:

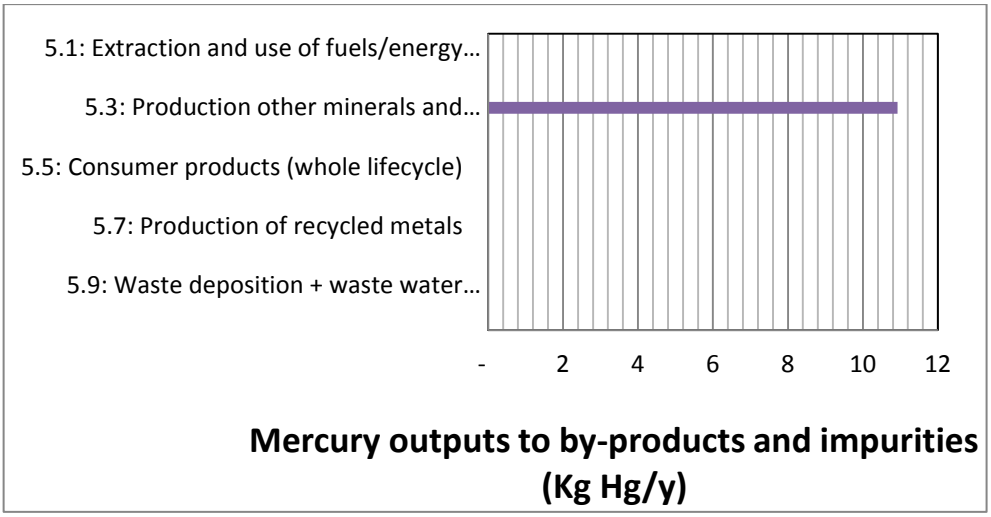
- waste deposition and waste water treatment 262.8 (Kg Hg/y) and
- crematoria and cemeteries 43.8 (Kg Hg/y).

Figure 1.3: Mercury releases to land (Kg of Mercury per year)



The single source category of **mercury outputs to by-products and impurities** is the category of production other minerals and materials with mercury impurities – 10.9 (Kg Hg/y).

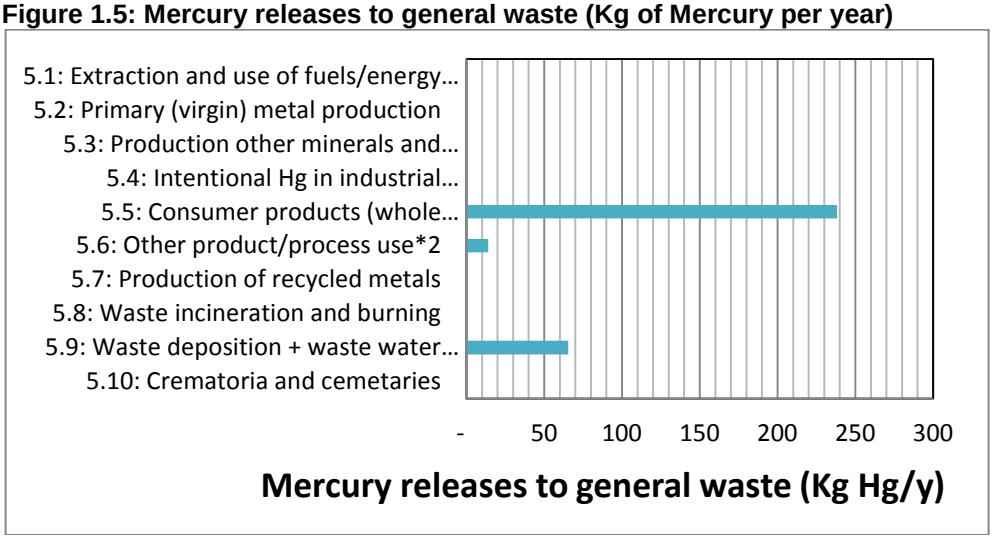
Figure 1.4: Mercury outputs to by-products and impurities (Kg of Mercury per year)



The highest source categories of **mercury releases to general waste** are:

- consumer products with intentional use of mercury 238.3 (Kg Hg/y)
- waste deposition and waste water treatment 65.4 (Kg Hg/y).

Figure 1.5: Mercury releases to general waste (Kg of Mercury per year)



The highest source categories of **mercury releases to sector specific waste treatment / disposal** are:

- waste deposition and waste water treatment 63.2 (Kg Hg/y)
- the other product or process use 11.9 (Kg Hg/y)
- consumer products with intentional use of mercury 10.6 (Kg Hg/y).

Figure 1.6: Mercury releases to sector specific waste treatment / disposal (Kg of Mercury per year)

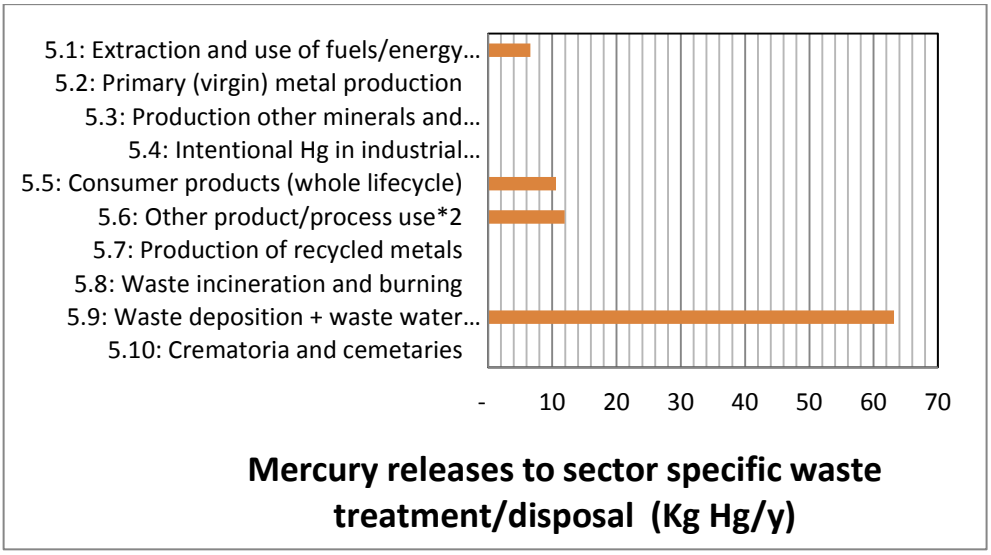


Table 0-1 Summary of mercury inventory results

Source category	**Calculated Hg output, Kg/y**							
	Air	Water	Land	By-pro-ducts and impurities	General waste	Sector specific treatment /disposal	Total releases by source category	Percent of total releases*3 *4
5.1: Extraction and use of fuels/energy sources	**53,9**	**0,0**	**-**	**0,0**	**-**	**6,6**	**60**	**6%**
5.2: Primary (virgin) metal production	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**
5.3: Production of other minerals and materials with mercury impurities*1	**32,9**	**-**	**-**	**10,9**	**-**	**-**	**44**	**4%**
5.4: Intentional use of mercury in industrial processes	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**
5.5: Consumer products with intentional use of mercury (whole life cycle)	**69,6**	**63,6**	**35,5**	**-**	**238,3**	**10,6**	**418**	**43%**
5.6: Other intentional product/process use*2	**0,5**	**12,8**	**-**	**-**	**14,0**	**11,9**	**39**	**4%**
5.7: Production of recycled metals	**0,0**	**0,0**	**0,0**	**-**	**0,0**	**0,0**	**0**	**0%**
5.8: Waste incineration and burning	**101,6**	**-**	**-**	**-**	**-**	**-**	**102**	**10%**
5.9: Waste deposition/landfilling and waste water treatment*3*4	**35,6**	**257,7**	**262,8**	**-**	**65,4**	**63,2**	**685**	**28%**

5.10: Crematoria and cemeteries	**-**	**-**	**43,8**	**-**	**-**	**-**	**44**	**4%**
SUM OF QUANTIFIED RELEASES*3*4	**294**	**99**	**164**	**11**	**318**	**92**	**977**	**100%**

Notes: *1 Includes production of cement, pulp and paper, lime and light weight aggregates. *2 Includes dental amalgam fillings, manometers and gauges, lab chemicals and equipment, Hg use in religious rituals and folklore medicine, and miscellaneous product uses. *3: The estimated quantities include mercury in products which has also been accounted for under each product category. To avoid double counting, the release to land from informal dumping of general waste has been subtracted automatically in the TOTALS. *4: The estimated input and release to water include mercury amounts which have also been accounted for under each source category. To avoid double counting, releases to water from waste water system/treatment have been subtracted automatically in the TOTALS.

The individual mercury release **SUB-CATEGORIES** contributing with the highest **mercury releases to the atmosphere** were:

- the informal waste burning with 96 Kg Hg/y, that represents 94% of mercury releases from the source category *5.8 Waste incineration and burning;*

- thermometers with mercury with 27 Kg Hg/y, that represents 39% followed by paints with mercury (20 Kg Hg/y), representing 29% respectively from the source category *5.5 Consumer products with intentional use of mercury* . Furthermore under same category almost equal share is presented by electrical switches and relays 10 Kg Hg/y (14%) and polyurethane with mercury catalysis 7.86 Kg Hg/y (11%);

- the biomass fired power and heat production with 23Kg Hg/y, that represents 43% and respectively other coal use 19 Kg Hg/y, that represent 35% from the source category *5.1 Extraction and use of fuels/energy source*;

- the cement production with 33Kg Hg/y represents 100% of the source category *5.3: Production of other minerals and materials with mercury impurities*

- informal dumping of general waste with 22 Kg Hg/y, that represents 62% followed by controlled landfills / deposits with 13Kg Hg/y representing 37% respectively from the source category *5.9: Waste deposition/landfilling and waste water treatment*.

The individual mercury release sub-categories contributing with the **highest inputs of new mercury** were:

- thermometers with mercury with 195 Kg Hg/y, that represents 47% , electrical switches and relays with 81 Kg Hg/y that represent 19%, followed by polyurethane with mercury catalysis with 66 KgHg/y that represent

16%, from the source category *5.5 Consumer products with intentional use of mercury;*

- laboratory chemicals and equipment with mercury with 34 KgHg/y representing 87% from the source category 5.*6 Other intentional product/process use*

- the informal waste burning with 96 Kg Hg/ represents 100% of the source category *5.8 Waste incineration and burning;*

- the biomass fired power and heat production with 23Kg Hg/y and other coal use with 22 Kg Hg/y represent almost equal shares of 37% of the source category *5.1 Extraction and use of fuels/energy source.*

The origin of mercury in waste and waste water produced in the country is mercury in products and in materials. Waste fractions and waste water do therefore not represent original mercury inputs to society. Based on legal provision the import of hazardous waste into Moldova is prohibited, thus there no imported waste data has been taken into account. Waste and waste water may however represent substantial flows of mercury through society. The following were found to be the major flows of mercury with waste and waste water: waste water treatment, informal dumping of general waste, informal waste burning and controlled landfills.

2.2. Mercury release source types present

Table 2-1 shows which mercury release sources were identified as present or absent in the country. Only source types positively identified as present are included in the quantitative assessment.

Table 0-2 Identification of mercury release sources in the country; sources present (Y), absent (N), and possible but not positively identified (?).

Cat. no.	Source category	Source presence (y/n/?)
5.1	**Main category - Extraction and use of fuels/energy sources**	**Y**
5.1.1	Coal combustion in large power plants	Y
5.1.2	Other coal combustion	Y
5.1.3	Extraction, refining and use of mineral oil	Y
5.1.4	Extraction, refining and use of natural gas	Y
5.1.5	Extraction and use of other fossil fuels	N
5.1.6	Biomass fired power and heat production	Y
5.1.7	Geothermal power production	N
5.2	**Main category - Primary (virgin) metal production**	N
5.2.1	Primary extraction and processing of mercury	N
5.2.2	Gold and silver extraction with the mercury-amalgamation process	N
5.2.3	Zinc extraction and initial processing	N
5.2.4	Copper extraction and initial processing	N
5.2.5	Lead extraction and initial processing	N
5.2.6	Gold extraction and initial processing by other processes than mercury amalgamation	N
5.2.7	Aluminium extraction and initial processing	N
5.2.8	Extraction and processing of other non-ferrous metals	N
5.2.9	Primary ferrous metal production	N
5.3	**Main category - Production of other minerals and materials with mercury impurities**	**Y**
5.3.1	Cement production	Y

Cat. no.	Source category	Source presence (y/n/?)
5.3.2	Pulp and paper production	N
5.3.3	Lime production and light weight aggregate kilns	Y
5.3.4	Others minerals and materials	N
5.4	**Main category – Intentional use of mercury as an auxiliary material in industrial processes**	**N**
5.4.1	Chlor-alkali production with mercury-technology	N
5.4.2	VCM (vinyl-chloride-monomer) production with mercury-dichloride ($HgCl_2$) as catalyst	N
5.4.3	Acetaldehyde production with mercury-sulphate ($HgSO_4$) as catalyst	N
5.4.4	Other production of chemicals and polymers with mercury compounds as catalysts	N
5.5	**Main category - Consumer products with intentional use of mercury**	**Y**
5.5.1	Thermometers with mercury	Y
5.5.2	Electrical and electronic switches, contacts and relays with mercury	Y
5.5.3	Light sources with mercury	Y
5.5.4	Batteries containing mercury	Y
5.5.5	Polyurethane with mercury catalysts	Y
5.5.6	Biocides and pesticides	N
5.5.7	Paints	Y
5.5.8	Cosmetics and related products	N
5.6	**Main category - Other intentional products/process uses**	**Y**
5.6.1	Dental mercury-amalgam fillings	N
5.6.2	Manometers and gauges	N
5.6.3	Laboratory chemicals and equipment	Y
5.6.4	Mercury metal use in religious rituals and folklore medicine	N
5.6.5	Miscellaneous product uses, mercury metal uses and other sources	N
5.7	**Main category - Production of recycled metals**	**Y**
5.7.1	Production of recycled mercury ("secondary production)	Y
5.7.2	Production of recycled ferrous metals (iron and steel)	Y
5.7.3	Production of other recycled metals	N
5.8	**Main category – Waste incineration**	**N**
5.8.1	Incineration of municipal/ general waste	N
5.8.2	Incineration of hazardous waste	Y
5.8.3	Incineration of medical waste	Y
5.8.4	Sewage sludge incineration	N
5.8.5	Informal waste burning	Y
5.9	**Main category - Waste deposition/landfilling and waste water treatment**	**Y**
5.9.1	Controlled landfills/deposits	Y
5.9.2	Diffuse deposition under some control	N
5.9.3	Informal local deposition of industrial production waste	N
5.9.4	Informal dumping of general waste	Y
5.9.5	Waste water system/treatment	Y
5.10	**Main category - Cremation and cemeteries**	**Y**
5.10.1	Crematoria	N
5.10.2	Cemeteries	Y
	Main category - Potential hot spots	**N**
	Closed/abandoned chlor-alkali production sites	N
	Other sites of former chemical production where mercury compounds are/were produced (pesticides, biocides, pigments etc.), or mercury or compounds were used as catalysts (VCM/PVC etc.)	N
	Closed production sites for manufacturing of thermometers, switches, batteries and other products	N
	Closed pulp and paper manufacturing sites (with internal chlor-alkali production or former use of mercury-based slimicides)	N
	Tailings/residue deposits from mercury mining	N
	Tailings/residue deposits from artisanal and large scale gold mining	N
	Tailings/residue deposits from other non-ferrous metal extraction	N
	Sites of relevant accidents	Y
	Dredging of sediments	N
	Sites of discarded district heating controls (and other fluid controls) using mercury pressure valves	N

Cat. no.	Source category	Source presence (y/n/?)
	Sites of previous recycling of mercury ("secondary" mercury production)	Y

2.3 Summary of mercury inputs to society

Mercury inputs to society should be understood here as the mercury amounts made available for potential releases through economic activity in the country. This includes mercury intentionally used in products such as thermometers, blood pressure gauges, fluorescent light bulbs, etc. It also includes mercury mobilised via extraction and use of raw materials which contains mercury in trace concentrations.

