MERCURY INITIAL ASSESMENT FOR SERBIA

ПРВА ПРОЦЕНА СТАЊА ЖИВЕ У СРБИЈИ

MERCURY INITIAL ASSESMENT FOR THE REPUBLIC OF SERBIA

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Technical Working Group:

Aleksandra Drobac, Ministry of Environmental Protection
Anđela Anđelković Jović, Ministry of Mining and Energy
Biljana Miškov, Ministry of Environmental Protection
Vesna Knjeginjić, PhD, Ministry of Health
Goran Tomić, Ministry of Mining and Energy
Gordana Petković, Ministry of Environmental Protection
Dragan Stevanović, Serbian Chamber of Commerce and Industry
Ivan Đuričković, Ministry of Environmental Protection
prim. dr sci. dent. Jasmina Tekić, School of Dental Medicine, University of Belgrade
Jelena Dimitrijevski, HIP-Petrohemija, Pančevo
Jelena Mijatović, Ministry of Environmental Protection
Jelena Sekulić, Ministry of Agriculture, Forestry and Water Management
Ljiljana Đikić Marinkov, Medicines and Medical Devices Agency of Serbia
Milka Lazović Pavliček, Ministry of Finance
Momir Boljanić, Ministry of Environmental Protection
Nada Lukačević, Ministry of Environmental Protection
Nebojša Redžić, Serbian Agency for Environmental Protection
Olivera Pavićević, Ministry of Environmental Protection
Radmila Šerović, Ministry of Environmental Protection
Svetlana Marušić, Provincial Secretariat for Urban Planning and Environmental Protection, AP Vojvodina
Sonja Roglić, Ministry of Environmental Protection
Suzana Andrejević Stefanović, Ministry of Environmental Protection
Tatjana Tomić, Župa-Kruševac

Team of Experts:

Anđelka Mihajlov, Ph.D
Elena Janković
Jovana Majkić
Katarina Krinulović
Milica Momčilović
Nebojša Pokimica
Tanja Radović, Ph.D
Hristina Stevanović Čarapina, Ph.D
Peggy Macaigne, PhD
Jakob Maag

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GLOSSARY

ACI	Activated Carbon Injection
AP	Autonomous Province
AQ	Air Quality
ASGM	Artisanal and Small-scale Gold Mining
BAT	Best Available Techniques
BEP	Best Environmental Practice
CA	Customs Administration
CCFL	Cold Cathode Fluorescent Lamps
CEFTA	Central European Free Trade Agreement
CFL	Compact Fluorescent Lamps
CLRTAP	Convention on Long-Range Transboundary Air Pollution
COP	Conference of the Parties
CSO	Civil Society Organization
DS	Dry Scrubber
EC	European Commission
ECHA	European Chemicals Agency
EEFL	External Electrode Fluorescent Lamps
EFTA	European Free Trade Agreement
EIA	Environmental Impact Assessment
EIONET	European Environment Information and Observation Network
ELV	Emission Limit Values
EMEP	Evaluation of the Long-range Transmission of Air Pollutants in Europe
ESM	Environmentally Sound Management
ESP	Electrostatic Precipitator
EWC	European Waste Classification
FF	Fabric Filter
FGD	Flue Gas de-Sulphurisation
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNI	Gross National Income
HDI	Human Development Index
HPMV	High Pressure Mercury Vapour Lamp
HS	Harmonized commodity description and coding System
ILO	International Labour Organization
IPPC	Integrated Pollution Prevention and Control
IS	Information System
LFC	Linear Fluorescent Lamps
LGA	Legal gap assessment

LPG	Liquefied Petroleum Gas
LSG	Local self-governments
MOAFWM	Ministry of Agriculture, Forestry and Water Management
MoE	Ministry of Economy
MoEP	Ministry of Environmental Protection
MoF	Ministry of Finance
MoH	Ministry of Health
MoL	Ministry of Labour, Employment, Veteran and Social Affairs
MoTTT	Ministry of Trade, Tourism and Telecommunication
MT	Metric Tone
NEAS	National Environmental Approximation Strategy
NGO	Non-governmental organizations
NIM	National Implementation Modality
NIP	National Implementation Plan
NPAA	National Programme for the Adoption of the Acquis
NPI	National Programme for the EU Integration
NSDS	National Sustainable Development Strategy
PIC	Prior Informed Consent
PIU	Project Implementation Unit
POP	Persistent Organic Pollutants
PRTR	Protocol on Pollutant Release and Transfer Register
PS	Particle Scrubber;
PU, PUR	Polyurethane
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
SAA	Stabilization and Association Agreement
SEIA	Strategic Impact Assessment on Environment
SEPA	Environmental Protection Agency
SNCR	Selective Non-Catalytic Reduction
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VCM	Vinyl Chloride Monomer
wetFGD	wet Flue Gas de-Sulphurisation
WHO	World Health Organization
WS	Wet Scrubbers

FOREWORD

EXECUTIVE SUMMARY

The Minamata Convention on Mercury is the first global legally binding agreement specifically designed to address contamination from a heavy metal. The Convention seeks to address issues related to the use and release of mercury in trade and in industrial processes. Under the Minamata Convention, individual countries seek to protect public health and the environment from the risks of mercury exposure by systematically controlling mercury emissions and releases, including phasing out the use of mercury in certain products and processes. The major highlights of the Convention include a ban on new mercury mines, the phase-out of existing ones, control measures on air emissions, and the international regulation of the informal sector for artisanal and small-scale gold mining.

The Republic of Serbia signed the Minamata Convention on Mercury on 9 October 2014. As a first step in preparing the country for meeting future obligations under the Minamata Convention and to take early action towards reducing releases of mercury and safeguarding its population and environment, Serbia indicated the need for an inventory of mercury releases in the country.

The national inventory on mercury emission from various sectors has been conducted by the Institute for Public Policy Belgrade, with the contribution of all relevant national stakeholders and entities involved in several aspects of mercury management. The preparation of the inventory was undertaken during the period February 2017-January 2018 and followed the UNDP Guidance[1]. The objective of the inventory was to identify the main sources of mercury releases in the country.

Results of the Mercury Inventory (mercury emissions and releases as well as their sources, uses, stockpiles, supply and trade, etc.)

Source category	Estimated Hg input, Kg Hg/y	Estimated Hg releases, standard estimates, Kg Hg/y							Percent of total releases *3*4
		Air	Water	Land	By-products and impurities	General waste	Sector specific waste treatment /disposal	Total releases *3*4*5	
Coal combustion and other coal use	5,810.0	5,698.8	0.0	0.0	0.0	0.0	111.2	5,810	52%
Other fossil fuel and biomass combustion	96.6	96.4	0.0	0.0	0.0	0.0	0.0	96	1%
Oil and gas production	67.0	13.3	11.7	0.0	27.1	0.0	6.9	59	1%
Primary metal production (excl. gold production by amalgamation)	370.0	232.5	2.8	0.0	58.8	0.0	75.9	370	3%

[1] http://www.undp.org/content/undp/en/home/librarypage/environment-energy/chemicals_management/undp-minamata-initial-assessment-guidance-.html

Source category	Estimated Hg input, Kg Hg/y	Estimated Hg releases, standard estimates, Kg Hg/y							Percent of total releases *3*4
		Air	Water	Land	By-products and impurities	General waste	Sector specific waste treatment /disposal	Total releases *3*4*5	
Gold extraction with mercury amalgamation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Other materials production	256.0	41.5	0.0	0.0	13.8	0.0	13.8	69	1%
Chlor-alkali production with mercury-cells	-	-	-	-	-	-	-	0	0%
Other production of chemicals and polymers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Production of products with mercury content*1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Application, use and disposal of dental amalgam fillings	616.0	12.3	271.0	49.3	37.0	123.2	123.2	616	5%
Use and disposal of other products	2,834.5	662.8	138.4	804.7	0.0	1,108.0	120.6	2,835	25%
Production of recycled metals	0.8	0.3	0.0	0.3	0.0	0.3	0.0	1	0%
Waste incineration and open waste burning*2	113.0	103.2	0.0	0.0	0.0	0.0	10.3	114	1%
Waste deposition*2	2,604.0	26.0	0.3	0.0	0.0	0.0	0.0	26	0%
Informal dumping of general waste *2*3	4,196.0	419.6	419.6	3,356.8	-	-	-	839	7%
Waste water system/ treatment *4	1,895.3	0.0	1,705.7	0.0	0.0	189.5	0.0	190	2%
Crematoria and cemeteries	259.2	7.8	0.0	251.4	0.0	0.0	0.0	259	2%
TOTALS (rounded) *1*2*3*4*5	10,990	7,310	840	1,110	140	1,420	460	11,280	100%

Table 1 - Summary of mercury inventory results

As shown in the Table 1 and Figure 1 below, the following source groups contribute with the major mercury inputs: coal combustion and other coal use (with total release of 5,810 kg Hg/y, or 52% of total release of Hg); use and disposal of other products (with total release of 2,834.5 kg Hg/y, or 25% of total release of Hg), informal dumping of general waste (with total release of 4,196 kg Hg/y, or 7% of total release of Hg), application, use and disposal of dental amalgam fillings (with total release of 616 kg Hg/y, or 5% of total release of Hg); primary metal production excluding gold production by amalgamation (with total releases of 370 kg Hg/year, or 3% of total release of Hg), etc.

The individual mercury release sub-categories contributing with the highest mercury inputs were: production of copper from concentrates; gold extraction by methods other than mercury amalgamation; coal combustion in large power plants; other coal uses; cement production; primary ferrous metal production; dental amalgam fillings; other laboratory and medical equipment with mercury; cemeteries etc.

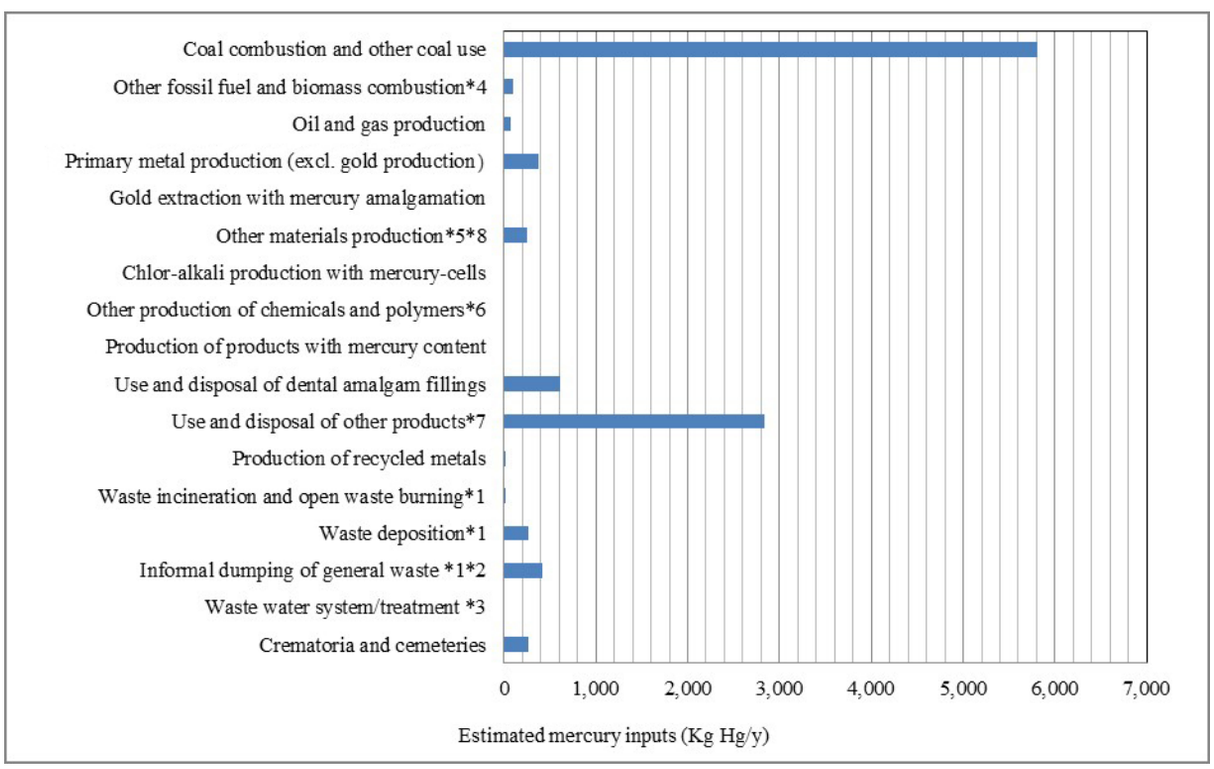

Figure 1: Estimated mercury inputs (Kg Hg/y)

Releases to the air

The estimated total emission of mercury to the air is 7,310 kg Hg/year. As presented in Figure 2 (below), the individual mercury release sub-categories contributing with the highest mercury releases to the atmosphere are: coal combustion and other coal use (5,698.8 kg Hg/year); use and disposal of other products (662.8 kg Hg/year), informal dumping of general waste (419.6 kg Hg/year); primary ferrous metal production (232.5 kg Hg/year); waste incineration and open waste burning (103.2 kg Hg/year); other fossil fuel and biomass combustion (96.2 kg Hg/year).

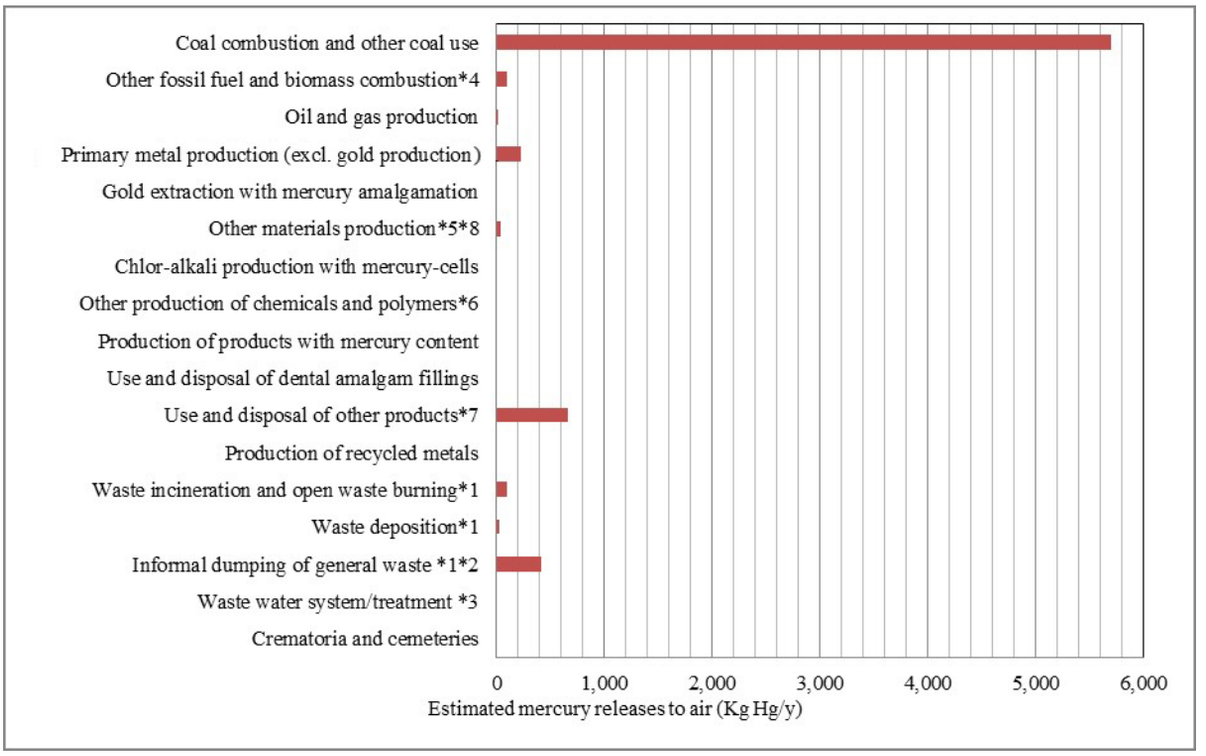

Figure 2: Estimated mercury releases to air (Kg Hg/y)

Releases to the water

The estimated total emission of mercury to the water is 840 kg Hg/year. As presented in the Figure 3 (below), the highest mercury release originates from the waste water system/treatment (1,705.7 kg Hg/year), informal dumping of general waste (419.6 kg Hg/year); application, use and disposal of dental amalgam fillings (271 kg Hg/year); use and disposal of other products (138.4 kg Hg/year) and oil and gas production (11.7 kg Hg/year).

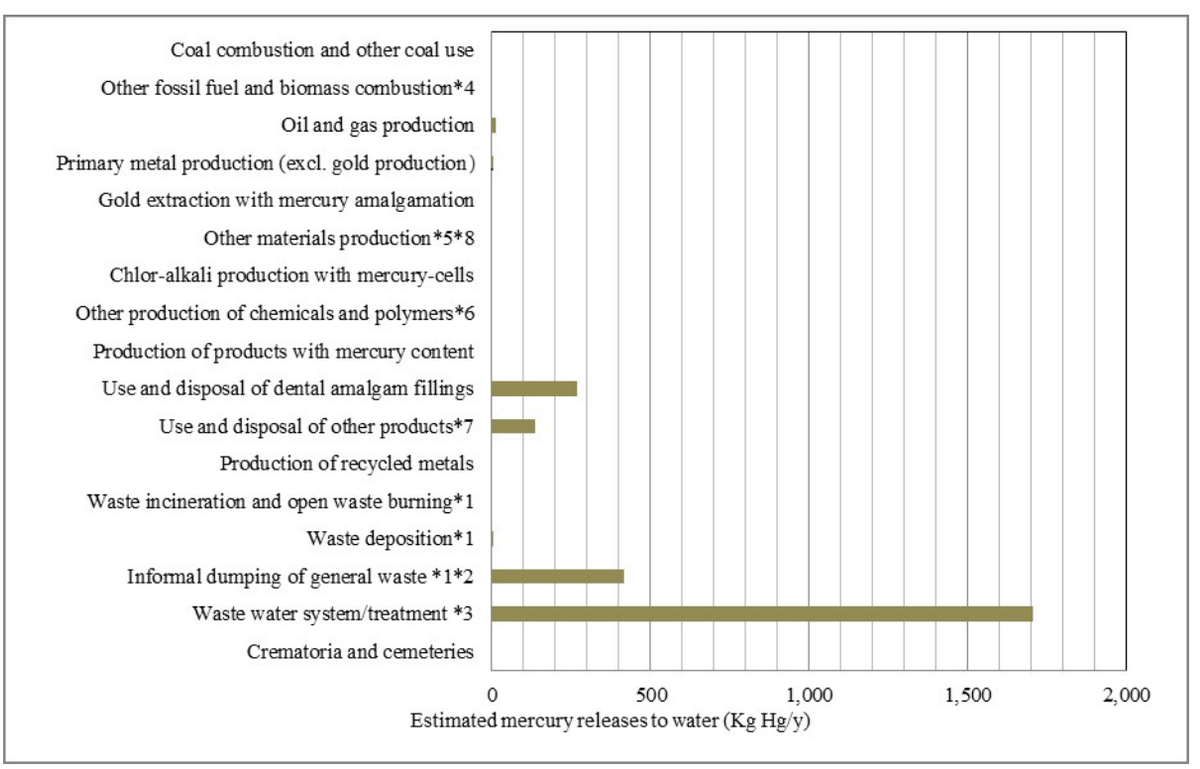

Figure 3 Estimated mercury releases to water (Kg Hg/y)

Releases to soil

The estimated total emission of mercury to the soil is 1,110 kg Hg/year. As presented in the Figure 4 (below), the highest mercury release originates from the informal dumping of general waste (3,357.8 kg Hg/year), use and disposal of other products (804.7 kg Hg/year), crematoria and cemeteries (251.4 kg Hg/year), application, use and disposal of dental amalgam fillings (49.3 kg Hg/year).

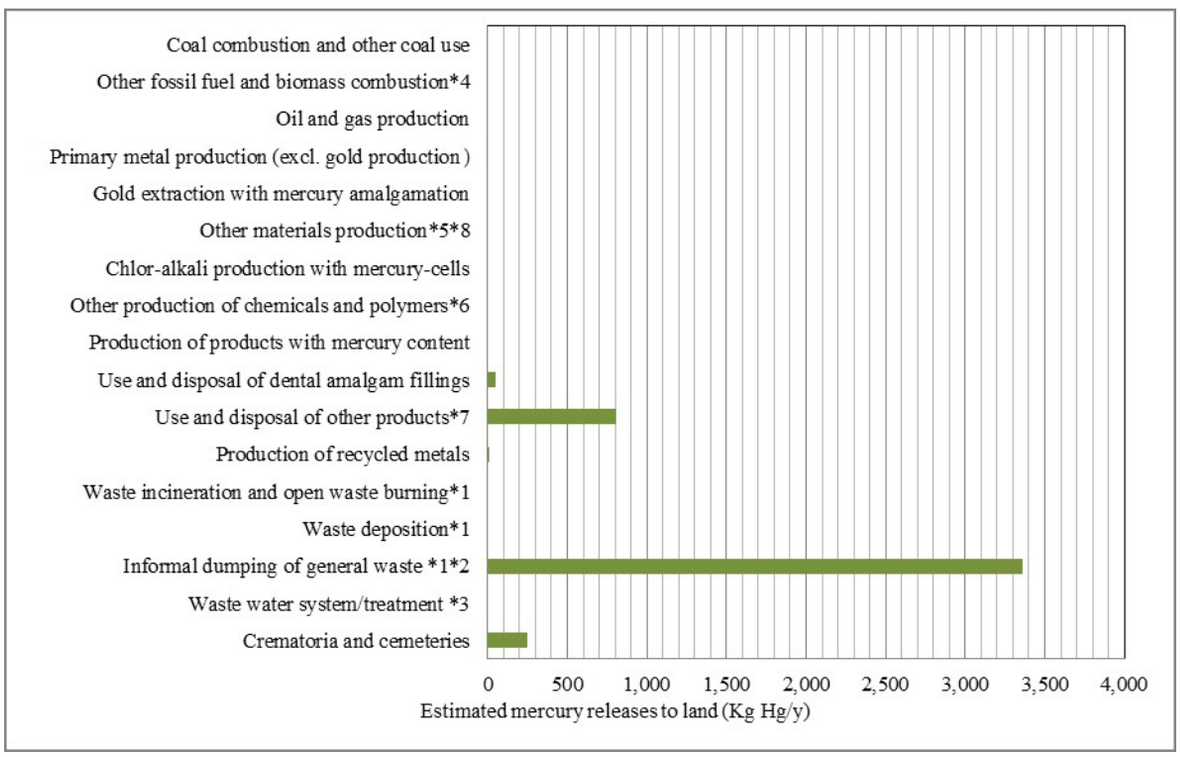

Figure 4 Estimated mercury released to soil (kg Hg/y)

Major findings of the policy, regulatory and institutional assessments

As a candidate country for EU membership, the Republic of Serbia is in the process of harmonising its national legislation pertaining to the sound management of chemicals and waste with relevant EU legislation such as the REACH Regulation, the Waste Framework Directive, as well as a set of EU legal acts related to and of relevance for mercury management, including the Mercury Regulation, IPPC, SEVESO, Waste Batteries and RoHS Directives, etc.

Two key sectors of relevance for mercury management, waste management and chemicals management, are aligned to the great extent to the EU Acquis pertaining legislation. **The national legislation on chemicals** prescribes bans and restrictions of use, placing on the market and production of mercury and mercury compounds. The law established the legal basis for adoption of the Rulebook on Bans and Restrictions of Production, placing on the market and Use of Chemicals which has been harmonised with Annex XVII of Regulation No. 1907/2006 (REACH). This Rulebook prescribes bans and restrictions of mercury and its compounds (No. of ban and restriction: 18, 18a). Prescribed provisions of entry 18a for general use came into force in 2011.

For professional use these provisions will come into force in 2018. In the same Rulebook, bans and restrictions regarding phenyl mercury compounds listed under no. 62 will entered into force on 10 October 2017. Also, the Rulebook on Import and Export of Certain Hazardous Chemicals contains provisions pertaining to an export ban on metal mercury, which is harmonised with Article 1 of Regulation 1102/2008.

The Law on Waste Management, and its subsidiary legislation regulate the issues of hazardous waste management (collection, transport, disposal, transboundary movement), whereas the mercury waste is regulated as hazardous waste, and the relevant national provisions apply to mercury waste as well. Although aligned to the EU waste management legislation to a great extent, national legislation has not been fully aligned with MR's safe storage provisions.

Additionally to the legislation relevant to chemicals and waste management, other legislation of substantial importance is also in place regulating the industrial pollution control; air/water/soil protection; health regulations; safety of products regulations; occupational safety regulations, etc. A detailed presentation of some relevant legislation is provided in Chapter 2 of this report.

In line with national planning and strategic documents, the country foresees the full harmonization of national legislation with the EU Acquis by the end of 2018. This plan will be probably revised with regard the new EU Mercury Regulation, in order to integrate its provisions, particularly the ones pertaining to the phasing out of dental amalgam.

The assessment of institutional framework resulted in the conclusion that Serbia does not have major institutional gaps.

The Ministry of Environmental Protection is the competent authority for the implementation of the Minamata Convention and relevant mercury-related regulations. The inspection over the compliance with environmental standards falls under the Sector for Supervision and Protection of the Environment (Inspection).

Mercury is part of the national environmental monitoring system. The overall competences for such monitoring is under the Serbian Agency for Environmental Protection (**SEPA, MoEP**).

The Ministry of Health, Sector for Public Health and Programmed Health Protection has a particularly important role in phasing out of dental amalgam; awareness raising and other relevant health aspects.
Department for Sanitary Inspection, within Sector for Inspection Affairs of the Ministry of Health, is, amongst others, responsible for inspection of compliance with the legislation on bans and restrictions in chemicals and products intended for general use.

Sector for Market Inspection (MoTTT) performs the supervision over the mercury-added products in the market, and is responsible for control of national provisions regarding conditions for keeping of hazardous chemicals in retail. Market inspectors only control issues regarding keeping of dangerous chemicals in retail, including products containing mercury.

The Ministry of Mining and Energy - Sector for Geology and Mining is in charge of issuing permits for management of mining facilities.

The Customs Administration performs export and import control of chemicals and articles banned from export and import. The Customs Administration - CA - is the authority in charge of control of export and import of mercury products. The Customs Administration performs export and import control of chemicals and articles whose export and import is banned and examines whether the notification procedure and/or PIC procedure has been conducted. The Customs Administration has the responsibility for border control of imports/exports and prevention of illegal trade.

Other relevant institutions include: the Ministry of Agriculture, Forestry and Water Management - Plant Protection Directorate, Division for Plant Protection and Plant Nutrition Products (mercury in plant protection products); the Ministry of Interior (SEVESO procedures); the Ministry of Labour, Employment, Veteran and Social Policy - Labour Inspectorate (occupational exposure to the mercury); The Ministry of Education, Science and Technological Development, Sector for Science (research and innovation, alternative and clean technologies); Aarhus centres and the Commissioner for Information of Public Importance and Personal Data Protection (access to the information); the Ministry of Foreign Affairs - UN Department (coordination of foreign-policy and other international activities).