For waste categories, the "inputs" are calculated to show the distribution of mercury in waste through the different waste treatment activities and calculate releases from these activities, though waste is not an original source of input mercury into society .

The individual mercury release sub-categories contributing with the **highest inputs of new mercury** were:

- thermometers with mercury with 195 Kg Hg/y, that represents 47% , electrical switches and relays with 81 Kg Hg/y that represent 19%, followed by polyurethane with mercury catalysis with 66 KgHg/y that represent 16%, from the source category *5.5 Consumer products with intentional use of mercury;*

- laboratory chemicals and equipment with mercury with 34 KgHg/y representing 87% from the source category 5*.6 Other intentional product/process use*

- the informal waste burning with 96 Kg Hg/ represents 100% of the source category *5.8 Waste incineration and burning;*

- the biomass fired power and heat production with 23Kg Hg/y and other coal use with 22 Kg Hg/y represent almost equal shares of 37% of the source category *5.1 Extraction and use of fuels/energy source.*

The origin of mercury in waste and waste water produced in the country is mercury in products and materials. Waste fractions and waste water do therefore not represent original mercury inputs to society. Waste and waste water may however represent substantial flows of mercury through society. The following were found to be the major flows of mercury with waste and waste water: waste water system/treatment 448 Kg/Hg/y, informal dumping of general waste 223 Kg/Hg/y, informal waste burning 96 Kg/Hg/y and incineration of medical waste 6 Kg/Hg/y.

Table 0-3 Summary of mercury inputs to society.

Category no.	Source category	Estimated Hg input, Kg Hg/y, by life cycle phase (as relevant)		
		Production phase*1	Use phase	Disposal phase
5.1	**Main category - Extraction and use of fuels/energy sources**			
5.1.1	Coal combustion in large power plants	0	12	0
5.1.2	Other coal combustion	0	22	0
5.1.3	Extraction, refining and use of mineral oil	0	2	0
5.1.4	Extraction, refining and use of natural gas	0	1	0
5.1.5	Extraction and use of other fossil fuels	0	0	0
5.1.6	Biomass fired power and heat production	0	23	0
5.1.7	Geothermal power production	0	0	0
5.3	**Main category - Production of other minerals and materials with mercury impurities**			
5.3.1	Cement production	44	0	0
5.3.2	Pulp and paper production	0	0	0
5.3.3	Lime production and light weight aggregate kilns	0	0	0
5.3.4	Others minerals and materials	0	0	0
5.5	**Main category - Consumer products with intentional use of mercury**			
5.5.1	Thermometers with mercury	0	0	195
5.5.2	Electrical and electronic switches, contacts and relays with mercury	0	0	81
5.5.3	Light sources with mercury	0	0	33
5.5.4	Batteries containing mercury	0	0	21
5.5.4	Polyurethane with mercury catalysts	0	0	66
5.5.6	Biocides and pesticides	0	0	0
5.5.7	Paints	0	21	0
5.5.8	Cosmetics and related products	0	0	0
5.6	**Main category - Other intentional products/process uses**			
5.6.1	Dental mercury-amalgam fillings	0	0	0
5.6.2	Manometers and gauges	0	0	5
5.6.3	Laboratory chemicals and equipment	0	34	0
5.6.4	Mercury metal use in religious rituals and folklore medicine	0	0	0
5.6.5	Miscellaneous product uses, mercury metal uses and other sources	0	0	0
5.7	**Main category - Production of recycled metals**			
5.7.1	Production of recycled mercury ("secondary production)	0	0	0
5.7.2	Production of recycled ferrous metals (iron and steel)	0	0	0
5.7.3	Production of other recycled metals	0	0	0
5.8	**Main category – Waste incineration**			
5.8.1	Incineration of municipal/ general waste	0	0	0
5.8.2	Incineration of hazardous waste	0	0	0
5.8.3	Incineration of medical waste	0	0	6
5.8.4	Sewage sludge incineration	0	0	0
5.8.5	Informal waste burning	0	0	96
5.9	**Main category - Waste deposition/landfilling and waste water treatment**			
5.9.1	Controlled landfills/deposits	0	0	13
5.9.2	Diffuse deposition under some control	0	0	0
5.9.3	Informal local deposition of industrial production waste	0	0	0
5.9.4	Informal dumping of general waste	0	0	223
5.9.5	Waste water system/treatment	0	0	448
5.10	**Main category - Cremation and cemeteries**			
5.10.1	Crematoria	0	0	0
5.10.2	Cemeteries	0	44	0

Notes: *1: Production phase includes raw material production.

2.4. Summary of mercury releases

In the Table 4-1 below, a summary of mercury releases from all source categories present is given. The key mercury releases here are releases to air (the atmosphere), to water (marine and freshwater bodies, including via waste water systems), to land, to general waste, and to sectors specific waste. An additional output pathway is "by-products and impurities" which designate mercury flows back into the market with by-products and products. See Table 4-2 below for a more detailed description and definition of the output pathways.

According to the table 4-1 below, 294 Kg of Hg /y were released to air. The following source sub-categories made the largest contributions to mercury releases to the atmosphere: the informal waste burning (96 Kg Hg/y) thermometers with mercury (27 Kg Hg/y), paints with mercury (20 Kg Hg/y), electrical switches and relays (10 Kg Hg/y) the biomass fired power and heat production (23Kg Hg/y) and other coal use (19 Kg Hg/y) , the cement production (33Kg Hg/y).

In addition, 99 Kg Hg/y were released to water. The main sub categories of sources of this mercury releases to water were thermometers with mercury (59 Kg Hg/y) and informal dumping of general waste (22 Kg Hg/y).

The mercury releases to land per year were 164 Kg Hg/y.

Major outputs to by-products and impurities was reported only for the cement production subcategory (11 Kg Hg/y).

Then, the mercury releases to general waste were 317 Kg/Hg/y. The main sub categories of source of mercury releases to general waste were products within the 5.5 category and laboratory chemicals. Finally, the output pathway the sector specific waste is amounting 92 Kg/Hg/y.

Table 0-4 Summary of mercury releases (overleaf)

C	Sub-C	Source category	Exists? (y/n/?)	Calculat. Hg input to society	Calculated Hg output, Kg/y					
					Air	Water	Land	By-pro-ducts and impurities	General waste	Sector specific treatment/disposal
5.1		**Source category: Extraction and use of fuels/energy sources**								
	5.1.1	Coal combustion in power plants	Y	12	9	0	0	0	0,0	3
	5.1.2	Other coal use	Y	22	19	0	0	0	0	3
	5.1.3	Mineral oils - extraction, refining and use	Y	2	2	0	0	0	0	0
	5.1.4	Natural gas - extraction, refining and use	Y	1	1	0	0	0	0	0
	5.1.5	Other fossil fuels - extraction and use	N	0	0	0	0	0	0	0
	5.1.6	Biomass fired power and heat production	Y	23	23	0	0	0	0	0
	5.1.7	Geothermal power production	N	0	0	0	0	0	0	0
5.2		**Source category: Primary (virgin) metal production**								
	5.2.1	Mercury (primary) extraction and initial processing (a	N	0	0	0	0	0	0	0
	5.2.2	Gold (and silver) extraction with mercury amalgamation processes	N	0	0	0	0	0	0	0
	5.3.3	Zinc extraction and initial processing	N	0	0	0	0	0	0	0
	5.3.4	Copper extraction and initial processing	N	0	0	0	0	0	0	0
	5.3.5	Lead extraction and initial processing	N	0	0	0	0	0	0	0
	5.3.6	Gold extraction and initial processing by methods other than mercury amalgamation	N	0	0	0	0	0	0	0
	5.3.7	Aluminium extraction and initial processing	N	0	0	0	0	0	0	0
	5.3.8	Other non-ferrous metals - extraction and processing	N	0	0	0	0	0	0	0
	5.3.9	Primary ferrous metal production	N	0	0	0	0	0	0	0
5.3		**Source category: Production of other minerals and materials with mercury impurities**								
	5.3.1	Cement production	Y	44	33	0	0	11	0	0
	5.3.2	Pulp and paper production	N	0	0	0	0	0	0	0

	5.3.3	Production of lime and light weight aggregates	Y	0	0	0	0	0	0	0
5.4		**Source category: Intentional use of mercury in industrial processes**		0						
	5.4.1	Chlor-alkali production with mercury-technology	N	0	0	0	0	0	0	0
	5.4.2	VCM production with mercury catalyst	N	0	0	0	0	0	0	0
	5.4.3	Acetaldehyde production with mercury catalyst	N	0	0	0	0	0	0	0
	5.4.4	Other production of chemicals and polymers with mercury	N	0	0	0	0	0	0	0
5.5		**Source category: Consumer products with intentional use of mercury**								
	5.5.1	Thermometers with mercury	Y	195	27	59	16	-	88	6
	5.5.2	Electrical switches and relays with mercury	Y	81	10	0	11	-	58	3
	5.5.3	Light sources with mercury	Y	33	4	0	3	-	24	1
	5.5.4	Batteries with mercury	Y	21	1	0	1	-	19	0
	5.5.5	Polyurethane with mercury catalysts	Y	66	7,86	3,93	5,24	-	48,48	0,00
	5.5.6	Biocides and pesticides with mercury	N	0	0	0	0	-	0	0
	5.5.7	Paints with mercury	Y	21	20	1	0	-	1	0
	5.5.8	Cosmetics and related products with mercury	N	0	0	0	0	-	0	0
5.6		**Source category: Other intentional product/process use**		0						
	5.6.1	Dental mercury-amalgam fillings (b	N	0	0	0	0	0	0	0
	5.6.2	Manometers and gauges with mercury	Y	5	1	2	0	0	3	0
	5.6.3	Laboratory chemicals and equipment with mercury	Y	34	0	11	0	0	11	12
	5.6.4	Mercury metal use in religious rituals and folklore medicine	N	0	0	0	0	0	0	0
	5.6.5	Miscellaneous product uses, mercury metal uses, and other sources	N	0	0	0	0	0	0	0
5.7		**Source category: Production of recycled metals ("secondary" metal production)**								
	5.7.1	Production of recycled mercury ("secondary production")	Y	0	0	0	0	-	0	0
	5.4.2	Production of recycled ferrous metals (iron and steel)	Y	0	0	0	0	0	0	0
	5.4.2	Production of other recycled metals	N	0	0	0	0	0	0	0
5.8		**Source category: Waste incineration*3**		0						
	5.8.1	Incineration of municipal/general waste	N	0	0	0	0	0	0	0

	5.8.2	Incineration of hazardous waste	Y	0	0	0	0	0	0	0
	5.8.3	Incineration of medical waste	Y	6	6	0	0	0	0	0
	5.8.4	Sewage sludge incineration	N	0	0	0	0	0	0	0
	5.8.5	Informal waste burning	Y	96	96	0	0	0	0	0
5.9		**Source category: Waste deposition/landfilling and waste water treatment**		0						
	5.9.1	Controlled landfills/deposits*3	y	13	13	0	0	0	0	0
	5.9.2	Diffuse disposal under some control	-	0	-	-	-	-	-	-
	5.9.3	Informal local disposal of industrial production waste	N	0	0	0	0	-	-	-
	5.9.4	Informal dumping of general waste*1*3	Y	223	22	22	179	-	-	-
	5.9.5	Waste water system/treatment*2	Y	448	0	235	84	0	65	63
5.10		**Source category: Crematoria and cemeteries**		0						
	5.10.1	Crematoria/cremation	N	0	0	0	0	-	0	0
	5.10.2	Cemeteries	Y	44	0	0	43,807	-	0	0
SUM OF QUANTIFIED INPUTS AND RELEASES *1*2*3*4				**1087**	**294**	**99**	**164**	**10,9287653**	**317,7233499**	**92**

*1: The estimated quantities include mercury in products which has also been accounted for under each product category.

To avoid double counting, the release to land from informal dumping of general waste has been subtracted automatically in the TOTALS.

*2: The estimated release to water include mercury amounts which have also been accounted for under each source category.
To avoid double counting release to water from waste water system/treatment have been subtracted automatically in the TOTALS.

*3: To avoid double counting of mercury inputs from waste and products in the input TOTAL, only 10% of the mercury input to waste incineration sources, waste deposition and informal dumping is included in the total for mercury inputs. These 10% represent approximately the mercury input to waste from materials which were not quantified individually in Inventory Level 1 of this Toolkit.

*4 To avoid double counting of mercury in products produced domestically and sold on the domestic market (including oil and gas), only the part of mercury inputs *released* from production are included in the input TOTAL.

2.5 Identified hot-spots of mercury contamination (contaminated sites)

The inventory didn't reveal major contaminated sites that could be identified as mercury hot-spots in the country. the same time, still uncertain remains the situation with on site, that is pending obsolete pesticide burial in Cismichioi village for which the Ministry of Environment shall initiate the detailed investigations in 2017 with the support of the Czech Republic.

Chapter III: Policy, Regulatory and Institutional Framework Assessment

3.1. Early ratification and implementation of the Minamata Convention by the Republic of Moldova

The Republic of Moldova has signed the Minamata Convention on Mercury and current is undertaken all the necessary steps for its early ratification. In line with the art. 11 of Law no. 595-XIV of 24.09.1999 on international treaties of the Republic of Moldova and the Government Decision no. 442 of 17.07.2015 on approval of the Regulation on the mechanism of conclusion, implementation and termination of international treaties, further are presented the justification of the importance of ratification by Moldova of the Minamata Convention on mercury adopted in Kumamoto, Japan on October 10, 2013.