Summary of measures the country has prioritized in order to implement the Convention (as well as required financing for their implementation)

1. Policy related measures	Responsibility	Timeframe	Allocated budget Euro
1.1 Finalization and adoption of the Programme of Protection of Human Health, in line with the Law on Health Protection	MoH, MoEP	in accordance with NPAA	n/a
1.2 Finalization of the Programme for preventive dental health care, and integrating measures relevant to gradual phasing out of dental amalgam	MoH	in accordance with NPAA	n/a
1.3 Mainstreaming of the mercury-issues in the Programme of long-term research of national and strategic interest of RS, in line with Art 19 of the Convention	Ministry of Science	in accordance with NPAA	
1.4 Decide if the action plan for reduction of air emissions is needed/if so, prepare and adopt the action plan with targets	MoEP	in accordance with NPAA	
2. Legislative and regulatory measures	**Responsibility**	**Timeframe**	**Allocated budget Euro**
2.1 Further strengthening of regulatory framework with regard the export of mercury with respect to its intended use	MoEP	in accordance with NPAA	n/a
2.2 Further strengthening of the legal framework regulating the mercury in cosmetic products	MoTTT	in accordance with NPAA	-
2.3 Establishment of the regulatory framework for phasing out dental amalgam	MoH	in accordance with NPAA	
2.4 Perform LGA with regard the requirements of Art 5, An-nex II of Mercury Regulation (EU) and prioritize the action with regard to further alignment	MoTTT, MoEP	in accordance with NPAA	
2.5 Further strengthening of the regulatory framework with regard to temporary/interim storage of mercury and mercury compounds, specifying the measures on mercury, after conducting the LGA and the assessment in practice, pursuant to Art 14 of Mercury Regulation (EU)	MoEP	in accordance with NPAA	
2.6 Further strengthening of the regulatory framework with regard to the obligation to report on large sources, after conducting the LGA and the assessment in practice, pursuant to Art 12 of Mercury Regulation (EU)	MoEP,		
3. Strengthening of the monitoring and reporting framework	**Responsibility**	**Timeframe**	**Allocated budget Euro**
3.1 Finalization of the baseline assessment of the presence of mercury-added products being put in use before introduction of bans	MoEP, MoH, Ministry of Science, Ministry of Economy (Sector for product quality and safety), MoF (Customs Administration), MoTTT (Market Inspectorate)		
3.2 Assess the presence of illegal products on the market, as an input for development of specific action plan for combating the illegal import and trade of such products and overall phasing out plan	MoTTT		-

3.3 Perform the assessment of existing monitoring practices from the perspective of the requirements of inventory up-date and reporting, focusing on the import and trade activities and mercury added products	Statistical Office, Market Inspectorate, Environmental Inspectorate, Ministry of Economy (Sector for product quality and safety), MoTTT (Sector of Market Inspectorate)		
3.3.1 In line with assessment results, review the monitoring and reporting system led by the institution in charge of statistical reporting, including a stakeholder analysis, adjustments to the reporting foramt (including new types of information to be obtained), reporting cycles etc., combined with awareness raising/capacity building of information providers, in a manner suitable to the consequent inventory updating cycle. The measure can include, if applicable, a review of the regulatory framework.	Statistical Office, MoF (Customs Administration), and other relevant institution stated under 3.3		
3.4 Perform the assessment of existing monitoring practices from the perspective of the requirements of AQ monitoring, in relation to the requirements set under Art.8, reporting formats foreseen under Art.21 and guiding documents issued by Secretariat	Statistical office, MoEP; MoTTT		
3.4.1 In line with assessment results, approach the revision of the monitoring and reporting system; adjustment of reporting formats (inclusion of new types of information to be obtained), reporting cycles etc. combined with awareness raising/capacity building measures for the information	See point 3.4		
3.5 Perform the assessment of existing monitoring practices from the perspective of the requirements of water/soil monitoring, in relation to the requirements set under Art.9, and guiding documents issued by Secretariat	MoEP		
3.5.1 In line with assessment results, approach the revision of the monitoring and reporting system; adjustment of reporting formats (inclusion of new types of information to be obtained), reporting cycles etc. combined with awareness raising/capacity building measures for the information	MoEP		
3.5.2 Establishment of Cadastre of Contaminated Sites, with specific section related to the mercury releases to land - if applicable, or other type of register	SEPA, MoEP		
3.5.3 Establishment of Inventory of Point Sources[2], by integrating it to the existing inventories/registries or establishment of separate inventory	SEPA, MoEP	3 years upon the ratification of Convention	
3.6 Enable the reporting towards Convention, by ensuring the full compliance with the requirements of the Article 3, 5, 7, 8 in terms of types of methodologies	SEPA, MoEP		
3.7 Take active part in establishment of the harmonized methodologies and its integration into the national monitoring/research system through above listed actions	SEPA, MoEP		

[2] For more details, please see Part A (Article 9) of this Chapter

4. Capacity building measures	Responsibility	Timeframe	Allocated budget Euro
4.1 Development and implementation of comprehensive capacity building plan for the relevant implementing and enforcement institutions in the area of surveillance and monitoring of the market/export-imports of mercury added products and use of mercury in industrial processes	MoEP, MoH, MoTTT		
4.2 Development and implementation of comprehensive capacity building programme for the stakeholders involved in (revised) monitoring and reporting format, in particular- the institutions with coordinating role (e.g. Agencies), and non-public stakeholders/information providers- on reporting requirements and formats (see measures 3.3,3.4 and 3.5)	Statistical office, SEPA		-
4.3 Enabling the regular participation of relevant institutions/national representatives in the work of Convention bodies; capacity building and technical workshops; work of regional/international information sharing activities; EU technical bodies	MoEP, MoH		
4.4 Establishment of structures for internal communication and information exchange of information on mercury-related issues	MoEP		
4.5 Establishment of a comprehensive source of information related to the mercury (all aspects); information sharing on the most accurate research documents; guiding documents and links to specific policy/regulatory framework	MoEP- SEPA, Statistical Office, MoH		
4.6 Development and implementation of the capacity building programme for health institutions, on preventive measures, awareness raising, mitigation measures, treatments etc.	MoH		
4.7 Development and implementation of capacity building activities for the employees of dental services, following the EU best practices	MoH		
4.8 Identification of the occupational activities which represent the highest risk in the country; development and delivery of specific capacity building programme(s) with a support of the Chamber of Commerce	MoH, MoL		

5. Awareness Raising	Responsibility	Timeframe	Allocated budget Euro
5.1 Development of the comprehensive, multi-sectorial awareness raising plan targeting: decision makers and key stakeholders; implementing, monitoring and enforcement institutions; public stakeholders involved in implementation of educational/health protection; LSGs; non-public stakeholders, operators and pollution sources; workers exposed to the occupational risks; associations; population at risk; general public[3].	MoEP MoH		
5.2 Phased implementation of awareness raising plan, in line with priority setting and division of competences among the relevant institutions	MoH; MoEP, SEVESO; MoTTT		-
5.3 Establish IT based visibility tools for mercury related issues/Minamata convention application	MoEP		
5.4 Ensure regular updates of the knowledge capitalization tools	MoEP, MoH, MoL		
5.5. Ensure the links and regular update of the websites of relevant Ministries and other parties included in the Convention implementation	MoEP, MoH, MoL		
5.6 Increase media and social media presence	MoEP, MoH, MoL		

[3] For more details, please see Part A (Article 18) of this Chapter

6. Phasing Out Measures	Responsibility	Timeframe	Allocated budget Euro
6.1 In relation to the measures 3.1 (finalization of the baseline assessment) develop a phase-out plan	MoEP Ministry of Science, MoE (Sector For Quality And Product Safety), MoF (Customs MoTTT (Sector for Market Inspection)		
6.2 In relation to the measure 3.2 (assessment of illegal market), develop and implement the action plan for prevention of import and putting the banned mercury-added products to the market	MoTTT, Customs Administration		-
6.3 Perform the RIA for introduction of the deadlines for phase out of dental amalgam, taking into consideration the deadlines and targets set in the new Mercury Regulation	MoEP, MoH		
6.3.1 In line with results of RIA, prepare the draft legal/policy document and action plan for formal implementation of the phase-out programme	MoEP		
6.4 Perform the assessment of the need for application of Article 6, with relation to the exemptions of application of Article 4	MoEP, MoH		
6.4.1 Perform the LGA between applicable legislation and new Mercury Regulation, with regard the deadlines for phas-ing out of mercury added products/its import, export/production.	MoEP. MoH		
6.4.2 Taking into consideration the proposed timeframes, prepare the drafts of national legislation by banning the use of mercury, in line with the requirements of the EU Mercury Regulations	MoEP		
6.4.3 Taking into consideration the requirements of the EU Mercury Regulations and the convention timeframes, revise national legislation by legal banning the use of mercury in chlor-alkali production	MoEP		
7. Remediation measures	Responsibility	Timeframe	Allocated budget Euro
7.1 Establish Mercury Partnership with available technologies/funds and share materials, guidance	MoEP, SEPA		
7.2 Update information on Serbian facilities to UNEP	MoEP, SEPA and other stakeholders		-
7.3 Establish cooperation at national level	MoEP		
7.4 Conduct sampling at chlor-alkali facilities	SEPA		
7.5 Take appropriate measures to manage the spills	MoEP, SEPA		
7.6. Ensure that action to reduce risks posed by contaminated sites shall be done in an environmentally sound manner, incorporating where appropriate, an assessment of risks to human health and the environment	MoEP, SEPA		
7.7. Consider on-site treatment of wastes/stocks of mercury	MoEP		

INTRODUCTION

The harmful impacts of mercury exposure on human health are now well documented and accepted within the scientific community. Many countries have already initiated actions to mitigate emissions and exposure to mercury. However, considering that mercury is a local, as well as a global pollutant, actions by national governments alone would not suffice in addressing the issue of pollution due to mercury and its harmful impacts on the environment and human health. As summarized below, the Convention is designed to systematically reduce emissions and releases of mercury to land and water, as well as phase out the use of mercury where alternatives exist.

At the local level, exposure to mercury is primarily due to point sources of emissions from occupational activities, such as gold mining, mineral processing, waste processing, production of mercury containing products, etc. At the global level, mercury releases are primarily attributed to burning coal for electricity generation and natural phenomena, such as volcanic activity and the weathering and erosion of rock material. Even in the absence of local point sources, populations worldwide are exposed to mercury through atmospheric circulation, cycling and deposition to water bodies. Once deposited upon the landscape, mercury is converted to its toxic, methylated form, which bio-accumulates and biomagnifies through food chains.

In view of the risks that mercury poses to human health and the environment, the global community agreed in 2009 to begin intergovernmental negotiations with the objective of developing a legally binding treaty to limit global mercury emissions and releases. The treaty, known as the Minamata Convention, was opened for signature on 10th October 2013 and entered into force on the August 16th 2017, with 128 signatories. The First Conference of the Parties took place from September 24th to 29th 2017 in Geneva, Switzerland.

The primary objective of the Convention is "to protect human health and the environment from anthropogenic releases of mercury and mercury compounds". To accomplish this objective, the Convention's main goal is for countries to ban new mercury mines and carry out a systematic phase-out of existing ones. Additionally, the Convention also provides for the strategic phase-out of mercury-containing products, identification and reduction of national mercury supply and trade, and the reduction of mercury emissions and releases to air, water and land. The Convention also addresses: interim storage and waste disposal of mercury; identification of mercury-contaminated sites; and the development of awareness-raising strategies for human and environmental health issues related to mercury exposure.

The Minamata Convention on Mercury is the first global legally binding agreement specifically designed to address contamination from a heavy metal. The convention seeks to address issues related to the use and release of mercury in trade and in industrial processes. Under the Minamata Convention, individual countries seek to protect human health and the environment from the risks of mercury exposure by systematically controlling mercury emissions and releases, including phasing out the use of mercury in certain products and processes.

The major highlights of the Convention include a ban on new mercury mines, the phase-out of existing ones, control measures on air emissions, and the international regulation of the informal sector for artisanal and small-scale gold mining.

To strengthen national capacity towards implementation of future obligations under the Convention, the Global Environment Facility (GEF), as the Financial Mechanism of the Minamata Convention on Mercury, upon entry into force, provides financing to eligible countries to undertake their Mercury Initial Assessment (MIA).

The MIA is intended to facilitate the ratification and early implementation of the Minamata Convention once it comes into force through three primary steps:

- Establishment of a national steering committee to coordinate activities related to the Convention;
- Review and identification of gaps in existing national legislation and institutional capacity related to mercury;
- Development of a national mercury profile that includes major sectors that use mercury, as well as a summary of major emission and release source types.

Additionally, countries can complement the MIA with a National Implementation Plan to address the findings of the technical and institutional assessments.

The Republic of Serbia signed the Minamata Convention on Mercury on October 9th 2014. In line with above mentioned facilities which enable the assistance to the countries to sign the Convention, fulfil its obligations, and prepare for the implementation of its requirements, this report summarizes the outcomes of the several pre-ratification activities carried out under this project.

The assessment activities were organized within two components:

1. Creating an enabling environment for decision-making on the ratification of the Minamata Convention.
2. Development of the National Mercury Profile and Mercury Initial Assessment Report.

The overall objective of this Minamata Initial Assessment was to assist Serbia in completing pre-ratification activities under the Minamata Convention in order to enable policy and strategic decision-making, and to prioritize areas for future interventions. The MIA activities complement the efforts of these countries to significantly reduce the exposure of mercury to human health and the environment. Ultimately, it is intended that patterns of mercury consumption and release will be assessed to facilitate the design of targeted interventions, which in turn provide local and global benefits through reduced emissions to the environment.

During the MIA process, regular exchanges were conducted between the national authorities and national team experts from the Public Policy Institute who contributed relevant scientific knowledge and data related to global mercury assessments and assisted with the major MIA components, including the mercury inventory, gap analyses review, and the communications and information exchange programme. The results of the MIA were presented to stakeholders at 3 workshops[4] on 13-14 February 2017, 30 June 2017, and 13 October 2017 and were validated and acknowledged at Final Workshop in March 2018.

[4] 1. http://www.ijp.rs/iz-instituta/vesti/uvodna-radionica-za-pripremu-inventara-zive_93/;
2. http://www.ijp.rs/iz-instituta/vesti/odrzana-druga-radionica-posvecena-pripremi-inventara-zive_98/;
3. http://www.ijp.rs/iz-instituta/vesti/predstavljanje-inventara-zive-_100/

CHAPTER I: NATIONAL BACKGROUND INFORMATION

1.1 Country Profile

1.1.1 Geography and Population

The Republic of Serbia is a landlocked country situated in Southeast Europe in the southern Pannonian Plain and the central Balkans. The total area of the national territory is 88,361 km2. It borders Hungary to the north; Romania and Bulgaria to the east; Macedonia and Albania to the south; Croatia, Bosnia, and Montenegro to the west. Serbia numbers around 7 million residents; its capital, Belgrade, ranks among the oldest and largest cities in Europe.

The territory of the Republic of Serbia includes rich fertile plains in the north, limestone ranges and basins in the east, and mountains and hills in the southeast. According the National Forest Inventory (2009) the total forest area in Serbia is 2,252,400ha, or approx. 26 % of its territory, which is slightly lower than the average woodenness of Europe. Almost all of Serbia's rivers drain to the Black Sea (95% of catchment area), by way of the Danube river. The Danube River passes through Serbia with 588 kilometres and represents the largest source of fresh water. It is joined by its biggest tributaries, the Great Morava (longest river entirely in Serbia with 493 km of length), the Sava and Tisza Rivers. Serbia is a country of rich ecosystem and species diversity covering only 1.9% of the whole European territory. Serbia is home to 39% of European vascular flora, 51% of European fish fauna, 40% of European reptile and amphibian fauna, 74% of European bird fauna, 67% European mammal fauna.

Census of population, households and dwellings data from 2011 shows that Serbia has 7,186,862 inhabitants; 2,487,886 households and 3,231,931 apartments. Of the total inhabitants, 3,499,176 are male and 3,687,686 are female. According to the Census of 2011, 14.27% of the population was younger than 14 years old, 68.34% was between 14-65 years old and 17.4% was over 65 years old. The average age of the Serbian population is 42.2 years. Data from the Statistical Office of the Republic of Serbia shows that the estimated population of Serbia in 2017 is 7,040,272.

In accordance with the National nomenclature of statistical territorial units, Serbia is divided into five statistical functional territorial units[5] among which the most populated are Šumadija and Western Serbia (28.85%) and Vojvodina (27.43%).

1.1.2 Political, Legal and Economic profile

The current Constitution of the Republic of Serbia was adopted in 2006 in the aftermath of Montenegro independence referendum when, by consequence, the National Assembly of Serbia declared Serbia to be the legal successor to the former state union of Serbia and Montenegro.

The President of the Republic is the head of state, is elected by popular vote to a five-year term and is limited by the Constitution to a maximum of two terms. The Government of Serbia is headed by the prime minister, who is appointed by the president with the consent of the parliament.

[5] The Regulation on the National nomenclature of statistical territorial units ("The Official Gazette of RS", No. 109/09 and 46/10)

Serbia is a parliamentary republic with three branches of power: legislative, executive and judiciary. The holder of legislative authority, the National Assembly – the representative body of 250 members who are elected in direct elections using the proportional electoral system, by voting for the electoral list and the distribution of parliamentary seats in proportion to the number of votes the electoral lists received. The civil, continental law system is applicable in Serbia, as well as in other countries in the region. The holder of the executive authority is the Government of the Republic of Serbia, with the various number of ministries and vice presidents.

Serbia's Human Development Index (HDI) for 2015 is 0.776— which put the country in the high human development category—positioning it at 66 out of 188 countries and territories. Between 1990 and 2015, Serbia's HDI value increased from 0.714 to 0.776, an increase of 8.6 percent. Between 1990 and 2015, Serbia's life expectancy at birth increased by 3.5 years, mean years of schooling increased by 2.8 years and expected years of schooling increased by 2.0 years. Serbia's Gross National income (GNI) per capita decreased by about 15.6 percent between 1990 and 2015.

According to the National Bank of Serbia statistics, the annual growth rate of Serbia's GDP averaged 2.77 percent from 1997 until 2017, reaching an all-time high of 21.10 percent in the second quarter of 2000 and a record low of -21.30 percent in the second quarter of 1999. The actual GDP annual growth rate for 2017 is 1,30 which is slightly higher compared to 1 in 2016 and resulting in GDP per capita increase from USD 5663.39 in 2016 to USD 5852.08 in 2017.

Factors favourable to Serbia's economic growth include its relatively inexpensive and skilled labour force and free trade agreements with the EU, Russia, Turkey, and countries that are members of the Central European Free Trade Association (CEFTA). On the expenditure side, household consumption is the main component of GDP and accounts for 76 percent of total expenditures, followed by gross fixed capital formation (17 percent) and government expenditure (18 percent). Exports of goods and services account for 44 percent of GDP while imports account for 54 percent.

The main **export** commodities are: iron and steel, rubber, clothes, wheat, fruit and vegetables, nonferrous metals, electric appliances, metal products, weapons and ammunition, automobiles. Exports activities are oriented to following partners: Italy 16.2%, Germany 12.6%, Bosnia and Herzegovina 8.7%, Romania 5.6%, and Russia 5.4% (2015). Import of commodities and goods is oriented to: machinery and transport equipment, fuels and lubricants, manufactured goods, chemicals, food and live animals, raw materials; with main import partners from: Germany 12.4%, Italy 10.6%, Russia 9.6%, China 8.5%, Hungary 4.8% and Poland 4.2%.

The banking sector is stable, adequately capitalized and liquid. Standing close to 13% in autumn 2012, inflation was reduced to the inflation target of 3±1.5%. Since the beginning of 2017 inflation has moved within the target tolerance band (3.0 ± 1.5%), with y–o–y inflation at 2 .5% in August.

1.1.3 Profiles of economic sectors

The Republic of Serbia has a modern industry that follows the model of the free market. The largest sector of the Serbian industry is the tertiary (service) sector, with 63.8% of GDP. Then follows the secondary (industrial) sector with 23.5% of GDP, and the primary (agricultural) sector with 12.7% of the GDP.

Major economic problems in Serbia are the high unemployment rate (11.8%, data measured in August 2017) and high foreign trade deficit of USD 407.5 million in August of 2017[6] . The trade deficit decreased drastically in last several years. Serbia has received large investments from foreign companies. The average real economic growth in the last 10 years is 4.45%. Serbia offers favourable tax rates, including incentives for new investors. Low tax rates, such as the corporate profit tax, is only 10%, making it one of the lowest in Europe. The ICT sector is one of the fastest growing sectors in Serbia, characterized by a significant increase of the development and promotion of IT services, such as mobile internet technologies and applications development, outsourcing and data transfers.

According to the results of the Census of Agriculture in 2012, the number of agricultural holdings in the Republic of Serbia is 631,552 of which 89% was utilized in the census year[7]. The average utilized agricultural area per holding exceeds 5.4 ha. The highest number of 42% of agricultural holdings is located in Region Šumadija and Western Serbia. Serbia has very favourable natural conditions for production of a variety of agricultural products: cereals, industrial crops, grapes, fruits and vegetables, seed and planting material, medicinal herbs and livestock. It has 3,861,477 ha of agricultural land. In 2016, Serbia exported agricultural and food products worth $3.2 billion, and the export-import ratio was 178%. Agricultural exports constitute more than one-fifth of all Serbia's sales on the world market. Serbia is one of the largest provider of frozen fruit to the EU (largest to the French market, and 2nd largest to the German market). Overall share of agriculture in GDP is 9.7% (2016).

The major industrial sectors include: automotive, mining, non-ferrous metals, food-processing, electronics, pharmaceuticals and textile industry with contribution to total GDP of 42.7%. Industry sector exports grew in last several years, driven by sales of road vehicles (8.7 percent of total exports in 2016); electrical machines and apparatus (8.6% in 2016); non-ferrous metals (4.8% in 2016) and iron and steel (4.5%in 2016). The construction sector influenced the growth of production, as the fastest growing sector in 2016. According to the Statistical Office of the Republic of Serbia, industrial growth in 2017 reached 4.2%.

The energy sector, as one of the largest and most important sectors to the country's economy, is based on electricity with installed generating capacity of 7.594 million kW (2016) and fuel trade.

The contribution of the services sector to total GDP in 2016 is 47.6%, representing the main generator of the Serbian economic growth, including trade, transport, warehousing and communications, financial mediation, PTT services and telecommunications.

Serbia offers duty-free exports to a market of 1 billion people that includes the European Union, Eurasian Customs Union members (the Russian Federation, Kazakhstan, and Belarus), Turkey, CEFTA countries and the European Free Trade Agreement (EFTA) members. Since January 1, 2014, the trade liberalization between Serbia and the EU entered into force, as specified by the Stabilization and Association Agreement.

[6] Development Agency of Serbia http://ras.gov.rs/export-promotion/foreign-trade-data
[7] Statistical Office of the Republic of Serbia http://pod2.stat.gov.rs/ObjavljenePublikacije/Popis2012/PP-knjiga1.pdf

The Free Trade Agreement with the Russian Federation, signed in August 2000, makes Serbia particularly attractive for foreign investors and manufacturers since Serbia is the only country outside the Commonwealth of Independent States which enjoys the benefits of duty-free trade with Russia. The Central European Free Trade Agreement (CEFTA) between Albania, Bosnia and Herzegovina, FYR Macedonia, Moldova, Montenegro and Serbia, has been in effect as of July 2007, providing companies in Serbia with an opportunity to reach a 22 million people market free-of-customs charges. The EFTA States Iceland, Liechtenstein, Norway and Switzerland signed a free trade agreement with Serbia in Geneva, Switzerland, on the 17th of December 2009.

EFTA abolished all customs duties on Serbian industrial products, including fish and other marine products, as of the entry into force of the Agreement. Additional agricultural agreements between the individual EFTA States and Serbia form an integral part of the instruments establishing the free trade area. Free Trade Agreement (FTA) between the Republic of Turkey and the Republic of Serbia was signed on the 1st of June 2009 in Istanbul and entered into force on the 1st of September 2010.

Turkey eliminated customs duties on imports of all industrial products originating in Serbia upon the entry into force of this Agreement. For seven months of 2017, goods exports and imports grew by 11.1% and 12.8% y-o-y, respectively, while exports-to-imports ratio stood at around 78%. Higher imports growth was led by the higher imports of capital and intermediate goods, as well as energy, due to higher needs of industry and higher oil prices[8].

Industrial production in Serbia increased 7.3% year-on-year in August of 2017. It is the highest gain since April 2016, as production grew faster for manufacturing (9.7% from 4.5% in July), namely manufacture of machinery and equipment, manufacture of rubber and plastic products and manufacture of petroleum products and mining and quarrying. Meanwhile, it dropped for electricity, gas, steam and air conditioning supply sector (1.1% from 3.1 %).

The ICT sector is becoming one of the pillars of Serbian economy. Serbia is ranked 40th on the list of biggest software exporters. The ICT sector growth is based on particularly strong engineering education background, attractive labour costs, outstanding skills, high fluency in English and a developed telecommunication and ICT infrastructure.

The total contribution of tourism to GDP was 6.7% of GDP in 2016 and is forecast to rise by 2.0% in 2017. Serbia is not a mass-tourism destination but nevertheless has a diverse range of touristic products. In 2015, a total of over 2.4 million tourists were recorded in accommodations, of which some 1.1 million were foreign tourists.

[8] National Bank of Serbia https://www.nbs.rs/internet/english/18/18_3/presentation_invest.pdf

1.1.4 Environmental overview

As a country with a transition economy, the Republic of Serbia faces major challenges in improving the environmental protection system together with structural economic reforms towards a market-oriented economy. This process is accompanied by a comprehensive social reform in order to create a strong and functional civil society. Serbia's environmental authorities have paid particular attention to the highest importance of environmental protection through the preparation of a number of strategies in close partnership with other branches of the public administration and representatives of civil society.

Following the signature of the Stabilisation and Association Agreement (SAA) in 2008, in October 2008 the Serbian National Assembly adopted the National Programme for EU Integration (NPI), further demonstrating Serbian commitment to the process. The NPI is followed by a National Programme for the Adoption of the Acquis (NPAA) for the period 2014 – 2018 with its revisions.

The policy and legal framework in the field of environment has been framed by the EU accession process, which is considered as the country's main strategic objective. This process comprises complex process of alignment of full set of national legislation, including environmental legislation, with requirements of EU Acquis; adjustment of the policy and institutional framework to the implementing requirements and introduction of standards and mechanisms foreseen by the relevant Acquis, as of 2008.

National Environmental Approximation Strategy (NEAS) was adopted in October 2011. The strategy builds on the National Programme for the EU Integration (NPI) and the National Sustainable Development Strategy (NSDS), with objectives to address the complexity of the challenge to apply EU environmental legislation in Serbia and to provide a sound basis for the accession negotiations on Chapter 27.

In 2015, the relevant institutions have initiated the process of development of Directive Specific Implementation Plans for heavy investment Directives (EU), enabling the careful investment and implementation planning, including policy, legal and institutional developments needed for full and effective implementation of EU Acquis. For now, this process encompasses the EU Acquis pertaining to the IPC, Waste Management and Water Quality Sectors; while national planning documents (including the NPAA) foresee the same approach for Chemicals Sector and Air Quality Sector Acquis.

National Program of Environmental Protection 2010-2019 and Action Plan for the period 2015-2019 (proposal)[9] was adopted under the provisions of the Law on Environmental Protection[10]. This is one of the most important documents that sets the basic guidelines of environmental policy in the Republic of Serbia. The program is based on the principles of preservation of natural values, polluter pays, user pays, implementation of incentive measures, prevention and precaution and raising public awareness of the importance of environmental protection. The Action Plan develops the objectives of the Program's policy in the sets of activities that consist of direct regulations, their implementation, economic instruments, planning, monitoring, capital investment, training and education and others.

National Waste Management Strategy for the period 2010-2019[11] is the basic strategic document that provides the conditions for rational and sustainable waste management in the Republic of Serbia. Strategy

[9] Decision on Establishing the National Program of Environmental Protection 2010-2019 ("Official Gazette of RS", No. 12/10)

[10] The Law on Environmental Protection ("Official Gazette of RS", No. 135/04, 36/09, 36/09 – other laws, 72/09 - other law, 43/11 - decision of a Constitutional Court and 14/16)

[11] The National Waste Management Strategy for the period 2010-2019 ("Official Gazette of RS", No. 29/10).

as its goal envisages the adoption of various implementation plans for managing particular waste flows (biodegradable, packaging, etc.). Establishing economic instruments and financial mechanisms is necessary for providing the system for domestic and foreign investments in long-term sustainable activities.

The Strategy also indicates the needs for institutional strengthening, legislation developing, compliance with regulations and rules at all levels, education and raising public awareness. The regulatory framework in this area, established through the Law on Waste Management[12] and its subsidiary legislation, is aligned to the EU Acquis with a tendency for achievement of full harmonization by the end of 2018, as per NPAA.

The Serbian policy in chemicals sector is also being formulated through the EU approximation process. The chemicals sector is among the most precisely directly regulated areas at the EU level (ECHA). EU Chemicals Management legislation is focused on the establishment of a single classification, labelling and packaging of chemicals and mixtures; controls for putting chemicals on the market; control of export and import (permitting system); management of certain chemicals (asbestos, mercury); and regulating the use of certain groups of chemicals (biocides, etc.).

Serbia is in the process of harmonisation with these Regulations, and applicable legislation is to a great extent compliant to the EU requirements. Many of the provisions of REACH[13] Regulation and its annexes are incorporated into the national legislation.

National legislation in part which relates to ban of export of mercury is aligned with Regulation (EC) No 1102/2008[14] since 2010 to the maximum extent for the country that is not an EU member state. Legal basis for implementation of requirements of this Regulation is set by Law on Chemicals and the Rulebook on Import and Export of Certain Hazardous Chemicals[15] . Prohibition of production, placing on the market and use of metallic mercury and mercury compounds with certain derogations is regulated by the Rulebook on Restrictions and Bans of Production, Placing on the Market and Use of Chemicals[16].

Metallic mercury will be prohibited for professional use from 2018. In order to achieve full transposition of Regulation (EC) No 1102/2008 in the part relevant to the mercury export ban the New Rulebook on Import and Export of Certain Hazardous Chemicals is in the process of adoption.

In addition to these, several other strategic documents comprise a national environmental policy: the National Sustainable Development Strategy, 2008; National Strategy of Sustainable Use of Natural Resources and Goods, 2011; Biodiversity Strategy of the Republic of Serbia for the period 2011 -2018 and its Action Plan (2010); Water Management Strategy of the Republic of Serbia (draft) and Water Pollution Protection Plan (draft); Strategy for

[12] The Law on Waste Management ("Official Gazette of RS", No 36/09, 88/10 and 14/16). The Law on Waste Management is the main document of waste legislation in Serbia adopted in May 2009. The Law prescribes types of waste and its classification, waste management planning, obligations and liability with regard to waste management, special waste streams management, permitting system, transboundary waste movement, reporting, waste management financing, supervision and other relevant aspects of waste management.

[13] Regulation (EC) No 1907/2006 (REACH)

[14] Regulation (EC) No 1102/2008 of the European Parliament and of the Council on the banning of exports of metallic mercury and certain mercury compounds and mixtures and the safe storage of metallic mercury

[15] The Rulebook on Import and Export of Certain Hazardous Chemicals ("Official Gazette of the RS" No. 89/10, 15/13 and 114/14)

[16] The Rulebook on Restrictions and Bans of Production, Placing on the Market and Use of Chemicals ("Official Gazette of the RS" 90/2013, 25/15 and 2/16)

Cleaner Production of the Republic of Serbia (2009); Strategy for Implementation of Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, Aarhus Convention (2012); The Republic of Serbia has joined main international environmental multilateral agreements by succession or ratification process[17].

The Republic of Serbia ratified the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade[18] in 2009, as an international treaty promoting shared responsibility between exporting and importing countries in protecting human health and the environment from certain banned or restricted hazardous chemicals and pesticides, and providing a mechanism for the exchange of information about potentially hazardous chemicals. The designated national authority is the Ministry of Environmental Protection.

Serbia is a party to the **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes** (ratified in 1999)[19]. By adoption of the Law on Waste Management in 2009 and associated by-laws, Serbia has filled the gaps in the legislation with regard to the provisions of the Basel Convention regulating transboundary waste shipments. The import of hazardous waste for the purpose of its disposal or recovery for energy purposes is forbidden. The import of hazardous waste may be permitted only if there is a facility for the treatment of such waste, for the operation of which a permit has been issued.

Serbia is a party (by succession, in 2001) to the **Convention on Long-range Transboundary Air Pollution (CLRTAP)** and its Protocol on Long-term Financing of the Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP). Serbia provides annual emission data as required by the Convention. In 2012 Serbia ratified the CLRTAP **Protocol on Heavy Metals**[20].

Taking into account the fact that the EU Acquis is fully aligned with the provisions of the Minamata Convention and other MEAs, the European integration process of Serbia has already, and will continue to largely contribute to the implementation of the Convention at national level.

As a signatory to the Basel Convention, Serbia almost fully harmonized national procedures prescribed by the Waste Management Law and secondary legislation on waste shipments with Convention's requirements and EU Regulation 1013/2006/EC on shipments of waste and other relevant EU Acquis.

Provisions of the Directive 2008/50/EC on air quality and cleaner air for Europe and Directive 2004/107/EC related to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in air are largely implemented through the Law on Air Protection and associated by-laws.

In the period of 2007–2013, Serbia actively participated in the negotiation process regarding the global legally binding instrument on mercury – **Minamata Convention on Mercury** – through the work of the ad-hoc working groups and participating in the work of the Intergovernmental Negotiating Committee (INC). Serbia signed the Convention in 2014. Representative of the Republic of Serbia participated at COP 1 to the Minamata Convention (2017) in the status of observer.

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[17] The Republic of Serbia is a party to the: Basel Convention, Rotterdam Convention, Stockholm Convention, UN Convention on Biodiversity, UNCCD, UNFCCC, Kyoto Protocol, Cartagena Protocol, London Convention, CMS (Bonn Convention), Bern Convention, CITES, the Ramsar Convention, Montreal Protocol, MARPOL Convention, IPPC, Espoo Convention, Kyiv Protocol on PRTRs (SEA Protocol), Aarhus Convention and CLRTAP.