Minamata Convention on mercury, being a treaty average, which is administered by UNEP, has a major importance for consolidating the efforts of countries in the world for the realization of the necessary measures at national, regional and global levels to reduce the negative impact of mercury and of its compounds on the environment and human health. By signing the Convention Moldova has expressed its intention to subsequently ratify this Convention. Adoption of the Law on ratification of the Minamata Convention on mercury will contribute to the implementation of:

 paragraph 23, subparagraph g) of the Plan of implementation of the decisions adopted in 2002 by the World Summit on Sustainable Development in Johannesburg;

programs and approaches to chemicals management provided by UNEP and decisions adopted by UNEP's Governing Council / Global Ministerial Environment Forum;

provisions on mercury management, strategic approach provided for in international chemicals management (SAICM), and resolutions adopted by the International Conference on Chemicals Management / Board governor of SAICM;

- subchapter "The chemicals and waste" in the final document "The future we want", presented by the UN Conference on Sustainable Development (RIO + 20) and adopted by the UN General Assembly at the 123rd plenary meeting of July 27, 2012 ;

paragraphs 26-29 of chapter V of the omnibus decision on enhancing cooperation and coordination between the Stockholm Convention, the Rotterdam and Basel and other similar decisions taken by the COP of the three conventions at their ordinary and extraordinary sessions during 2013-2015 etc.

It is worth mentioning that Moldova already is party to a number of multilateral environmental treaties of global and regional governing somehow or other mercury. In this context we should be mentioned that:

controlling transboundary waste transportation and disposal of mercury are regulated by the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, to which Moldova joined by Parliament Decision no. 1599-XIII of 10.03.1998;

International Trade mercury, and import / export thereof shall be governed by the Rotterdam Convention on the procedure for consent Prior Informed concerned for Certain Hazardous Chemicals and Pesticides in International Trade, to which Moldova joined by Law . 389-XV from 25.11.2004.

Simultaneously Moldova is party to treaties of the Economic Commission for Europe, in particular, the Heavy Metals Protocol to the 1979 Convention on Long-range Transboundary Air Pollution, ratified by Law no. 1018-XV from 25.04.2002.

Social aspect: Given that the objective of the Convention is to protect human health and the environment from emissions and discharges of mercury and mercury compounds ratification and implementation will be beneficial for social protection and health.

Economic and environmental aspect: Minamata Convention regime governing the sourcing and marketing of mercury, mercury-added products and manufacturing processes are used mercury or its compounds. Given that Moldova does not produce products with added mercury and the analysis performed on the availability of alternatives that do not contain mercury, we conclude that the prohibition of January 1, 2018 to importation, placing on the market and export of products with added mercury covered by the Convention will not have negative effects on the economy. It is important to note that by prohibiting the import of mercury-added products covered by the Convention, Moldova will prevent the marketing of products banned in other countries, and consequently will prevent the generation of hazardous waste.

3.2. Policy and regulatory measures in place and further measures

In order to ensure the early implementation of the Minamata Convention, the Republic of Moldova had developed the Roadmap, based on the review of the legal and institutional framework, identification of best international practices, legal gaps analysis and recommendations that are needed to improve the regulatory framework on mercury management.

The purpose of the roadmap is to determine the actions and steps to be undertaken in order to facilitate the ratification and early implementation of the Minamata Convention.

The information is provided in a tabular format.

Policy and regulatory measures	
Title	Measures
Ratification of the Minamata Convention on Mercury according to Article 30	- Governmental Decision on the approval of a bill to ratify the Minamata Convention on mercury, concluded in Kumamoto, Japan from October 10, 2013 (adopted – GD nr 1354 dated 16 dec 2016) - Law on Ratification of the Minamata Convention on mercury, concluded in Kumamoto, Japan from October 10, 2013 (current status within the parliamentary commissions examination)
Institutional Framework needed for Minamata Convention implementation	Following the analysis of the institutional framework for managing mercury identified that at national level the most relevant action refers to • **Establishing of the Chemicals Agency** as public authority subordinated to Ministry of Environment, responsible for implementing policies on integrated management of chemicals. This agency will have the role to implement state policy in the area of chemicals' integrated management, ensuring the efficient daily operation and the necessary administrative conditions for supporting the government, industry, and the general public for the efficient and safe management of chemicals imported in different economy sectors of the Republic of Moldova. Besides, the Agency will operate as the main competent authority for authorizing the activities related to the market placement of new chemicals in the Republic of Moldova. It will manage the Chemicals' Register and will exercise the role of the national authority appointed for the Rotterdam Convention and for enforcement of the PIC procedure. Action is consistent with the measures included in the National Program on Sound Management of Chemicals in the Republic of Moldova and comes under "the Association Agreement between the European Union and the European Atomic Energy Community and its Member States, on the one hand, and the Republic Moldova, on the other hand ", ratified by Law no. 112 of July 2, 2014, and the National Action Plan for the implementation of the Association Agreement Moldova - European Union in 2014-2016, approved by Government Decision no. 808 of 7 October 2014.
Infrastructure for mercury management	At the level of infrastructure development the following actions were identified: • **Establish Center for Hazardous Waste Management (CGDP)**, in which will perform the following activities: a) The management of historical waste - involves collecting and preparing for final disposal of stockpiles of hazardous wastes, including fluorescent tubes and other waste containing mercury, accumulated historic live from their retention to processors or to the center for temporary storage depending on the amounts and types of waste; b) **Management of current flows of hazardous waste** - work involves: collecting current flows of hazardous waste, temporary storage of their center, pretreatment and some treatment / detoxification / recycling that can be made at the center and final disposal at the center of some categories of waste generated in small quantities and hazardous environments (depending on its facilities) or the organization export abroad for treatment / final disposal (in the absence of appropriate facilities in the country). • **Creation of laboratory capacity for the analysis of mercury and mercury compounds**
ARTICLE 3 ON SUPPLY SOURCES AND TRADE	
Provision of article relevant to	*Art.3 p. 6 Each Party shall not allow the export of mercury*

the country	*Art.3 p. 8 E*ach Party shall not allow the import of mercury
Policy and legal measures that enable the country to comply with above listed provision	**Mercury import (Art. 3 (8))** The provisions of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC) ratified by the Law No.389-VX of 25.11.2004 shall be taken into consideration. The provisions of the EU legislation incorporated in the EU-RM AA to be taken into consideration: • Regulation No 689/2008 concerning the export and import of dangerous chemicals; • Regulation No 1907/2006 (REACH). Also, the provisions of the EU legislation not included in the EU-RM AA should to be consulted: Regulation No 1102/2008 on the banning of exports of metallic mercury and certain mercury compounds and mixtures and the safe storage of metallic mercury. **Draft Law on Chemicals** *Chapter IV. Prohibitions and restrictions* *Article 17. Prohibitions and restrictions for certain substances and chemical mixtures* (2) In the context of the paragraph. (1) of this Article and with the enforcement of international treaties to which Moldova is a party, prohibits the manufacture, placing on the market and use of **mercury and its compounds**: a) in fever thermometers; b) in other measuring devices intended for sale to the general public, such as barometers, manometers, sphygmomanometers, thermometers other than medical ones; c) measuring devices for industrial and professional uses, such as barometers, hygrometers, manometers, sphygmomanometers, strain gauges used in the plethysmograph, sphygmomanometers, thermometers and other non-electrical thermometric applications. This restriction applies also devices which are placed on the market empty, if it is intended to be filled with mercury. The restriction does not apply sphygmomanometers used as reference standards in clinical validation studies of mercury-free sphygmomanometers and cell based triple point mercury measurement that are used to calibrate thermometers for platinum resistance; d) measuring devices for industrial and professional uses, such as pycnometers on mercury and mercury containing measuring devices for the determination of softening point; e) pesticides, biocides, antiseptics and local; f) in cosmetic products (containing mercury above 1 ppm), including soaps and creams to whiten skin, except for the eye area, where mercury is used as a preservative and there is an effective preservative to replace preservative ; g) in dental amalgams.
Article 4. Mercury-added products	
Provision of article relevant to the country	Art. 4 p.2), **Article 4 (5) and Annex A, Part I, Part II**
Policy and legal measures	**Formulation of measures or strategies to address products listed in Part I of Annex A (Art. 4 p.2)**

that enable the country to comply with above listed provision	As an alternative, the country may indicate at the time of ratification that it will implement different measures or strategies to address products listed in Part I of Annex A (Art.4 (2).
	Mercury-added products (Article 4 and Annex A, Part I) The provisions on Product management measures (Annex VII) of the Protocol on Heavy metals ratified by the Republic of Moldova on 01.10.2002 under the Long-Range Transboundary Air Pollution (LRTAP) Convention shall be taken into consideration. "Mercury and it compounds" is included in the list of prohibited substances (Annex II, entry 221 in Regulation 1223/2009 on cosmetic products), with the exception of two mercury compounds which are allowed to be used in eye cosmetics (see Annex V of that Regulation with list of preservatives allowed in cosmetic products). The AP under the EU-RM AA provides for the development and promotion by the MoH, MAFI and MEc of a GD on cosmetic products placed on the market in line with Regulation 1223/2009 **by quarter IV, 2015 Law on Waste nr 209 dated 29.07.2016** – articles , Art. 49, 50, 58
	Mercury-added products (Article 4 and Annex A, Part II) The provisions on Product management measures (Annex VII) of the Protocol on Heavy metals ratified by the Republic of Moldova on 01.10.2002 under the LRTAP Convention shall be taken into consideration
	Measures to prevent the incorporation of mercury-added products in assembled products Article 4 (5) The provisions of the EU legislation incorporated in the EU-RM AA to be taken into consideration: • Regulation No 1907/2006 (REACH); • Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHs Directive). Also, the provisions of the EU legislation not included in the EU-RM AA should to be consulted: Directive 2000/53/EC on end-of life vehicles (ELV Directive).
Article 6: Exemptions available to a Party upon request	
Provision of article relevant to the country	In case more time is needed to comply with the provision under Article 4 (1) on prohibition of manufacture/import/export of mercury-added products (Annex A, part I) established for 2020, identify and prepare written exemptions accompanied by a statement explaining the need for the exemption (Art.6 (1)). These shall be submitted to the Secretariat upon becoming a party to the Convention (Art.6 (1a)) along with the ratification instrument. Unless a shorter period is indicated, all exemptions shall expire five years after the phase-out date (Art.6 (5)).
Policy and legal measures that enable the country to comply with above listed	Ministry of Environment has worked closely during the elaboration of the ratification law with other central public authorities, at presence none of exemptions are to be requested or measures.

provision	
Article 8: Emissions	
Provision of article relevant to the country	Art.8 (a), Article 8 (4), Article 8 (5), **Art. 8 (7)**
Policy and legal measures that enable the country to comply with above listed provision	**(Art.8 (a))** The provisions on limit values for controlling emissions from major stationary sources (Annex V) and best available techniques for controlling emissions (Annex III) of the Protocol on Heavy metals ratified by the Republic of Moldova on 01.10.2002 under the LRTAP Convention shall be taken into consideration. The AP under the EU-RM AA provides for the development by the MoE of a new **Law on atmospheric air quality and protection** by **quarter IV. 2017.** The EU legislation incorporated in the EU-RM AA to be taken into consideration: • Directive 2008/50/EC on ambient air quality and cleaner air for Europe; • Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air; • Directive 2010/75/EU on industrial emissions (IED). Also, the draft Directive on the limitation of emissions of certain pollutants into the air from medium combustion plants (so-called MCP Directive) shall be consulted.
	(Article 8 (4)) Require BAT / BEP to control and reduce emissions from new sources **(Article 8 (5) implement diverse emission control measures for existing sources** The provisions on limit values for controlling emissions from major stationary sources (Annex V) and best available techniques for controlling emissions (Annex III) of the Protocol on Heavy metals ratified by the Republic of Moldova on 01.10.2002 under the LRTAP Convention shall be taken into consideration. EU legislation incorporated in the EU-RM AA for reference: • Directive 2010/75/EU on industrial emissions (IED) The AP under the EU-RM AA provides for an institutional and legal framework review by the MoE by **quarter II, 2016** as well as identification of installations requiring permitting by **quarter IV, 2016**.
	(Art. 8 (7) Establish emissions inventory The provisions of the Kiev Protocol on Pollutant Release and Transfer Registers under the Aarhus Convention, ratified by the RM on 23.12.2013, shall be taken into consideration. The inventory shall be available not late than 5 years after the entry into force of the Convention.
Article 9: Releases	
Provision of article relevant to the country	**Art. 9 (2a), Art. 9 2 (d)) , Art. 9 (6)**
Policy and legal measures	**(Art. 9 (2a)) "releases"**

that enable the country to comply with above listed provision	Amend existing legislation GD No. 802 of 09.10.2013 on wastewater discharge conditions
	(Art. 9 2 (d)) "substantial modification" The legal act will incorporate provisions on integrated and simple environmental permitting.
	(Art. 9 (6)) Establish releases inventory The provisions of the Kiev Protocol on Pollutant Release and Transfer Registers under the Aarhus Convention, ratified by the RM on 23.12.2013, shall be taken into consideration when establishing National PRTR Registry The inventory shall be available not late than 5 years after the entry into force of the Convention.
Article 10: Environmentally sound interim storage of mercury, other than waste mercury	
Provision of article relevant to the country	**Full article**
Policy and legal measures that enable the country to comply with above listed provision	Develop and promote a new Law on the control of major accidents involving dangerous substance. By adoption of the new law, the Law No. 116 of 18.05.2012 on safety of dangerous industrial objects shall be repealed The AP under the EU-RM AA provides for the development by the MoE of the new legal act in line with the Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (Seveso II) **by Quarter II, 2016** However, since Seveso II Directive is replaced by the Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso III Directive), the latter shall be taken into consideration for the approximation.
Article 11 Mercury wastes	
Provision of article relevant to the country	**Full article**
Policy and legal measures that enable the country to comply with above listed provision	**Art.11 (1))** **The relevant definitions of the Basel Convention on Control of Transboundary Movements of Hazardous Wastes and Their Disposal shall apply to wastes covered by the Convention.** Government Decision no. 637 of 27.05.2003 on the control of transboundary waste transportation and disposal Draft regulation on transfer of waste will be developed under the new Law on waste
	Art. 11 (2-5) **Law on Waste No. 209 dated 29.07.2016** – Art. 16, 58 **Art 16: Waste storage**

	Article 58. Mercury waste (1) For the purposes of this law, mercury wastes are substances or objects that consist of, contain or are contaminated with mercury or mercury compounds which are waste according to art. 2 pt. 9). (2) Mercury Waste will be managed safely for the environment and human health, taking into account the provisions of this law, the requirements approved by the Government and the provisions of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal, to which Moldova joined by Parliament Decision no. 1599-XIII of 10 March 1998 and guiding documents adopted within its framework. (3) Collection, transportation, storage, treatment or disposal of mercury is done based environmental permit for waste management, issued according to Art. 25, subject to the conditions set out therein. (4) Waste mercury, including fluorescent lamps waste is collected separately and are not mixed with other categories of hazardous waste or with other waste, substances or materials. (5) Producers of waste mercury and mercury waste administering companies provides packaging and labeling according to Art. 22 and requirements on classification, labeling and packaging of substances and mixtures, approved by the Government. (6) Transportation of waste mercury in Moldova is carried out in compliance with art. 4:44 and Regulation on shipments of dangerous goods in the Republic of Moldova, approved by the Government. The transfer of mercury waste for final disposal is carried across the border in accordance with the requirements of Art. 64. (7) The storage of mercury waste, including waste mercury, shall be in accordance with management requirements and specific criteria for the storage thereof approved by Government.
Article. 12. Contaminated sites	
Provision of article relevant to the country	**Full article**
Policy and legal measures that enable the country to comply with above listed provision	The inventory of mercury releases for reference year 2014 didn't reveal major contaminated sites that could be identified as mercury hot-spots in the country. At the same time, still uncertain remains the situation with on site, that is pending obsolete pesticide burial in Cismichioi village for which the Ministry of Environment shall initiate the detailed investigations in 2017 with the support of the Czech Republic. The National Programme on management of chemicals approved by the Government Decision No. 973 of 18.10.2010 and the Strategy on Waste Management in the Republic of Moldova during 2013-2027 approved by Government Decision No. 248 of 10.04.2013 provide the policy framework for the management of contaminated sites. The Law on Waste No. 209 of 29.07.2016 (Art 34 par 3, lit i)) provides the legal mandate to develop the National Program for Waste Management program that shall separately include actions for the management of contaminated sites.

Article 13. Financial resources and mechanisms	
Provision of article relevant to the country	**Art. 13 (1, 2)**
Policy and legal measures that enable the country to comply with above listed provision	The state budget covers the actions of policy and legislation development, implementation of national policy documents (i.e. National Programme on chemicals management approved by the Government Decision No. 973 of 18.10.2010 and Strategy on Waste Management in the Republic of Moldova during 2013-2027 approved by Government Decision No. 248 of 10.04.2013) addressing, *inter alia*, the management of mercury, its compounds and waste. At the moment, it is not known who would share part of the country under the Convention. This will be determined upon the entry into force of the Convention. Given that Moldova is part of the list of countries with economies in transition, it is expected that share will not be the hard burden. At the same time it should be mentioned that under Articles 13 and 14, the Convention once establishes provisions relating to financial resources, financing mechanism, capacity building, technical assistance and technology transfer, which will enable countries in developing economies transition to ensure implementation of commitments, destocking of products, reducing emissions to the environment and performing those activities to protect human health.
Article 14 Capacity-building, technical assistance and technology transfer	
Provision of article relevant to the country	**Full article**
Policy and legal measures that enable the country to comply with above listed provision	Technical and financial assistance, to which Moldova will have access following ratification of the Convention Minamata, will contribute to the Heavy Metals Protocol to the Convention on Transboundary Air Pollution on long-distance and other international treaties to which Moldova it is party. Currently, Moldova already benefits from technical assistance for the initial evaluation of implementation of the Convention in Minamata on mercury in Moldova, including the preparation of ratification of the Convention through the GEF / UNEP "The initial assessment on the implementation of the Convention in Minamata on mercury in Moldova. One of the problems identified in the initial assessment is the lack of infrastructure and capacity of waste fluorescent lamps containing mercury and mercury vapor lamps. Currently, the Ministry of Environment through Environmental Pollution Prevention Office, implements project "Inventory, assessment and remediation of anthropogenic sources of pollution in the Lower Danube region of Ukraine, Romania and Moldova", financed by the Joint Operational Programme of the European Union Romania-Ukraine-Moldova 2007-2013. Under this project is developed concept of creating the Center for Hazardous Waste Management conducted the feasibility study. After finishing this project, the Ministry of Environment will submit request donors for financing the construction of the center in the base study. Also, as a continuation of GEF-UNEP, noted above, it is in the process of approval by the GEF project

	"Demonstrating best practice in the management of medical waste and electronic and updating the National Plan for implementing the Stockholm Convention in Moldova "which aims to improve hazardous waste management and reduce their negative impact on the environment and human health in Moldova. It is expected that the project shall support the establishment of the Center for hazardous waste management for the realization of art. 62 of the Waste Law. The expected costs of the demercurization line and temporary storage of mercury waste is of EUR500.000.
Article 16. Health aspects	
Provision of article relevant to the country	**Full article**
Policy and legal measures that enable the country to comply with above listed provision	Two major legal acts respond to article's provisions and namely **Law on state surveillance of public health No.10 of 03.02.2009 and Law on environmental protection No.1515 of 16.06.1993.** In addition, it is expected that both ministries – Ministry of Environment and Ministry of Health with support of the research and civil society organizations shall elaborate and conduct public information campaigns on mercury-related health aspects.
Article 17: Information exchange **Article 18. Public information, awareness and education** **Article 19. Research, development and monitoring**	
Provision of article relevant to the country	**Full articles**
Policy and legal measures that enable the country to comply with above listed provision	The Republic of Moldova shall promote the information exchange, education and awareness building activities related to the effects of exposure to mercury and mercury compounds on human health and the environment in collaboration with various national and regional/international stakeholders. Currently the country is working on establishing the National PRTR registry, that shall as well provide with mercury related releases. (the PRTR pilot stage is planned for the end of 2018)
Article 20 Implementation plan	
Provision of article relevant to the country	**Art 20 (1-3)**
Policy and legal measures that enable the country to comply with above listed provision	Since the developed of an implementation plan is optional, the Republic of Moldova chooses to integrated mercury management-related measures in the policy documents dealing with chemicals and waste management as well as with release and emission control and, where feasible reduction of releases and .emissions from relevant sources.
Articles 22-28: Measures will be developed after the COP1	
Article 29. Signatory	
Provision of article relevant to the country	**Full article**
Policy and legal measures that enable the country to	Minamata Convention and the Final Act of the Conference plenipotentiary were signed by Minister of Environment of the Republic of Moldova on October 10, 2013 under Presidential Decree no. 819-VII from

comply with above listed provision	10.4.2013 approving the conclusion of the Minamata Convention on mercury and under full powers issued by the Minister of Foreign Affairs and European Integration, according to art. 9 of Law no. 595-XIV of 24.09.1999 on international treaties.
Article 30 Ratification	
Provision of article relevant to the country	Art 30 (1,4,and 5)
Policy and legal measures that enable the country to comply with above listed provision	The Governmental Decision No. 1354on the approval of a bill to ratify the Minamata Convention on mercury, concluded in Kumamoto, Japan from October 10, 2013 was adopted on 16 December 2016). The draft Law on Ratification of the Minamata Convention on mercury, concluded in Kumamoto, Japan from October 10, 2013 is currently under the examination by parliamentary commissions with the purpose to be approved by the end of the second quarter of 2017.

3.3 Description of stakeholder tasks and obligations/phases for convention ratification and obligations

This section provides a list of tasks and timeframes of implementation in accordance with the provisions of the Minamata Convention in the table below. The table does not cover the tasks related to the development of new legislation and amendments to the legislation in force in order to bring the national legislation in line with the provisions of the Convention.

No.	Convention article	Action	Timeframe	Institution in charge
1	8 (3)	Take measures to control emissions and may prepare a national plan	Within four years of the date of entry into force of the Convention	Ministry of Environment
2	8 (4)	Develop BAT / BEP to control and reduce emissions from new sources	No later than five years after the date of entry into force of the Convention	Ministry of Environment
3	8 (5)	Implement diverse emission control measures for existing sources -National plan - ELV -multi-pollutant control strategy -alternative measures	No more than ten years after the date of entry into force of the Convention	Ministry of Environment
4	8 (7)	Establish and maintain emissions inventory	No later than five years after the date of entry into force of the Convention	Ministry of Environment
5	9 (3)	Identify the relevant point source categories of releases	No later than three years after the date of entry into force of the Convention	Ministry of Environment
6	9(4,5)	Take measures to control releases and may prepare a national plan	Within four years of the date of entry into force of the Convention	Ministry of Environment
7	9 (6)	Establish and maintain release inventory from relevant sources	No later than five years after the date of entry into force of the Convention	Ministry of Environment
8	11	Take appropriate measures for mercury waste management	By the entry into force of the convention	Ministry of Health
9	12	Develop appropriate strategies for identifying and assessing sites contaminated by mercury or mercury compounds	By the entry into force of the convention	Ministry of Environment
10	16	Promote the development and implementation of health-related measures	By the entry into force of the convention	Ministry of Health
11	18	Promote and facilitate public information, awareness and education	By the entry into force of the convention	Ministry of environment, Ministry of health, Ministry of Education

12	19	Develop and improve research and monitoring capacity	By the entry into force of the convention	Ministry of environment, Ministry of Health, Academy of Sciences of Moldova

Note: While referring in the table to the entry into force of the Convention, it is meant the entry into force of the Convention for the Republic of Moldova

Chapter IV: Identification of populations at risks and gender dimensions

4.1. Preliminary review of potential populations at risk and potential health risks

The WHO/UNEP Guidance for Identifying Populations at Risk from Mercury Exposure was used as guidance on identifying groups at risk from mercury exposure in Moldova. The WHO/UNEP Guidance specifies that generally there are two susceptible groups of population:

1. Those who are more sensitive to the effects of mercury, and
2. Those who are exposed to higher levels of mercury.

In the first group, the fetus, the newborn and children are especially susceptible to mercury exposure because of the sensitivity of the developing nervous system. In addition to *in utero* exposures, neonates can be further exposed by consuming contaminated breast milk. Thus, new mothers, pregnant women, and women who might become pregnant should be particularly aware of the potential danger of methyl-mercury. Individuals with diseases of the liver, kidney, nervous system, and lung are also at higher risk of suffering from the toxic effects of mercury, according to the WHO/UNEP Guide.

The classification and the two groups of people at risk of mercury exposure were confirmed by experts of the Moldova's National Public Health Centre (NPHC). However, according to feedback from consultations with NPHC experts, at present there is no data about health impacts on pregnant women and children resulting from mercury contamination.

Feedback from consultation with interested stakeholders as part of the social assessment revealed that the majority of schools in Moldova have significant amounts of fluorescent tubes, therefore schoolchildren are a group at risk of exposure in case of accidentally broken tubes in educational institutions. Since fluorescent tubes and bulbs that became waste is also a source of mercury exposure, these should be adequately collected and disposed in accordance with procedures.

According to literature review[2], fluorescent lights emit waves of pronounced color spikes that can lead to the inability of the brain to process colors properly or make eyes very sensitive to artificial light sources. Fluorescent lighting used in schools often does not contain the full spectrum of colors that occur in natural sunlight or full spectrum LED lighting. This causes distractions between the eye and the brain, which can lead to reading, writing, and behavioral disorders.

The issue of mercury exposure has never received the same attention in Moldova as now, nor had it been studied by using adequate methodology for identifying sources of mercury exposure. Accordingly, data is limited and statistics do not exist. No data exist about cases of poisoning in schools from mercury containing fluorescent lamps or other mercury containing sources.

In the second group, the other subpopulation that may be at greater risk to mercury toxicity are those exposed to higher levels of mercury, subdivided by type of exposure in the following:

(1) Exposure due to fish and seafood consumption. The WHO/UNEP Guide identifies recreational anglers or subsistence fishers as a group exposed to the risk of exposure to mercury. Other research[3]

[2] http://www.energyfocusinc.com/wp-content/uploads/StudentBrochure.pdf

[3] Bjornberg et al. 2005; Carvalho et al. 2008; Diez et al. 2009; Knobeloch et al. 2007

also refers to the fact that for the general human population, the major route for MeHg exposure is dietary exposure via consuming seafood, especially fish. Moldova is a landlocked country with no access to sea or oceans and therefore there are no recreational anglers or subsistence fishers who would be exposed through their daily occupation and/or would expose their families to large consumption of contaminated fish. Since the fish industry in Moldova is not as developed as in other maritime countries, the largest consumption of fish are from imports. Although up-to-date statistics on fish consumption are limited, according to existent sources[4] fish, seafood of Republic of Moldova shot up by 94.12 % from 17 g/person/day in 2002 to 33 g/person/day in 2007. Generally, the supplies of fish varied over the years and according to data available from the Food and Agriculture Organisation (FAO)[5], the fish supplies were estimated at 150 millions USD in 1990, 27 million USD in 2000 and increased to 152 million USD in 2014. A report and Country Fish Profile developed by the FAO provides the following data, which allows a clear understanding of proportions of fish from imports vs. local production. Thus, Moldova imported 19 315 tons of fish in 2004, while the domestic production constituted 2 315 tons of fish, making available a total of 21 630 tons of fish supply in 2004.[6]

Based on these figures, it can be concluded that fish consumption from local production constituted 11%, while the bulk 89% was from imports. The production of local fish in aquaculture are white carp, silver carp and spotted silver carp (approx. 35% of total harvest) and crucian carp (20%). These species are not attributed to mercury-containing fish; nevertheless, the consumption of local fish makes only a small share of the total fish consumption in Moldova.

On the other hand, a study on Food Consumption Frequency at Students from Rural Areas from Moldova published in a research article[7] had studied in 2014 the daily frequency consumption of the main food groups, in a sample of 1236 students of 7^{th} -12^{th} class, from rural localities of Moldova. According to findings of the study, 80.6% of students (44.1% boys and 55.9% girls) in the study group did not eat fish dishes, which suggests low levels of fish consumption among young people in rural areas.

Along with consumption of fish from imports, meta-analysis and various studies conducted in various parts of the world, determined that methyl-mercury (MeHg) is still present in many environments due to historical pollution and ongoing use of mercury compounds. Due to a long range of atmospheric transport, as well as transportation with ocean current and rivers, the likelihood of mercury to be transported to European waters and other countries is high. In this sense, a study on the EU Implementation of the Minamata Convention suggests that a significant part of the atmospheric mercury deposition in the EU has origin outside its territories, due to the atmospheric transport and transportation with oceans and rivers to EU waters. With its geographic position in Europe, these answers are relevant for Moldova too.

In conclusion of the section on exposure to fish consumption in Moldova, it should be mentioned that there are no studies in Moldova which would provide concluding findings about the impact of the fish consumption on susceptible groups in specific. According to feedback from individual interviews with representatives of the Moldova's National Public Health Centre (NPHC), there are no requirements for tests on mercury in the imported fish.

[4] https://knoema.com/atlas/Republic-of-Moldova/topics/Food-Security/Food-Consumption/Fish-Seafood
[5] http://www.fao.org/3/a-i4691e.pdf
[6] ftp://ftp.fao.org/FI/DOCUMENT/fcp/en/FI_CP_MD.pdf
[7] Zepca Victor, Tarcea Monica, Zaporojan Aculina https://www.degruyter.com/downloadpdf/j/amma.2015.61.issue-3/amma-2015-0044/amma-2015-0044.xml

In view of the fact that about 90% of the fish is from imports, the issue is relevant and needs further investigation to understand the impact of fish consumption of marine/ocean origin on certain groups such as pregnant women, young mothers and children in Moldova.

Finally, it should be noted that in 2004 the Joint FAO/WHO Expert Committee on Food Additives (JECFA) established a tolerable intake of 1.6 µg/kg bodyweight per week for methyl-mercury in order to protect the developing fetus from neurotoxic effects. In 2006, JECFA clarified that life-stages other than the embryo and fetus may be less sensitive to the adverse effects of methyl-mercury. For adults, up to about twice the tolerable intake per week would not pose any risk of neurotoxicity. However available data did not allow firm conclusions to be drawn for children (up to about 17 years), as they may be more sensitive than adults. Therefore, the tolerable intake established in 2004 applies also to children.