[18] The Law on Ratification of Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade 2019 ("Official Gazette of RS – International Treaties", No 38/09)

[19] The Law on Ratification of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal ("Official Gazette of FRY – International Treaties", No 2/99)

[20] The Law on Ratification of the Protocol on Heavy Metals to the Convention on Long-range Transboundary Air Pollution ("Official Gazette of RS – International Treaties", No 1/12)

CHAPTER II: MERCURY INVENTORY AND IDENTIFICATION OF EMISSIONS AND RESOURCES

This mercury release inventory has been prepared using the "Toolkit for identification and quantification of mercury releases" made available by the Chemicals Branch of the United Nations Environment Programme (UN Environment Chemicals)[21].

The inventory has been developed on the Toolkit's Inventory Level 1. The Toolkit is based on mass balances for each mercury release source type. Inventory Level 1 works with pre-determined factors used in the calculation of mercury inputs to society and releases, the so-called default input factors and default output distribution factors. These factors were derived from data on mercury inputs and releases from the relevant mercury source types from available literature and other relevant data sources.

For the following mercury source sub-categories, input and releases estimates were however based on the more detailed Inventory Level 2 of the Toolkit, where the estimation was done on a more detailed level:

- Coal combustion in power plants;
- Coal combustion in coal fired industrial boilers;
- Other coal combustion;
- Combustion/use of petroleum coke and heavy oil;
- Use of gasoline, diesel, light fuel oil, kerosene, LPG and other light to medium distillates;
- Natural gas - use of pipeline gas;
- Biomass fired power and heat production;
- Charcoal combustion;
- Mineral oils extraction;
- Mineral oil refining;
- Extraction and processing of natural gas;
- Production of copper from concentrates;
- Primary ferrous metal production;
- Cement production;
- Production of recycled ferrous metals (iron and steel);
- Incineration of hazardous waste;
- Informal waste burning (open fire waste burning on landfills and informally);
- Controlled landfills/deposits;
- Informal dumping of general waste;
- Waste water system/treatment;
- Crematoria and cemeteries.

The mercury inventory has been developed using the data for the year 2015, when available. For some categories, data from 2015 were not available. In such cases, data from other years were provided. For all data the year of collection is reported in the relevant sections of this report.

[21] https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/mercury/mercury-inventory-toolkit
http://web.unep.org/chemicalsandwaste/what-we-do/technology-and-metals/mercury/toolkit-identification-and-quantification-mercury-releases

2.1 Summary of mercury releases, stockpiles, and supply and trade

As shown in the table and figures below, the following source groups contribute with the major mercury inputs: coal combustion and other coal use (with total release of 5,810 kg Hg/y, or 52% of total release of Hg); use and disposal of other products (with total release of 2,834.5 kg Hg/y, or 25% of total release of Hg), informal dumping of general waste (with total release of 4,196 kg Hg/y, or 7% of total release of Hg), application, use and disposal of dental amalgam fillings (with total release of 616 kg Hg/y, or 5% of total release of Hg); primary metal production excluding gold production by amalgamation (with total releases of 370 kg Hg/year, or 3% of total release of Hg), etc.

The individual mercury release sub-categories contributing with the highest mercury inputs were: production of copper from concentrates; gold extraction by methods other than mercury amalgamation; coal combustion in large power plants; other coal uses; cement production; primary ferrous metal production; dental amalgam fillings; other Laboratory and medical equipment with mercury; cemeteries etc.

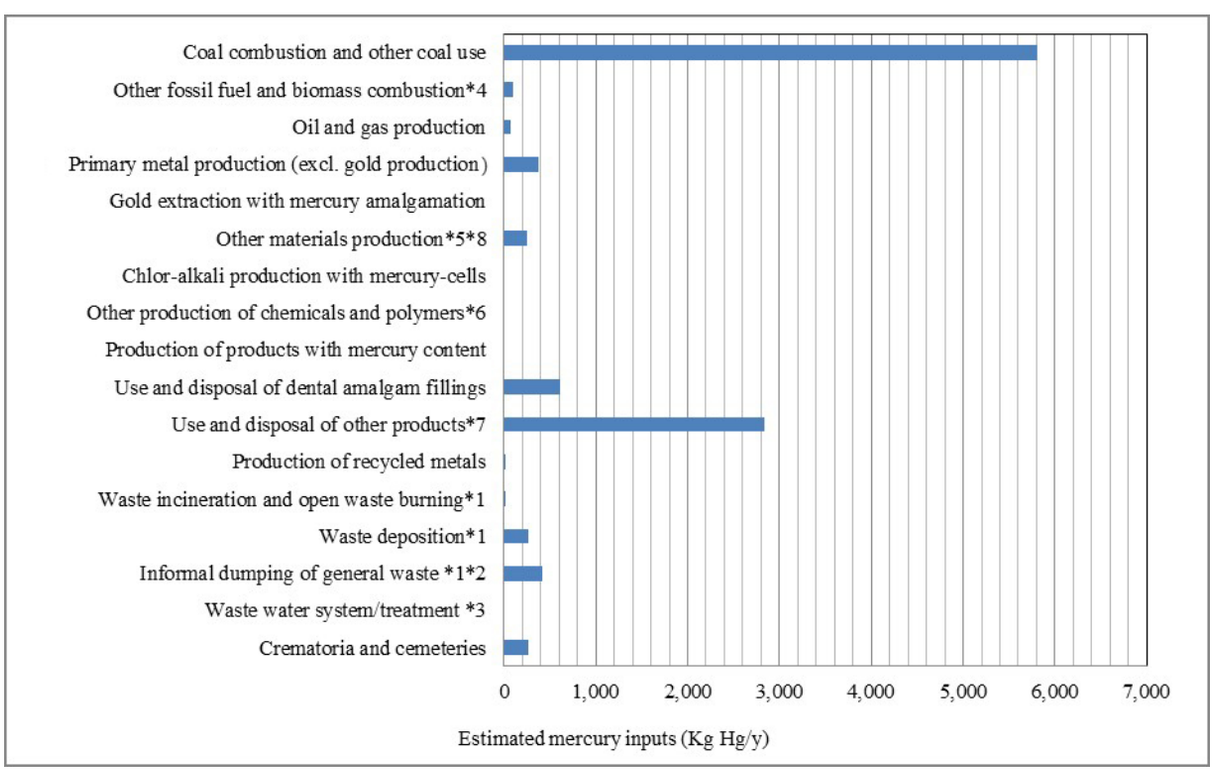

Figure 5 Estimated mercury inputs (Kg Hg/y)

Aggregated results for main groups of mercury release sources is presented in Figure 6 - Figure 11 and Table 2 below.

Releases to the air

The estimated total emission of mercury to the air is 7,310 kg Hg/year. As presented in the Figure 6 (below), the individual mercury release sub-categories contributing with the highest mercury releases to the atmosphere are: coal combustion and other coal use (5,698.8 kg Hg/year); use and disposal of other products (662.8 kg Hg/year), informal dumping of general waste (419.6 kg Hg/year); primary ferrous metal production (232.5 kg Hg/year) waste incineration and open waste burning (103.2 kg Hg/year); other fossil fuel and biomass combustion (96.2 kg Hg/year).

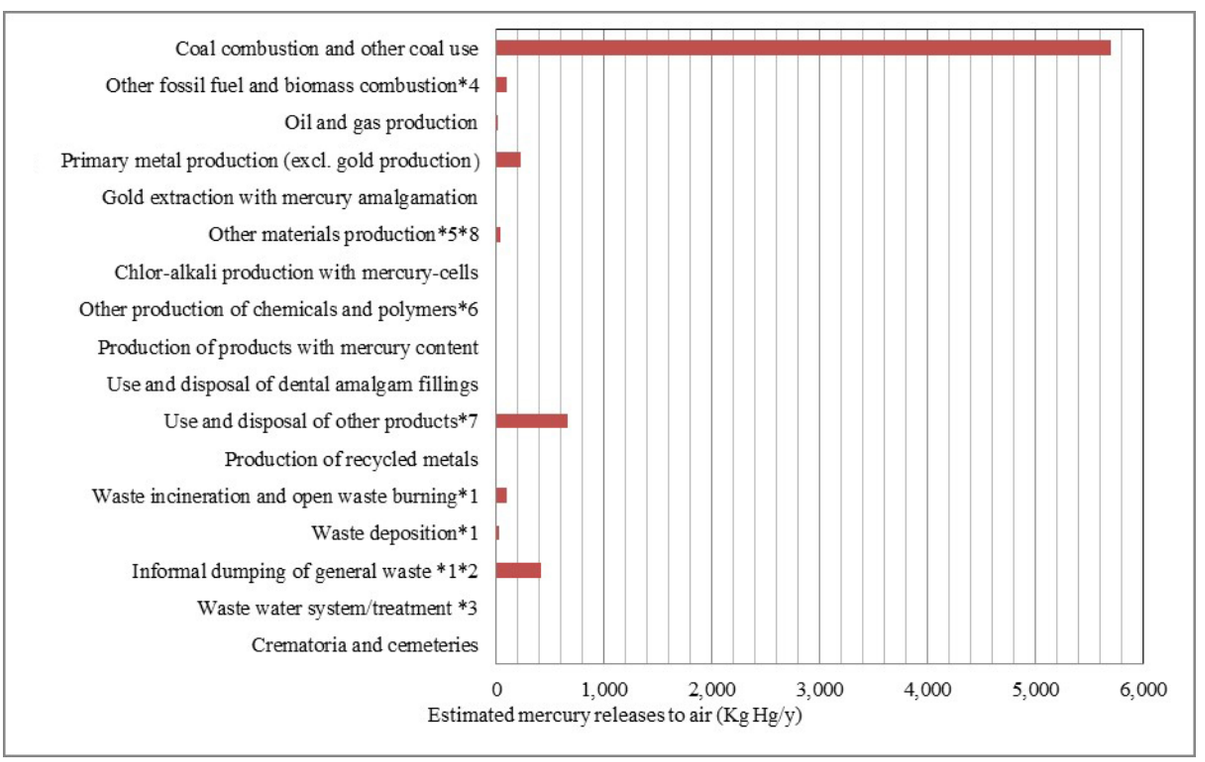

Figure 6 Estimated mercury releases to air (Kg Hg/y)

Releases to water

The estimated total emission of mercury to the water is 840 kg Hg/year. As presented in the Figure 7 (below), the highest mercury release originates from the waste water system/treatment (1,705.7 kg Hg/year), informal dumping of general waste (419.6 kg Hg/year); application, use and disposal of dental amalgam fillings (271 kg Hg/year); use and disposal of other products (138.4 kg Hg/year) and oil and gas production (11.7 kg Hg/year).

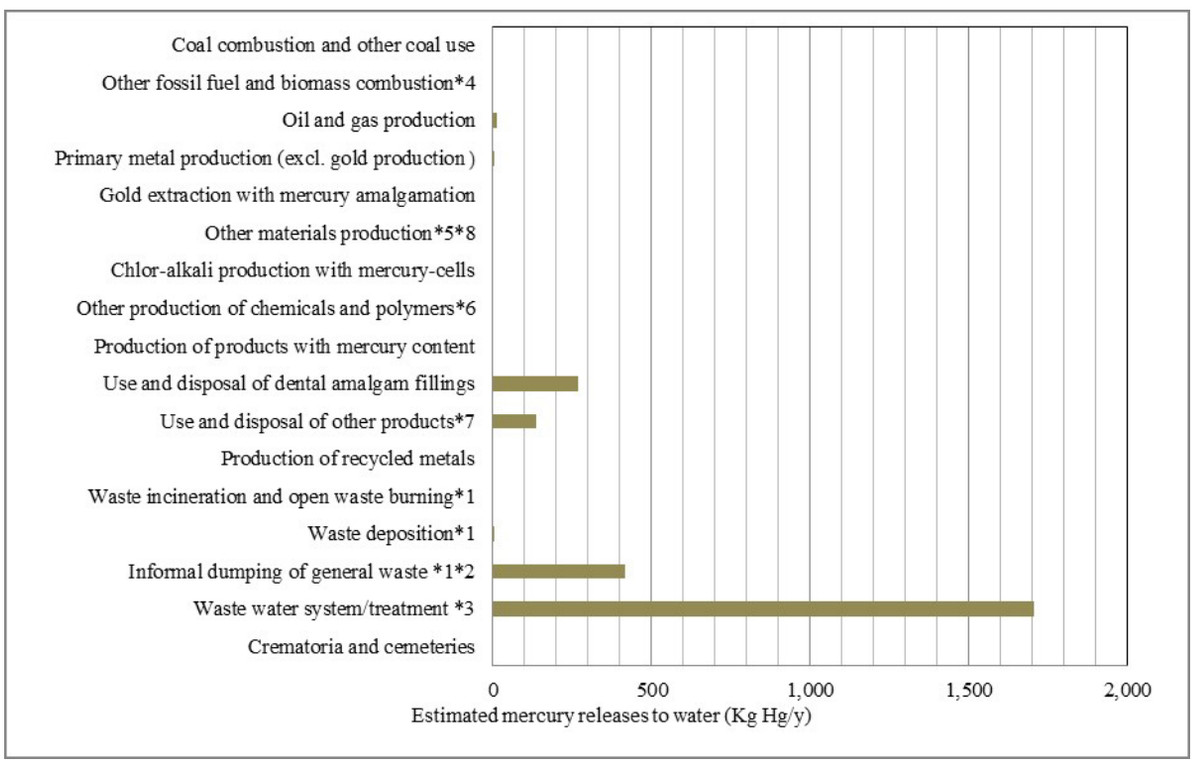

Figure 7 Estimated mercury releases to water (Kg Hg/y)

Releases to land

The estimated total emission of mercury to the land is 1 110 kg Hg/year. As presented in the Figure 8 (below), the highest mercury release originates from the informal dumping of general waste (3 357.8 kg Hg/year), use and disposal of other products (804.7 kg Hg/year), crematoria and cemeteries (251.4 kg Hg/year), application, use and disposal of dental amalgam fillings (49.3 kg Hg/year).

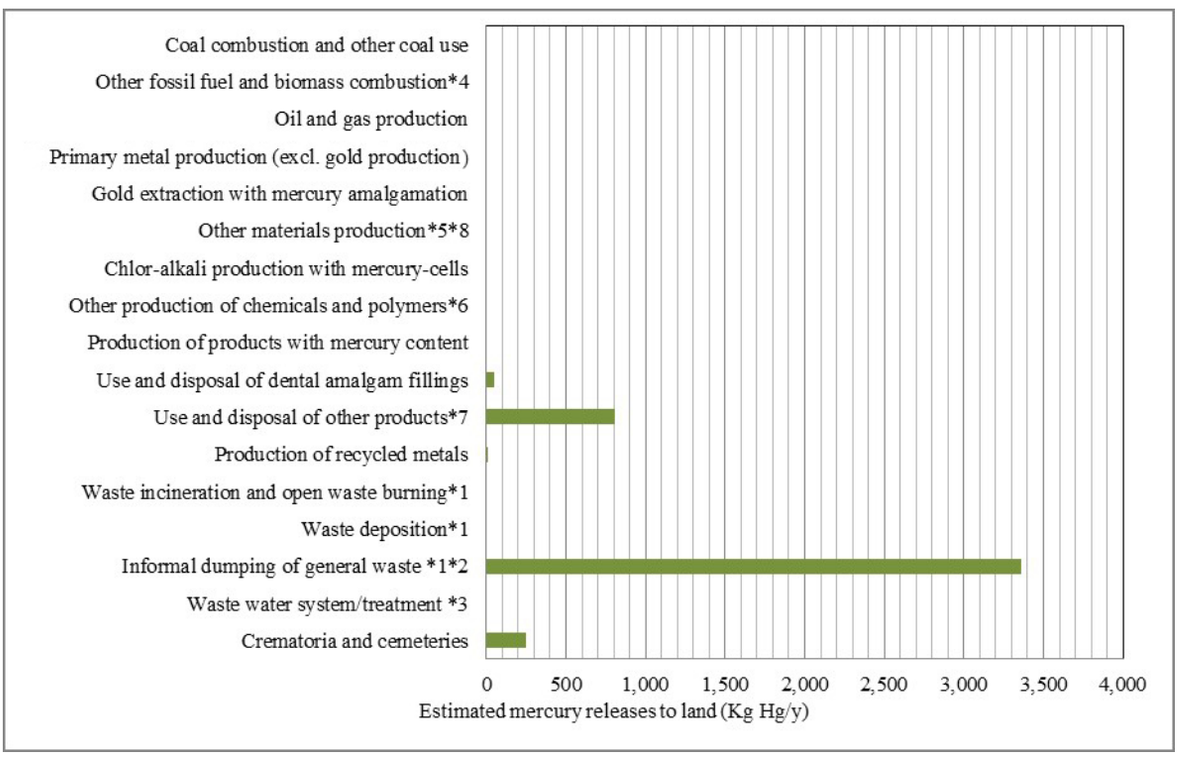

Figure 8 Estimated mercury released to land (Kg Hg/y)

By-products and impurities

The estimated total emission of mercury from by-products and impurities is 140 kg Hg/year. As presented in the Figure 9 (below), the highest mercury release originates from primary metal production, excluding gold production with amalgamation (58.8 kg Hg/year); application, use and disposal of dental fillings (37 kg Hg/year), oil and gas production (27.1 kg Hg/year) and other materials production (13.8 kg Hg/year).

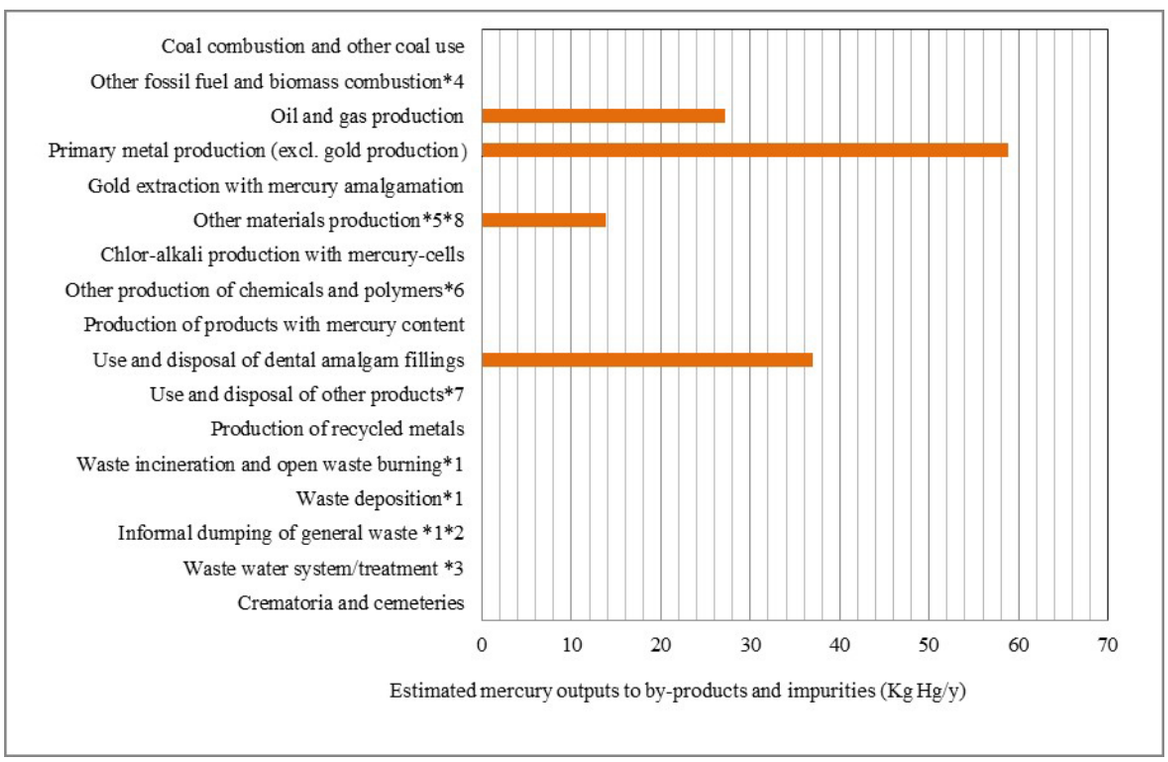

Figure 9 Estimated mercury outputs to by-products and impurities (kg Hg/y)

General waste

It should be noted that the mercury in waste and waste water produced in the country originates from the mercury in products and materials. Waste fractions and waste water do therefore not represent original mercury inputs to society (except imported waste). 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: informal dumping of general waste; controlled landfills/ deposits; incineration of hazardous waste; waste water system/treatment etc.

The estimated total emission of mercury from general waste is 1,420 kg Hg/year, with three main sources: use and disposal of other products (1,108 kg Hg/year), wastewater system/treatment (189.5 kg Hg/year and application, use and disposal of dental fillings (123.2 kg Hg/year), as presented on the Figure 10.

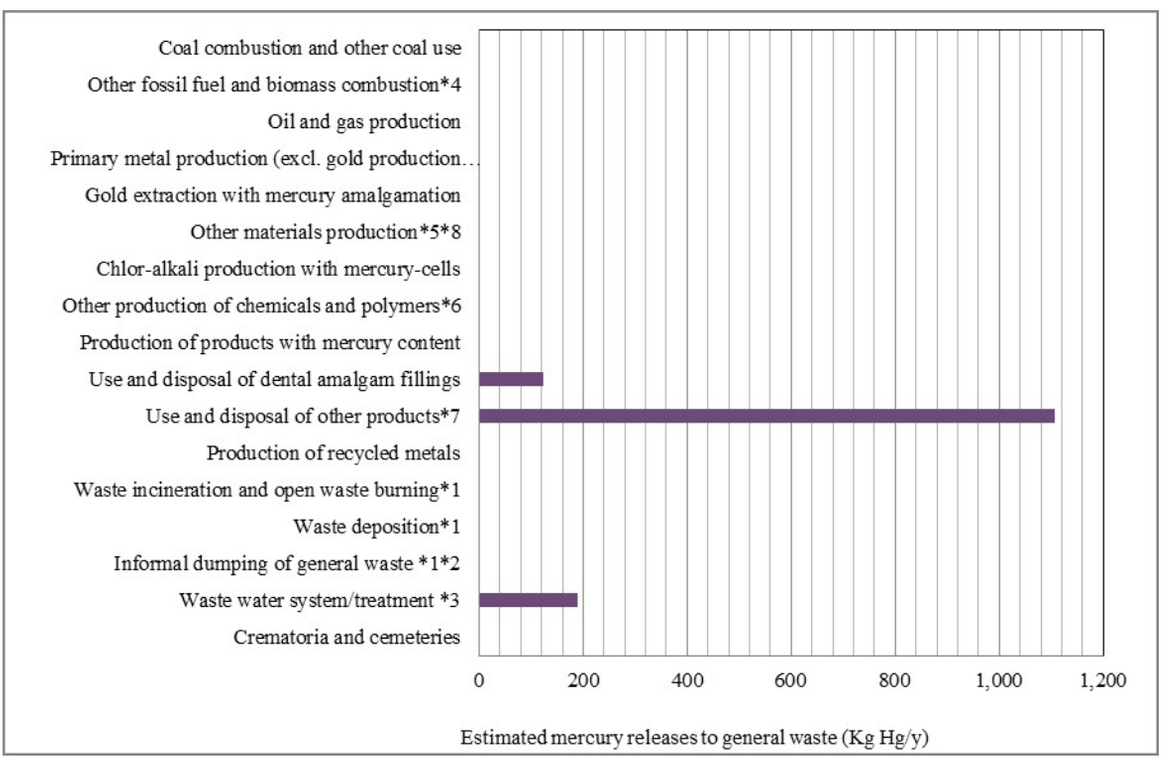

Figure 10 Estimated mercury releases to general waste (kg Hg/year)

Specific waste sector

The estimated total emission from sectors specific waste is 460 kg Hg/year. Out of this amount, the largest input is coming from the application, use and disposal of dental amalgam fillings (123.2 kg Hg/year), use and disposal of other products (120.6 kg Hg/year), coal combustion and other coal use (111.2 kg Hg/year), primary metal production excluding gold production by amalgamation (75.9 kg Hg/year), other materials production (13.8 kg Hg/year), waste incineration and open waste burning (10.3 kg Hg/year), oil and gas production (6.9 kg Hg/year), as presented on the Figure 11.

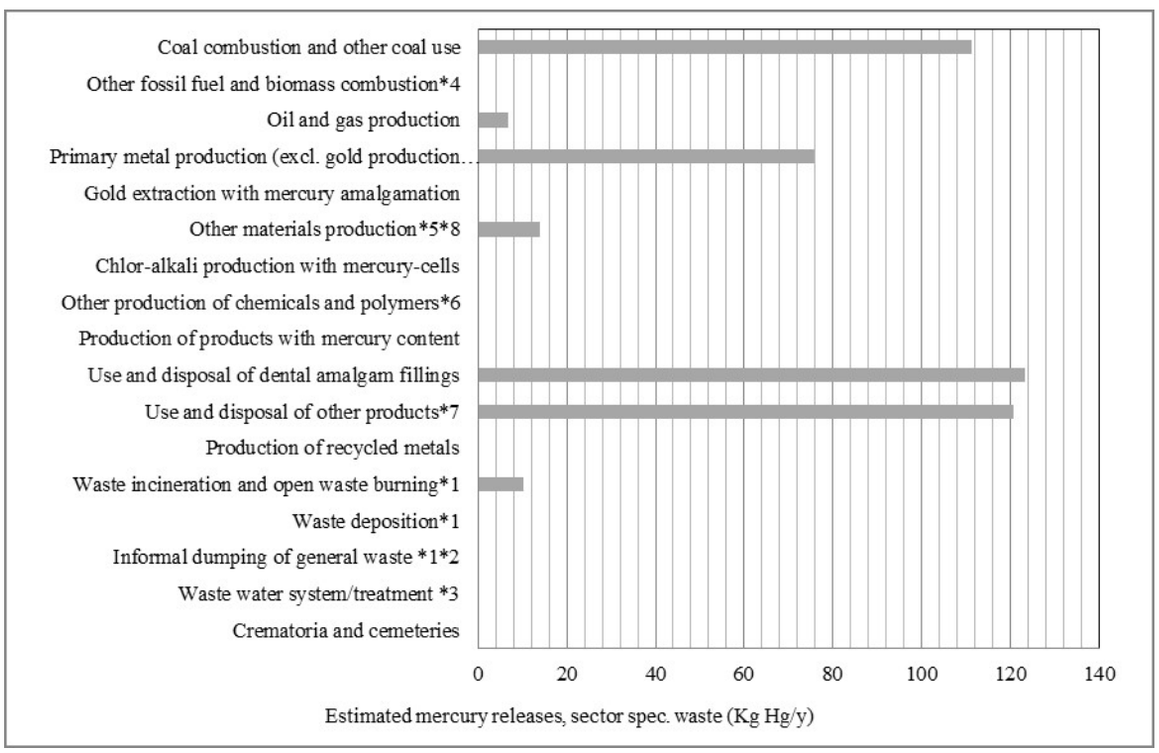

Figure 11 Estimated mercury releases, sector specific waste (kg Hg/year)

Notes to figures above:

*1: Waste is not an original source to mercury input to society. To avoid double counting of mercury inputs from waste and products in the graphs, only 10% of the mercury input to waste incineration, waste deposition and informal dumping is included in the chart 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. See Appendix 1 to the Inventory Level 1 Guidelines for more explanation.

*2: Waste is not an original source to mercury input to society. The estimated quantities include mercury in products which has also been accounted for under each product category. To signal the importance of this release pathway, the release to land from informal dumping of general waste has NOT been subtracted in the charts.

*3: Wastewater is not an original source to mercury input to society. The estimated input and release to water include mercury amounts which have also been accounted for under each source category. To avoid double counting, input to waste water system/treatment has been subtracted automatically in the charts. To signal the importance of this release pathway, releases to water via waste water system/ treatment has NOT been adjusted in the charts in spite of double counting.

*4: Includes petroleum coke, heavy oil, diesel, gasoil, petroleum, kerosene, natural gas, charcoal and other biofuels.

*5: Includes production of cement and pulp and paper.

*6: Includes production of VCM and acetaldehyde.

*7: Includes thermometers, electrical switches and relays, light sources, batteries, polyurethane with Hg catalyst, paints and skin creams with Hg, blood pressure gauges and other manometers, lab chemicals, and other lab and medical uses.

*8 to avoid double counting, fossil fuel mercury contributions to cement production were subtracted automatically in the TOTALS.

Source category	Estimated Hg input, Kg Hg/y	Estimated Hg releases, standard estimates, Kg Hg/y							Percent of total releases *3*4
		Air	Water	Land	By - products and impurities	General waste	Sector specific waste treatment / disposal	Total releases *3*4*5	
Coal combustion and other coal use	5,810.0	5,698.8	0.0	0.0	0.0	0.0	111.2	5,810	52%
Other fossil fuel and biomass combustion	96.6	96.4	0.0	0.0	0.0	0.0	0.0	96	1%
Oil and gas production	67.0	13.3	11.7	0.0	27.1	0.0	6.9	59	1%
Primary metal production (excl. gold production by amalgamation)	370.0	232.5	2.8	0.0	58.8	0.0	75.9	370	3%
Gold extraction with mercury amalgamation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Other materials production	256.0	41.5	0.0	0.0	13.8	0.0	13.8	69	1%
Chlor-alkali production with mercury-cells	-	-	-	-	-	-	-	0	0%
Other production of chemicals and polymers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Production of products with mercury content*1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0%
Application, use and disposal of dental amalgam fillings	616.0	12.3	271.0	49.3	37.0	123.2	123.2	616	5%
Use and disposal of other products	2,834.5	662.8	138.4	804.7	0.0	1,108.0	120.6	2,835	25%
Production of recycled metals	0.8	0.3	0.0	0.3	0.0	0.3	0.0	1	0%
Waste incineration and open waste burning*2	113.0	103.2	0.0	0.0	0.0	0.0	10.3	114	1%
Waste deposition*2	2,604.0	26.0	0.3	0.0	0.0	0.0	0.0	26	0%
Informal dumping of general waste *2*3	4,196.0	419.6	419.6	3,356.8	-	-	-	839	7%
Waste water system/treatment *4	1,895.3	0.0	1,705.7	0.0	0.0	189.5	0.0	190	2%
Crematoria and cemeteries	259.2	7.8	0.0	251.4	0.0	0.0	0.0	259	2%
TOTALS (rounded) *1*2*3*4*5	10,990	7,310	840	1,110	140	1,420	460	11,280	100%

Table 2 - Summary of mercury inventory results

Notes to the table above:

*1 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: To avoid double counting of mercury inputs from waste and products in the input TOTAL, only 10% of the mercury input to waste incineration, 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 the Toolkit.