(2) Individuals with dental amalgam generally have greater exposure to elemental mercury than those who do not, according to the *WHO/UNEP Guidance for Identifying Populations at Risk from Mercury Exposure*. Dental amalgam is a potentially significant source of exposure since it can contain up to 50% elemental mercury. It is released as vapour, ions or fine particles and may be inhaled or ingested. Although no adverse health effects have been proven, use of dental amalgam is declining rapidly worldwide, but it is still covered by the health insurance in many countries. Since in Moldova dental amalgams are not used, it is estimated that the impacts are not significant. The recommendation of the Moldova's National Public Health Centre is to include in this group those people who might have used dental amalgam before 1980, a year when this practice was ceased in Moldova, as well as dentists, since amalgam may represent an occupational risk for them and can cause release of mercury to the atmosphere during cremation.

(3) Workers with high occupational exposure. Although Moldova lacks gold-mining and gold-treatment industries, which is known as an industry with the highest exposure of workers to mercury, according to feedback from focus-groups conducted in the north of Moldova (the most industrialised part of the country), workers from the textile industry, jewellery production, agriculture, health sector and cosmetics might have exposure to toxic substances and mercury. Conversely, feedback from consultations with experts from the National Public Health Centre does not support the hypothesis from focus-groups as concerns exposure to mercury contained in pesticides. Thus, according to the NPHC, significant amounts of historic pesticides and toxic substances had been already evacuated and destroyed in accordance with required procedures under special programmes supported by the NATO. The only ***pesticides*** landfill with 4000 metric tons is located at ***Cismichioi*** in the Southern part of the country. A feasibility study is to be carried out in 2017, which will assess the ecological situation in the area, will develop recommendations on further managing the landfill, exactly determine quantities and categories of stored substances, as well as the cost of works for their evacuation and destruction. At present, the landfill is well sealed and access is restricted.

Another group at risk of occupational exposure are health specialists, nurses and others in health institutions, who might be exposed to mercury through accidentally broken thermometers or exposure to mercury-containing metering devices. Dentists who treat patients with dental amalgams (either those who had used dental amalgams before the restriction in the ‘80s or Moldovan migrants who use dental amalgam as a cheaper option included in the medical insurance) are also included in the group of health specialists exposed to higher risks of mercury contamination.

The NPHC experts did not support the hypothesis that workers from cosmetics and jewellery production are groups of people exposed to the risk of contamination with mercury, since the gold and other elements used in jewellery have passed the treatment process.

The production of cosmetics in Moldova does not involve usage of toxic elements and substances, according to the National Public Health Centre.

Workers from cement-producing plants, as well as workers in labs of heat producing and distribution companies may be exposed to occupational risks related to mercury and toxic substances. A cement-producing plant was consulted as part of the assessment and the issue of risks related to worker exposure to toxic substances was raised. The company provided occupational safety and health schemes and risks assessment reports, thus informing that measures are in place to prevent accidents and exposure of workers to various risks. In specific, the process used for cement production at the contacted cement-producing Company is the dry process, which means that the mercury-containing filter dust from air exhausters is fed back into the process, by reintroducing it into the raw material preparation system. The Company provided an Occupational Health Risk Management Plan, which was assessed by the Social and Gender Consultant. According to the Plan, measures are in place to prevent exposure of lab workers to mercury containing dust and other toxic elements.

According to feedback from consultations with experts from the National Public Health Centre, another group at risk are workers of heat-producing and distribution companies, who are assumed to be exposed to occupational risks and toxic substances, including mercury. Consultation with Occupational Health and Safety experts from the Moldova Energy Projects Implementation Unit (MEPIU)[8] has identified that Termoelectrica S.A., a district heating distribution company in Chisinau capital city, is certified in accordance with ISO 14001 (environmental management) and ISO 18001 (Occupational Health and Safety Management). The company has in its structure a special unit on Occupational Safety and Health, which is responsible to ensure that safety standards are implemented in accordance with all requirements.

Among other groups of people at risk of exposure to contamination with mercury are waste-pickers who have their subsistence from collecting waste at Ciocana dumpsite near village of Bucuieci. During visits conducted at the dumpsite, various numbers of waste-pickers were seen, ranging from 15 to over 40. The discussion with several waste-pickers revealed that they are involved from 7 AM to 2 PM in the collection of carton, metal scrap, plastic, etc. The collecting of waste involves their exposure to odors, an insalubrious environment and eventual exposure to the risk of mercury contamination from contacts with battery leakages and other mercury-containing waste. While the representatives of “Regia-Autosalubritate” stated that waste-picking is illegal and waste-pickers are not allowed to enter the dumpsite, these people continue to collect waste at the dumpsite to sustain their livelihoods. A project funded byEBRD is supporting a feasibility study, which is currently completed, and is considering many waste improvement options and an ESIA for the closure of Ciocana dumpsite and reopening the landfill in Tintareni. This includes the refurbishment of the existing transfer station and investment into a waste sorting plant. In addition, an operating waste collecting company is planning to put in operation a waste processing plant and had stated that is willing to employ about 200 people. This is an opportunity for the existing waste-pickers to receive employment for the same type of occupation, though under improved working conditions, including health and safety measures in accordance with Moldova Law 186 on Occupational Safety and Health.

(4) Individuals who use various consumer products that contain mercury (such as some skin lightening creams and soaps), traditional ethnic medicines containing mercury, or use mercury for

[8] http://www.mepiu.md/eng.html

cultural and religious purposes. According to the National Public Health Centre and based on focus group discussions, practices of traditional ethnic medicines or usage of mercury containing cosmetics is not known in Moldova.

(5) In addition to the groups specified above based on the methodology of WHO/UNEP Guide, **the general population** makes a group that lacks essential knowledge about impacts of mercury and its health effects. During focus-group discussion conducted as part of the assessment, the participants displayed surprise that even small batteries are a significant source of mercury, since this toxic metal is used in most batteries. When incorrectly disposed, the mercury seeps into the soil around garbage dumps. In addition, as batteries have become smaller, especially with the introduction of button-shaped versions, there is a high risk for infants to swallow them. A swallowed battery can burn holes in the intestines and cause inflammations. Thus, knowledge and awareness actions are needed to inform the population of the prospective mercury-related risks and how to handle various incidents such as broken thermometers, correct disposal of batteries, fluorescent tubes and bulbs, etc.

On the other hand, the lack of knowledge and awareness among the population is not the only problem. Insufficient collection points (or lack of them in remote locations), lack of money to cover the transportation and collection costs is a particular problem for educational and other public institutions that are in possession of larger amounts of fluorescent tubes, mercury containing metering devices and various batteries that became waste. Awareness campaigns and more battery-disposal / collection points are needed to keep toxic batteries, lightening tubes, etc. out of landfills. The issue of waste containing mercury requires consideration since mercury is still a key part of most modern technologies, including LCD screens and fluorescent lights, laptop computers, LCD TVs and compact fluorescent light bulbs, which are all safe as long as they are intact, but if they crack or shatter, they can release toxic mercury vapor. Since all these are thrown away as waste at waste dumps, the risk to public health is under-estimated in Moldova and not given the required consideration. In addition to financial constraints related to the transportation of various batteries and fluorescent tubes and bulbs, feedback from meetings with representatives of NGOs such as the Ecological Movement of Moldova suggests that there are large amounts of fluorescent tubes collected several years ago and deposited to wait their transportation to treatment plants, eventually in Romania. Due to lack of funding, the issue of collected fluorescent tubes is awaiting solutions.

As concerns contamination with mercury from fish consumption and agri-food, the opinion shared by the experts of the Moldova's National Public Health Centre mentions the lack of studies in Moldova on the impact of methyl-mercury. Specifically, there are no statistics related to contamination with methyl-mercury from fish consumption, contamination with mercury from consumption of agri-food products. A study[9] conducted by the Republican Centre for Soil Research in 2005, determined that there were concentrations above limits of Pb, Cd, Zn, Cu, Mn and some amount of Hg in soils along highly trafficked roads in Moldova.

4.2 Assessment of potential gender dimensions related to the management of mercury

Various studies that were revised for the present Social and Gender Impact Assessment suggest that extended exposure to toxic chemicals in water, food, air, and soil can cause or exacerbate many serious human health problems, including damage to reproductive and neurological systems. According to the

[9] Gh. Jigău et.al. Factori şi Procese Pedogenetice din Zona Temperată 4 S. nouă (2005) 145- 156 available online http://factori.soilscience.ro/index.php/fspdzt/article/viewFile/318/242

UNDP Guidance Document *"Chemicals Management – The Why and How of Mainstreaming Gender* [10], several factors and differences in occupational roles, household responsibilities, and biological susceptibility create gender differences in exposure of women and men to toxic chemicals and health impacts. Although chemicals pose a risk to all human beings, especially if not properly managed, they affect women and men differently.

The UNDP Guidance on Gender Mainstreaming and Chemicals Management distinguish certain gender differences in exposure to and health effects of toxic chemicals:

(1) ***Physiological/biological differences***. Men, women, and children vary in their physiological susceptibility to the effects of exposure to toxic chemicals. Children are generally at greater risk of health damage from toxic exposures because their rapid development (with which chemical exposure can interfere) increases their physiological sensitivity. Risk is further magnified in children because of their small size (relative to dose) and their intake of proportionally greater amounts of environmental contaminants in water and air (relative to body size).

Due to biological differences and higher proportion of body fat, women store more environmental pollutants than men in their tissues and are hence more vulnerable to the adverse impacts of fat-soluble chemicals. Women's exposure to chemicals can cause reproductive health problems such as birth defects, low birth weight, miscarriages or premature births, and a significant part of the chemical burden experienced by mothers can be passed on to their babies during gestation and breastfeeding. A report of the high-level event at the Minamata Convention on Mercury "Women and Mercury in Artisanal and Small-scale Gold Mining (ASGM) – health impacts on women and future generations" includes the speeches delivered by five women-ministries of Environment present at the conference. They have called attention to the fact that mercury contamination from ASGM was already at a critical level, and that children were born unhealthy in the ASGM communities, but nobody knew that this was due to the mercury poisoning.

(2) ***Differences in workplace exposures:*** The level and kind of chemical exposures at the workplace often differs by gender because women and men generally work at different tasks.

In Moldova, the health sector is female-dominated and they represent the highest shares among nurses in hospitals, pharmacy workers, workers in laboratories and thus they have the greatest chances of exposure to chemicals used in medical procedures or to mercury as a result of broken thermometers. Feedback from discussions held as part of the social and gender assessment reveals that out of 180.000 annually imported thermometers, half get broken, whilst the highest number of thermometers are generally used in homes.

In the construction sector, more women than men usually are involved in works with paints, which contain various chemicals. Although the textiles sector is a female-dominated industry in Moldova, the fabric is usually imported and thus no painting processes are involved and thus exposure to toxic substances.

Another sector dominated by women in Moldova is services such as dry-cleaning, ordinary cleaning which imply exposure of women to various chemicals. These sectors are relevant in Moldova, since

[10] http://www.undp.org/content/dam/aplaws/publication/en/publications/environment-energy/www-ee-library/chemicals-management/chemicals-management-the-why-and-how-of-mainstreaming-gender/Chemicals%20Management%20and%20Gender%20Mainstreaming.pdf

women may be at greater risk from hazardous ingredients and chemicals contained in cleaning agents, professional cosmetic and personal care products, etc.

(3) ***Differences in household exposures***. Aside from their distinct biological susceptibility and reaction to chemicals, women and men experience different levels of exposure due to their gendered roles in the society. In Moldova, as in most countries, women are more frequently exposed to chemicals that occur in products used within the household. This includes chemicals in cleaning and washing agents, garden insecticides or rat poisoning.

The analysis of the gender dimension in the exposure to the risk of contamination with mercury and other chemical is important since it has specific consequences. Scientists worldwide have conducted a large number of studies. For example, there were studies conducted and information collected on mercury handling practices and effect on fertility[11] among dental assistants, which determined that female dental assistants with high occupational exposure to mercury were less fertile than the unexposed control groups. Other two studies based on data of the 1999 and 2000 National Health and Nutrition Examination Survey conducted in the United State of America found that the geometric mean of hair Hg concentration was 0.12 µg/g in children and 0.20 µg/g in women in the general U.S. household population[12] and that blood organic mercury reflects methyl-mercury intake from fish and/or shellfish. A small scale study containing 14 people[13] and a later expanded study including more than 2000 adults[14] from Wisconsin in the U.S. found the average hair Hg level to be 0.714 µg/g, and concluded that methyl-mercury exposure may be correlated with fish consumption. These examples demonstrate important conclusions and the fact that there is a direct link between mercury and fish consumption, exposure to amalgams, and exposure to mercury at the workplace. Exposure of female nurses in healthcare institutions in Moldova to the risk of broken thermometers should raise concern, moreover that this category are usually young women of childbearing age.

While exposure to mercury has negative health impacts on both women and men, women in specific of reproductive age are at particular risk, since mercury exposure may cause significant consequences for the fetus. Although no research on pregnant women ever existed in Moldova to assess the link between exposure to mercury (through fish consumption or exposure at the workplace), it is widely known that pregnant women often are recommended to eat more fish as it is a source of omega 3 fats. Global knowledge confirms that information should be disseminated to the general population and awareness built about bioaccumulation, maternal exposures and intergenerational transfers during gestation and lactation. Neonatal doctors should inform women of the importance to have a balanced approach and be aware of the risks and benefits of fish consumption during pregnancy and breastfeeding.

At national level, a series of studies have been initiated by the several laboratories and individual researchers.

Gheorghe Turcanu, National Center for Public Health, in his research has studied the issue of the mercury in food products, consumed in the Republic of Moldova. He looked at the dynamics of the fish

[11] Andrew S Rowland, Donna Day Baird, Clarice R Weinberg, David L Shore, Carl M Shy, Allen J Wilcox. The effect of occupational exposure to mercury vapour on the fertility of female dental assistants. Published in Occupational and Environmental Medicine 1994;51:28-34 http://oem.bmj.com/content/51/1/28.full.pdf

[12] McDowell et al. 2004

[13] Knobeloch et al. 2006

[14] Knobeloch et al. 2007

consumption in the Republic of Moldova, noticing that for the period of 2006-2015 the consumption rate has increased with 26%, from 11.7 kg/per capita in 2006 to 16.4 kg/per capita in 2015, particularly the consumption of the sea fish, that potentiall has the higher possible concentrations of the mercury. The laboratories of the public health sectors has used in the investigation was based on colorimetric determination by comparison with a standard scale, according to GOST 26927-86 method *"Methods for determination of mercury Initial raw materials and food products".* The explanation for lack of evidence with increased content of mercury is found in the method used with low sensitivity and high uncertainty. Sanitary and hygienic central laboratory of the National Center for Public Health is accredited to conduct investigations Hg in food in accordance with EN 13806-12 SM SR. 8 out of 10 laboratories of Public Health Centers have the necessary equipment (atomic absorption spectrophotometers) to track mercury in food. Laboratory investigations sanitary water for hygienic central NCPH is accredited to carry out investigations according to the same accreditation certificate under SM SR EN 1483-12. There aren't yet laboratory capacities present in the country to perform the bio-monitoring (urine, blood, hair, etc).