*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, input to and release to water from waste water system/treatment have been subtracted automatically in the TOTALS.

*5: Total inputs do not necessarily equal total outputs due to corrections for double counting (see notes*1-*3) and because some mercury follows products/metal mercury which are not sold in the same country or in the same year.

In this inventory, default input factors were used for the estimation of mercury releases from general waste treatment and wastewater. The default factors were based on literature data of mercury contents in waste and wastewater, and these data were only available from developed countries.

Detailed presentation of mercury inputs and releases for all mercury release source types present in the country are shown in the following report sections.

The Toolkit spreadsheets used in the development of this inventory are posted along with this report, or can be submitted upon request.

Data gaps

In the area of **energy consumption**, there were no major data gaps for the applied level of assessment, except for data related to the devices for reducing emissions to the air. Collected data on national level on energy consumption and fuel production were provided based on official data of the Statistical Office of the Republic of Serbia/ Energy Balances 2015. Additionally, collected data based on the questionnaires for the large combustion plants and district heating plants were provided by the information of Public Utility Elektroprivreda Srbije (EPS) and Chamber of Commerce from the following installations:

EPS	Chamber of Commerce	Company NIS AD
• TE NIKOLA TESLA A • TE NIKOLA TESLA B • TE KOLUBARA A • TE KOSTOLAC A • TE MORAVA • TE-TO SREMSKA MITROVICA • TE NOVI SAD • TE-TO ZRENJANIN	• JKP ENERGANA SOMBOR • JKP KOSJERIC • JKP PANCEVO • JKP VRBAS • JP SMEDEREVO • JP NOVOSADSKA TOPLANA • JP TOPLANA KIKINDA	Being the main producer of the oil/gas, the company provided data based on the questionnaires on the: • Total energy and fuel consumption • Quantities of extracted and processed natural gas • Quantities of combusted crude oil and coke

In terms of **assessment of extraction, refining and use of mineral oils**, there were no major data gaps, with the exception of relevant data of emissions controls of Oil Combustion Facility which were not available.

In terms of **assessment of domestic production of metals and row materials**, there were no major data gaps for the level of assessment applied at this phase. The exception is the production of aluminum and primary ferrous metal production, given that the largest producers have not provided requested data by the time of finalising the report. It should be noted that both producers were contacted by the Chamber of Commerce and Expert Team without timely feedback.

However, data about these productions were found from literature and the inventory was prepared in accordance with described data resources. The same situation was noted in the case of production of pulp and paper, which data is still pending to be obtained. However, in this case no more data was found in literature or from other sources, so the inventory has not prepared based on further research of this field.

In terms of **assessment of data on domestic production and processing with intentional mercury use**, there were no major data gaps, except for the production of lighting equipment. The Statistical Office of the Republic of Serbia has registered production of different types of light sources during 2015, but this institution does not have information about Hg content in those products. Two producers of lights have confirmed that they don't use mercury.

With regard data on **waste handling and recycling**, the established monitoring and reporting system demonstrated gaps for several categories which are considered as sources of mercury. For example, data on recycling of end-of-life vehicles are collected by SEPA and on the basis of application report from operators and/or generators do not match, meaning that there are inconsistencies between applied forms/methodologies.

Further, the collected data on incineration do not provide information on how and where the amount of 4,300 t/year of hazardous waste is treated. Also, there is no regular full-scale waste collection system for hazardous wastes introduced on the territory of Serbia at present. Currently the collection system for hazardous wastes is primarily based on the economic value of the waste.

For example, oil wastes of a certain quality (high calorific value) or lead acid-batteries, which can be sold to users within the formal or informal waste management sector, are collected in any case. In addition, there is no data addressing open burning of medical waste; nor reliable data regarding the quantity of waste disposed of on informal landfills. Data are more based on estimation than based on site investigation at local community level, nor are there reliable data regarding the quantity of treated waste water.

The biggest data gaps were noticed with regard the **data on general consumption of mercury in products, as well as metal mercury and as mercury containing substances**. Official institutions (SEPA, the Customs Administration, the Statistical Office of the Republic of Serbia, Market Inspection etc.) do not have information about Hg presence in products on the Serbian market and information on its disposal in particular, the products such as thermometers, batteries with mercury, light sources with mercury. Another specific issue is the lack of baseline assessment on quantity of products and instruments which are in use (and have been put in use prior the introduction of ban), as well as illegal market of thermometers which contain mercury.

The initial assessment identified the following priorities for further assessment [and/or actions]:

- **Priority 1: Finalization of baseline assessment**

  Initial assessment did not take into consideration the presence of equipment and products with Hg content which have been put in use/market prior to the introduction of bans, due to the fact that such an inventory (cadastre) does not exist. The same is true with respect to the presence of the chemicals with the Hg content in schools, institutes and faculties, as well as different laboratories (including laboratory equipment with mercury), including both the quantities and the life-cycle of this equipment and materials. In order to ensure the feasible and accurate phase out plan, the establishment of such cadastres will be needed. Once finalized, this information should be used as an input for review of initial assessment (inventory).

- **Priority 2: Adjustment of monitoring and reporting framework, with relevance for parameters related to Hg management**

There is a need to ensure the coverage of all aspects related to mercury through formal and informal monitoring and reporting framework. In some cases, the official data based on the inputs provided through the monitoring of different aspects of economic activities which are of relevance for Hg releases or monitoring of environmental media are not compatible, as shown in the example of end-of life vehicles. To some extent, this is caused by the lack of cooperation of actors which are targeted through the reporting system (see the next point, below), but also by the absence of data evaluation and presentation in a way that would provide systematic data needed for an informed estimation on Hg levels in the country.

The noted weaknesses also refer to equipment and products which have been put on the market or in use before introduction of bans related to the mercury import and use, and which may create the additional input in the future period (as explained under point 1), as well as evidence or any estimation about the presence of illegally imported Hg thermometers into the Republic of Serbia.

In addition, as indicated above, the consulted institutions do not monitor nor report on the level of Hg in majority of products as such (Customs Administration; Ministry of Economy- Sector for Quality and Products Safety, Sector for Market Inspection - with respect to products which are being imported/ put on the market; Ministry of Environmental Protection - Department for Chemicals, SEPA). Proper monitoring is very important for the estimations of releases from the waste sector, taking into consideration the life-cycle of the products. by introduction and enforcement of proper monitoring, the figures presented in this inventory may require adjustments.

Strengthening monitoring and reporting system would require preparation of a joint action plan for further development of data collection on the Hg content in products which are being put on the Serbian market and become waste after use; with involvement of, as a minimum: the Customs Administration, the Ministry of the Economy (the Sector for Quality and Product Safety and the Sector for the Market Inspection) and the Serbian Environmental Protection Agency, Ministry of Environment (Department for Chemicals Management), Ministry of Health, etc. This implies the establishment of stronger cooperation and coordination between involved institutions, and potentially a revision of reporting formats (types of information) in the most relevant sectors, in order to cover all aspects of Hg presence in the country.

This may further imply the need for specialization of questionnaires/reporting format in a way that ensures that collected information is as comprehensive as possible, enabling unified evaluation and statistical presentation. This measure may be linked to the previous one (finalization of baseline assessment), since it will require the collection and collation of reporting inputs, and the following measure (awareness raising and mobilization of economic subjects), since it will require the full involvement of data providers.

- **Priority/action 3: Increase the cooperation of economic subjects**

The monitoring which involves the economic subjects and imposes regular reporting to (1) state institutions and (2) Chambers of Commerce is not fully functional. As explained above, the gaps in existing monitoring and reporting formats and framework are one of the reasons for such estimation; however, to some extent, the data gaps are caused by the lack of cooperation of targeted (economic) actors. As indicated above, a number of economic actors does not provide the required input to the monitoring/ reporting authorities; therefore, the available statistics do not reflect the complete information.

The above presented measure, preparation of a joint, inter-institutional action plan for further development of data collecting, focusing on specific categories of activities or products (e.g. of the devices for reducing emissions in the air in energy sector) should lead to reducing the information gaps.

Given the time needed for development and introduction of additional measures and its enforcement, the action should be complemented through "voluntary" mechanisms. The focus should be on the Chamber of Commerce mechanisms, as well as activities of relevant association. This cooperation framework may compensate for the lack of specific legal obligations; however, it requires the strong and systematic implementation of strong and systematic awareness raising campaign (crucial role of Chamber of Commerce, as the mechanism and relevant institutions).

2.1.1 Mercury release source types present

Table 3 shows which mercury release sources were identified as present or absent in the Republic of Serbia. Only source types positively identified as present are included in the quantitative assessment.

It should be noted however, that the presumably minor mercury release source types shown in Table 4 were not included in the detailed source identification and quantification work for Level 1 Inventory. These may however be present in some countries.

Source category	Source present Y/N/?
Energy consumption	
Coal combustion in large power plants	Y
Coal combustion in coal fired industrial boilers	Y
Other coal uses	Y
Combustion/use of petroleum coke and heavy oil	Y
Combustion/use of diesel, gasoil, petroleum, kerosene, LPG and other light to medium distillates	Y
Use of raw or pre-cleaned natural gas	?
Use of pipeline gas (consumer quality)	Y
Biomass fired power and heat production	Y
Charcoal combustion	Y
Fuel production	
Oil extraction	Y
Oil refining	Y
Extraction and processing of natural gas	Y
Primary metal production	
Mercury (primary) extraction and initial processing	N
Production of zinc from concentrates	N
Production of copper from concentrates	Y
Production of lead from concentrates	N
Gold extraction by methods other than mercury amalgamation	Y
Alumina production from bauxite (aluminium production)	N
Primary ferrous metal production (iron, steel production)	Y
Gold extraction with mercury amalgamation - without use of retort	N
Gold extraction with mercury amalgamation - with use of retorts	N
Other materials production	
Cement production	Y
Pulp and paper production	?
Production of chemicals and polymers	
Chlor-alkali production with mercury-cells	N
VCM production with mercury catalyst	N
Acetaldehyde production with mercury catalyst	N

Source category	Source present Y/N/?
Production of products with mercury content	
Hg thermometers (medical, air, lab, industrial etc.)	N
Electrical switches and relays with mercury	N
Light sources with mercury (fluorescent, compact, others: see guideline)	N
Batteries with mercury	N
Manometers and gauges with mercury	N
Biocides and pesticides with mercury	N
Paints with mercury	N
Skin lightening creams and soaps with mercury chemicals	N
Use and disposal of products with mercury content	
Dental amalgam fillings ("silver" fillings)	Y
Thermometers	?
Electrical switches and relays with mercury	Y
Light sources with mercury	Y
Batteries with mercury	Y
Polyurethane (PU, PUR) produced with mercury catalyst	Y
Paints with mercury preservatives	N
Skin lightening creams and soaps with mercury chemicals	N
Medical blood pressure gauges (mercury sphygmomanometers)	?
Other manometers and gauges with mercury	?
Laboratory chemicals	Y
Other laboratory and medical equipment with mercury	Y
Production of recycled of metals	
Production of recycled mercury ("secondary production")	N
Production of recycled ferrous metals (iron and steel)	Y

Source category	Source present Y/N/?
Waste incineration	
Incineration of municipal/general waste	N
Incineration of hazardous waste	Y
Incineration of medical waste	N
Sewage sludge incineration	N
Open fire waste burning (on landfills and informally)	Y
Waste deposition/landfilling and waste water treatment	
Controlled landfills/deposits	Y
Informal dumping of general waste *1	Y
Waste water system/treatment	Y
Crematoria and cemeteries	
Crematoria	Y
Cemeteries	Y

Table 3 Identification of mercury release sources in the country; sources present (Y), absent (N), and possible but not positively identified (?)

Source category	Source present Y/N/?
Combustion of oil shale	N
Combustion of peat	N
Geothermal power production	Y
Production of other recycled metals	Y
Production of lime	Y
Production of light weight aggregates (burnt clay nuts for building purposes)	Y
Chloride and potassium-hydroxide produced from mercury-cell technology	N
Polyurethane production with mercury catalysts	N
Seed dressing with mercury chemicals	N
Infrared detection semiconductors	Y
Bougie tubes and Cantor tubes (medical)	Y
Educational uses	Y
Gyroscopes with mercury	N
Vacuum pumps with mercury	N
Mercury used in religious rituals (amulets and other uses)	N
Mercury used in traditional medicines (ayurvedic and others) and homeopathic medicine	Y
Use of mercury as a refrigerant in certain cooling systems	N
Light houses (levelling bearings in marine navigation lights)	N
Mercury in large bearings of rotating mechanic parts in for example older waste water treatment plants	N
Tanning	Y
Pigments	N
Products for browning and etching steel	Y
Certain colour photograph paper types	N
Recoil softeners in rifles	Y
Explosives (mercury-fulminate a.o.)	Y
Fireworks	Y
Executive toys	N

Table 4 Miscellaneous potential mercury sources not included in the quantitative inventory; with preliminary indication of possible presence in the country

2.1.2 Summary of mercury inputs to environment

Mercury inputs to environment 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 contain mercury in trace concentrations.

The following source sub-categories made the largest contributions to mercury inputs to the environment: Coal combustion in large power plants (5,484.0 Kg Hg/y), Use of batteries with mercury (1,196.0 Kg Hg/y), Use of switches and relays with mercury (993.0 Kg Hg/y), Dental amalgam fillings (616.00 Kg Hg/y) etc.

Table 5 (below) provides an overview of estimated contributions (Kg Hg/year) per present source sub-sectors/ categories, calculated on the basis of activity rate[22].

Source category	Source present Y/N/?	Activity rate	Unit	Estimated Hg input, Kg Hg/y Standard estimate
Energy consumption				
Coal combustion in large power plants	Y	36,558,853	Coal combusted, t/y	5,484
Coal combustion in coal fired industrial boilers	Y	309,752	Coal combusted, t/y	31
Other coal uses	Y	1,967,817	Coal used, t/y	295
Combustion/use of petroleum coke and heavy oil	Y	370,469	Oil product combusted, t/y	9
Combustion/use of diesel, gasoil, petroleum, kerosene, LPG and other light to medium distillates	Y	2,350,762	Oil product combusted, t/y	5
Use of raw or pre-cleaned natural gas	?	0	Gas used, Nm^3/y	?
Use of pipeline gas (consumer quality)	Y	2,084,505,600	Gas used, Nm^3/y	1
Biomass fired power and heat production	Y	2,729,140	Biomass combusted, t/y	82
Charcoal combustion	Y	3,395	Charcoal combusted, t/y	0

[22] Activity rate is defined for each category which is assessed, and it represents the data needed for emission assessment.

Source category	Source present Y/N/?	Activity rate	Unit	Estimated Hg input, Kg Hg/y Standard estimate
Fuel production				
Oil extraction	Y	1,022,397	Crude oil produced, t/y	3
Oil refining	Y	2,912,843	Crude oil refined, t/y	10
Extraction and processing of natural gas	Y	542,899,200	Gas produced, Nm^3/y	54
Primary metal production				
Mercury (primary) extraction and initial processing	N	0	Mercury produced, t/y	-
Production of zinc from concentrates	N	0	Concentrate used, t/y	-
Production of copper from concentrates	Y	280,004	Concentrate used, t/y	140
Production of lead from concentrates	N	0	Concentrate used, t/y	-
Gold extraction by methods other than mercury amalgamation	Y	0	Gold ore used, t/y	-
Alumina production from bauxite (aluminium production)	N	0	Bauxite processed, t/y	-
Primary ferrous metal production (iron, steel production)	Y	4,599,449	Pig iron produced, t/y	230
Gold extraction with mercury amalgamation - from whole ore	N	0	Gold produced, kg/y	-
Gold extraction with mercury amalgamation - from concentrate	N	0	Gold produced, kg/y	-
Other materials production				
Cement production	Y	1,654,390	Cement produced, t/y	256
Pulp and paper production	?	0	Biomass used for production, t/y	?

Source category	Source present Y/N/?	Activity rate	Unit	Estimated Hg input, Kg Hg/y Standard estimate
Production of chemicals				
Chlor-alkali production with mercury-cells	N	0	Cl2 produced, t/y	-
VCM production with mercury catalyst	N	0	VCM produced, t/y	-
Acetaldehyde production with mercury catalyst	N	0	Acetaldehyde produced, t/y	-
Production of products with mercury content				
Hg thermometers (medical, air, lab, industrial etc.)	N	0	Mercury used for production, kg/y	-
Electrical switches and relays with mercury	N	0	Mercury used for production, kg/y	-
Light sources with mercury (fluorescent, compact, others: see guideline)	N	0	Mercury used for production, kg/y	-
Batteries with mercury	N	0	Mercury used for production, kg/y	-
Manometers and gauges with mercury	N	0	Mercury used for production, kg/y	-
Biocides and pesticides with mercury	N	0	Mercury used for production, kg/y	-
Paints with mercury	N	0	Mercury used for production, kg/y	-
Skin lightening creams and soaps with mercury chemicals	N	0	Mercury used for production, kg/y	-

Source category	Source present Y/N/?	Activity rate	Unit	Estimated Hg input, Kg Hg/y Standard estimate
Use and disposal of products with mercury content				
Dental amalgam fillings ("silver" fillings)	Y	7,095,383	Number of inhabitants	616
Thermometers	N	0	Items sold/y	-
Electrical switches and relays with mercury	N	7,095,383	Number of inhabitants	993
Light sources with mercury	Y	3,984,178	Items sold/y	77
Batteries with mercury	Y	32	t batteries sold/y	1,196
Polyurethane (PU, PUR) produced with mercury catalyst	N	7,095,383	Number of inhabitants	213
Paints with mercury preservatives	N	0	Paint sold, t/y	-
Skin lightening creams and soaps with mercury chemicals	N	0	Cream or soap sold, t/y	-
Medical blood pressure gauges (mercury sphygmomanometers)	N	0	Items sold/y	?
Other manometers and gauges with mercury	N	7,095,383	Number of inhabitants	?
Laboratory chemicals	Y	7,095,383	Number of inhabitants	71
Other laboratory and medical equipment with mercury	Y	7,095,383	Number of inhabitants	284
Production of recycled of metals				
Production of recycled mercury ("secondary production")	N	0	Mercury produced, kg/y	-
Production of recycled ferrous metals (iron and steel)	Y	709	Number of vehicles recycled/y	1

Source category	Source present Y/N/?	Activity rate	Unit	Estimated Hg input, Kg Hg/y Standard estimate
Waste incineration				
Incineration of municipal/general waste	N	0	Waste incinerated, t/y	-
Incineration of hazardous waste	Y	4,300	Waste incinerated, t/y	103
Incineration / burning of medical waste	N	0	Waste incinerated, t/y	-
Sewage sludge incineration	N	0	Waste incinerated, t/y	-
Open fire waste burning (on landfills and informally)	Y	2,072	Waste burned, t/y	10
Waste deposition/landfilling and waste water treatment				
Controlled landfills/deposits	Y	520,804	Waste landfilled, t/y	2,604
Informal dumping of general waste *1	Y	839,196	Waste dumped, t/y	4,196
Waste water system/treatment	Y	361,000,000	Waste water, m3/y	1,895
Crematoria and cemeteries				
Crematoria	Y	3,125	Corpses cremated/y	8
Cemeteries	Y	100,553	Corpses buried/y	251
TOTAL of quantified releases				10.980

Table 5 Summary of mercury inputs to society

2.1.3 Summary of mercury releases

As summarized under Section 2.1, the initial assessment covered releases to air (the atmosphere), to water (marine and freshwater bodies, including via waste water systems), to land, to general waste, and to sector specific waste treatment. An additional output pathway provided in this inventory is "by-products and impurities" which designate mercury flows back into the market with by-products and products where mercury does not play an intentional role.

Calculation result type	Description
Estimated Hg input, Kg Hg/y	The standard estimate of the amount of mercury entering this source category with input materials, for example calculated mercury amount in coal used annually in the country for combustion in large power plants.
Air	Mercury emissions to the atmosphere from point sources and diffuse sources from which mercury may be spread locally or over long distances with air masses; for example from: • Point sources such as coal fired power plants, metal smelter, waste incineration; • Diffuse sources such as small-scale gold mining, informal burning of waste with fluorescent lamps, batteries, thermometers.
Water	Mercury releases to aquatic environments and to waste water systems; point sources and diffuse sources from which mercury will be spread to freshwater (rivers, lakes, etc.), for example releases from: • Wet flue gas cleaning systems on coal fired power plants; • Industry, households, etc. to aquatic environments; • Surface run-off and leachate from mercury contaminated soil and waste dumps.
Land	Mercury releases to the terrestrial environment: General soil and ground water.For example releases from: • Solid residues from flue gas cleaning on coal fired power plants used for gravel road construction; • Uncollected waste products dumped or buried informally; • Local un-confined releases from industry such as on site hazardous waste storage/burial; • Spreading of sewage sludge with mercury content on agricultural land (sludge used as fertilizer); • Application on land, seeds or seedlings of pesticides with mercury compounds.

Calculation result type	Description
By-products and impurities	By-products that contain mercury, which are sent back into the market and cannot be directly allocated to environmental releases, for example: • Gypsum wallboard produced from solid residues from flue gas cleaning of coal fired power plants; • Sulphuric acid produced from desulphurization of flue gas (flue gas cleaning) in non-ferrous metal plants with mercury trace concentrations; • Chlorine and sodium hydroxide produced with mercury-based chlor-alkali technology; with mercury trace concentrations; • Metal mercury or calomel as by-product from non-ferrous metal mining (high mercury concentrations).
General waste	General waste: Also called municipal waste. Typically household and institution waste where the waste undergoes general treatment, such as incineration, landfilling or informal dumps. The mercury sources to waste are consumer products with intentional mercury content (batteries, thermometers, fluorescent tubes, etc.) as well as high volume waste like printed paper, plastic, etc., with small trace concentrations of mercury.
Sector specific waste treatment / disposal	Waste from industry and consumers which is collected and treated in separate systems, and in some cases recycled; for example: • Confined deposition of solid residues from flue gas cleaning on coal fired power plants on dedicated sites; • Hazardous industrial waste with high mercury content which is deposited in dedicated safe sites; • Hazardous consumer waste with mercury content, mainly separately collected and safely treated batteries, thermometers, mercury switches, lost teeth with amalgam fillings, etc. • Confined deposition of tailings and high-volume rock/waste from extraction of non-ferrous metals.

Table 6 General descriptions and definitions of the output pathways

The estimated total **emission of mercury to air** is 7,310 kg Hg/year. The individual mercury release sub-categories contributing with the highest mercury releases to the atmosphere are: coal combustion and other coal use (5,698.8 kg Hg/year); use and disposal of other products (662.8 kg Hg/year), informal dumping of general waste (419.6 kg Hg/year); primary ferrous metal production (232.5 kg Hg/year) waste incineration and open waste burning (103.2 kg Hg/y); other fossil fuel and biomass combustion (96.2 kg Hg/year), etc.

The estimated **total emission of mercury to water** is 840 kg Hg/year. The highest mercury release originates from the waste water system/treatment (1,705.7 kg Hg/year), informal dumping of general waste (419.6 kg Hg/year); application, use and disposal of dental amalgam fillings (271 kg Hg/year); use and disposal of other products (138.4 kg Hg/year) and oil and gas production (11.7 kg Hg/year).

The estimated **total emission of mercury to land** is 1,110 kg Hg/year. The highest mercury release originates from the informal dumping of general waste (3,357.8 kg Hg/year), use and disposal of other products (804.7 kg Hg/year), crematoria and cemeteries (251.4 kg Hg/year), application, use and disposal of dental amalgam fillings (49.3 kg Hg/year).

The estimated **total emission of mercury from by-products and impurities** is 140 kg Hg/year. The highest mercury release originates from primary metal production, gold production with amalgamation (58.8 kg Hg/year); application, use and disposal of dental fillings (37 kg Hg/year), oil and gas production (27.1 kg Hg/year) and other materials production (13.8 kg Hg/year).

The estimated **total emission of mercury from general waste** is 1,420 kg Hg/year, from three main sources: use and disposal of other products (1,108 kg Hg/year), wastewater system/treatment (189.5 kg Hg/year and application, use and disposal of dental fillings (123.2 kg Hg/year).

The estimated **total emission from sectors specific waste** is 460 kg Hg/year, including application, use and disposal of dental amalgam fillings (123.2 kg Hg/year), use and disposal of other products (120.6 kg Hg/year), coal combustion and other coal use (111.2 kg Hg/year), primary metal production excl. gold production by amalgamation (75.9 kg Hg/year), other materials production (13.8 kg Hg/year), waste incineration and open waste burning (10.3 kg Hg/year), oil and gas production (6.9 kg Hg/year).

Source category	Estimated Hg releases, standard estimates, Kg Hg/y					
	Air	Water	Land	By-products and impurities	General waste	Sector specific waste treatment / disposal
Energy consumption						
Coal combustion in large power plants	5,374.2	0.0	0.0	0.0	0.0	109.7
Coal combustion in coal fired industrial boilers	29.4	0.0	0.0	0.0	0.0	1.5
Other coal uses	295.2	0.0	0.0	0.0	0.0	0.0
Combustion/use of petroleum coke and heavy oil	8.9	0.0	0.0	0.0	0.0	0.0
Combustion/use of diesel, gasoil, petroleum, kerosene, LPG and other light to medium distillates	4.7	0.0	0.0	0.0	0.0	0.0
Use of raw or pre-cleaned natural gas	?	?	?	?	?	?
Use of pipeline gas (consumer quality)	0.5	0.0	0.0	0.0	0.0	0.0
Biomass fired power and heat production	81.9	0.0	0.0	0.0	0.0	0.0
Charcoal combustion	0.4	0.0	0.0	0.0	0.0	0.0
Fuel production						
Oil extraction	0.0	0.7	0.0	0.0	0.0	0.0
Oil refining	2.5	0.1	0.0	0.0	0.0	1.5
Extraction and processing of natural gas	10.9	10.9	0.0	27.1	0.0	5.4
Primary metal production						
Production of copper from concentrates	14.0	2.8	0.0	58.8	0.0	64.4
Primary ferrous metal production (iron, steel production)	218.5	0.0	0.0	0.0	0.0	11.5
Other materials production						
Cement production	41.5	0.0	0.0	13.8	0.0	13.8
Pulp and paper production	?	?	?	?	?	?

Source category	Estimated Hg releases, standard estimates, Kg Hg/y					
	Air	Water	Land	By-products and impurities	General waste	Sector specific waste treatment / disposal
Use and disposal of products with mercury content						
Dental amalgam fillings ("silver" fillings)	12.3	271.0	49.3	37.0	123.2	123.2
Thermometers	?	?	?	?	?	?
Electrical switches and relays with mercury	298.0	0.0	397.3	0.0	298.0	0.0
Light sources with mercury	23.2	0.0	23.2	0.0	30.9	0.0
Batteries with mercury	299.0	0.0	299.0	0.0	598.1	0.0
Polyurethane (PU, PUR) produced with mercury catalyst	42.6	21.3	85.1	0.0	63.9	0.0
Laboratory chemicals	0.0	23.4	0.0	0.0	23.4	24.1
Other laboratory and medical equipment with mercury	0.0	93.7	0.0	0.0	93.7	96.5
Production of recycled metals						
Production of recycled ferrous metals (iron and steel)	0.3	0.0	0.3	0.0	0.3	0.0
Waste incineration						
Incineration of hazardous waste	92.9	0.0	0.0	0.0	0.0	10.3
Open fire waste burning (on landfills and informally)	10.4	0.0	0.0	0.0	0.0	0.0

Source category	Estimated Hg releases, standard estimates, Kg Hg/y					
	Air	Water	Land	By-products and impurities	General waste	Sector specific waste treatment / disposal
Waste deposition/landfilling and waste water treatment						
Controlled landfills/deposits	26.0	0.3	0.0	0.0	0.0	0.0
Informal dumping of general waste *1	419.6	419.6	3356.8	-	-	-
Waste water system/ treatment *2	0.0	1705.7	0.0	0.0	189.5	0.0
Crematoria and cemeteries						
Crematoria	7.8	0.0	0.0	-	0.0	0.0
Cemeteries	0.0	0.0	251.4	-	0.0	0.0
TOTAL of quantified releases *1*2	7310.0	840.0	1110.0	130.0	1420.0	460.0

Table 7 Summary of mercury releases

Notes to table above:

*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 includes mercury amounts which have also been accounted for under each source category. To avoid double counting, input to, and release to water from, waste water system/treatment have been subtracted automatically in the TOTALS.

2.1.4 Summary of mercury stockpiles, and supply and trade

This issue is described in detail in chapters 2.2 and 2.7.

2.2 Data and inventory on energy consumption and fuel production

This category covers all forms of energy. It includes the fuel and energy used for electricity generation plants, direct fuel use in industrial facilities, and the fuel used for commercial and residential cooking and heating. It also covers fuel used for transportation, and the energy used in the initial production (re-fining) of that fuel. The relevant sub-categories within this source group are shown in Table 8 below. The main pathways of mercury releases from energy consumption and production are to the air, water and waste/residues.

Land may also be a release pathway in domestic heating and cooking, either using woody biomass or fossil fuels, and from the extraction of mineral oil. In addition, land is often the ultimate receptor for wastes and residues coming from this sector.

Source category	Source present
Coal combustion in large power plants	Y
Coal combustion in coal fired industrial boilers	Y
Other coal uses	Y
Combustion/use of petroleum coke and heavy oil	Y
Combustion/use of diesel, gasoil, petroleum, kerosene, LPG and other light to medium distillates	Y
Use of pipeline gas (consumer quality)	Y
Biomass fired power and heat production	Y
Charcoal combustion	Y
Oil extraction	Y
Oil refining	Y
Extraction and processing of natural gas	Y

Table 8 Relevant sub-categories in energy sector in the Republic of Serbia

The sections 2.2.1 (Energy consumption, including sub-sections 2.2.1.1- 2.2.1.3) and 2.2.2 (Mineral oils- extraction, refining and use, including sub-sections 2.2.2.1- 2.2.2.6) below provide a more detailed overview of obtained data on releases to pathway from assessed part of life-cycle, per each source category present in the country.

2.2.1 Energy Consumption

2.2.1.1 Coal Combustion in Large Power Plants

Statement

The lignite is used primarily as a fuel by thermal power plants in the Republic of Serbia.

Presentation of the obtained data

Data for coal combustion in large power plants has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Balance of Coal in 2015. Additionally, the database is provided directly from Public Company EPS. Data is compared with data of Statistical Office of the Republic of Serbia.

The total amount of coal combusted (t/y) is 36,558,853 and this value has been used as an input for the toolkit.

All thermal power plants are equipped with electro-static filters reducing emissions to the air.

Relevant pollution abatement options	0: No filters used	1: Simple particle filters	2: Fabric filters	3: Efficient APC	4: Very efficient APC	5: Mercury specific
Enter per cent of total activity rate per type:		100				

Table 9 Distribution of activity rates on the relevant mercury controls

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 10 below.

Coal combustion in large power plants	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Coal combusted, t/y		36,558,853		-
Input factor for phase	g Hg/t		0.15		-
Calculated input to phase	kg Hg/y		5,484		-
Output distribution factors for phase:					
- Air	-		0.98		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.02		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		5374.32		**5374.32**
- Water	kg Hg/y		0.00		0.00
- Land	kg Hg/y		0.00		0.00
- Products	kg Hg/y		0.00		0.00
- General waste treatment	kg Hg/y		0.00		0.00
- Sector specific waste treatment	kg Hg/y		109.68		**109.68**

Table 10 Summary of the data used and the results obtained using Inventory Level 2 for coal combustion in large power plants

Data gaps and priorities for potential follow up

There are no data gaps.

2.2.1.2 Coal Combustion in Coal Fired Industrial Boilers

Statement

The lignite is used primarily as a fuel by coal industrial boilers.

Presentation of the obtained data

Data for coal combustion in coal fired industrial boilers has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Balance of Coal in 2015/ Energy consumption of industry excluding energy sector and final non-energy consumption

The total amount of lignite combusted (t/y) is 309,752 and this value has been used as an input for the toolkit.

It is estimated that the industry uses EPS and fabric filters related to 75%:25%. The assessment was prepared based on the considered data and documents in the field of industrial emissions as well as expert experience in this area.

Relevant pollution abatement options	0: No filters used	1: Simple particle filters	2: Fabric filters	3: Efficient APC	4: Very efficient APC	5: Mercury specific
Enter per cent of total activity rate per type:		75	25			

Table 11 Distribution of activity rates on the relevant mercury controls

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 12 below.

Coal combustion in coal industrial boilers	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Coal combusted, t/y		309,752		-
Input factor for phase	g Hg/t		0.10		-
Calculated input to phase	kg Hg/y		31		-
Output distribution factors for phase:					
- Air	-		0.95		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.05		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		29.45		**29.45**
- Water	kg Hg/y		0.00		0.0
- Land	kg Hg/y		0.00		0.0
- Products	kg Hg/y		0.00		0.0
- General waste treatment	kg Hg/y		0.00		0.0
- Sector specific waste treatment	kg Hg/y		1.55		**1.55**

Table 12 Summary of the data used and the results obtained using Inventory Level 2 for coal combustion in coal industrial boilers

Data gaps and priorities for potential follow up

No data gaps related total amount of coal combusted. However, there are no available data on devices for reducing emissions in the air.

2.2.1.3 Other coal uses

Statement

There is no coke production in Serbia but there is other coal combustion by auto producers, district heating plants, blast furnace plants, industry, households and other users. Primarily they use domestic coal as well as imported coal such as coke.

Presentation of the obtained data

Data for other coal uses has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Balance of Coal in 2015/ Energy consumption for listed consumers.

The total amount of lignite combusted (t/y) was 1,967,817 and this value is used as an input for the toolkit.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 13 below.

Other coal combustion	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Coal combusted, t/y		1,967,817		-
Input factor for phase	g Hg/t		0.15		-
Calculated input to phase	kg Hg/y		295		-
Output distribution factors for phase:					
- Air	-		1.00		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.00		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		295.17		**295.17**
- Water	kg Hg/y		0.00		0.00
- Land	kg Hg/y		0.00		0.00
- Products	kg Hg/y		0.00		0.00
- General waste treatment	kg Hg/y		0.00		0.00
- Sector specific waste treatment	kg Hg/y		0.00		**0.00**

Table 13 Summary of the data used and the results obtained using Inventory Level 2 for other coal combustion

Data gaps and priorities for potential follow up

No data gaps.

2.2.2 Mineral oils – extraction, refining and use

2.2.2.1 Oil extraction

Statement

Oil extraction is done on 63 oil fields and 666 wells in the Republic of Serbia.

Presentation of the obtained data

Data on oil extraction has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Oil and oil derivatives balance 2015 as a primary production of crude oil. Additionally, the database is provided directly from Company NIS AD. Data is compared with data of Statistical Office of the Republic of Serbia.

The total amount of crude oil (t/y) was 1,022,397 and this value is used as an input for the toolkit.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 14 below.

Oil extraction	Unit	Produc-tion	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Crude oil extracion, t/y		1.022.397		-
Input factor for phase	g Hg/t		3.40		-
Calculated input to phase	kg Hg/y		3		-
Output distribution factors for phase:					
- Air	-		1.00		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.00		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		0.00		0.00
- Water	kg Hg/y		0.07		**0.07**
- Land	kg Hg/y		0.00		0.00
- Products	kg Hg/y		0.00		0.00
- General waste treatment	kg Hg/y		0.00		0.00
- Sector specific waste treatment	kg Hg/y		0.00		0.00

Table 14 Summary of the data used and the results obtained using Inventory Level 2 for oil extraction

Data gaps and priorities for potential follow up

No data gaps.

2.2.2.2 Oil refining

Statement

Oil refining is done in two refineries. Refineries use domestic and imported crude oil.

Presentation of the obtained data

Data of oil extraction has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Oil and oil derivatives balance 2015 as a transformation input for refineries. Additionally, the database is provided directly from Company NIS AD. Data is compared with data of Statistical Office of the Republic of Serbia.

The total amount of crude oil (t/y) was 2,912,843 and this value is used as an input for the toolkit.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 15 below.

Oil refining	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Crude oil refining, t/y	2,912,843			-
Input factor for phase	g Hg/t	3.40			-
Calculated input to phase	kg Hg/y	10			-
Output distribution factors for phase:					
- Air	-	0.25			-
- Water	-	0.01			-
- Land	-	0.00			-
- Products	-	0.00			-
- General waste treatment	-	0.00			-
- Sector specific waste treatment	-	0.15			-
Calculated outputs/ releases to:					
- Air	kg Hg/y	2.48			**2.48**
- Water	kg Hg/y	0.10			**0.10**
- Land	kg Hg/y	0.00			0.00
- Products	kg Hg/y	0.00			0.00
- General waste treatment	kg Hg/y	0.00			0.00
- Sector specific waste treatment	kg Hg/y	1.49			**1.49**

Table 15 Summary of the data used and the results obtained using Inventory Level 2 for oil refining

Data gaps and priorities for potential follow up

No data gaps.

2.2.2.3 Combustion/use of petroleum coke and heavy oil

Statement

There is no petroleum coke production in Serbia. Auto producers, district heating plants, refineries, industry and other users used imported petroleum coke and heavy oil.

Presentation of the obtained data

Data for combustion/use of petroleum coke and heavy oil has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Oil and oil derivatives balance 2015 for listed consumers.

The total amount of petroleum coke and heavy oil combusted/ used (t/y) was 447,030 and this value is used as an input for the toolkit as Oil Combustion Facility with no emissions controls.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 16 below.

Combustion / use of petroleum coke and heavy oil	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Oil product combusted, t/y		47,030		-
Input factor for phase	g Hg/t		20.15		-
Calculated input to phase	kg Hg/y		9		-
Output distribution factors for phase:					
- Air	-		1.00		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.00		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		8.94		**8.94**
- Water	kg Hg/y		0.00		0.00
- Land	kg Hg/y		0.00		0.00
- Products	kg Hg/y		0.00		0.00
- General waste treatment	kg Hg/y		0.00		0.00
- Sector specific waste treatment	kg Hg/y		0.00		0.00

Table 16 Summary of the data used and the results obtained using Inventory Level 2 for combustion of petroleum coke and heavy oil

Data gaps and priorities for potential follow up

There is no available relevant data on emissions controls in combustion plants using of petroleum coke and heavy oil.

2.2.2.4 Combustion/use of diesel, gasoil, petroleum, kerosene, LPG and other light to medium distillates

Statement

Use of gasoline, diesel, light fuel oil, kerosene, LPG and other light to medium distillates includes transportation, residential heating with no emission controls and other oil combustion facilities for combustion of the relevant fractions in the Republic of Serbia.

Presentation of the obtained data

Data on use of gasoline, diesel, light fuel oil, kerosene, LPG and other light to medium distillates has been extracted from the Statistical Office of the Republic of Serbia /Energy Balances 2015/ Oil and oil derivatives balance 2015 for relevant categories of consumers.

The total amount of listed types of fuels for transportation and uses other than residential heating and other oil combustion facilities (t/y) was 2,139,251 and this value is used as an input for the toolkit. The total value of fuels for residential heating with no controls was 211,551 t/y. Distributions factors for residential heating with no controls was 0.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 17 below.

Combustion/use of gasoline, diesel, light fuel oil, kerosene, LPG and other light to medium distillates	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Oil product combusted, t/y		2,139,251		-
Input factor for phase	g Hg/t		2.00		-
Calculated input to phase	kg Hg/y		4.30		-
Output distribution factors for phase:					
- Air	-		1.00		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.00		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		4.70		**4.70**
- Water	kg Hg/y		0.00		0.00
- Land	kg Hg/y		0.00		0.00
- Products	kg Hg/y		0.00		0.00
- General waste treatment	kg Hg/y		0.00		0.00
- Sector specific waste treatment	kg Hg/y		0.00		0.00

Table 17 Summary of the data used and the results obtained using Inventory Level 2 for other coal combustion/ use of gasoline, diesel, light fuel oil, kerosene, LPG and other light to medium distillates

Data gaps and priorities for potential follow up

No data gaps.

Table below show the total calculated Hg in the extraction, refining and use of mineral oils.

Calculated Hg in the extraction, refining and use of mineral oils					
Air	Water	Land	Product	General waste treatment	Sector Specific waste treatmant / disposal
14.59	**0.79**	0.00	0.00	0.00	**1.49**

Table 18 Total calculated Hg in the extraction, refining and use of mineral oils

2.2.2.5 Natural gas – extraction, refining and use

Statement

In the Republic of Serbia, natural gas is used from domestic deposits and imported gas. The largest natural gas deposits are located in the Autonomous Province of Vojvodina. The only company engaged in research and production of natural gas in the Republic of Serbia is NIS AD. Within NIS a.d. there is a gas refinery in Elemir. Gas processing in Serbia is without mercury removal.

Presentation of the obtained data

Data of extraction, refining and use of natural gas has been extracted from the Statistical Office of the Republic of Serbia /Energy Balances 2015/ Balance of natural gas 2015. Additionally, the database is provided directly from Company NIS AD. Data is compared with data of the Statistical Office of the Republic of Serbia.

The total amount of extraction, refining and use of natural gas includes primary production of natural gas which was 542,899,200 t/y and 2,084,505,600t/y of pipeline gas.

Distributions factors for use of pipelines were 0.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 19 below.

Natural gas – extraction, refining	Unit	Production	Use	Dispo-sal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Gas produced, t/y	542,899,200	2,084,505,600		-
Input factor for phase	µg Hg/Nm3 gas	100	0.22		-
Calculated input to phase	kg Hg/y	54	54		-
Output distribution factors for phase:					
- Air	-	0.20	1.00		-
- Water	-	0.20	0.00		-
- Land	-	0.00	0.00		-
- Products	-	0.50	0.00		-
- General waste treatment	-	0.00	0.00		-
- Sector specific waste treatment	-	0.10	0.00		-
Calculated outputs/ releases to:					
- Air	kg Hg/y	10.86	0.46		**11.32**
- Water	kg Hg/y	10.86	0.00		**10.86**
- Land	kg Hg/y	0.00	0.00		0.00
- Products	kg Hg/y	27.14	0.00		**27.14**
- General waste treatment	kg Hg/y	0.00	0.00		0.00
- Sector specific waste treatment	kg Hg/y	5.43	0.00		**5.43**

Table 19 Summary of the data used and the results obtained using Inventory Level 2 for natural gas – extraction, refining

Data gaps and priorities for potential follow up

No data gaps.

2.2.2.6 Biomass fired power and heat production

Statement

The biomass used in the Republic of Serbia includes firewood, wood residues, wood briquettes, wood pellets and charcoal.

Presentation of the obtained data

Data on biomass used as fuel has been extracted from Statistical Office of the Republic of Serbia /Energy Balances 2015/ Balance of Wood Fuels.

The total amount of biomass - wood fuels was 2,729,140 t/y and 3,395 charcoals. The calculated Hg input of charcoal is 0.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 20 below.

Biomass fired power and heat production	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Gas produced, t/y		2.729,140		-
Input factor for phase	g Hg/t(dry weight)		0.03		-
Calculated input to phase	kg Hg/y		82		-
Output distribution factors for phase:					
- Air	-		1.00		-
- Water	-		0.00		-
- Land	-		0.00		-
- Products	-		0.00		-
- General waste treatment	-		0.00		-
- Sector specific waste treatment	-		0.00		-
Calculated outputs/ releases to:					
- Air	kg Hg/y		82.28		**82.28**
- Water	kg Hg/y		0.00		0.00
- Land	kg Hg/y		0.00		0.00
- Products	kg Hg/y		0.00		0.00
- General waste treatment	kg Hg/y		0.00		0.00
- Sector specific waste treatment	kg Hg/y		0.00		0.00

Table 20 Summary of the data used and the results obtained using Inventory Level 2 for biomass fired power and heat production

Data gaps and priorities for potential follow up

No data gaps.

2.3 Data and inventory on domestic production of metals and raw materials

2.3.1 Primary Extraction and Processing of Mercury

Statement

There is no primary extraction and processing of mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered production of mercury for the year 2015.

The Chamber of Commerce and Industry of Serbia has given information that industry of the primary extraction and processing of mercury does not exist in Serbia.

The Customs Administration has reported no import or export of elementary Hg in the relevant year.

The Ministry of Mining and Energy reported that there is registered new exploration works on investigation of Hg presence in geological structure of this area or performing of any exploitation works.

According to the estimations based on earlier investigations works, it was determined that there are a number of ore bearings Serbia, the Šuplja Stena near Avala in the vicinity of Belgrade being the biggest one (estimated reserves in the deposit are 83,000 t) (Jelenković, 2013). However, it does not seem likely that there will be opening up primary extraction/processing of mercury in this location, primarily due to extremely strict requirements and prohibitions in the applicable environmental legislation.

Data gaps and priorities for potential follow up

No data gaps.

2.3.2 Gold Extraction with the Mercury-Amalgamation Process

Statement

There is gold extraction but there is no gold producing with the mercury-amalgamation process in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of 8,933 kg of precious metals, stock of 2,406 kg and sale of 7,169 kg during 2015 (name of document: Industrial production by products). There is no publicly available data by this institution on individual quantities of gold produced.

The Ministry of Mining and Energy has registered performing of the exploration works on investigation of Au presence in geological body of the country within 49 ore deposits as well as performing of exploitation works within 2 ore deposits (http://gis.mre.gov.rs/Srbija/).

The Chamber of Commerce and Industry of Serbia has provided information that RTB Bor Group from Bor municipality is the only gold producer in Serbia.

RTB Bor Group from Bor municipality has reported that this company does not perform gold production with the mercury-amalgamation process.

Data gaps and priorities for potential follow up

No data gaps.

2.3.3 Zinc Extraction and Initial Processing

Statement

There is zinc extraction but there is no initial processing in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered production of zinc during 2015.

The Ministry of Mining and Energy has registered performing of the exploration works on investigation of Zn presence in geological body of the country within 30 ore deposits as well as performing of exploitation works within 10 ore deposits (http://gis.mre.gov.rs/Srbija/).

Lead and zinc mine Veliki Majdan, located in Ljubovija municipality, produced approximately 51,000 t of ore during 2016, similar to the amount produced during 2015. Since 2009, when this mine has started the exploitation of the ore deposit, a total of 400,000 t of ore has been produced, along with about 30,000 t of lead and more than 27,000 t of zinc concentrate ("http://www.serbia-energy.eu" www.serbia-energy.eu).

The initial smelting of lead and antimony, as well as zinc processing, has until recently been processed only in one facility in Serbia (the Mining and Smelting Complex Zajača, located the Zajača settlement in Loznica municipality). The facility is closed since 2015, but there are still ideas of renewing the production. The facility was equipped with 385 fabric filters with 7 m2 of the surface area per filter, as well as with one block of the fabric filters with pneumatic dust shaking off (informally obtained information).

Data gaps and priorities for potential follow up

No data gaps.

2.3.4 Copper Extraction and Initial Processing

Statement

There is copper extraction and its initial processing in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of 146,618 t of copper, stock of 2,035 t and sale of 139,894 t during 2015 (name of document: Industrial production by products, 2015).

According to the Customs Administration, 8,519.82 t of the copper concentrate was imported into the country during the year 2015. RTB Bor Group from Bor was importer of 3,365.92 t, the Mining and Smelting Combine Bor was importer of 5,153.91 t and the Mining and Metallurgy Institute from Bor was importer of 4 pieces (the report of the Customs Administration does not state what these four pieces are, it is noted that net weight of this 4 pieces is 0).

The Ministry of Mining and Energy has registered exploration works on investigation of Cu presence in geological body of the country within 55 ore deposits as well as performing of exploitation works within 6 ore deposits (http://gis.mre.gov.rs/Srbija/).

The only domestic producer of copper is RTB Bor Group from Bor municipality. The RTB Bor directly reported its production of 44,646.344 t of copper during 2015, using 280,004 t of concentrate. From this same amount of concentrate, some quantity of gold, silver, platinum and palladium was also produced.

Presentation of the distribution of activity rates on the relevant mercury control

Within copper production, dry and wet gas cleaning of the waste gases is performed (Ivan Najdenov, 2013, Managing Copper Smelting and Refining Processes for Improving Energy Efficiency and Economic Feasibility, doctoral dissertation, Faculty of Technology and Metallurgy, University of Belgrade). There is also an installed and functional acid production plant which is considered to represent an improvement of the process of waste gases cleaning. The distribution of activity rates of this kind of mercury control is presented in the Table 21, in accordance with Hg Toolkit Inventory Level 1.

Relevant pollution abatement options (guide: click white cells)	No filters used or coarse, dry PM retention	Wet gas cleaning	Wet gas cleaning and acid plant	Wet gas cleaning, acid plant and Hg specific filter
Percent of total activity rate per type:	/	/	100	/

Table 21 Distribution of activity rates on the relevant mercury controls

Presentation of the summary of results obtained using Inventory Level 2

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of he data used and the results obtained is given in Table 22 below.

Copper initial processing	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Concentrate use, t/y	280,004			-
Input factor for phase	g Hg/t (concentrate)	0.5			-
Calculated input to phase	kg Hg/y	140			-
Output distribution factors for phase:					
- Air	-	0.10			-
- Water	-	0.02			-
- Land	-	0.00			-
- Products	-	0.42			-
- General waste treatment	-	0.00			-
- Sector specific waste treatment	-	0.46			-
Calculated outputs/ releases to:					
- Air	kg Hg/y	14.00			**14.00**
- Water	kg Hg/y	2.80			**2.80**
- Land	kg Hg/y	0.00			0.00
- Products	kg Hg/y	58.80			**58.80**
- General waste treatment	kg Hg/y	0.00			0.00
- Sector specific waste treatment	kg Hg/y	64.40			**64.40**

Table 22 Summary of the data used and the results obtained using Inventory Level 2 for the copper extraction and initial processing

Data gaps and priorities for potential follow up

No data gaps.

2.3.5 Lead Extraction and Initial Processing

Statement

There is lead extraction but there is currently no initial processing of lead in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered production of lead during 2015.

According to the Customs Administration 2,322.80 kg of lead concentrate was imported into the country during 2015, the importer being Als Laboratory Services from Belgrade. However, the monitoring system does not provide further details nor statistics regarding the purpose of such import as it was not possible to contact the company.

The Ministry of Mining and Energy has registered exploration works on investigation of Zn presence in geological body of the country within 30 ore deposits as well as performing of exploitation works within 11 ore deposits (http://gis.mre.gov.rs/Srbija/).

As stated in Chapter 2.3.3, there is a lead and zinc mine Veliki Majdan, located in the Ljubovija municipality, which produced approximately 51,000 t of ore during 2016, a quantity similar to that produced during 2015. Since 2009, when this mine started the exploitation of the ore deposit, more than 400,000 t of ore was produced and about 30,000 t of lead and more than 27,000 t of zinc concentrate (www.serbia-energy.eu).

Also, as stated already in Chapter 6.3, the initial smelting of lead, antimony and zinc has so far been conducted only in one facility - the Mining and Smelting Complex Zajača, located in the Zajača settlement in Loznica municipality, which has been closed since 2015, but there are still ideas about re-establishing production.

The facility was equipped with 385 fabric filters with 7 m2 of the surface area per filter, as well as with one block of the fabric filters with pneumatic dust shaking off (informally obtained information).

Data gaps and priorities for potential follow up

No data gaps.

2.3.6 Gold Extraction and Initial Processing by Other Processes than Mercury Amalgamation

Statement

There is gold extraction and its initial processing by the other process than mercury-amalgamation in the Republic of Serbia, actually there is initial processing by electrolytic process. But the gold is produced as a by-product to copper production (from the same concentrate), and the mercury in that concentrate is accounted for under copper production above.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of 8,933 kg of precious metals, stock of 2,406 kg and sale of 7,169 kg. This institution does not have information about types of produced precious metals, as well as about amounts which are included in those numbers (name of document: Industrial production by products).

The Ministry of Mining and Energy has registered performing of the exploration works on investigation of Au presence in geological body of the country within 49 ore deposits as well as performing of exploitation works within 2 ore deposits (http://gis.mre.gov.rs/Srbija/).

As it was said in the chapter 6.2, the Chamber of Commerce and Industry of Serbia has provided information that RTB Bor Group from Bor municipality is only gold producer in Serbia.

RTB Bor Group from Bor municipality has informed that this company perform gold production from concentrate by pyro metallurgy process in Dore furnace, followed by electrolytic process. During 2015, 627.737 kg of gold was produced.

In the same facility, 5,479.917 kg of silver, 4.037 kg of platinum and 31.450 kg of palladium were also produced.

Data gaps and priorities for potential follow up

No data gaps.

2.3.7 Aluminium Extraction and Initial Processing

Statement

There is no aluminium extraction and its initial production in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of 65,957 t of aluminium in 2015, stock of 5,648 t and sale of 66,176 t (name of document: Industrial production by products, 2015), but this institution does not have information about technology applied.

According to the Customs Administration, 2,035.91 t of ore or concentrate of "other metals" imported into the country during 2015 (28 importers). However, there are no systematized data on types of metals covered by this overall category of imports.

There is only one producer of aluminium in the Republic of Serbia (Impol Seval Aluminium Industry Sc. from Sevojno is the only producer of aluminium in the Republic of Serbia). However, production of aluminium does not include the primary production from ore, but the aluminium recycling of secondary aluminium raw material.

In accordance with the above, production of aluminium in Serbia could be included in Step 8 of the Hg-toolkit-Inventory Level 1 Calculation Spreadsheet (Miscellaneous mercury release sources not quantified on Inventory Level 1), in the category Production of other recycled metals.

Data gaps and priorities for potential follow up

No information could be acquired about whether the Impol Seval in its production of aluminium in Serbia uses also other raw materials collected in the territory of Serbia or only the secondary row materials for this metal from other countries in the production (informally received information indicates that only imported raw materials are used). By the time of compilation of this report, such information has not been provided by the company.

2.3.8 Primary Ferrous Metal Production

Statement

There is primary ferrous metal production, i.e. iron and steel production in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of 4,599,449 t of pig iron, steel and ferro-alloys, end-of-year stock of 398,819 t and sale of 1,249,699 t (name of document: Industrial production by products, 2015).

There is only one primary ferrous metal producer in Serbia (HBIS GROUP Iron & Steel Ltd. from Belgrade (ex Železara Smederevo Ltd. from ferrous metal Smederevo).

For the waste gases purification, this producer uses the fabric filter as primary treatment, and block of the fabric filters with pneumatic dust shaking off as secondary treatment (Delta Engineering Company, Belgrade, 2013, News about company's engineering activities within environmental protection – Reconstruction of the dedusting system in Smederevo Ironworks, http://www.deltainzenjering.rs/wp-content/uploads/2014/04/Delta-inzenjering-News-6-posebno-izdanje.pdf).

Presentation of the summary of the results obtained using Inventory Level 2

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 23 below.

Primary ferrous metal production	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Pig iron produced, t/y	4.599.449			-
Input factor for phase	g Hg/t pig iron produced	0.05			-
Calculated input to phase	kg Hg/y	230.00			-
Output distribution factors for phase:					
- Air	-	0.95			-
- Water	-	0.00			-
- Land	-	0.00			-
- Products	-	0.00			-
- General waste treatment	-	0.00			-
- Sector specific waste treatment	-	0.05			-
Calculated outputs/ releases to:					
- Air	kg Hg/y	218.50			**218.50**
- Water	kg Hg/y	0.00			0.00
- Land	kg Hg/y	0.00			0.00
- Products	kg Hg/y	0.00			0.00
- General waste treatment	kg Hg/y	0.00			0.00
- Sector specific waste treatment	kg Hg/y	11.50			**11.50**

Table 23 Summary of the data used and the results obtained using Inventory Level 2 for the primary ferrous metal production

Data gaps and priorities for potential follow up

No data gaps.

2.3.9 Production of Other Minerals and Materials with Mercury Impurities – Cement Production

Statement

There is production of the cement in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia, in its official document named as Industrial production by products, has reported production of 1,654,422 t of cement, end-of-year stock of 44,314 t and sale of 1,669,733 t. The same institution, in the other official document named as Realized production, stocks and sales of industrial products, has reported production, stock and sale of 1,654,390 t / 44,314 t / 1,667,004 t of the portland cement, 1,218,213 t / 98,447 t / 0 t (respectively) of the clinker cement and 234 t / 4 t / 234 t of the refractory cement, mortar, concrete and similar refractory material.

There are tree producers of cement in the Republic of Serbia: Lafarge BFC Serbia Ltd. from Beočin municipality, CRH Serbia Ltd. from Popovac settlement near Paraćin municipality, and Titan Cementara Kosjerić from Kosjerić municipality.

1. Lafarge BFC Serbia Ltd. from Beočin municipality, a member of Lafarge Holcim Group Company (www.holcim.rs).

   Different types and quality of coal present a primary fuel in this cement production facility (Request for issuing integrated licenses for the work of the plant of the Lafarge Company BFC and for the cement production within facilities located in Beočin, 2010).

   Co-incineration of different types of waste is performing in this cement production facility in accordance with Integral permit for storage and thermal treatment of the municipal and industrial waste issued by the Provincial Secretariat for Urban Planning, Construction and Environmental Protection, No. 501-238/201 and Decision on amending and supplementing the decision on issuing an integral permit for storage and thermal treatment of municipal and industrial waste No. 501-238/2011 (index numbers of waste: 02 01 04; 02 01 03; 02 01 07; 02 03 99; 03 01 01; 02 03 04; 02 05 01; 02 06 01; 02 07 04*; 03 01 01; 03 01 04* ; 04 01 09; 04 02 10 ; 04 02 15; 03 01 04* ; 03 01 05; 03 01 99; 04 02 17; 09 01 07; 09 01 08; 15 02 02*; 15 02 03; 16 01 07*; 17 02 04*; 17 03 01*; 17 03 02; 17 03 03*; 07 04 10*; 17 04 11; 19 02 09*; 19 02 10; 03 03 01; 03 03 05; 03 03 07; 03 03 08; 04 02 09; 04 02 16*; 04 02 21; 04 02 22 ; 04 02 99; 07 02 13; 12 01 05;15 01 01;15 01 02;15 01 03; 15 01 05; 15 01 06; 15 01 09; 16 01 19; 16 01 22; 16 01 99; 17 02 01; 17 02 03; 19 12 01; 19 12 04; 19 12 06*; 19 12 07; 19 12 08; 19 12 10; 19 12 11*; 19 12 12 ;20 01 01; 20 01 10; 20 01 11; 20 01 37*; 20 0138; 20 0139; 20 03 01; 20 03 99), as well as in accordance with Integral permit for storage and thermal treatment of waste oil, No. 501-2732/2010 (index numbers of waste: 12 01 06*; 12 01 07*; 12 01 10* ; 12 01 19*;12 01 99 ; 13 01 01*; 13 01 09 *; 13 01 10 *;13 01 11 *; 13 01 12 *13 01 13 *; 13 02 04 *;13 02 05 *;13 02 06 *;13 02 07 *; 13 02 08 *;13 03 01 *;13 03 06 *; 13 03 07 *; 13 02 08 * ; 13 03 09 *; 13 03 10*; 13 04 01*; 13 04 02*; 13 04 03*; 13 05 06*; 13 07 01*; 13 07 02*; 13 07 03*; 13 08 99*; 16 07 08*; 19 08 09; 19 08 10*; 20 01 25; 20 01 26*). Lafarge BFC has also acquired permit for co-incineration of biomass (2011).

   The percent of use of alternative fuels is approximately up to 25%, of which 11% is made up of municipal waste.

2. CRH Serbia Ltd. from Popovac settlement near Paraćin municipality.

Different types and quality of coal and petroleum coke present the primary fuel in this cement production facility (Decision on the issuance of an integrated permit, the Ministry of Environmental Protection, Mining and Spatial Planning, the Republic of Serbia, No. 353-01-01071/2010-02).

Co-incineration of different types of non-hazardous waste is performing in this cement production facility (Decision on the issuance of an integrated permit, the Ministry of Environmental Protection, Mining and Spatial Planning, the Republic of Serbia, No. 353-01-01071/2010-02).

The percent of use of alternative fuels is approximately up to 30%, of which up to 18% is renewable solid waste and up to 12% is waste rubber material.

3. Titan Cementara Kosjerić from Kosjerić municipality.

During 2015, Titan Cementara produced 410,115 tons of cement.

Different types and quality of coal and petroleum coke present the primary fuel in this cement production facility (Decision on the issuance of an integrated permit, the Ministry of Environmental Protection, Mining and Spatial Planning, the Republic of Serbia, No. 353-01-00393/2010-02).

Co-incineration of waste is not performed in this cement production facility (Decision on the issuance of an integrated permit, the Ministry of Environmental Protection, Mining and Spatial Planning, the Republic of Serbia, No. 353-01-00393/2010-02).

Presentation of the distribution of activity rates on the relevant mercury control

In all cement production facilities in Serbia simple particle control systems are used for waste gases purification, mostly fabric filters (FF) (Hg Toolkit Inventory Level 1).