Oleg Bogdevici, Institute of Chemistry has supported the EPPO team in the elaboration of the National Mercury Emissions inventory process. One of the tasks was the investigation of the Hg contents in the leachate of the Bubuieci temporary waste dump, investigation of large storage of Hg containing lamps of MEM-Moldova and testing of the batteries. Laboratory sampling and investigations protocols are available within EPPO. Also an attempt to check the mercury contents in the series of the products, that are placed at Moldova's market, such as batteries. The set of 20 cylindrical batteries has been purchased at various commercial points of the country and have been tested with reference to confirm the mercury contents. Thus, the test revealed, that almost all producers that place the batteries at the market about 80% of imported batteries are represented by global brands (GP, Duracell, Energizer, Kodak, Varta) that do not contain mercury, as it was indicated at on their package. The remaining 20 % of batteries are imported from Asian countries. This data is consistent with the results of laboratory analyses that was made for several types of batteries and that revealed the same share of mercury containing batteries from the total samples. It should be also noted that a brand of batteries produced in China mentions its mercury content of <0.015 % (on all sizes: D, AA, AAA), and the research of Institute of Chemistry has confirmed this data.

Conclusions

1) Pregnant women, breastfeeding mothers, the fetus, the newborn and growing children are most susceptible to mercury and methyl-mercury and should be protected from mercury exposure.

2) There are gender differences in the exposure to mercury of women and men and different health effects on them. These differences are linked with biological and psychological particularities, differences in workplace exposure and household responsibilities of women and men.

3) In Moldova, certain occupations may particularly be exposed to the risk of contamination with mercury. These groups are the following:
   - Persons involved in criminal activities and illicit extraction of gold and precious metals through melting and using of toxic substances;
   - Waste-pickers from Bubuieci waste dump – (Chisinau temporary waste storage) and other dumpsites, who are exposed to various toxic substances and insalubrious working environment;
   - Medical professionals, such as dentists and their assistants, medical nurses and lab workers, who may be exposed to amalgams or mercury contained in thermometers and metering devices and through lab processes;
   - Workers in certain industries such as cement production and heat production.

4) The legislation of Moldova on occupational safety and health is comprehensive and contains provisions to require employers to set measures at the workplace on risk evaluation and prevent

accidents related to toxic substances. However, measures to enforce the legislation are not always adequate, while the law enforcement structures do not have a transparent activity and corruption contributes to weak implementation of punitive actions.

5) Mercury containing wastes are improperly disposed at present at landfills in Moldova. Mercury-containing wastes, including various batteries that contain toxic substances, expired fluorescent lamps, mercury-containing devices used in labs are improperly disposed at present and taken to landfills as common garbage.

6) In Moldova, un-estimated and possibly large amounts of fluorescent lamps have been collected and awaiting evacuation. The lack of funding for the evacuation of the stored amounts of fluorescent tubes and batteries is a significant problem for many educational institutions and non-governmental entities.

7) The general population in Moldova lacks information and knowledge about health and environmental risks related to mercury, mercury compounds and the sources of mercury contamination.

8) Pregnant and breast-feeding women do not benefit of educational sessions or consultations from neonatal doctors about risks of mercury exposure from consumption of large quantities of large fishes of ocean and marine origin.

9) Generally, Moldova lacks statistics and an organized collection of data related to exposure to mercury and mercury-containing products. No measures exist for example to monitor the contents of mercury in the imported fish; the consumption of fish by pregnant and breast-feeding women.

10) An important conclusion is the fact that domestic mercury emission will be reduced as a result of ratification by Moldova of the Minamata Convention. The ratification will be an important step towards protection of the human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. In specific, domestic mercury emissions from existing industries such as cement production and heat production is expected to be under permanent control.

11) Imports of mercury containing products will be reduced as a result of ratification of the Minamata Convention. By ratifying the Convention, Moldova will contribute to the global action to address mercury emissions and indirect mercury reductions in Moldova from foreign sources. In specific, the ratification of the Minamata Convention will have a positive social impact in Moldova as a result of imposed measures to control the imports of products containing mercury.

Recommendations:

1) Conduct awareness and information campaigns, as well as educational activities as follows:

a) Organise and conduct training activities for certain groups of workers at risk of mercury exposure;

b) Specific groups at particular risks such as pregnant women, young mothers should be targeted through educational actions, which can be included in the consultation by obstetricians, neo-natal doctors and pediatricians. Other awareness actions may target schools and other educational institutions

c) Organise information campaigns for the general population about sources of mercury, handling of mercury containing devices of intra-house use, adequate disposal of mercury-containing waste.

2) Organise the collection and evacuation of mercury containing wastes

a) Create mercury-containing waste collection points and inform the population about this;
b) Organise the evacuation of these wastes.

3) Ensure the enforcement of the relevant legislation by:

a) Strengthening the capacities of the authorities that have an inspection and control mandate;
b) Increasing the level of transparency in the activity of these authorities;
c) Conducting inspection of working conditions (in enterprises that use technological processes) to ensure that technical, sanitary, organizational and other measures are in place, as identified through risk assessment at the workplace;

Chapter V Awareness / Understanding of Workers and the Public and Existing Training and Education Opportunities of Target Groups and Professionals

Quality becomes an increasingly important component of our life: the quality of the product in close correlation with research and innovation, the quality of relations between traders and consumers and not least the quality of the environment in terms of impact that consumer goods can have on it. Public awareness of the dangers caused due to inadequate management of chemicals, their impact on population's health and the continued degradation of the environment contribute to increasing public interest in preventing and combating activities deteriorating the state of the environment and the natural potential. The need for citizens' involvement in resolving environmental issues, public access to information and methods of democratic decision-making as stipulated in international agreements to which Moldova is a party led to promotion in the new legislation of the requirements on training the public in decision-making process. Although the Constitution of the Republic, art. 37 (2) ensures each man the "right to free access and dissemination of veridical information regarding the status of the natural environment, living conditions, quality of food and household items", the public is too little active in promoting legislative initiatives.

International environmental legislation contains the fundamental concept of "risk assessment" to adapt necessary measures for protection of the man and the environment against the real risks associated with chemicals. By correlating the effects of the intrinsic risks of a substance with the assessment of potential exposure of humans or the environment from such risks, it is possible to estimate the risk associated with a particular chemical substance and adopt the most appropriate measures regarding the risk management.

In 1999, the European Union adopted Directive 1999/45/EC relating to the classification, packaging and labeling of hazardous chemical products. One of its goals is to communicate the safety properties of hazardous chemicals by means of classification and labeling. In addition, it recommends certain packaging measures that depend on the safety characteristics of each hazardous chemical product and finished product.

Assessing the risk to human health is aimed at selecting safe ingredients to be used in finished products. Part of the evaluation is also the anticipation of accidents or use of the product in improper conditions. For any effect on human health a degree of "zero" effect is given. The comparison to the degree of exposure that produces a zero effect is used as a measure of risk to the safety threshold.

Assessing the risk to the environment is aimed at establishing a system to ensure that chemical substances and preparations that are released into the environment are safe for the natural ecosystem. All ingredients must pass the environmental risk assessment before being declared safe for the market. Ecotoxicity and biodegradability of each ingredient are systematically evaluated.

Assessing the lifecycle of a chemical is a method of assessing the potential impact of a product on the environment, process or activity along its entire lifecycle by quantifying the use of resources: energy, raw materials, water, emissions in the environment, and in association with the system that is rated. The lifecycle assessment quantifies emissions, but their actual impact depends on how they are released in the environment.

5.1 Awareness and Understanding of Chemical Safety Issues

At global level a major renewal of thinking on products' quality in general and their innocuousness in particular has emerged because social requirements related to quality of life and its safety arise in international regulations, which may harness the access of certain products on certain markets. The goal of producers is to ensure the safety of consumers by designing quality products, including their labeling. In limits of their activities, manufacturers must provide the consumers information that would allow assessing inherent risks of a product under reasonably foreseeable use, when they are not immediately discernible by the consumer without an appropriate warning. If the producers and distributors have knowledge on the information they possess and as professionals, that some products they put on the market or have been otherwise supplied to consumers present a risk incompatible with general safety requirements, they should immediately inform the competent authorities, specifying the actions undertaken in order to prevent risks to consumers.

Although participatory democracy increases in the Republic of Moldova, the majority of the population is unconscious about the environmental problems, quality of food products, the impact of chemicals on human health, and often public opinion is being manipulated only for promotion of the image of interest groups.

Yet the knowledge with reference to risks associated with mercury is very limited among the population, both professional and general public.

The issues is being worsened due to the fact, that currently, Moldova has no organized system for sorting, separating and recycling of any type of waste, including hazardous waste. Also, there are no ways neutralization / disposal of hazardous waste, there is no place for their storage or facilities authorized for use or disposal of hazardous waste, including obsolete or expired chemical products. In this case, chemical waste cannot be disposed in an environmentally safe way, being stored onsite on enterprise or abandoned illegally in unauthorized or disposed of with ordinary municipal waste.

The issue is planned to be addressed by the provisions of the National Waste Management strategy for 2013-2027 (Adapted by Governmental Decision nr 248 from 10.04.2013), that plan to create the Center for Hazardous Waste Management, that with reference to mercury, shall include the demercurization line and solution for temporary storage of mercury and mercury-containing waste. (as per 2017 the feasibility study and Environmental Impact Assessment has already been developed by the Ministry of Environment).

The availability of human resources within government institutions and civil society is a key factor for the sustainable management of chemicals. The development of human resources in the sustainable management of chemicals is ensured by universities, higher education institutions and colleges that prepare chemists, technical engineers, pharmacists etc. At the same time, the university curriculum in the field of chemicals management reflects only partially the provision of international conventions on environment, including the sustainable management of chemicals.

Understanding and awareness of chemical safety issues and hazardous waste impact remain to be a problem that needs solving by involving both decision-makers as well as industrial sector, including professional associations.

5.2 Education and Training related to risks associated with mercury at national level

Since the national expertise on mercury related issues is limited, it could be relevant to focus the educational and communication main topics: the health and environmental impacts of mercury, mercury containing products, including mercury-free alternatives; and the proper disposal of mercury-containing products, including current options, recommendations for improvements, and what citizens/ industry can do to change the current situation.

WHO recommends the following list of Interventions to prevent environmental releases and human exposure associated with mercury:

- reducing the mercury use in mining and industry;
- promoting use of clean energy sources that do not rely on burning of coal;
- switching to non-mercury thermometers and sphygmomanometers in health care; and
- implementing safe handling, use and disposal of mercury-containing products and waste.

Training of special state authorities

Specialty central public administration authorities involved in solving chemicals management issues regularly organize education and training activities in areas specific to the administered sector, including the application of plant protection products and fertilizers, the management of potentially dangerous facilities, transportation of goods and hazardous substances etc.

At the same time similar education and training activities in sustainable management of chemicals are made during realization of projects financed by international bodies and implemented by Ministry of Environment, Ministry of Agriculture and Food Industry, Ministry of Health, Ministry of Economy and Trade, Ministry of Internal Affairs and their subordinated agencies and territorial representations.

Chemicals management requires granting special attention to the process of training and recycling of specialists. In this activity several training centers are involved, depending on the specific work of professionals: personnel of the Hygiene and Epidemiology centers - in the National Scientific and Applied Center for Hygiene and Epidemiology; plant protection engineers - in the Republican Center for Approval of Pesticides of the Ministry of Agriculture and Food Industry; laboratory personnel from dangerous industrial facilities – in the Training Center within the Civil Protection and Emergency Situations Service, etc.

In order to synchronize and secure the synergism, for the upcoming period Ministry of Environment proposes through the **Draft Law on Chemicals** the creation *Chemical Agency*, the public authority in the field of chemicals, responsible for integrated management of chemicals. Among other tasks, the Agency shall perform the following:

- cooperate with other states, institutions and international bodies in chemicals risk management;
- communicates to the public information on this Law and information on risks of substances and chemicals, and on their safety use;
- create and maintain the national system of support for economic agents activating in the field of chemicals (Helpdesk), by providing assistance and information to the economic agents and individuals that perform activities for manufacture, placing on the market or use of chemicals and mixtures, in
- ensure the establishment and maintenance of the Classification and Labeling System and Inventory in accordance with the Regulation on classification, labeling and packaging of substances and mixtures, approved by the Government;

- organize, separately or together with other competent authorities, education and training of subordinated staff or of staff of other ministries and institutions, of chemical advisers involved in applying the law on chemicals;
- organize, within its competences, seminars, conferences and exhibitions at republican, regional and international level for promoting integrated management of chemicals;
- submits to the central environment authority annual reports on its activity and disposes their publication.

The Ministry of Environment in cooperation with Ministry of Agriculture and Food Industry with support from the Global Environment Facility through the World Bank *Project "Management and destruction of stocks of persistent organic pollutants",* along with the main objective of destroying stocks of banned and unusable pesticides in the agricultural sector, containing or being contaminated with persistent organic pollutants, heavy metals other unknown substances and the energy sector equipment contaminated with polychlorinated biphenyls, also organizes activities aimed at public information and awareness regarding the danger caused by those substances. With reference to mercury, the attention has been given to the old pesticides that contained mercury, such as granozan, etc. The Project contributed to creation of a framework for communication on POPs and other hazardous chemicals; monitoring the level of public awareness of POP and HMs issues; training and education activities.

Training on medical workers

Exposure of medical workers to risks associated to mercury is relatively high comparing to other professions. If in Moldova the exposure of dental workers from amalgam is reduced /almost absent, the use of mercury as laboratory chemical and use of mercury containing medical equipment (thermometers, sphygmomanometers, UV lamps, etc) is relatively high. Some training on medical workers related to medical waste management regularly takes place in the country through the retraining courses. At the same time, to respond to new medical waste flows, particularly hazardous waste, the Ministry of Health has developed the Draft Sanitary Regulation on the management of waste from medical activities.

Article 6 of the present regulation states, that "Health care institutions develop and implement their own waste management plans from medical activity, in line with internal regulations and operating procedures standard, under regulations which shall include the following information:

- training of medical staff;
- measures to prevent injury and infection minimum during the waste management of medical activity;
- Emergency measures in case of injury and / or infection during medical waste management;
- Measures to protect the health and safety of staff managing medical waste;
- Estimated costs of medical waste management
- develop the action plan for managing waste from medical activity

Training for civil protection

Under Article 7, p. (c) of the Law on the civil protection, no. 271-XIII of 9.11.1994, Government of the Republic of Moldova yearly approves the Plan for training in the field of civil protection. The basic objectives of the Plan for civil protection preparedness are further improvement of the organizational structure, strengthening the civil protection system, preparedness for actions aimed at liquidation of the consequences of emergency situations and at protecting the population, including those involving chemicals.

The main type of preparedness for execution of civil protection tasks are applications and trainings in civil protection, with the participation of the entire personnel of governing bodies and the maximum possible number of divisions and population. During the deployment of applications in mayoralties and business entities special attention is given to practical measures, namely protection of the population and localities in case of floods, landslides, housing the population in protective buildings, and to actions of the population in case of occurrence of various emergency situations, including those involving chemicals.