In accordance with the Request for issuing of the integrated licenses for the operation of the plant of the Lafarge Company BFC and for the cement production within facilities located in Beočin from 2010, Lafarge BFC Serbia Ltd. has installed different simple particle control systems for the purification of flue gases as follows:

D1 chimney from the raw material preparation - electrostatic precipitator (ESP), D2 chimney from the coal mill - fabric filter (FF), D3 chimney from the rotary furnace and mill of raw meal - FF, D4 chimney from the clinker cooler - ESP, D10 chimney from the cement mill No. 4 - FF, D11 chimney from the separator of the cement mill No. 4 - FF, D12 chimney from the cement mill No. 5 - FF and D13 chimney from the separator of the cement mill No. 5 - FF. Chimneys identified as D5, D6, D7, D8 and D9 are chimneys from the old cement mills which are not functional.

In accordance with the same Decision, the CRH Serbia Ltd. has installed waste gases purification systems which are constructed as simple fabric filters (FF), type of filter used to capture particle matters:

1. chimney from the rotary furnace and mill of raw meal – FF; 2. cement mill No. 1 – FF; 3. cement mill No. 2 – FF; 4. solid fuel mill – FF; 5. crusher of limestone and marl – FF (3 pieces); 6. separator of the raw material mill – FF; 7. transporter for the clinker cement mill No. 1 – FF (3 pieces); 8. transporter for the clinker cement mill No. 2 – FF; 9. dosimeter of the cement mill – FF; 10. separator of the cement mill No. 1 – FF; 11. separator of the cement mill No. 2 – FF; 12. elevator of the cement mill No. 2 – FF; 13. bunker within coil mill – FF; 14. cement silo – FF; 15. packaging line – FF (2 pieces); 16. bunker of the prepared material – FF; 17. dryers of the cement mill – FF.

In accordance with the same Decision, Titan Cementara Kosjerić has also installed a purification system for the waste gases contained by the fabric filters (no detailed information on locations where they are installed were found), but in accordance with information received directly from the Titan Company, there is an electrostatic precipitator installed so that the filtered dust is being returned to the process for recycling.

In view of the above and the requirements stipulated in the Hg Toolkit Inventory Level 1, the distribution of activity rates on the relevant mercury controls was done as presented in Table 24.

1) WITH WASTE USED as fuel (> 3% of energy); relevant pollution abatement options	No filter	Simple particle control (ESP* / PS* / FF*)	Optimized particle control (FF+SNCR* / FF+WS* / ESP+FGD* / optimized FF)	Efficient air pollution control (FF+DS* / ESP+DS / ESP+WS* / ESP+SNCR)	Very efficient Hg pollution control (wetFGD*+ACI*/ FF+scrubber+SNCR)
Enter per cent of total activity rate per type:		75			
2) NO/LOW WASTE use as fuel; relevant pollution abatement options	No filter	Simple particle control (ESP* / PS* / FF*)	Optimized particle control (FF+SNCR* / FF+WS* / ESP+FGD* / optimized FF)	Efficient air pollution control (FF+DS* / ESP+DS / ESP+WS* / ESP+SNCR)	Very efficient Hg pollution control (wetFGD*+ACI*/ FF+scrubber+SNCR)
Enter per cent of total activity rate per type:		25			

Table 24 Distribution of activity rates on the relevant mercury controls

* ESP – electrostatic precipitator; PS – particle scrubber; FF – fabric filter; SNCR – selective non-catalytic reduction; WS – wet scrubbers; FGD – flue gas de-sulphurisation; DS – dry scrubber; wetFGD – wet flue gas de-sulphurisation; ACI – activated carbon injection

Presentation of the summary of the results obtained using Inventory Level 2

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 25 and Table 26 below.

Cement Production without waste co-incineration	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Cement produced with hard coal as primary coil and without co-incineration of waste, t/y	410,115			-
Input factor for phase	g Hg/t cement produced with this fuel	0.016			-
Calculated input to phase	Kg Hg/y	52			-
Output distribution factors for phase:					
- Air	-	0.60			-
- Water	-	0.00			-
- Land	-	0.00			-
- Products	-	0.20			-
- General waste treatment	-	0.00			-
- Sector specific waste treatment	-	0.20			-
Calculated outputs/ releases to:					
- Air	Kg Hg/y	31.00			**31.00**
- Water	Kg Hg/y	0.00			0.00
- Land	Kg Hg/y	0.00			0.00
- Products	Kg Hg/y	10.33			**10.33**
- General waste treatment	Kg Hg/y	0.00			0.00
- Sector specific waste treatment	Kg Hg/y	10.33			**10.33**

Table 25 Summary of the data used and the results obtained using Inventory Level 2 for the cement production WITHOUT co-incineration of waste

Cement Production with waste co-incineration	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Cement produced with hard coal as primary coil and without co-incineration of waste, t/y	1,244,275			-
Input factor for phase	g Hg/t cement produced with this fuel	0.014			-
Calculated input to phase	kg Hg/y	17			-
Output distribution factors for phase:					
- Air	-	0.60			-
- Water	-	0.00			-
- Land	-	0.00			-
- Products	-	0.20			-
- General waste treatment	-	0.00			-
- Sector specific waste treatment	-	0.20			-
Calculated outputs/ releases to:					
- Air	Kg Hg/y	10.45			**10.45**
- Water	Kg Hg/y	0.00			0.00
- Land	Kg Hg/y	0.00			0.00
- Products	Kg Hg/y	3.48			**3.48**
- General waste treatment	Kg Hg/y	0.00			0.00
- Sector specific waste treatment	Kg Hg/y	3.48			**3.48**

Table 26 Summary of the data used and the results obtained using Inventory Level 2 for the cement production WITH co-incineration of waste

Data gaps and priorities for potential follow up

No data gaps.

2.3.10 Production of Other Minerals and Materials with Mercury Impurities – Pulp and Paper Production

Statement

There is production of the pulp and paper in the Republic of Serbia.

Presentation of the obtained data

It was not possible within the conducted survey to collect information about the production of pulp and paper.

Due to the incompatibility of the format which is used for collation and presentation of statistical data by the Statistical Office of the Republic of Serbia, the available information cannot be used for the assessments which are performed under this Inventory.

It is recommended that this potential mercury source be investigated in more detail within a future mercury inventory.

2.4 Data and inventory on domestic production and processing with intentional mercury use

2.4.1 Chlor-alkali Production with Mercury Technology

Statement

There is no chlor-alkali production with mercury technology and there is no chlor-alkali production in the Republic of Serbia at all.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered production of chlorine.

There are no chlor-alkali production facilities in Serbia, and the facilities which operated before 2015 are presently closed.

The chlor-alkali production facilities which are now closed are categorised as contaminated sites, specifically:

1. HIP Petrohemija Jsc. from Pančevo had electrolyses drive until 2014 but it is permanently out of process now and closed (status: enterprise undergoing restructuring);
2. The Chemical Industry Župa Ltd. from Kruševac had electrolyses drive until 2008 but it is also permanently out of process (status: active company).

An overview on the current situation in the locations of former chlor-alkali production facilities is presented under Chapter 2.10 of this Report, within the description of status of contaminated sites.

Data gaps and priorities for potential follow up

No data gaps.

2.4.2 VCM (vinyl-chloride-monomer) Production with Mercury Catalyst

Statement

There is no vinyl-chloride monomer production in the Republic of Serbia at all.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered production of vinyl-chloride-monomer.

As in the case of chlor-alkali industry, the facility which produced vinyl-chloride-monomer before 2015, the HIP Petrohemija Jsc. from Pančevo, has been closed and classified as a contaminated site.

An overview on the current situation in the area of former vinyl-chloride-monomer production facility is presented under Chapter 2.10 of this Report, within the description of status of contaminated sites.

Data gaps and priorities for potential follow up

No data gaps.

2.4.3 Acetaldehyde Production with Mercury Catalyst

Statement

There is no acetaldehyde production with mercury-sulphate (HgSO4) as catalyst and there is no acetaldehyde production in the Republic of Serbia at all.

Data gaps and priorities for potential follow up

No data gaps.

2.4.4 Other Production of Chemicals and Polymers with Mercury Compounds as Catalyst

Statement

There is no production of other chemicals and polymers with mercury compounds as catalyst in the Republic of Serbia.

Data gaps and priorities for potential follow up

No data gaps.

2.4.5 Hg Thermometers Production (medical, air, lab, industrial etc.)

Statement

There is no production of Hg thermometers in the Republic of Serbia.

Presentation of the obtained data

The production of Hg thermometers does not exist in the Republic of Serbia. The only one company registered for production of thermometers in Serbia is NIGOS Electronic Ltd. from Belgrade.

The manufacturer reported that it does not use mercury in the production of its products.

Data gaps and priorities for potential follow up

No data gaps.

2.4.6 Electrical Switches and Relays with Mercury Production

Statement

There is no production of electrical switches and relays with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of different types of electrical switches and relays during 2015, but this institution does not have information about whether there is Hg content in those products.

Official document of this institution named Industrial production by products provides a list of four groups of similar products and their individual amounts of production, stock and sale (disconnectors and switches for switching on and off, automatic circuit breakers, electrical apparatus for connection of electric circuits, for voltage up to 1 kV (including button switches and rotary switches (excluding relays)).

The Chamber of Commerce and Industry of Serbia reported that the following companies engaged in the production of switches and relays operate in Serbia: IRITEL Jsc., IMTEL Communications Jsc. and Decode Data Communication Ltd.

IRITEL Jsc. and Decode Data Communication Ltd. reported that they do not use mercury in their production, and IMTEL Communications Jsc. reported that this company does not produce electrical switches and relays at all.

Data gaps and priorities for potential follow up

No data gaps.

2.4.7 Light Sources with Mercury Production

Statement

There is no production of light sources with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of different types of light sources during 2015, but this institution does not have information about Hg content in those products.

The official document of this institution named Realized production, stocks and sales of industrial products provides a list of four groups of similar products and their individual volumes of production: 59,000 pieces of the electric lighting and lighting equipment made of plastic and similar materials (fibre or fluorescent tubes), 20,000 pieces of outdoor spotlights (including spotlights for photographic and film studios), 2,180 kg of the electric lighting equipment and visual signalling, for motor vehicles (except ordinary bulbs and discharge lamps, closed reflector lamps, ultraviolet and infrared lamps and arc lamps) and 53,000 pieces of the chandeliers and other electrical ceiling and wall lighting, except for the lighting of public open spaces). It is known that fluorescent lamps always contain mercury while spotlights could contain it or not.

The document named Industrial production by products provides information that production of lighting equipment was 47,000 pieces during 2015.

The Chamber of Commerce and Industry of Serbia provided information that Buck Ltd. and Minel Schreder Ltd. from Belgrade are the only producers of the light bulbs in Serbia.

Buck Ltd. and Minel Schreder Ltd. Reported that they do not use Hg in their production processes.

Data gaps and priorities for potential follow up

No data gaps.

2.4.8 Batteries with Mercury Production

Statement

There is no production of batteries with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered any production of batteries and accumulators during 2015 (name of document: Industrial production by products).

The Chamber of Commerce and Industry of Serbia has provided information that IBG Technological Centre Ltd. from Belgrade is the only registered producer of batteries and accumulators in Serbia.

Data gaps and priorities for potential follow up

IBG Technological Centre Ltd. has been contacted through the Chamber of Commerce and Industry and directly by the Expert Team by email, but no information was received back as to whether this company uses mercury in its production. It is recommended that this potential mercury source be investigated in more detail in a future mercury inventory.

2.4.9 Manometers and Gauges with Mercury Production

Statement

There is no production of manometers and gauges with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of 272,385 pieces of different measuring, testing and navigation instruments and apparatus during 2015. Also, it was registered that 34,632 pieces of such devices were in stock and 269,971 pieces were sold during 2015. There is no information about Hg content in those products.

There is only company in Serbia registered for production of the manometers and gauges (company INSA from Belgrade.

INSA has reported that this company does not use mercury in its production processes.

Data gaps and priorities for potential follow up

No data gaps.

2.4.10 Biocides and Pesticides with Mercury Production

Statement

There is no production of the biocides and pesticides with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia, within its official document named Industrial production by products, has reported production of 4,416 t different pesticides and other chemicals for agriculture during 2015. Also, stocks are registered of 2,831 t and sales of 4,172 t during the same year.

The statistical surveys of the Statistical Office of the Republic of Serbia do not take the Hg as one of the parameters and therefore cannot provide information whether some of these products contain mercury or not. However, biocide products and pesticides containing mercury are subject to the registration/approval procedure according to the applicable chemicals legislation.

The Ministry of Environmental Protection, the Department for Chemicals, as the competent authority for implementation of legislation on hazardous chemicals, has not registered presence of Hg compounds incorporated into the biocides and pesticides put on the Serbian market.

Data gaps and priorities for potential follow up

No data gaps.

2.4.11 Paints with Mercury Production

Statement

There is no production of paints with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of different types of paints.

The official document of this institution named Realized production, stocks and sales of industrial products provides a list of nine groups of similar products and their individual amounts of production, stock and sale.

Also, document named Industrial production by products provides information that production of paints, varnishes and similar coatings, printing ink and mastics amounted to 48,749 t during 2015, along with stocks of 4,984 t and sales of 49,947 t.

The Chamber of Commerce and Industry of Serbia has provided information about seventeen active legal entities (companies) which produce different types of paints.
The statistical surveys do not take the Hg as such as one of the parameters. The monitoring of presence of Hg (among other substances) in such products is under the competences of the Ministry of Environmental Protection. This institution has not registered any presence of Hg compounds incorporated into the paints put on the Serbian market during 2015.

Data gaps and priorities for potential follow up

No data gaps.

2.4.12 Skin Lightening Creams and Soaps with Mercury Production

Statement

There is no production of skin lightening creams and soaps with mercury in the Republic of Serbia.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered production of different types of creams and soaps but this institution does not have information whether there is any content of Hg in these products.

The official document of this institution, named *Realized production, stocks and sales of industrial products*, gives the list of eight groups of this kind of products and their individual amounts of production, stock and sale (soap in other forms (except for toilet preparations), surfactants, with or without soap extracts packaged for retail sale, washing and cleaning agents, whether or not containing soap, packaged for retail sale, surfactants with or without soap, unprepared for retail sale, pastes, powders and other cleaning products, products for beautification, make-up and skin care, including sunscreen (other than medicaments), products for washing and cleaning, with or without soap, soaps and orthogonal surfactants in various forms, for toilet use).

The Chamber of Commerce and Industry of Serbia has provided information that there are no companies which produce skin lightening creams and soaps.

The Ministry of Environmental Protection, the Department of Chemicals, as well as the Medicines and Medical Devices Agency of Serbia have reported that these institutions are not in possession of information on this kind of products.

Data gaps and priorities for potential follow up

No data gaps.

2.5 Data and inventory on waste handling and recycling

2.5.1 Production of Recycled Mercury ("Secondary Production")

Statement

There is no production of recycled mercury in the Republic of Serbia.

Presentation of obtained data

N/A

Data gaps

No data gaps.

2.5.2 Production of Recycled of Metals

Statement

The main source of data for this subcategory is SEPA and National Register of Polluters.

Operation on recycling, according to SEPA data, are presented in the following operations:

R Operations	Hazardous waste	Inert waste
R1*	4,296.45	40,059.55
R2	348.22	
R3	658.02	772,006.38
R4	26,571.33	916,350.12
R5	24,445.63	332,002.45
R6		
R7	4,163.76	354.71
R8		
R9	2,656.45	136.30
R10	15,903.07	250.50
R11	280.92	4,119.95
R12*	5,837.29	156,530.16
R13*	17,950.44	160,596.27

Table 27 Data on amount of treated/recycled waste (SEPA)

The quantity of waste under Operation **R4 (Recycling/reclamation of metals and metal com-pounds)** refers to recycling of metals.

According to SEPA report (2014), data, there is **amount of 26.571 t of hazardous and 916.350 tons of not hazardous waste treated by R4.**

Guidance for level 1 required data to be fulfilled in number of recycled cars /end-of-life vehicles.

The SEPA Report 2015 (Report on special flows/streams), stated that Operators reported that they recycled end-of-life vehicles in the amount of 602.58 t (SEPA required data in tonnes). Unfortunately, format of data required by the Inventory tool is in number of vehicles, not in tones.

The Statistical Office of the Republic of Serbia also collects data about end-of-life vehicles, according to EWC Stat Methodology, based on the amount of end-life vehicles which are discarded, in tones per production sectors. No data about number of recycled vehicles are provided in the reports.

To avoid this problem, the Expert Team established a methodology for evaluation with assumptions as follows:

- Recycling of end-of-life vehicles is mostly based on recycling of private / personal cars (categorised as middle weight, by the Law on Transport and associated bylaws);
- According to classification of personal cars, the M1 category as based on EU standards and the Law on Transport of the Republic of Serbia, the most commonly used passenger vehicles have a mass between 800 and 1000 kg (empty vehicle without load and passengers);

Based on the listed assumptions, the criterion was adopted that one car is equivalent to 850 kg.

The number of cars recycled in 2015 is estimated as follows:

$$\textbf{Number of recycled cars} = \frac{\textbf{Total amount of recycled end-of-life vehicles (602.58 tons)}}{\textbf{weight of one car (850 kg)}} = \textbf{709}$$

Presentation of the summary of the results obtained using Inventory Level 2

Mercury releases from this mercury source sub-category 2 were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 28 below.

Recycling of end-of-life vehicles	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Number of vehicles recycled/y			709	-
Input factor for phase	g Hg/ vehicles			1.1	-
Calculated input to phase	Kg Hg/y			0.7799	-
Output distribution factors for phase:					
- Air	-			0.33	-
- Water	-			0.00	-
- Land	-			0.34	-
- Products	-			0.00	-
- General waste treatment	-			0.33	-
- Sector specific waste treatment	-			0.00	-
Calculated outputs/ releases to:					
- Air	Kg Hg/y			0.26	**0.26**
- Water	Kg Hg/y			0.00	0.00
- Land	Kg Hg/y			0.27	**0.27**
- Products	Kg Hg/y			0.00	0.00
- General waste treatment	Kg Hg/y			0.26	**0.26**
- Sector specific waste treatment	Kg Hg/y			0.00	0.00

Table 28 Summary of the data used and the results obtained using Inventory Level 2 for the recycling of end-of-life vehicles

Data gaps and priorities for potential follow up

In the analysis presented above, it is obvious that data about recycling end-of-life vehicles are collected in Serbia.

The collected data are mainly from SEPA Report (2015) and based on application report from operators and/or generators of recycled end-of-life vehicles.

Data between 2 national institutions are not comparable (SEPA and the Statistical Office) and it is not easy to assess their accuracy, especially since they apply different data collection methodologies.

In order to ensure better results in the future, methodologies for data collection should be clarified, as well as format (number instead of quantity).

2.5.3 Waste Incineration

2.5.3.1 Incineration of municipal / general waste

Statement

The Serbian Agency for Environmental Protection reported (2015) that there is no incineration of municipal waste in Serbia. Municipal waste is landfilled in municipal landfills. Not all landfills in Serbia are constructed as sanitary landfills according to the prevailing technical standards.

Presentation of obtained data

N/A

Data gaps and priorities for potential follow up

No data gaps.

2.5.3.2 Incineration of hazardous waste

Statement

According to information available from SEPA, in 2014 in total about 4,300 tonnes of hazardous waste were used for energy recovery in Serbia. The following table shows the quantities used for energy recovery per waste type.

Waste code	Waste type	Quantity used for energy recovery (t)
12 01 07*	Mineral-based machining oils free of halogens (except emulsions and solutions)	4
13 01 13*	Other hydraulic oils	1
13 02 05*	Mineral-based non-chlorinated engine, gear and lubricating oils	168
13 02 06*	Synthetic engine, gear and lubricating oils	1
13 02 08*	Other engine, gear and lubricating oils	16
13 03 10*	Other insulating and heat transmission oils	17
13 05 06*	Oil from oil/water separators	1,866
13 08 99*	Wastes not otherwise specified	27

Waste code	Waste type	Quantity used for energy recovery (t)
15 01 10*	Packaging containing residues of or contaminated by hazardous substances	17
15 02 02*	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances	100
16 01 07*	Oil filters	2
16 07 08*	Wastes containing oil	2,038
18 01 03*	Wastes whose collection and disposal is subject to special requirements in order to prevent infection	13
19 12 11*	Other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances	29
TOTAL		**4,296**

Table 29 Quantities of hazardous waste used for energy recovery in Serbia in 2014 (Source: data provided by SEPA dated with 12th of April 2017)

The waste types 16 07 08* "wastes containing oil" and 13 05 06* "oil from oil/water separators" accounted for the biggest shares in the quantity used for energy recovery.

According to data from the draft Hazardous Waste Management Plan (2017) based on information available from SEPA (in 2014) the total quantity of 4,300 tons of hazardous waste was used for energy recovery in Serbia.

However, two cement plants are available for co-incineration of a wide range of different types of hazardous waste with and appropriate permissions for thermal treatment of waste (IPPC permit).

Currently, three cement plants are operating in the Republic of Serbia: 1) LAFARGE Serbia Ltd. (member of Lafarge Holcim group), Beočin; 2) CRH Serbia Ltd. Popovac - Paraćin and 3) TITAN Cementara Kosjerić Ltd., Kosjerić. Two cement factories in Serbia have IPPC permits for thermal treatment of hazardous and non-hazardous waste, while the third factory is in the procedure of obtaining the permit (Chapter 6.9).

The processes where waste is used as raw material and/or as a source of energy, and where waste substitutes natural mineral resources (material recycling) and fossil fuels (energy recovery) used in the cement manufacturing, are called co-processing.

Relevant pollution abatement options:	No emission reduction devices	PM reduction, simple ESP or similar	Acid gas control – high efficiency FF or ESP PM retention	Mercury specific absorbents + FF
Enter per cent of total activity rate per type:	/	100	/	/

Table 30 Distribution of activity rates on the relevant mercury controls

Mercury releases from this mercury source sub-category 2 – Mercury realise from incineration/co-incineration of hazardous waste were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 31 below.

Incineration of hazardous waste	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Waste incinerated, t/y			4,300	-
Input factor for phase	g Hg/t waste incinerated			24	-
Calculated input to phase	Kg Hg/y			103	-
Output distribution factors for phase:					
- Air	-			0.90	-
- Water	-			0.00	-
- Land	-			0.00	-
- Products	-			0.00	-
- General waste treatment	-			0.00	-
- Sector specific waste treatment	-			0,10	-
Calculated outputs/ releases to:					
- Air	Kg Hg/y			92.70	**92.70**
- Water	Kg Hg/y			0.00	0.00
- Land	Kg Hg/y			0.00	0.00
- Products	Kg Hg/y			0.00	0.00
- General waste treatment	Kg Hg/y			0.00	0.00
- Sector specific waste treatment	Kg Hg/y			10.30	**10.30**

Table 31 Summary of the data used and the results obtained using Inventory Level 2 for the incineration of hazardous waste

Data gaps and priorities for potential follow up

There is gap in data, mainly in non-existing evaluation of collected data from SEPA. It is common understanding what technical incineration /co-incineration of hazardous waste implies that such facilities must comply with the Law on IPPC and the application BAT.

The collected data does not indicate how and where the amount of 4,300 t/year of hazardous waste is treated.

Currently there is no regular full-scale waste collection system for hazardous waste in the territory of Serbia. The present collection system for hazardous wastes is primarily based on the economic value of the waste. For example there is collection of waste oil of certain quality (high calorific value) or lead acid-batteries, which can be sold to users within the formal or informal waste management sector.

Note that there may be a minor double counting of mercury in waste between this sub-category (hazardous waste incineration) and cement production with co-incineration of waste.

2.5.3.3 Incineration and open burning of medical waste

Statement

The total amount of medical and veterinary waste as reported by SEPA in 2015 is 2,821.28 t/y. There is no official data on open burning of medical waste.

SEPA, Report 2014, and draft HWM Plan states that 2,148 tons of wastes from human or animal health care and/or related research (Chapter 18) were treated in Serbia in 2014. Table 32 presents treated quantities by waste types (SEPA 2015). The treated quantities include also wastes taken over for storage of wastes (Operation code R13).

Waste Code Waste Type	Quantity treated (t)
18 01 01 Sharps (except 18 01 03)	162
18 01 02 Body parts and organs including blood bags and blood preserves (except 18 01 03)	2
18 01 03* Wastes whose collection and disposal is subject to special requirements in order to prevent infection	1,971
Other waste types	13
TOTAL	**2,148**

Table 32 Treated quantities of wastes from human or animal health care and/or related research (Chapter 18) in 2014 in Serbia (MoEP 2015)

Draft Waste Management Strategy 2014 stated that:

- Separation of infectious medical waste from other wastes has started in public and private healthcare institutions and veterinary organisations;
- Used needles and syringes, cotton pads, incontinence diapers, bandage materials and other categories of infectious waste are treated in 82 healthcare centres in the Republic of Serbia where 111 autoclaves and 78 crushers have been installed for sterilisation of medical waste (devices for low- temperature treatment of a part of medical waste, which can be landfilled after such treatment – disinfection/ sterilisation of infectious waste and sharp objects – crushing/grinding of sterilised waste), as well as 12 autoclaves in the veterinary sector;
- Generally, there are no modern facilities in the Republic of Serbia for incineration of animal and medical waste;
- There is no data addressing open burning of medical waste.

Consequently, it is assumed that no incineration/burning of medical waste is taking place.

Data gaps and priorities for potential follow up

No data gaps.

2.5.3.4 Open fire waste burning (on landfills and informally)

Statement

It is obvious that there is a practice of open fire waste burning in Serbia (on sanitary landfills). There are also a total of 3582 informal landfills and dumpsites.

Unfortunately, it is not possible to find data on open fire waste burning.

Certain estimations are made during the development of the NIP under the Stockholm Convention in Serbia for the purpose of estimating the POPs gases in 2012, based on recommendations by the UN IPCC.

In 2012 it was estimated that the amount of waste which is subject to uncontrolled burning is 2027 which is included in the Toolkit.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 33 below.

Open fire waste burning (on landfills and informally)	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Waste burned, t/y			2,072	-
Input factor for phase	g Hg/twaste burned			5	-
Calculated input to phase	Kg Hg/y			10	-
Output distribution factors for phase:					
- Air	-			1.00	-
- Water	-			0.00	-
- Land	-			0.00	-
- Products	-			0.00	-
- General waste treatment	-			0.00	-
- Sector specific waste treatment	-			0.00	-
Calculated outputs/ releases to:					
- Air	Kg Hg/y			10.00	**10.00**
- Water	Kg Hg/y			0.00	0.00
- Land	Kg Hg/y			0.00	0.00
- Products	Kg Hg/y			0.00	0.00
- General waste treatment	Kg Hg/y			0.00	0.00
- Sector specific waste treatment	Kg Hg/y			0.00	0.00

Table 33 Summary of the data used and the results obtained using Inventory Level 2 for open fire waste burning (on landfills and informally)

Data gaps and priorities for potential follow up

No data gaps.

2.5.3.5 Sewage sludge incineration

Statement

There are no sewage sludge incineration plants in the Republic of Serbia.

Presentation of obtained data

N/A

Data gaps and priorities for potential follow up

No data gaps.

2.5.4 Waste deposition / landfilling and waste water treatment

2.5.4.1 Controlled landfills / deposits

Statement

The total amount of waste generated in Serbia (SEPA Report 2017) for 2015 was 1,840 million tons of waste - collecting efficiency was 82%.

Landfilling waste amount on local municipal landfills in Serbia in 2015 was 1,360 million tons.

According to SEPA (2017), there are 10 sanitary landfills. 3 sanitary landfills are being constructed.

Data on total amounts of landfilled waste are provided by SEPA; but it should be noted that not all of municipal public utility enterprises provided data to SEPA in a timely manner (31st March).

Public utility enterprises landfill waste on 120 municipal landfills. 45 public utility enterprises did not provide data to SEPA for 2015.

Data provided by SEPA are present in Table 34 as follows:

Operation	Hazardous waste (t)	Non-hazardous waste (t)
D1	500	839,196
D5	5,495	520,804
D10	-	2,072
TOTAL	5,995	1,360,072

Table 34 Data on controlled landfilling (SEPA)

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 35 below.

Controlled landfills/deposits	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Waste landfilled, t/y			520,804	-
Input factor for phase	g Hg/t waste			5	-
Calculated input to phase	Kg Hg/y			2,604	-
Output distribution factors for phase:					
- Air	-			0.01	-
- Water	-			0.0001	-
- Land	-			0.00	-
- Products	-			0.00	-
- General waste treatment	-			0.00	-
- Sector specific waste treatment	-			0.00	-
Calculated outputs/ releases to:					
- Air	Kg Hg/y			26.04	**26.04**
- Water	Kg Hg/y			0.26	**0.26**
- Land	Kg Hg/y			0.00	0.00
- Products	Kg Hg/y			0.00	0.00
- General waste treatment	Kg Hg/y			0.00	0.00
- Sector specific waste treatment	Kg Hg/y			0.00	0.00

Table 35 Summary of the data used and the results obtained using Inventory Level 2 for controlled landfills/ deposits

Data gaps and priorities for potential follow up

No data gaps.

2.5.4.2 Informal dumping of general waste

Statement

Data presented in the Post Screening Document from September 2015 are as follows:

- There are 3,582 landfills and dumpsites;
- Small dumpsites (92% of all landfills and dumpsites) with the capacity over 10,000 m3 contain 93.5% of the total quantity disposed waste.

The draft of the new National Strategy (not adopted) stated that wild landfills, which are out of control of municipal public utility companies, receive about 40% of total generated municipal waste in Serbia.

The same data are provided in the latest SEPA Report from 2017.

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 36 below.

Informal dumping of general waste	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Waste dumped, t/y			839,198	-
Input factor for phase	g Hg/t waste			5	-
Calculated input to phase	Kg Hg/y			4,196	-
Output distribution factors for phase:					
- Air	-			0.1	-
- Water	-			0.1	-
- Land	-			0.8	-
- Products	-			0.00	-
- General waste treatment	-			0.00	-
- Sector specific waste treatment	-			0.00	-
Calculated outputs/ releases to:					
- Air	Kg Hg/y			419.60	**419.60**
- Water	Kg Hg/y			419.60	**419.60**
- Land	Kg Hg/y			3,356.78	**3,356.78**
- Products	Kg Hg/y			0.00	0.00
- General waste treatment	Kg Hg/y			0.00	0.00
- Sector specific waste treatment	Kg Hg/y			0.00	0.00

Table 36 Summary of the data used and the results obtained using Inventory Level 2 for informal dumping of general waste

Data gaps and priorities for potential follow up

There is no reliable data regarding the quantity of waste disposed in uncontrolled dump sites. Rather, data are based on estimation and not on site investigation at local community level.

2.5.4.3 Waste water system/treatment

Statement

Only about 46% of households in the Republic of Serbia are connected to sewage systems.

According to data presented in the Statistical Yearbook, 363.1 million m3 of municipal wastewaters are annually generated in Serbia. Of the total quantity of municipal wastewaters, only 5.3% (19.2 million m3) is treated by mechanical treatment.

Sludge that is generated after wastewater treatment is disposed at landfills, which is currently a quantity of 4,000 tons annually and this does not represent a significant load. However, construction of facilities for municipal wastewater treatment will result in generation of big quantities of sludge which should be disposed in an appropriate manner.

Sludge from municipal wastewater treatment plants is classified in the Waste Catalogue into the 19 08 05 waste group (draft National Strategy).

Relevant pollution abatement options:	No treatment	Mechanical treatment only	Mechanical and biological treatment; no land application of sludge	Mechanical and biological treatment; with > 40% of sludge used for land application
Enter per cent of total activity rate per type:	/	100	/	/

Table 37 Distribution of activity rates on the relevant mercury controls

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 38 below.

Waste water system/ treatment	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate	Waste water, m^3/y			361,000,000	-
Input factor for phase	mg Hg/m^3 waste			5.25	-
Calculated input to phase	Kg Hg/y			1,895	-
Output distribution factors for phase:					
- Air	-			0.90	-
- Water	-			0.00	-
- Land	-			0.00	-
- Products	-			0.10	-
- General waste treatment	-			0.00	-
- Sector specific waste treatment	-			0.00	-
Calculated outputs/ releases to:					
- Air	Kg Hg/y			0.00	0.00
- Water	Kg Hg/y			1,705.3	**1,705.3**
- Land	Kg Hg/y			0.00	0.00
- Products	Kg Hg/y			0.00	0.00
- General waste treatment	Kg Hg/y			189.53	**189.53**
- Sector specific waste treatment	Kg Hg/y			0.00	0.00

Table 38 Summary of the data used and the results obtained using Inventory Level 2 for waste water system/ treatment

Data gaps and priorities for potential follow up

Not solid data regarding the quantity of treated waste water.

2.5.3 Test of waste and wastewater default factors

In this inventory, default input factors were used for the estimation of mercury releases from general waste treatment and wastewater treatment. The default factors were based on literature data of mercury contents in waste and wastewater, and these data were only available from developed countries. The following test of the results was performed to qualify the results for these sources.

The test made for general waste compares the calculated inputs to all four general waste sub-categories with the sum of general waste outputs from intentional mercury uses in products plus processes as follows.

In the IL1 spread sheet, the test was done as follows: Tab "Level 1-total summary":

$$(E61+E65+E67+E68) > 2 * (J26+J27 + \Sigma (J32 \text{ to } J56))$$

Results as presented in Inventory 1 are as follows:

(0+10+2604+4196) > 2 * (0+ 0 + 1235)
6,810 >2,470 TRUE

This test thus indicates that the default input factors for general waste may overestimate the mercury amounts in waste.

The test made for wastewater compares the calculated inputs to wastewater treatment with the sum of outputs to water from intentional mercury uses in products plus processes as follows, using data from the Inventory level 1 spread sheet:

In the IL1 spread sheet the test was done as follows: Tab "Level 1-ExecSummary":

$$B19 > 2 * (D8 + \Sigma (D10 \text{ to } D14))$$

65 > 2*(409)
65 > 818 FALSE

The second test was false.

The calculations made indicate that the default input factors for wastewater treatment does not necessarily overestimate the mercury releases from these sub-categories. Therefore, it was determined that the default input factors represent the best available estimates and associated calculation of mercury releases for wastewater treatment in Serbia.

2.6 Data and inventory on general consumption of mercury in products, as metal mercury and as mercury containing substances

2.6.1 General background data

Background calculations for the product groups listed below were based on the data on population, electrification rate and dental personnel density shown in Table 39.

Sub-category	Data types used as activity rates
Dental amalgam fillings ("silver" fillings)	Population, density of dental personnel
Electrical switches and relays with mercury	Population, electrification rate (percent of population with access to electricity)
Polyurethane (PU, PUR) produced with mercury catalyst	Population, electrification rate (percent of population with access to electricity)
Other manometers and gauges with mercury	Population, electrification rate (percent of population with access to electricity)
Laboratory chemicals	Population, electrification rate (percent of population with access to electricity)
Other laboratory equipment with mercury	Population, electrification rate (percent of population with access to electricity)

Country	Population in 2010 (or as recent as available data allow; UNSD, 2012)	Dental personnel per 1000 inhabitants	Electrification rate, % of population with access to electricity
Serbia	7,291,426	0.360	100

Table 39 Background data for default calculations for dental amalgam and certain other product types

The data in Table 39 are provided as part of the Toolkit. For most countries they are based on authoritative international data sources (population data: UNSD; Dental data: WHO; Electrification data: IEA).

2.6.2 Thermometers with Mercury

Production

There is no production of Hg thermometers in the Republic of Serbia (see Chapter 2.4.5.).

Use and disposal

The mercury thermometers have traditionally been used for most medium temperature range measurements. Today, they are increasingly substituted by electronic and other thermometer types, in accordance with legal regulation which bans production and import of it. Major remaining uses may be medical thermometers (body temperature in hospitals, households, etc.), ambient air temperature thermometers, in chemical laboratories and in controls of some machines (large diesel engines) and industrial equipment.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has not registered end of year presence of thermometers on stock and has not registered any sale thereof.

The Customs Administration has reported that 9,09 t (231,552 pieces) of medical thermometers was imported into the country during 2015, by 139 different importers (tariff numbers 9025112000 and 9025118000), as well as 36,61 t (746,524 pieces) of the other glass thermometers, by 693 importers (tariff numbers 9025192000 and 9025198000). This institution does not have information about Hg content in those products but its HS numbers describe them as well.

Considering potential Hg contents, products with the tariff number 9025112000 could be of interest. This tariff number presents thermometers and pyrometers, liquid filled, for direct reading, not combined with other instruments. It is not specified which liquid is present in the products, so it could be Hg but not necessarily.

The total amount of imported products with this tariff number is 76,754.00 pieces i.e. 2.35 tonnes. Importers are Farmalogist Ltd from Belgrade, Rolimin-A Ltd from Debeljača, VANA Ltd from Belgrade, Patent Co Ltd from Mišićevo and Pinto Medical Ltd from Leskovac. Importers were not contacted directly.

The Medicines and Medical Devices Agency of Serbia has not registered legal import and sale of Hg thermometers, so it was concluded that imported products with tariff number 902511200 are not filled by Hg but by other liquid.

The Ministry of Economy, Sector for Quality and Product Safety, has reported that thermometers which are in use for medical purpose are still present on the market of the Republic of Serbia in accordance with Regulation on medical thermometers and Decision of approval no. 393-217-01-660 from 23rd February 2010, but this institution does not have information about quantity of this kind of thermometers on the market.

This Ministry has also reported that other glass thermometers with mercury are present in the market of Serbia but they are not covered by the system of control which this Ministry is performing, so there is no information about their quantity in the market.

However, there was no legal sale of mercury thermometers during 2015.

In accordance with information obtained from the Serbian Environmental Protection Agency (SEPA), there are no precise data on disposal of the old and broken Hg containing thermometers (see the Chapter 2.4.5).

Data gaps and priorities for potential follow up

Specially prepared questionnaire was submitted to the Ministry of Economy, Sector for Market Inspection, but answers are not provided until the closing date of this report.

Official institutions do not have information about Hg presence in products in the Serbian market and information about disposal thereof (SEPA, the Customs Administration, the Statistical Office of the Republic of Serbia, the Market Inspection etc.).

It should be noted that mercury containing thermometers can be found in the illegal market in Serbia. The quantity of illegally imported mercury thermometers on the stock is unknown so it is not possible to provide information about the quantity of these products placed in the market. There is illegal sale of Hg thermometers which happens mostly in open market places.

It is recommended that this potential mercury source be investigated in more detail in a future mercury inventory.

2.6.3 Light Sources with Mercury

Production

There is no production of light sources with mercury in the Republic of Serbia (see Chapter 2.4.7).

Use and disposal

Light sources with mercury include: linear fluorescent lamps, compact bulbs (small energy saving fluorescent lamps), street advertisement with fluorescent tubes, other mercury containing lamps (Hg lamps and Na lamps for street lighting, UV lamps for skin tanning, light source in LCD flat screens for TV and computers, laboratory atomic absorption spectrometry lamps, head lamps in some car brands, etc.).

Presentation of the obtained data

The Statistical Office of the Republic of Serbia (name of the document: Realized production, stocks and sales of industrial products) has registered presence of the different types of light sources on the stock, as well as registered sales during 2015: 1,000 / 59,000 pieces (respectively) of the electric lighting and lighting equipment made of plastic and similar materials (fibres or fluorescent tubes), 1,000 / 20,000 pieces (respectively) of the outdoor spotlights (including spotlights for photographic and film studios), 200 / 1,980 kg (respectively) of the electric lighting equipment and visual signalling for motor vehicles (except ordinary bulbs and discharge lamps, closed reflector lamps, ultraviolet and infrared lamps and arc lamps) and 8,000 / 54,000 pieces (respectively) of the chandeliers and other electrical ceiling and wall lighting, except for the lighting of public open spaces).

The document named *Industrial production by products* reports 2,000 pieces of the lighting equipment was on stock and 47,000 pieces was sold, during 2015.

This institution does not have information about the actual types of products which are produced within a defined category of products or about the Hg content in some of them, but it is concluded that there is no production of light sources with mercury in the Republic of Serbia (see Chapter 2.4.7), so it could be concluded that these products on stock do not include mercury.

The Customs Administration reported that 455.58 t (4,551,394 pieces) of fluorescent and other tubes and light sources were imported into the country during 2015, by 290 different importers. This institution does not have information about the Hg content in these products. The quantity of those imported products sold during 2015 is unknown.

In accordance with harmonized commodity description and coding system (HS) tariff numbers relevant for mercury listed within the UNEP Hg Toolkit Reference Report January 2017 and the tariff numbers of the imported fluorescent lamps obtained from the Customs Administration, only products with tariff numbers 85393110 (discharge lamps, fluorescent, hot cathode, with double ended cap) and 85393190 (discharge lamps, fluorescent, hot cathode (excluded with double ended cap) should be considered as light sources which might have a mercury content.

The quantity of imported discharge lamps, fluorescent, hot cathode, with double ended cap is 2,512,295 pieces, i.e. 300.56 tons, and amount of the imported discharge lamps, fluorescent, hot cathode (excluded with double ended cap) is 1,560,382 pieces, i.e. 111.91 tons. The remaining 43.11 tons (478,717 pieces) of lamps present other Hg containing light sources.

The Customs Administration reported that 2.82 tons (22,552 pieces) of products with tariff number 85393110 have been exported during 2015, as well as 3.64 tons (80,787 pieces) of products with tariff number 85393190 and 0.42 tons (2,051 pieces) of other Hg containing light sources.

During the filling of the Hg Toolkit Inventory Level 1 Calculation Spread sheet, it was assumed that the number of sold items was equal to the number of imported items decreased by the number of exported items (there is no production of Hg containing light sources). So, it could be said that the total sales included 297.74 tonnes (2,489,743 pieces) of discharge lamps, fluorescent, hot cathode, with double ended cap, as well as 115.55 tons (1,479,595 pieces) of discharge lamps, fluorescent, hot cathode (excluded with double ended cap) and 42.69 tons (476,666 pieces) of other Hg containing light sources.

The Ministry of Economy, Department of Quality and Product Safety, has informed that this kind of products is not in their jurisdiction.

In accordance with information obtained from the Serbian Environmental Protection Agency (SEPA), there are no precise data about disposal of the old and broken light sources with mercury.

Data gaps and priorities for potential follow up

The initial idea was to undertake a more detailed survey of imported products with Hg content. However, it was not possible to conduct interviews with all 290 different importers and distributers of such products in order to obtain reliable results, so that idea was abandoned.

Specially prepared questionnaire was distributed to the Ministry of Economy, Department of Quality and Product Safety and the Sector for Market Inspection but answers are not received until the closing date of this report.

Official institutions do not have information about Hg presence in products on the Serbian market and information about their disposal (SEPA, the Customs Administration, the Statistical Office of the Republic of Serbia, Market Inspection etc.).

It is recommended that this potential mercury source be investigated in more detail in a future mercury inventory.

2.6.4 Batteries with Mercury

Production

There is no production of batteries with mercury in the Republic of Serbia.

Use and disposal

Batteries with mercury including: mercury oxide batteries (cylindrical and button), alkaline cylindrical cells (containing mercury), button shaped cells of most types (zinc-air, silver-oxide, permanganate etc.).

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered that 66,000 pieces of batteries and accumulators at the end of 2015.

The Customs Administration reported 3.36 t (190,497 pieces) of the mercury oxide batteries, also called mercury-zinc cells (button cells and other sizes) were imported into the country during 2015.

The Customs Administration also reported that 40.55 t (2,640,907 pieces) of different button cells (zinc-air, alkaline button cells and silver-oxide), as well as other batteries with mercury (plain cylindrical alkaline, permanganate, etc.), were imported by 222 different importers. There was no export of such batteries.

In accordance with harmonized commodity description and coding system (HS) tariff numbers relevant for mercury listed within the UNEP Hg Toolkit Reference Report January 2017 and the tariff numbers of the imported batteries obtained from the Customs Administration, products with tariff numbers 850660000 (zinc-air) and 8506101800 (alkaline button cells) were imported in amounts of 2.6 tons (982,881 pieces) and 17.71 tons (649,563 pieces), while products with the tariff number 850640000 (silver-oxide) were not imported. The Customs Administration has reported that 0.19 tons (68,230 pieces) of products with tariff number 85066000 and 3.25 tons (196,279 pieces) of products with tariff number 85006101800 were exported during 2015. There was no export of the products with tariff number 850640000.

Products with tariff number 85068005 (dry zinc-carbon batteries of a voltage of ≥ 5.5 V but ≤ 6.5 V) could be counted as other batteries with mercury. The quantity of imported dry zinc-carbon batteries is 14,840 pieces, i.e. 4.22 tons. There was no export of the products with tariff number 85068005.

During the filling of the Hg Toolkit Inventory Level 1 Calculation Spreadsheet, it was assumed that the number of sold items was equal to the number of imported items decreased by the number of exported items (there is no production of Hg containing batteries). So, it could be said that 3.36 tons (190,497 pieces) of mercury oxide batteries was sold, as well as 16.87 tons (1,367,935 pieces) of other button cells (zinc-air, alkaline button cells, and silver-oxide) and 4.22 tons (14,840 pieces) of other batteries with mercury (lithium cells batteries, dry zinc-carbon batteries, plain cylindrical alkaline, permanganate, etc.).

The Ministry of Economy, Department of Quality and Product Safety, has informed that the supervision of this kind of products is not in their jurisdiction.

The Serbian Environmental Protection Agency (SEPA) has reported that 12,952.64 t of these batteries has been put on the market during 2015 in total (production and import) (9,761.43 t of the starter batteries, 581.99 t of the portable batteries and accumulators, 2,609.22 t of the industrial batteries and accumulators) (see the relevant chapter on waste).

It is of interest to note that the above presented official data where the sum of the batteries and accumulators which are produced (0, The Statistical Office of the Republic of Serbia), imported (3.36 t plus 40.55 t, The Customs Administration) and previously produced at national level and sold (0, The Statistical Office of the Republic of Serbia) represents just 0.34% of the amount of batteries and accumulators which were put on the market, i.e. produced and imported (12,952.64 t, SEPA).

Data gaps and priorities for potential follow up

The initial idea was to undertake a more detailed survey of imported products with Hg content. However, it was not possible to conduct interviews with all 222 different importers and distributers of such products in order to obtain reliable results, so that idea was abandoned.

Official institutions do not have information about Hg content in products on the Serbian market and information about their disposal (SEPA, the Customs Administration, the Statistical Office of the Republic of Serbia, Market Inspection etc.).

It is recommended that this potential mercury source be investigated in more detail in a future mercury inventory.

2.6.5 Paints with Mercury

Production

There is no production of the paints with mercury in the Republic of Serbia.

Use and disposal

Presentation of the obtained data (related to the use and disposal)

The Statistical Office of the Republic of Serbia has registered the sale of 49,947 t different types of paints, varnishes and similar coatings, printing ink and mastics but this institution does not have information about the Hg content in those products (document name: Industrial production by products).

According to the Customs Administration, 28,495.17 t of the different paints were imported into the country by 3,827 importers during 2015. The quantity of these imported products sold during 2015 is unknown.

The Ministry of Environmental Protection, the Department of Chemicals, has not registered the presence of Hg compounds incorporated into the paints put on the Serbian market during 2015.

Data gaps and priorities for potential follow up

No data gaps.

2.6.6 Skin Lightening Creams and Soaps with Mercury

Production

There is no production of skin lightening creams and soaps with mercury content in the Republic of Serbia.

Use and disposal

Presentation of the obtained data

According to the Customs Administration, 14,048.95 t of the different creams and soaps were imported into the country by 1,751 importers during 2015. This institution does not have information about the Hg content in these products. The volume of sale of these imported products during 2015 is unknown.

The Ministry of Health has reported that during regular inspection checks there were no identified cosmetics products which contain Hg above the defined limit values (defined allowed limit value of Hg in specific cosmetics products (B group of products for general use) is < 3 mg). During 2015, a total of 10,298 samples of products for general use were tested for physical-chemical compliance – 41.8% were products from domestic production and 58.2% were imported products (Report of the Institute for Public Health of Serbia "Dr Milan Jovanović Batut" for 2015, Belgrade).

Data gaps and priorities for potential follow up

No data gaps.

2.6.7 Manometers and Gauges with Mercury

Production

There is no production of the manometers and gauges with mercury content in the Republic of Serbia.

Use and disposal

Manometers and blood pressure gauges include blood pressure gauges and other manometers/pressure controls for industrial uses, for educational purposes, district heating pressure valves, etc.

Blood pressure gauges are products that mainly contain mercury as an integral part of the product. For pressure valves in district heating and educational uses the metallic mercury used is often supplied separately and not integrated in the product.

Presentation of the obtained data

The Statistical Office of the Republic of Serbia has registered the production of 269,971 pieces of measuring instruments and apparatus, testing and navigation instruments and apparatus during 2015. This institution does not have information about Hg content in those products.

The Customs Administration reported the import of 67.75 t (116,749 pieces) of different blood pressure meters into the country by 26 importers during 2015. This institution does not have information about Hg content in these products. The volume of sale of these imported products in 2015 is unknown.

However, the Medicines and Medical Devices Agency of Serbia has not registered production, import or legal sale of medical blood pressure gauges (mercury sphygmomanometers).

The Ministry of Economy, Sector for Quality and Product Safety, has reported that manometers which are in use for medical purposes are still present in the market of the Republic of Serbia in accordance with Regulation on medical thermometers and Decision of approval no. 393-217-01-660 from 23rd February 2010, but this institution does not have information about the quantity of this kind of thermometers in the market.

In accordance with information obtained from the Serbian Environmental Protection Agency (SEPA), there are no precise data about disposal of these types of products.

Data gaps and priorities for potential follow up

Official institutions do not have information about the Hg presence in products in the Serbian market and information about their disposal (SEPA, the Customs Administration, the Statistical Office of the Republic of Serbia, Market Inspection etc.).

It is recommended that this potential mercury source be investigated in more detail in a future mercury inventory.

2.7 Data and inventory on crematoria and cemeteries

2.7.1 Crematoria

Statement

There are only two crematoria in the Republic of Serbia, one in Belgrade and the other one in Novi Sad.

Presentation of the obtained data

According to information obtained from public utilities which manage the said crematoria, a total of 3,125 cremations have been carried out in total during 2015. Considering that, the value of 3,125 was used as the activity rate for cremations.

Presentation of the summary of the results obtained using Inventory Level 2

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 40 below.

Crematoria	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate Input factor for phase Calculated input to phase	Corpses, t/y g Hg/corpse Kg Hg/y		3,125 2.50 7.81		- - -
Output distribution factors for phase: - Air - Water - Land - Products - General waste treatment - Sector specific waste treatment	 - - - - -		 1.00 0.00 0.00 0.00 0.00 0.00		 - - - - - -
Calculated outputs/ releases to: - Air - Water - Land - Products - General waste treatment - Sector specific waste treatment	 kg Hg/y kg Hg/y kg Hg/y kg Hg/y kg Hg/y kg Hg/y		 7.81 0.00 0.00 0.00 0.00 0.00		 **7.81** 0.00 0.00 0.00 0.00 0.00

Table 40 Summary of the data used and the results obtained using Inventory Level 2 for the crematoria

Data gaps and priorities for potential follow up

No data gaps.

2.7.2 Cemeteries

Statement

There are more than one hundred cemeteries on the territory of the Republic of Serbia, both in urban and rural areas.

Presentation of the obtained data

Data about the number of buried corpses was obtained from the national data on deaths minus the number of cremated corpses.

The Statistical Office of the Republic of Serbia has reported that a total of 103,678 deaths were recorded during the period from 1st January 2015 to 31st December 2015. The number of cremated corpses is presented within chapter 10.1. After the described reduction of number of deaths in total, it was determined that the number of buried corpses is 100,553.

Presentation of the summary of the results obtained using Inventory Level 2

Mercury releases from this mercury source sub-category were estimated at Inventory Level 2. A summary of the data used and the results obtained is given in Table 41 below.

Cemeteries	Unit	Production	Use	Disposal	Sum of releases to pathway from assessed part of life-cycle
Activity rate Input factor for phase Calculated input to phase	Corpses, t/y g Hg/corpse Kg Hg/y		110,553 2.50 251.40		- - -
Output distribution factors for phase: - Air - Water - Land - Products - General waste treatment - Sector specific waste treatment	 - - - - - -		 0.00 0.00 1.00 0.00 0.00 0.00		 - - - - - -
Calculated outputs/ releases to: - Air - Water - Land - Products - General waste treatment - Sector specific waste treatment	 kg Hg/r kg Hg/r kg Hg/r kg Hg/r kg Hg/r kg Hg/r		 0.00 0.00 251.40 0.00 0.00 0.00		 0.00 0.00 **251.40** 0.00 0.00 0.00

Table 41 Summary of the data used and the results obtained using Inventory Level 2 for the cemeteries

Data gaps and priorities for potential follow up

No data gaps.

2.8 Stocks of mercury and/or mercury compounds, and storage conditions

This issue was described in detail in chapters 2.2 and 2.7.

2.9 Supply and trade of mercury and mercury containing compounds, including sources, recycling activities and quantities

This issue was described in detail in chapters 2.2 and 2.7.

2.10 Contaminated sites[23]

Chlor-alkali facilities in Serbia - status quo

Two industrial companies have established chlor-alkali electrolysis facilities in the Republic of Serbia in the past:

1. HIP Petrohemija - electrolysis facility, located in Pančevo. This mercury cell facility was built in 1975 and was fully operational in the period 1975-1999. The full capacity of the mercury electrolysis was 100,000 t chlorine/year (as an intermediary for production of sodium hypochlorite) and 88,800 t/year of pure sodium hydroxide. In 1999, this facility was damaged by bombing and the available capacity of this facility dropped to about 10% of its former capacity.

According to most recent information, in early 2014, only 3-5% of its capacity were in operation [information from the site visit] and production on-site was closed in August 2014 [presentation by Petrohemija in June 2017].

The company declared a wish to dismantle the technology, clean up the site and build there another chemical facility (not producing chlorine and not related to the chlor-alkali process at all.

[23] Šebková, K.: Technical Report on Technics and Methods of Sampling and Analyzing Mercury Emissions from Chlor-Alkali Facilities in Serbia, Stockholm Convention Regional Centre in the Czech Republic, Research Centre for Toxic Compounds in the Environment (RECETOX), Masaryk University, Brno, Czech Republic, 30 pages, RECETOX report No. 631, November 2017.

Summary of the observations regarding the Petrohemija facility:

- operation of the facility ceased in early August 2014,
- 34 mercury cells, but only 6 were in use after 1999,
- decision to close, dismantle and clean up the site in order to use the land for another facility with different focus/process,
- recognized hotspot and priority site with mercury contamination from previous operations and events,
- risk of exposure of any staff working on site is quite high, though not much precaution has been put in place,
- pits/lagoons with sludge and waste on-site (controlled), storage of liquid mercury in drums,
- under the cell room some leaks and minor spills observed,
- some sampling and analyses done on the building itself and in the vicinity to determine the procedure of dismantling and clean up.
- clear vision on steps ahead (closure, dismantling and clean up),
- the company is actively looking for partners to support the dismantling in an environmentally friendly way.

Amounts of mercury on site: still in the technology - 6 cells (12-16t), waste from mercury contaminated soil clean-up after the bombing (about 1t or more of Hg), waste from sludge contained in two lagoons on site (about 65 t), waste water containing mercury also stored in the outdoor pits covered by vegetation for many years (62t) + unknown amount of mercury contained in the construction parts of the mercury technology building (concrete floor, steel parts, walls, unused cells etc.).

Sampling in the facility on site was performed by the Jaroslav Černi Institute and relevant authority of AP Vojvodina and the results showed some contamination in the cell room as well as in the immediate vicinity of the site [presentation by Petrohemija in June 2017], [water sampling study] but relatively low levels of mercury in soils [report on soil sampling] around Pančevo.

This suggests that there is no run-off from the facility. However, the amount of mercury being released to air from the lagoon/pits and from evaporation of spills inside the mercury cell hall and temporary storage is unknown and no measurements/pilot sampling has been conducted.

The site visit confirmed several small mercury spills in the temporary storage of the drums with mercury under the cell hall (cell room) and in the cell hall itself. While there is a very limited number of staff passing by the facility, the continuous, however small, releases of mercury to the environment could easily be prevented and the ongoing pollution of the environment could be stopped.

2. Župa Kruševac *- potassium chloride producing plant located in Kruševac. This chlor-alkali electrolysis facility is located in a larger industrial area.*

The smaller facility was designed for the producing capacity level of 4.000 t/year of liquid chlorine and 13.500 t/year potassium hydroxide (50% w/w). Mercury cells within this facility were charged with about 12.4 t of elementary mercury. There is not much information available on the operation of the site and its full capacity, as the site changed owners several times and no records were kept/handed over.

It is even unclear how many mercury cells did the site contain (in an interview 20 cells were mentioned, but this number is quite questionable as building of mercury technology is quite small to hold such a number of cells). Moreover, the current owners did not know/could not confirm this information and we could not access the whole site, due to level of disintegration and demolition of the former technology.

Moreover, on the basis of inventory of persistent organic pollutants while preparing the update of the National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants in Serbia it also became evident that there were also releases of obsolete pesticides such as endosulfan that was produced on site and that caused contamination of a river adjacent to the facility which did spread further during the floods. The Župa Kruševac site is therefore also a recognized environmental hotspot contaminated by multiple chemicals in addition to mercury.

Current observations of the Župa facility:

- operation of the facility ceased in 2007, 10 (20?) cells using mercury amalgam,
- change of owners, no documentation,
- the installed technology is smaller in size but also contaminated,
- current owners emptied the mercury from the cell room during the last 6 months (summer 2017),
- removed mercury is temporarily stored in storage on site (up to 12 t of mercury max),
- risk of exposure as the remaining equipment is not cleaned,
- there are some small spills/mercury sweats from/on the concrete floor,
- no sampling done in the building yet, SEPA sampled soil in the vicinity of the compound in September 2017,
- there is desire to solve the issue - waste processing/disposal, but there is a desire to convert the remaining technology for non-mercury chlor-alkali process,
- the technology to be used in the future would be non-mercury

Mercury Emissions from Chlor-alkali Facilities in Serbia in 2017

Since none of the two facilities mentioned above is operating the mercury cell technology any longer, the emissions to air, water and soil from the technology are negligible, but given the current status of the buildings holding the technology (or what remains of it), there are certainly releases from the mercury in the cells/cell building, from temporary storage place located underneath the mercury technology as well as, potentially, some releases from the waste reservoirs/lagoons located in the premises in the Petrohemija facility as shown in the pictures below in Figure 12.



Figure 12 Overview of the three cassettes (pits/lagoons) containing sludge, waste water and untreated soil containing mercury stored at Pančevo company premises.

The situation is similar also in Župa, however releases to soil from on-site storage would be limited as all remaining mercury from the plant (where the technology parts remained in the building - such as retorts and decomposers) was removed over the summer 2017 and is currently stored in closed containers at a temporary storage onsite at a distance of about 100 m from the former facility.

As far as we could establish, the latest known emissions from Petrohemija would be until August 2014. Since 1999 the facility operated only with a maximum of 6 mercury cells (from a total of 34) and produced a maximum of 4-6% of its capacity (11-12 t of HCL/year).

For the Kruševac site, the latest information on its production is based on the discussion during a site visit on 12 October 2017. The current owners state that the existing mercury cell technology worked up to its full potential and capacity in 2004, but this cannot be confirmed as no documentation of the technology that was in place exists at the facility and the current owners do not have access to any written records regarding this technology. Moreover, the technology (cell room) was dismantled and is not operable anymore. The current building only contains a few pipes, decomposers, but no mercury.

Summary

Since the information is very scarce on the current state of both mercury facilities, there is an urgent need to conduct missions to both sites to observe the status quo as well as identify the most appropriate sampling design and methods for determination of mercury concentrations for future activities and evaluation of information.

The key issues will be environmentally sound management of existing mercury stock that is already identified and at least partially collected and stored under semi-controlled conditions and identification of the scope of environmental contamination and sources of mercury releases from dumpsites/pits/lagoons at Pančevo and from the former mercury cells buildings in both sites.

There is an urgent need to select an efficient approach to create a contamination map of each site and thus a coordinated collection of air, water and soil samples in the vicinity of the mercury technology as well as sampling in both cell halls to determine the potential for occupational exposure upon dismantling of both technologies (in Župa in particular).

The Petrohemija company did sample about 150 samples of the indoor material in the cell hall (electrolysis) and determined that if about 1 cm of the surface is removed, the remaining material is mercury free and could be recycled/sold. Additionally, at least 90 samples of ground water and 40-50 soil samples were collected around the plant up to 5 meters depth to cover the planned (future) polypropylene facility replacing the existing mercury technology building. The experts did not have access to the testing results, but the company representative said that the results did exceed the limit values which require the site remediation and that the company is planning to undertake a thorough clean-up.

In case of Župa facility, the status quo is much less clear. The information is lacking, no documentation is available, no sampling took place and no institutional memory exists (or was not revealed to us). The only official report is available in country submissions to UNEP survey on chlor-alkali facilities.