For instance, trainings conducted under the leadership of chairmen of rayon committees for emergency situations include:

- *Applications* on civil protection, especially in chemical and radioactive dangerous facilities, lasting 8 hours;
- *Trainings* of receipt-transportation teams and teams responsible for distribution of chemical individual means of protection from deposits of reserve mobilization - once a year;
- *Controls of the civil protection status*, according to the schedule of the chairmen of rayon committees for emergency situations, committees of the City of Balti and Gagauz autonomous territorial unit (Gagauz-Yeri) in all chemical and radioactive dangerous facilities.

Training of employees /business

The Republic of Moldova has enough institutional and technical capacity to instruct the workers in economical sectors where hazardous chemicals are used.

Each employer must provide information and training to workers and/or their representatives on the dangerous properties of chemicals which they handle, limit values of occupational exposure or tolerable biological limits, appropriate preventive measures as to ensure their own protection and that of other workers at the work place. Although the Labour Inspection controls how employers apply and observe preventive measures in case of presence in the working environment of hazardous chemical substances and preparations, these issues are insufficient reflected in the national legislation.

In the frames of the **PRTR registry establishment in Moldova**, the business operators shall receive necessary training and technical support elements to develop a PRTR. National training will take place by sector, including key productive sectors at the national level and key national stakeholders. Productive sectors will be trained on how to report, what parameters are considered for reporting (including the Hg emissions for relevant sectors), international experiences, etc.. This international support programme will also provide experts to address regional issues and to provide a closer support that will result on the development of estimation techniques.

Training for general public

Raising the public awareness on mercury is important as the society has insufficient knowledge on potential risks and impacts associated with it, especially at the regional and local levels where stakeholders (i.e. kindergarten administration, schoolchildren, local public administration, general public cope with lack of information on safe management of chemicals and hazardous waste.

In order to address this gap, in 2012-2013 UniAgroProtect in partnership with Ministry of Environment has implemented SAICM project "*Civil Society Capacity building in support of SAICM implementation in Moldova".* The project was designed on the agreed assumption that particularly in the developing countries, a change in the legal framework does not automatically lead to the total exclusion of hazardous substances from people's daily lives. It is therefore important that people become aware of the presence of chemicals and their impact, and that they become aware of what they can do to avoid exposure as much as possible.

The project indeed has trained and mobilized a representative group of civil society organizations that have been involved at all the steps of the project implementation and thus along with the government shall in the coming future be a force for promotion of safe use of chemicals and the most important shall closely monitor laws and regulations and their practical enforcement in order to achieve the main goal for our society on how can each citizen help to ensure that fewer and fewer people are exposed to daily risks related to chemicals.

The project important outputs included Public knowledge and perception survey on issues related to chemicals and hazardous waste, elaboration of "Toolkit for civil society on chemicals safety" (module-based training materials), organization of Chemicals Safety Week for all stakeholders. The project was supported by SAICM national focal point, the National Agency for Consumers Rights, Food Safety Agency, national farmers association, research institutions and mass media.

UniAgroProtect with EcoContact have joined the IPEN and Eco-Accord (Russia) intention targeted towards study of the global impacts of the chemicals in toys in Moldova, Armenia, Belarus, China, Kazakhstan, Kyrgyzstan, Philippines, Russia, and Ukraine. Based on the outcomes of this international study, and within the objectives of the project component on chemicals in toys in Moldova, in March-April 2013 the collaboration was established between the UniAgroProtect and IPEN/Eco-Accord Regional project on testing toxic metals in toys, including mercury. For testing based on the suggested approach a set of more than 50 toys were purchased in the commercial centers and open markets, including the wholesale market in Chisinau, Moldova and sent to IPEN/Eco Waste Coalition, Quezon City, Manila Metropolis in Philippines for XRF Testing (internationally authorized methodology of identification of toxic materials in products).

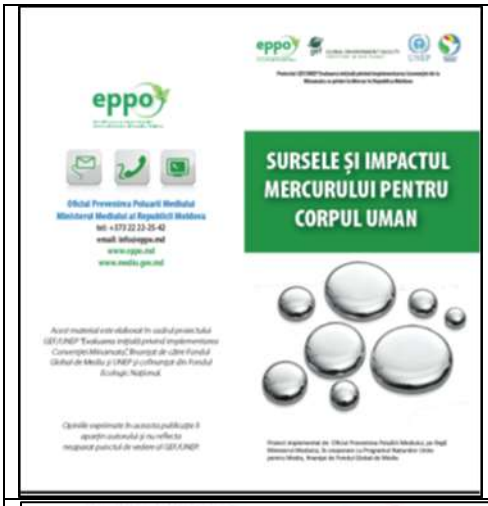
The GEF/UNEP project implemented by Environmental Pollution Prevention Office **"Development of Minamata Initial Assessment in Moldova"** has the special information and awareness raising campaign with goal to protect human health and the environment from the risks posed by the unsound use, management and release of mercury, that was implemented during fall 2017. The major objective of the training and capacity building events was to present, review and validate the project outputs by national stakeholders, based on MIA awareness raising and dissemination and outreach strategy. As result Moldova's key stakeholders made full use of the MIA and related assessments leading to the ratification and early implementation of the Minamata Convention on Mercury.

The campaign design has taken into account that the impact and success depends largely on the quality and motivation of the participants. Thus the agenda was done in a such a way, to provide context and information for 2 distinct groups of stakeholders: professional public and general public. As for event for the *professional public*, it was suited to individuals who represent environmental and public health authorities, working at raional level and aimed at providing background information on legal and institutional implications of Minamata Convention ratification, including the recently approved Law on Waste and Government Decision for ratification of the Convention; presentation of the final results and findings of the mercury releases inventory, as well as the outcomes of the study on the use of mercury containing lamps in the public sector. A special issue for discussion was the existing laboratory capabilities to analyze Hg and the needs of the laboratories of local inspections and public health centers.

The profile of the participants for *general public* issues was the representatives of LPAs, ONG and civil society aimed at providing background information on legal and institutional implications of Minamata Convention ratification, presentation of the final results and findings of the mercury releases inventory, as well as the outcomes of the study on the use of mercury containing lamps in the public sector. The last deliverable is especially important and should be taken into account in the context of ongoing and planned projects and initiatives on modernization and increasing the efficiency of the public lighting sector, which are being undertaken by LPAs and Regional Development Agencies. Also, a part of the campaign has been specifically dedicated to social and gender dimensions in the ratification of the Minamata Convention.

Special informational package of materials developed for the campaign and disseminated among various stakeholders, responding to the data needs and identified gaps in the national context related to mercury management. All materials were drafted and coordinated with the UNEP team:

- UNEP Toolkit for Identification and Quantification of Mercury Releases customized to national context
- Flyer mercury sources and impact human body
- Flyer on mercury sources and emissions
- Flyer on Early ratification of Minamata Convention by the Republic of Moldova
- Flyer on mercury sources in our homes

	The flyer ”Mercury sources and impact human body” contains general information about Hg and its impact on health, and the main sources of human body contamination – dental amalgam fillings and fish. In addition, the leaflet provided recommendations on how to avoid contamination from both sources.
	The flyer ”Mercury sources and emissions” contains the description of all the anthropogenic Hg release sources and a graphical presentation of all categories of mercury release sources.
	The flyer ”Minamata Convention on mercury” contains information about Hg and adverse impacts and the origin of the Hg issue and Minamata disease at global level, followed by the negotiation steps of the Convention. The flyer provides an overview of the Conventions articles and the existing legal and institutional background for ratification and implementation of the Convention in the RM. In addition, the material provides the list of products subject to Article 4, paragraph 1, and the products which are excluded from the Annex.

	The flyer ”Mercury sources in our homes” contains a description of Hg as an element, including its properties and main characteristics. Other parts of the flyer contain information and images about the mercury containing products which can be identified in a house (lamps batteries, thermometers, switches and relays), and recommendations on alternatives for such products and their disposal when they become waste. In addition, the flyer provides a description of the main Hg applications,
	The selected for the reference sector video spots were dubbed into Romanian language and as well were adjusted parts of the images and texts to Excel spreadsheet in Romanian Language, that allowed to significantly facilitate the understanding of the methodology and offered opportunities to undertake the calculation exercise mainly by environmental inspection specialists during the training organized. As well general video spots on the Mercury impact upon human body, etc can be further used by general public, environmental NGOs and academic institutions during their activity.

Chapter VI: Implementation plan & Priorities for Action

The Minamata Convention on Mercury identifies and describes in its Article 13 the financial mechanism to support Parties to implement the Convention. It identifies two entities that will function as the Financial Mechanism: a) the Global Environment Facility Trust Fund; and b) A specific international Programme to support capacity-building and technical assistance. The GEF Programming for its replenishment V highlights the strong commitment of the GEF to support the ratification and further implementation of the Minamata Convention on Mercury. Additionally, at its 44th Meeting in June 2013, the GEF Council considered document GEF/C.44/04, *Preparing the GEF to serve as the Financial Mechanism of the Minamata Convention on Mercury upon entry into force* and its decision, inter alia: "Authorized the use of up to 10 million for the funding of an early action pre-ratification programme for the Minamata Convention on Mercury to be programmed during the remainder of GEF-5, upon request by eligible signatory countries. It also requested the GEF Secretariat to develop initial guidelines consistent with the final resolutions of the Diplomatic Conference for enabling activities and pre-ratification projects, in consultation with the interim Secretariat of the Minamata Convention on Mercury and present this as an information document at the 45th Council Meeting"

The GEF financial support of mercury related activities is included in the GEF V Focal Area Strategies document, which addresses mercury issues under the Strategic Objective 3 Pilot Sound Chemicals Management and Mercury Reduction, which has as an outcome 3.1 to build country capacity to effectively manage mercury in priority sectors.

The pre-ratification programme for the Minamata Convention on Mercury complements the 15 million USD assigned from GEF to support mercury projects since the start of GEF V (2010). The 15 million USD, initially allocated during GEF V, have been exhausted in 2013, therefore the 10 additional million USD are for countries that have the firm purpose to ratify the Convention and are to support the pre-ratification programme. These additional funding is made available with the purpose to :a) assess national regulatory framework in the context of preparation for a decision whether to ratify; b) decide if there is a justification to notify the convention in accordance with article 7; c) prepare to implement the obligations of the Minamata Convention on Mercury as soon as possible. As such, the GEF Secretariat, consistent with paragraph 9 (b) of the GEF Instrument, in the interim period between adoption of the Convention and the COP1, as well as after the COP1,will support developing countries and countries with economies in transition that : a) have

signed the Convention; and b) are eligible for World Bank (IBRD and/or IDA) financing or eligible recipients of UNDP technical assistance through its target for resource assignments from the core (TRAC).

Moldova has indicated that availability of data is a major challenge to design adequate strategies for mercury control and reduction. For instance, Moldova has only limited and incomplete data on its mercury uses and releases to atmospheric, aquatic, terrestrial and biotic media. The biggest issue contributing to the mercury emissions are generated by unsound waste management and waste water management.

The current activities related to mercury that were support by GEF and UNEP were aimed at:

a) preparing the ground to ratify the Minamata Convention on Mercury in Moldova;

b) build national capacity to meet reporting and other obligations under the Convention.

Moldova will benefit from new and updated information about the mercury cycle in the country and building capacity in managing the risks of mercury. The sharing of experiences and lessons learned throughout the project is also expected to be an important contribution to other similar countries within region.

Based on the actions set at Chapter III, the preliminary set of Action (2018 -2022) has been developed.

Priority 1. Assess national capacities to implement Minamata Convention

Minamata Convention requirements:
In Article 20 "Implementation Plans" the Convention text states, that "Each Party may, following an initial assessment, develop and execute an implementation plan, taking into account its domestic circumstances, for meeting the obligations under this Convention. Any such plan should be transmitted to the Secretariat as soon as it has been developed"

National baseline:
Based on the findings of the National Mercury Releases inventory report (level 2) for the reference year 2014, the Republic of Moldova has revealed the major sources of the mercury emissions and specific sectors to be addressed in the further implementation of the Convention.

Proposed actions	**Lead Institution**	**Committed budget**	**Timeframe**
1.1 Approval within the Parliament of Law on the ratification of Minamata Convention on mercury	MoEnv	$17.000*	2017 (on-going activity)
1.2 Elaboration of the proposal for additional actions related to mercury and mercury waste management according to Minamata Convention provisions in the Action Plan for Implementation of the National Sound Management of Chemicals Programme (2010-2020) (approved by Governmental Decision)	MoEnv	$30.000*	2017 (on-going activity)
Subtotal priority		**$47,000**	

*actions already undertaken within UNEP/GEF MIA project in Moldova

Priority 2. Improve policy, institutional and regulatory framework of mercury management

Minamata Convention requirements:

Article 3: Provide provisions for the written consent in export and import of mercury
Article 4: Prohibit the manufacture, import and export of mercury added products as specified in Part I by 2020
Article 8: Each Party with relevant point sources shall take measures to control and reduce emissions of mercury into the air from point sources
Article 9: Control and, where feasible, reduce releases of mercury and mercury compounds to land and water from relevant point sources
Article 10: Each Party shall take measures to ensure that the interim storage of such mercury and mercury compounds is undertaken in an environmentally sound manner
Article 11: Each Party shall take appropriate measures so that mercury waste is managed in an environmentally sound manner, only recovered, recycled, reclaimed or directly re-used for a use allowed to a Party under this Convention or for environmentally sound disposal pursuant to paragraph 3(a); (For Parties of Basel Convention) not transported across international boundaries except for the purpose of environmentally sound disposal in conformity with this Article and with Convention.

National baseline:

No /limited import restrictions at present exist on the import of mercury containing products at local market
Regulatory limit of mercury emissions from coal fired power stations, cement and clinker production… (that through inventory were identified to be the most significant contributors to mercury emissions in air (emission standards related to mercury)
Article 58 regarding mercury waste of Law on waste No 209 of 07/29/2016 include mercury waste definition and provisions related to full cycle of its management in an environmentally sound management and population health. Also the provisions related to Basel Convention are as well included there.
Requirements for the prior written consent of mercury import/export are transposed into national legislation (art 58 law on waste).

Proposed actions	**Lead Institution**	**Costs**	**Timeframe**
2.1. **Establishing of the Chemicals Agency** as public authority subordinated to Ministry of Environment, responsible for implementing policies on integrated management of chemicals (including mercury). This agency will have the role to implement state policy in the area of sound chemicals management, ensuring the efficient daily operation and the necessary administrative conditions for supporting the government, industry, and the general public for the efficient and safe management of chemicals imported in different economy sectors of the Republic of Moldova. Besides, the Agency will operate as the main competent authority for authorizing the activities related to the market placement of new chemicals in the Republic of Moldova. It will manage the Chemicals' Register and will exercise the role of the national authority appointed for the Rotterdam Convention and for	MoEnv	$200.000-$500,000	2018

enforcement of the PIC procedure. *Action is consistent with the measures included in the National Program on Sound Management of Chemicals in the Republic of Moldova.*			
2.2 Adoption of the new Law on Chemicals, (particularly Article 17. Prohibitions and restrictions for certain substances and chemical mixtures) includes provisions related prohibition of the manufacture, placing on the market and use of mercury and its compounds.	MoEnv	$25,050	2017 (on-going)
2.3 Adoption of the Governmental Decision regarding the bans of import of certain chemicals (including mercury and mercury compounds) in order to transpose requirements for the prior written consent of mercury import/export into national legislation	MoEnv	$20,000	2018
2.4 Undertake available international experience /Develop national standards/guidelines with reference to environmentally sound management of Mercury containing wastes, as stipulated in the convention	MoEnv	$15.000	2019-2020
2.5 Elaboration of regulation on maximum mercury releases into air/water/soil from point sources (based on Annex D to Convention) /Introduce emission limit values for controlling, where feasible, reducing the emissions from the relevant point sources (Art 8)	MoEnv	$10.000	2019-2020
Subtotal priority		**$270.050-$570.050**	

Priority 3. Phase-down/Phase out of the use of Mercury containing products and high mercury content products

Minamata Convention requirements:

Article 4: Mercury added products:

Each Party shall not allow, by taking appropriate measures, the manufacture, import or export of mercury –added products listed in Part I of the Annex A after the phase-out date specified for products to be phased out by 2020.

National baseline:

The results of the inventory of sources of mercury releases in the Republic of Moldova (based on Level 2 methodology) for the reference year 2014 show that 977 Kilogram of mercury per year (Kg Hg/y) are released, in which: 43% are from the consumer products with intentional use of mercury (whole life cycle). The individual mercury release sub-categories contributing with the highest mercury releases to the atmosphere among the products were: thermometers with mercury with 27 Kg Hg/y, that represents 39% followed by paints with mercury (20 Kg Hg/y), representing 29% respectively from the source category 5.5 Consumer products with intentional use of mercury . Furthermore under same category almost equal share is presented by electrical switches and relays 10 Kg Hg/y (14%) and polyurethane with mercury catalysis 7.86 Kg Hg/y (11%). Reducing mercury in products is the most effective means to decrease the emissions into various media, particularly from the mercury containing waste streams. For most mercury containing products, the cost-effective and mercury-free or low content alternative exist, however at the moment no restrictions related to import of some categories of mercury-containing products is present at the country.

Proposed actions	**Lead Institution**	**Costs**	**Timeframe**
3.1 Conduct studies, cost benefit analysis / overtake the experience of other countries on staff/general public readiness/affordability to use the cost-effective mercury-free alternatives	MoEnv, Mo Finance	$50.000	2017-2018
3.2 Conduct piloting actions within state/ public organizations on phasing out some types of mercury containing products and make available to public institutions of mercury-free or low mercury content cost-effective alternatives, for instance: - phasing out of Hg containing thermometers from public health centers with available alternatives (cost of 1 Hg containing thermometer is $1.5 and the zero mercury alternative is $3-5) - substitution of the measuring equipment and apparatus in energy sector - changing the compact fluorescent lamps (CFLs) within the educational institutions to LED - changing the street lightning from mercury containing light sources to the other non-mercury alternatives	MoEnv, Agency of Energy Efficiency, state agencies, CSOs	$2.5 mln (for public buildings and street lightning) **$600,000** (medical equipment)	2017-2020
Subtotal priority		**$3,150.000**	

Priority 4: Improving of health aspects related to mercury

Minamata Convention requirements:

Article 16 Health aspects

1. Parties are encouraged to:

(a) Promote the development and implementation of strategies and programmes to identify and protect populations at risk, particularly vulnerable populations, and which may include adopting science-based health guidelines relating to the exposure to mercury and mercury compounds, setting targets for mercury exposure reduction, where appropriate, and public education, with the participation of public health and other involved sectors;

(b) Promote the development and implementation of science-based educational and preventive programmes on occupational exposure to mercury and mercury compounds;

(c) Promote appropriate health-care services for prevention, treatment and care for populations affected by the exposure to mercury or mercury compounds; and

(d) Establish and strengthen, as appropriate, the institutional and health professional capacities for the prevention, diagnosis, treatment and monitoring of health risks related to the exposure to mercury and mercury compounds.

National baseline:

At the moment the country lacks the information and prevention programs to protect the population at risks with reference to mercury and mercury management.

In the frames of GEF/UNEP project in Moldova, the significant steps has been undertaken to inform the public regarding the risks associated with mercury contamination and particularly mercury products. Public information materials were developed and disseminated particularly regarding the protection of human health and the environment from the risks posed by the unsound use, management and release of mercury.

Only several cases related to training on occupational exposure to mercury were identified (cement production).

Sanitary and hygienic central laboratory of the National Center for Public Health is accredited to conduct investigations Hg in food in accordance with EN 13806-12 SM SR. 8 out of 10 laboratories of Public Health Centers have the necessary equipment (atomic absorption spectrophotometers) to track mercury in food. Laboratory investigations sanitary water for hygienic central NCPH is accredited to carry out investigations according to the same accreditation certificate under SM SR EN 1483-12. There aren't yet laboratory capacities present in the country to perform the bio-monitoring (urine, blood, hair, etc).

Proposed actions	**Lead Institution**	**Costs**	**Timeframe**
4.1 Conduct awareness raising campaign for larger public on the risks posed to human health related mercury and mercury compounds and mercury containing products	MoHealth, CSOs	$20,000	2018-2020
4.2. Promote the preventive programs on occupational exposure to mercury compounds among enterprises, laboratory staff, etc.	MEC, Labour Inspections, MoH, business	$20,000	2018-2020

4.3 Purchase of laboratory equipment needed for mercury contents determination in various media, including bio-monitoring and training of laboratory staff	MoHealth, National Laboratory network,	$2,5 mln	2018-2020
4.4 Support the creation of the capacities for conducting the regular bio-monitoring of high risk groups (e.g waste handlers, vulnerable groups, occupational safety of industries concerned, laboratory personnel involved in mercury analysis, etc)	MoHealth	$10,000	2018
4.5 Conduct national study of monitoring on impact of mercury on public health	MoHealth	$30,000	2018
Subtotal priority		**$2580.000**	

Priority 5. Undertake awareness raising among national stakeholders and build capacity through training on mercury management

Minamata Convention requirements:
Article 18 of the convention stipulates that Each Party shall undertake the actions on improving education, training and public awareness in the field of mercury .

National baseline:
At the moment, there is limited knowledge within the country regarding the risks related to mercury, particularly among general population. In the frames of GEF/UNEP project in Moldova, the significant steps has been undertaken to inform the public regarding the risks associated with mercury contamination and particularly mercury products. Public information materials were developed and disseminated particularly regarding the protection of human health and the environment from the risks posed by the unsound use, management and release of mercury. Some studies were conducted by several NGOs and research institutions.

Proposed actions	**Lead Institution**	**Costs**	**Timeframe**
5.1 Develop technical guidelines / translate/ adapt in user-friendly format - the handing of mercury during use, spillage as well as disposal to be applied by government, public institutions	MoEnv, Business associations, CSOs	$15.000	2017-2022
5.2 Conduct trainings on mercury management (handling, clean-up, storage, disposal, transport) of the elemental mercury as well as mercury containing products and waste for institutions and entities that have such responsibilities	MoEnv, MoEconomy, IPPSTOIP	$20.000	2017-2022
5.3 Conduct awareness raising campaign for larger public on the environmental effects of mercury and mercury compounds and mercury containing products	CSOs	$20.000	2017-2022
5.4 Support program for waste/producers/waste operators to improve the storage/disposal of mercury waste	Business, MoEnv	$50.000	2017-2022
5.5 Conduct various trainings, workshops and courses on the use of mercury-free cost effectiveness alternatives for target audience/ sectors concerned	MoEnv ,Agency of Energy Efficiency, state agencies, CSOs	$20,000	2017-2022
Subtotal priority		**$125,000**	

Priority 6. Improve storage and waste management practices for mercury and mercury waste

Minamata Convention requirements:

Article 10. Environmentally sound storage of mercury, other than waste mercury. Each Party shall take measures to ensure that the interim storage of such mercury and mercury compounds intended for a use allowed to a Party under this convention is undertaken in an environmentally sound manner, taking into account any guidelines, and in accordance with any requirements, adopted pursuant to paragraph 3.

National baseline:

Article 58 regarding mercury waste of Law on waste No 209 of 07/29/2016 include mercury waste definition and provisions related to full cycle of its management in an environmentally sound management and population health. Also the provisions related to Basel Convention are as well included there.

Currently mercury is stored at specialized deposit of the authorized company and at the storages of Ministry of Internal Affairs (civil protection and radioactive protection services)

Proposed actions	**Lead Institution**	**Anticipated budget**	**Timeframe**
6.1 Taken into account the guidelines developed under the Basel Convention / further developed under COP related to storage/disposal of mercury through specific training and information sessions.	MoENv	$25.000	2018-2020
6.2 Establishment of the Center for hazardous waste management for the realization of art. 62 of the Waste Law. (demercurization line and temporary storage of mercury waste)	MoEnv / Ministry of Economy	$550.000.	2018-2020
6.3 Support program for waste/producers/waste operators to improve the storage/disposal of mercury waste	Business, MoEnv	$40.000	
Subtotal priority		**$615.000**	

Priority 7. Improve monitoring and reporting on mercury levels in land and air			
Minamata Convention requirements: The convention requires Parties to control and reduce releases of Mercury to air (art 8), to land (Art 9.) In order to do so the capacity of the country needs to be improved in order to be able to measure and monitor levels of mercury in environmental media on a regular basis. **National baseline**: The inventory report has revealed that only several laboratories within the country have the methodologies to track the mercury levels in various media. (business laboratories – Hg emissions into media from the technological processes; SHS – Hg contents in sediment, soil) center for public health laboratories have old standard – GOST methodologies on tracking the mercury in food, Apa-Canal Chisinau tracks the Hg content in wastewater sludge)			
Proposed actions	**Lead Institution**	**Anticipated budget**	**Timeframe**
7.1 Purchase of laboratory equipment needed for mercury contents determination in land and air and training of laboratory staff	MoEnv, National Laboratory network, SHS	$1.5 mil	2018-2020
7.2 Conduct regular environmental monitoring of point sources of mercury (landfills, waste water treatment facilities, air emissions of cement, coal, etc production,)	MoEnv	$50,000	2018-2023
7.3. Elaboration and implementation of integrated environmental monitoring system components environmental quality	MoEnv	$1mil	2018-2020
7.4 Support national laboratory network in accreditation on mercury related tests based on GLP international system.	Laboratory network	$250,000	
Subtotal priority		**$2,8 mil**	

Priority 8. Reduction of emissions of mercury and mercury compounds to air, soil, water from point sources

Minamata Convention requirements:

Article 8 Control and reduce emissions of mercury into the air from point sources. A Party with relevant sources shall take measures to control releases and may prepare a national plan setting out the measures to be taken to control releases and its expected targets, goals and outcomes.

National baseline:

The results of the inventory of sources of mercury releases in the Republic of Moldova (based on Level 2 methodology) for the reference year 2014 show that 977 Kilogram of mercury per year (Kg Hg/y) are released, in which:

- 43% are from the consumer products with intentional use of mercury (whole life cycle),
- 28% are from the waste deposition/ landfilling and waste treatment,
- 10% from waste incineration and burning,
- 6% are from the extraction and use of fuels/energy sources, (including coal combustion, and biomass)
- 4% are from production of other minerals and materials with mercury impurities;(cement and clinker production)
- 4% are from the use of other intentional product/process, and
- 4 % are from crematoria and cemeteries

Air pollution control is regulated under the current Environmental Protection legislation, however regulation on air is currently being reviewed.

Proposed actions	**Lead Institution**	**Anticipated budget**	**Timeframe**
8.1 Promotion/use of BAT and BEP technologies by key industry sectors	Industry	$500,000-1mil	2018-2020
Subtotal priority		**$500,000-1mil**	

Chapter VII: Mainstreaming of mercury priorities

UN – REPUBLIC OF MOLDOVA PARTNERSHIP FRAMEWORK

This Partnership Framework for Moldova focuses on three broad thematic pillars that enhance and complement the national priorities and growth agenda of the Government of Moldova. The overall objectives of the UN cooperation with the Government of Moldova for the period 2013–2017 are to provide support for building regulatory and institutional capacity and conditions for good governance; promote UN values and democracy; ensure equity through development of national capacity for social service delivery and inclusive development opportunities; and ensure sustainable management of the environment while adapting to climate change and managing risks from disasters. It encompasses the shared values of the UN while respecting the desire of the government and UN agencies to work cohesively and also recognizing the distinct mandate and value added of each agency. The three thematic pillars are:

a. Democratic governance, justice, equality and human rights

b. Human development and social inclusion

c. Environment, climate change and disaster risk management.

UN – Republic of Moldova Partnership Framework: Pillars and Outcomes at a Glance

SECTOR CAPACITY Pillar 2 Human Development and Social Inclusion	SECTOR CAPACITY Pillar 3 Environment, Climate Change and Disaster Risk Management
Outcome 2.1: People have access to more sustainable regional development, economic opportunities - innovation and agriculture in particular - and decent work • Outcome 2.2: People enjoy equitable access to quality public health and health care services and protection against financial risks • Outcome 2.3: All children and youth enjoy equitable and continuous access to a quality and relevant education system • Outcome 2.4: People enjoy equitable access to an improved social protection system	• Outcome 3.1: Improved environmental management in increased compliance with international and regional standards • Outcome 3.2: Strengthened national policies and capacities enable climate and disaster resilient, low emission economic development and sustainable consumption

Integration of sound management of chemicals in the national, regional or sectorial development

The assurance of the incorporation the SMC priorities in the national, regional or sectorial development plans is very important, as it will contribute to: improving the quality and sustainability of national economy development; diminishing the negative impacts on human health, environment, and export markets – impacts which are associated with chemicals' use; offering consistent justification for the need of implementing priority actions in SMC area by presenting the benefits (economic, social, and environmental) deriving from such an implementation, as well as the costs for the State and society when actions are missing in relation to SMC priorities.

The analysis of the economic development priorities included in the NDS "Moldova 2020" has found out that only the priorities of "Public investments in national and local roads' infrastructure" and "Decreasing the consumption of energy by increasing energy efficiency" reflect certain environmental aspects related to release of harmful substances, from consumption of fuel up to emissions of greenhouse gases, in case of thermal energy losses. Hence, the development agenda of the Republic of Moldova does not include provisions on SMC, although the economic development sectors, such as agriculture, industry, production of electricity and thermal energy have important correlations with the chemicals' management. At the same time, the draft National Environment Strategy includes a component on waste and chemicals management.

This thing may be rectified by incorporated the SMC priorities during the midterm revision of the NDS "Moldova 2020". As the planning process at the national level cannot be influenced until then, the further on processes of high level planning, which could be influenced so as to integrate the SMC priorities are the Strategic Development Programs of the Central Public Administration Authorities. Another opportunity for SMC mainstreaming would be the midterm revision or a new planning cycle of the Sector Development Strategies. The third opportunity to encompass the SMC priorities is during the midterm revision of the regional development strategies or when a new planning cycle will be launched for the future regional development strategies.