2.11 Impacts of mercury on human health and the environment

Health effects of mercury exposure

Mercury occurs naturally in the earth's crust, and is a naturally occurring element found in air, water and soil. It is released into the environment from volcanic activity, weathering of rocks and as a result of human activity. Human activity is the main cause of mercury releases, particularly coal-fired power stations, and residential coal burning for heating and cooking, industrial processes, waste incinerators and mining for mercury, gold and other metals.

Exposure to mercury – even small amounts – may cause serious health problems, and represents a particular threat to the development of the child in utero and early in life. Mercury may have toxic effects on the nervous, digestive and immune systems, and on lungs, kidneys, skin and eyes. Elemental and methyl mercury are toxic to the central and peripheral nervous systems. The inhalation of mercury vapour can produce harmful effects on the nervous, digestive and immune systems, lungs and kidneys, and may be fatal. The inorganic salts of mercury are corrosive to the skin, eyes and the gastrointestinal tract, and may induce kidney toxicity if ingested.

Neurological and behavioural disorders may be observed after inhalation, ingestion or dermal exposure of different mercury compounds. Symptoms include tremors, insomnia, memory loss, neuromuscular effects, headaches and cognitive and motor dysfunction. Mild, subclinical signs of central nervous system toxicity can be seen in workers exposed to an elemental mercury level in the air of 20 μg/m^3 or more for several years. Kidney effects have been reported, ranging from increased protein in the urine to kidney failure.

Mercury exists in various forms: elemental (or metallic) and inorganic (to which people may be exposed through their occupation); and organic (e.g., methyl mercury, to which people may be exposed through their diet). These forms of mercury differ in their degree of toxicity and in their effects on the nervous, digestive and immune systems, and on lungs, kidneys, skin and eyes. People are mainly exposed to methyl mercury, an organic compound, when they eat fish and shellfish that contain the compound. Methyl mercury is very different to ethyl mercury which is used as a preservative in some vaccines and does not pose a health risk[24].

All humans are exposed to some level of mercury, under different circumstances. Most people are exposed to low levels of mercury, often through chronic exposure (continuous or intermittent long term contact), mainly through consumption of fish and shellfish contaminated with methyl mercury[25] and through worker inhalation of elemental mercury vapours during industrial processes. However, some people are exposed to high levels of mercury, including acute exposure e.g. due to an industrial accident.

Factors that determine whether health effects occur and their severity include:

- the type of mercury concerned;
- the dose;
- the age or developmental stage of the person exposed (the fetus is most susceptible);
- the duration of exposure;
- the route of exposure (inhalation, ingestion or dermal contact).

[24] Mercury, such as thiomersal (ethylmercury), is used in very small amounts as a preservative in some vaccines and pharmaceuticals. Compared to methylmercury, ethylmercury is very different. Ethylmercury is broken down by the body quickly and does not accumulate. WHO has closely monitored scientific evidence relating to the use of thiomersal as a vaccine preservative for more than 10 years, and has consistently reached the same conclusion: there is no evidence that the amount of thiomersal used in vaccines poses a health risk. Source: WHO, http://www.who.int/mediacentre/factsheets/fs361/en/

[25] Once in the environment, mercury can be transformed by bacteria into methylmercury. Methylmercury then bioaccumulates (bioaccumulation occurs when an organism contains higher concentrations of the substance than do the surroundings) in fish and shellfish. Methylmercury also biomagnifies. For example, large predatory fish are more likely to have high levels of mercury as a result of eating many smaller fish that have acquired mercury through ingestion of plankton.

Generally, two groups are the most sensitive to the effects of mercury. Fetuses are most susceptible to developmental effects due to mercury. Methylmercury exposure in the womb can result from a mother's consumption of fish and shellfish. It can adversely affect a baby's growing brain and nervous system.

The primary health effect of methylmercury is impaired neurological development. Therefore, cognitive thinking, memory, attention, language, and fine motor and visual spatial skills may be affected in children who were exposed to methylmercury as foetuses. The second group is people who are regularly exposed (chronic exposure) to high levels of mercury (such as populations that rely on subsistence fishing or people who are occupationally exposed). WHO statistics shows that, among selected subsistence fishing populations, between 1.5/1000 and 17/1000 children showed cognitive impairment (mild mental retardation) caused by the consumption of fish containing mercury. These included populations in Brazil, Canada, China, Columbia and Greenland. Chapter IV of this Report provides more detailed information on population groups at risk and gender dimensions of mercury exposure and risks.

The WHO, which places Hg among top 10 dangerous chemicals of major public health concern, recognizes several ways to prevent adverse health effects, including:

- **Promoting clean energy** – Burning coal for power and heat is a major source of mercury. Coal contains mercury and other hazardous air pollutants that are emitted when the coal is burned in coal-fired power plants, industrial boilers and household stoves.
- **Eliminate mercury mining and use of mercury in gold extraction and other industrial processes** – Mercury is an element that cannot be destroyed; therefore, mercury already in use can be recycled for other essential uses, with no further need for mercury mining. Mercury use in artisanal and small-scale gold mining is particularly hazardous, and health effects on vulnerable populations are significant. Non-mercury (non-cyanide) gold-extraction techniques need to be promoted and implemented, and where mercury is still used safer work practices need to be employed to prevent exposure.
- **Phase out use of non-essential mercury-containing products and implement safe handling, use and disposal of remaining mercury-containing products, such as**: batteries, measuring devices, such as thermometers and barometers, electric switches and relays in equipment, lamps (including some types of light bulbs), dental amalgam (for dental fillings), skin-lightening products and other cosmetics, pharmaceuticals[26].

The primary objective of the Minamata Convention[27] is "to protect human health and the environment from anthropogenic releases of mercury and mercury compounds". This is also the first global legally binding agreement specifically designed to address contamination from a heavy metal. The convention seeks to address issues related to the use and release of mercury in trade and in industrial processes.

Under the Minamata Convention, individual countries seek to protect human health and the environment from the risks of mercury exposure by systematically controlling mercury emissions and releases, including phasing out the use of mercury in certain products and processes. To accomplish this objective, the Convention's main goal is for countries to ban new mercury mines and carry out a systematic phase-out of existing ones.

Additionally, the Convention also provides for the strategic phase-out of mercury-containing products, identification and reduction of national mercury supply and trade, and the reduction of mercury emissions and releases to air, water and land. The Convention also addresses: interim storage and waste disposal of mercury; identification of mercury-contaminated sites; and the development of awareness-raising strategies for human and environmental health issues related to mercury exposure.

[26] Source: www.who.int

[27] The Minamata Convention, was opened for signature on 10th October 2013 and entered into force on the August 16th 2017, with 128 signatories. The First Conference of the Parties took place from September 24th to 29th 2017 in Geneva, Switzerland.

CHAPTER III: POLICY, REGULATORY AND INSTITUTIONAL FRAMEWORK ASSESSMENT

Section 3.1 of this Chapter is providing an assessment of the national legislation and legal instruments from the perspective of their compliance with the Convention's requirements. In addition to an overview of applicable legislation, this part also presents identified gaps and inconsistencies that may require action in order to achieve full and effective implementation of Convention. In accordance with this, the Section 3.2 of this Chapter reviews the current institutional framework, building upon the assessment of the legal framework, focusing on division of competences between authorities involved in different aspects of implementing the Convention, as well as on the current capacities. Following the Convention's requirements, the analysis is presenting the roles and responsibilities of various institutional and non-institutional stakeholders, as well as identified gaps and recommendations for further improvements.

3.1 Policy and regulatory assessment

This sub-section focuses on the assessment of applicable policy and regulatory framework from the perspective of Convention's requirement, aiming to identify whether all important aspects necessary to meet the obligations under the Convention are covered and whether there are consistencies or complementarity among these legal instruments necessary to apply the required measures. The assessment comprised the full body of environmental and relevant sectorial legislation, focusing on the existing national policy and regulatory measures, their scope and to what extent they already meet the requirements stipulated in the provisions of the Minamata Convention, as presented in detail in Table 43.

Legal act	Off. Gazette reference	Relevant Convention Article
Law on Environmental Protection	"Off. Gazette RS", No. 135/2004, 36/2009, 36/2009, 72/2009, 43/2011 and 14/2016	3, 5, 8, 9, 10, 12, 13, 17, 18, 19, 21.
Regulation on Program of Systematic Monitoring of Soil Quality, Indicators for Risk Assessment of Soil Degradation and Methodology for Development of Remediation Programs	"Off. Gazette RS", No. 88/2010	9
Regulation on Establishment of Criteria for Assessment of Status of Endangered Environment and Priorities for Clean-up and Remediation	"Off. Gazette RS", No. 22/2010	12
Rulebook on Methodology for the Development of Registry of National and Local Pollution Sources, as well as the Methodology for Types, Methods and Deadlines for Data Collection	"Off. Gazette RS" No. 91/2010, 10/2013 and 98/2016	3, 5, 8, 9, 12, 18
Decision Establishing the National Environmental Protection Programme	"Off. Gazette RS", No. 12/2010	12

Legal act	Off. Gazette reference	Relevant Convention Article
Law on Chemicals	"Off. Gazette RS", No. 36/2009, 88/2010, 92/2011, 93/2012 and 25/2015	3, 4
Rulebook on Import and Export of Certain Hazardous Chemicals	"Off. Gazette RS", No. 89/2010, 15/2013 and 114/2014	3,4
Rulebook on Bans and Restrictions of Production, Placing on the market and Use of Chemicals	"Off. Gazette RS", No. 90/2013, 25/2015, 2/2016 and 44/2017	3,4,5
Law on Waste Management	"Off. Gazette RS", No. 36/2009, 88/2010 and 14/2016	3, 4, 11
Regulation on the Lists of Waste for Transboundary Movement and Content of the Documents Accompanying Transboundary Movement of Waste with Instructions for their Completion	"Off. Gazette RS", No. 60/2009	3, 11
Regulation on Types of Waste Subject to Thermal Treatment, Conditions and Criteria for Determining Location, Technical and Technological Conditions for Design, Construction, Equipping and Operation of Facilities for Thermal Treatment of Waste, and Handling of Remains	"Off. Gazette RS", No. 102/2010 and 50/2012	11
Regulation on Waste Disposal on Landfill	"Off. Gazette RS", No. 92/2010	11
Rulebook on the List of Electrical and Electronic Products, Measures for Restricting or Prohibiting the Use of Electrical and Electronic Equipment Containing Hazardous Substances, Manner and Procedure for Management of Waste Originating from Electrical and Electronic Products	"Off. Gazette RS", No 99/2010	4, 11
Rulebook on Storage, Packaging and Labelling of Hazardous Waste	"Off. Gazette RS", No. 92/2010	11
Rulebook on Manner and Procedure of Management of Waste Batteries and Accumulators	"Off. Gazette RS", No. 86/2010	11
Rulebook on Medical Waste Management	"Off. Gazette RS", No. 78/2010	11

Legal act	Off. Gazette reference	Relevant Convention Article
Law on Integrated Pollution Prevention and Control	"Off. Gazette RS", No. 135/2004 and 25/2015	5, 8, 9, 19
Regulation on Types of Activities and Industrial Facilities Subject to Integrated Permits	"Off. Gazette RS", No.84/2005	5, 8, 9
Regulation on the criteria for determining best available techniques for the application of quality standards, and the emission limit values in the integrated permit	"Off. Gazette RS", No. 84/2005	5, 8, 9
Law on Environmental Impact Assessment	"Off. Gazette RS", No. 135/2004 and 36/2009	5, 7, 12
Regulation on the List of Projects for Which Environmental Impact Assessment and the List of Projects for Which an Assessment May be Required	"Off. Gazette RS", No.114/2008	5, 7
Law on Strategic Environmental Impact Assessment	"Off. Gazette RS", No. 135/2004 and 88/2010	12
Law on Biocidal Products	"Off. Gazette RS", No. 36/2009, 88/2010, 92/2011 and 25/2015	4
List of Active Substances in Biocidal Products	"Off. Gazette RS", No. 94/2016 and 26/2018	4
Law on Plant Protection Products	"Off. Gazette RS", No.41/09	4
List of Approved Substances	"Off. Gazette RS", No. 49/2017	4
Law on Water	"Off. Gazette RS", No. 30/2010, 93/2012 and 101/2016	9
Regulation on Emission Limit Values of Pollutants in Water and Deadlines for their Achievement	"Off. Gazette RS", No. 67/2011, 48/2012 and 1/2016	4, 5, 9
Regulation on Limit Values of Pollutants in Surface and Ground Waters and Sediments and Deadlines for their Achievement	"Off. Gazette RS", No. 50/2012	5, 9
Regulation on Limit Values of Priority and Priority Hazardous Substances Polluting Surface Waters and Deadlines for their Achievement	"Off. Gazette RS", no. 24/2014	9
Rulebook on methods and conditions for wastewater quantity measurement and quality testing, and the content of the measurement report	"Off. Gazette RS", no. 33/2016	9

Legal act	Off. Gazette reference	Relevant Convention Article
Law on Air Protection	"Off. Gazette RS", No. 36/2009 and 10/2013	8
Regulation on Pollutant Emission Limit Values into the Air from Stationary Sources, Except Combustion Plants	"Off. Gazette RS", No. 111/2015	5, 8
Regulation on Pollutant Emission Limit Values into the Air from Combustion Plants	"Off. Gazette RS", No. 6/2016	8
Regulation on Conditions and Requirements for Monitoring of Air Quality	"Off. Gazette RS", No. 11/2010, 75/2010 and 63/2013"	8
Regulation on Methodology for Preparation of Emissions Inventory and Projections of Air Pollutants	"Off. Gazette RS", No. 3/2016	8
Law on Soil Protection	"Off. Gazette RS", No. 112/2015	9, 12
Regulation on Program of Systematic Monitoring of Soil Quality, Indicators for Risk Assessment of Soil Degradation and Methodology for Preparation of Remediation Programs	"Off. Gazette RS", No. 88/2010	9
Law on Mining and Geological Explorations	"Off. Gazette RS", No. 101/2015	3, 7
Law on Health Safety of General Use Articles	"Off. Gazette RS" No. 92/2011	4
Rulebook on Conditions for Health and Safety of General Use Articles that May Be Placed on the Market	„Off. Gazette SFRY ", No. 26/1983, 61/1984, 56/1986, 50/1989 and 18/1991	4
Law on Health Care	"Off. Gazette RS", No. 107/2005, 72/2009, 88/2010, 99/2010, 57/2011, 119/2012, 45/2013, 93/2014, 96/2015 and 106/2015	16
Regulation on National Programme of Health Care for Women, Children and Youth	"Off. Gazette RS", No. 28/2009	16
Regulation on National Programme for Preventive Dental Health Care	"Off. Gazette RS", No. 22/2009	16

Legal act	Off. Gazette reference	Relevant Convention Article
Law on Medicines and Medicinal Devices	"Off. Gazette RS", No. 30/2010 and 107/2012	4
Law on Occupational Safety and Health	"Off. Gazette RS", No. 101/2005 and 91/2015	16
Rulebook on Preventive Measures for Safe and Healthy Work When Exposed to Chemical Substances	"Off. Gazette RS" No. 106/2009 and 117/2017	16
Law on Scientific Research	"Off. Gazette RS", No. 110/2005, 50/2006, 18/2010 and 112/2015	19
Law on the Conclusion and Execution of International Agreements	("Off. Gazette RS" No. 32/2013)	21
Law on Ratification of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	"Off. Gazette RS"– International Agreements ", No. 38/2009	18
Law on Free Access to Information of Public Importance	"Off. Gazette RS" No. 120/2004, 54/2007, 104/2009 and 36/2010	18

Table 42 Overview of the national legal acts analysed under policy and regulatory assessment[28].

The Table 42 provides an extensive overview of the national legislation that provides regulatory instruments to address mercury related issues stipulated in Convention Articles 3-19 and 21 that would need to be addressed prior or soon after the Convention ratification. In addition, the table also provides an analysis of remaining gaps that would need to be addressed to ensure compliance with the articles of the Convention.

[28] The overview of key national strategic documents of relevance for understanding of overall policy framework and priorities in the field of environment, incl. mercury related issues is provided in Section 1.1.4 (Environmental Overview), under Chapter I. Same stands for main International Agreements which have been integrated into national legal system.

Article 3 - Mercury supply sources and trade

Description of article

Article 3 contains control measures aimed at limiting the global supply of mercury. It refers to mixtures of mercury with other substances, including alloys of mercury with a mercury concentration of at least 95 per cent by weight; and "Mercury compounds", which includes mercury (I) chloride (known also as calomel), mercury (II) oxide, mercury (II) sulphate, mercury (II) nitrate, cinnabar and mercury sulphide. The provisions of this Article do not apply to: (a) Quantities of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard; or (b) Naturally occurring trace quantities of mercury or mercury compounds present in such products as non-mercury metals, ores, or mineral products, including coal, or products derived from these materials, and unintentional trace quantities in chemical products; or (c) Mercury-added products. Furthermore, Article 3 establishes a prior-informed consent requirement for any export-import of mercury to occur for allowed purposes.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

- ☒ Not allow new primary mercury mining and phase out existing primary mercury mining within 15 years
- ☐ Prevent the import and use of mercury from primary mercury mining for artisanal and small-scale gold mining (ASGM)
- ☒ In accordance with Article 3.5(b), restrict the import and use of excess mercury from decommissioning chlor-alkali plants, and require environmentally sound disposal
- ☒ Obtain information on stocks of mercury or mercury compounds exceeding 50 metric tons (MT), and mercury supply generating stocks exceeding 10 MT/yr
- ☒ Not allow the export of mercury unless the importing country provides written consent (national focal point for trade- related consent must be designated under Article 17.4 of the Convention), the mercury is for an allowed use or environmentally sound storage, and all other conditions of Article 3.6 are met
- ☒ Not allow the import of mercury without government consent, ensuring both the mercury source and proposed use are allowed under the Convention (and applicable domestic law)

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Mining and Geological Explorations[29]	This Law sets the requirements for specific approvals for construction of the mining facilities and/or conducting the mining operations, using the mining facilities, as well as for geological explorations, and provides basis to prevent establishment of new primary mercury mining facility. Furthermore, the approval procedure requires the conducting of EIA procedure (see EIA Law). The Law foresees establishment of the Cadastre and Information System in the Field of Geological Explorations and Mining (Cadastre enables collection, processing, archiving, searching and distribution of geological data and information.
Law on Chemicals	In line with the provisions of Law on Chemicals[30], as well as the Rulebook described below, the Republic of Serbia has established a Prior Informed Consent (PIC) procedure concerning chemicals listed in the Rotterdam convention annexes, including mercury compounds (detailed through the Rulebook below): - In case where the Republic of Serbia is the importing country, based on information from exporting country and relevant provisions of national legislation, the decision is made whether to allow (or not-allow) import of chemicals listed in annexes of Rotterdam convention and explicit consents are being issued, - Republic of Serbia, as exporting country, ensures that exporters within its jurisdiction comply with Rotterdam Convention requirements.
Rulebook on Import and Export of Certain Hazardous Chemicals	Rulebook establishes Prior Informed Consent (PIC) procedure prescribed in relation to chemicals (including mercury compounds) listed in the Rotterdam convention annexes. In addition, it establishes a ban of export of metallic mercury and certain mercury compounds, and particularly: metallic mercury, mercury (I) chloride, mercury (II) oxide, cinnabar ore, cosmetic soaps containing mercury, as well as mixtures of metallic mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 % (w/w). The export ban is intended to prevent the mercury surplus to enter the global market and diverts from polluting activities, such as ASGM.

[29] The primary mercury mining does not exist in the Republic of Serbia, due to low natural reserves of mercury ore and the fact that their exploitation is economically unjustified. Therefore, provisions regarding phasing out existing primary mercury mining are not applicable for the Republic of Serbia. Nevertheless, the Law provides the following measures which are of relevance for implementation of Art.3

[30] As a Party of the Rotterdam Convention, Republic of Serbia shares responsibilities in relation to export-import of hazardous chemicals referred to in Rotterdam convention and implements required information exchange in this regard.

Rulebook on Bans and Restrictions of Production, Placing on the Market and Use of Chemicals	Rulebook introduced: • Ban of placing on the market (including import) of mercury-containing measuring devices, as well as production, placing on the market and use of mercury compounds, as substances or in mixtures, when they are intended for use as antifouling agents, as wood preservatives, in the impregnation of textiles, or in the treatment of industrial waters. • Ban of manufacture, placing on the market or use of certain phenyl mercury compounds as substances or in mixtures, as well as in articles or any parts thereof, if phenyl mercury compounds concentration is equal to or greater than 0.01% by weight. • Bans and restrictions as regards reproductive toxic substances also apply to mercury since it is classified as reproductive toxicant category 1B, and therefore it's placing on the market, and use, for supply to the general public is banned.
Law on Waste Management	Excess mercury from decommissioning of chlor-alkali plants is not explicitly defined as waste by existing Serbian legislation, but due to the hazardous properties and nature of excess mercury from decommissioning of chlor-alkali plants, as well as no usage foreseen in the Republic of Serbia together with the fact that export of mercury is banned, this material should be considered as hazardous waste and disposed as such[31].
Regulation on the Lists of Waste for Transboundary Movement (…)	The Regulation stipulates that import of mercury waste is forbidden, while export and transit is allowed[32]. Specific provisions related to environmentally sound management of waste consisting of, containing or contaminated with mercury or mercury compounds (specifying operations that do not lead to recovery, recycling, reclamation, direct re-use or alternative uses), are not in place yet.
Law on Environmental Protection	The Law sets an obligation of establishment of national and local registers of environmental pollution within the monitoring system of qualitative and quantitative changes in the environment.
Rulebook on Methodology for the Development of Registry of National and Local pollution Sources (…)	The Rulebook defines the content of the Registry: sources, types and quantities, manner and locations of pollutant releases to air and water, as well as quantities, types, composition, treatment and disposal of waste; organized in line with the Protocol on Pollutant Release and Transfer Register (PRTR) of the Aarhus Convention. It also defines an obligation of operator to submit the prescribed data in predetermined manner and within the deadlines set by this Rulebook. This obligation applies also for polluting activities in connection with mercury or mercury compounds.

[31] The Law on Waste management, in accordance with the requirements of the Basel Convention, defines hazardous waste as waste which is by its origin a composition or concentration of hazardous substances that may cause danger to the environment and human health and has at least one of the hazardous characteristics regulated by law, including the packaging in which hazardous waste was or is packed. National legislation on waste management provides key principles as regards environmentally sound disposal, taking into account the guidelines developed under the Basel Convention.

[32] The issue of transboundary movement of specified waste types is regulated in accordance with the Basel Convention.

Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions):

- Establishment of a legal basis for non-approval of import of mercury when mercury source and proposed use is not allowed under the Convention (e.g. primary mining or excess mercury from the decommissioning of chlor-alkali facilities).
- Although placing on the market mercury and its compounds is restricted i.e. banned as explained above, there are no specific provisions concerning the excess mercury from decommissioning of chlor-alkali plants in terms of other usages. Specific provisions related to environmentally sound management of waste consisting of, containing or contaminated with mercury or mercury compounds (specifying operations that do not lead to recovery, recycling, reclamation, direct re-use or alternative uses), are not in place yet. Adopt national legislation specifying that excess mercury from decommissioning of chlor-alkali plants is exclusively considered as waste, and that it must be disposed of in accordance with the guidelines for environmentally sound management. Use same approach for metallic mercury extracted from cinnabar ore in order to prevent the import and use of mercury from primary mercury mining, as well as to make primary mercury mining unsustainable.
- In order to comply with the requirements of the Minamata Convention as regards not allowing the export of mercury or its compounds without the importing country government consent, ensuring both the mercury source and proposed use are allowed under the Convention, the existing national legislation provisions should be extended.

Article 4 - Mercury- added products	
Description of article	
Under Article 4, the Convention stipulates a combination of measures to phase out mercury uses in many key products, phase down mercury use in dental amalgam, and discourage the manufacture of new products containing mercury. The products covered by the Convention phase-out mandate are specified in Part 1 of Annex A. The phase-out date for these products is 2020, unless additional time is sought under Article 6.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Not allow the manufacture, import and export of products listed in Part I of Annex A not otherwise excluded following the phase out date listed in the Annex ☒ Phase down the use of dental amalgam through two or more measures listed in Part II of Annex A ☒ Take measures to prevent the incorporation of products listed in Part I of Annex A (i.e., switches and relays, batteries) into larger, assembled products ☒ Discourage the manufacture and distribution of new mercury product types	
Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure:
Law on Waste Management	The placing on the market of batteries or accumulators that contain more than 0.0005 % of mercury by weight is prohibited by this Law. The prohibition does not apply to button cells with a mercury content of no more than 2 % by weight.

Rulebook on the List of Electrical and Electronic Products, Measures for Restricting or Prohibiting the Use of Electrical and Electronic Equipment (…)	Electrical and electronic equipment, including electric lamps and other household lighting equipment, placed on the market of the Republic of Serbia as of 1 July 2011 may not contain mercury (this is not applicable for spare parts intended for repair or re-use of electrical and electronic equipment), according to this Rulebook. The Rulebook provides provisions that enable compliance with Convention Annex Part I, as regards Batteries, Switches and Relays, Compact fluorescent lamps (CFLs), Linear fluorescent lamps (LFLs), High pressure mercury vapour lamps (HPMV) for general lighting purposes as well as Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for electronic displays.
Law on Plant Protection Products and List of Approved Substances	Mercury and mercury compounds are not approved as active substances in plant protection products or biocidal products. Serbian legislation on plant protection products and biocidal products stipulates obligatory registration of these products prior to placing on the market. One of the terms for registration is that its active substance is approved for relevant purpose, and this is not the case with mercury or its compounds, neither in relation to plant protection products nor biocidal products.
Law on Biocidal Products and List of Active Substances in Biocidal Products	
Law on Chemicals	The Law introduces bans or restrictions of their production, placing on the market and/or use for chemicals that pose an unacceptable risk to human health.[33]

[33] Specific bans and restrictions as regards mercury and its compounds are defined in subsidiary legislation described below.

Rulebook on Bans and Restrictions of Production, Placing on the Market and Use of Chemicals	According to the Rulebook, production, placing on the market and use of mercury compounds, as substances or in mixtures, is specifically banned in connection to biocidal usage when they are intended for use as antifouling agents, as wood preservatives, in the impregnation of textiles, or in the treatment of industrial waters. The following mercury-added products cannot be placed on the market: (a) in fever thermometers; (b) in other measuring devices intended for sale to the general public (such as manometers, barometers, sphygmomanometers, thermometers other than fever thermometers). The restriction applies to measuring devices that were placed on the market after 5 July 2011. The following mercury-containing measuring devices intended for industrial and professional uses shall not be placed on the market after 1 October 2018: (a) barometers; (b) hygrometers; (c) manometers; (d) sphygmomanometers; (e) strain gauges to be used with plethysmographs; (f) tensiometers; (g) thermometers and other non-electrical thermometric applications. The restriction also applies to measuring devices under points (a) to (g) which are placed on the market empty if intended to be filled with mercury. The restriction does not apply to: (a) sphygmomanometers to be used: (i) in epidemiological studies which are ongoing on 1 October 2018; (ii) as reference standards in clinical validation studies of mercury-free sphygmomanometers; (b) thermometers exclusively intended to perform tests according to standards that require the use of mercury thermometers until 1 October 2020; (c) mercury triple point cells which are used for the calibration of platinum resistance thermometers. The following mercury-using measuring devices intended for professional and industrial uses shall not be placed on the market after 1 October 2018: (a) mercury pycnometers; (b) mercury metering devices for determination of the softening point. The restrictions shall not apply to: (a) measuring devices more than 50 years old on 3 October 2007; (b) measuring devices which are to be displayed in public exhibitions for cultural and historical purposes. Articles or any parts thereof containing one or more of five phenylmercury compounds that are known to be used especially as catalysts in polyurethane systems shall not be placed on the market after 10 October 2017 if the concentration of mercury in the articles or any part thereof is equal to or greater than 0.01 % by weight.

Rulebook on Import and Export of Certain Hazardous Chemicals	The Rulebook prohibits export of metallic mercury and its mixtures, mercury (I) chloride, mercury (II) oxide, as well as cinnabar ore, as well as the export of cosmetical soaps containing mercury
Law on Medicines and Medicinal Devices	Dental amalgam based on mercury alloys are use in the Republic of Serbia, registered as medical devices according to this Law.
Regulation on National Programme for Preventive Dental Health Care	With the reference to dental amalgam use, the National Programme for preventive dental health care aiming at dental caries prevention and health promotion, thereby minimizing the need for dental restoration, was adopted in 2009. The time frame for implementing the National Programme was six years. The National Programme for the subsequent is yet to be adopted.
Regulation on Emission Limit Values of Pollutants in Water and Deadlines for their Achievement	The Regulation sets an obligation to reduce emission limit values of wastewater originating from dental offices and clinics, load of amalgam in the raw water on the site of origin to 95%, by installation of adequate amalgam separators, at the point of mixing with other sewage waters, by 31st December 2025 at the latest.
Law on Health Safety of General Use Articles	This Law regulates the conditions regarding the health and safety of general use articles (i.e. cosmetics, food-contact materials, toys, jewellery); the conditions for the surveillance and control over general use articles, as well as the obligations and responsibilities of legal entries placing them on the market.

Rulebook on Conditions for Health and Safety of General Use Articles that May Be Placed on the Market	On the basis of the Law on Health Safety of General Use Articles, the Rulebook sets the conditions for articles which contain mercury or its compounds: • Cosmetic products i.e. products for personal hygiene, care and beautification of face and body: (1) Products for cleaning and care of teeth and oral cavity, may not release more than 3 mg of mercury per 1 kg of product; (2) Products for beautification and colouring the lips, may not release more than 5 mg of mercury per 1 kg of product; (3) Products for beautification and colouring the eyes, may not release more than 10 mg of mercury per 1 kg of product. • Dyes which are used for colouring of cosmetic products coming into contact with the mucous membranes, dyes soluble in water must not contain more than 3 mg of mercury per 1 kg of product, and dyes insoluble in water may not release more than 3 mg of mercury per 1 kg of product. As regards dyes which are used for colouring of cosmetic products that remain on the skin for a long time, and dyes soluble in water must not contain more than 5 mg of mercury per 1 kg of product. In terms of discouraging the manufacture and distribution of mercury product types that are not covered by the Convention, this Rulebook stipulates that dyes for dishes and cutlery which come into contact with food must not migrate into food and must not contain (determined in the extracts with 0.1 mol/l of hydrochloric acid after cooking for 15 minutes under reflux) more than 10mg of mercury per 1kg of dry dye. Artificial material for dishes and utensils, during usage, must not release into the food, or saliva, more than 0.01 mg of mercury per 1kg or 1L of food (i.e. its model solution). Children's toys must not be coloured by pigments based on mercury.

Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions):

- Establish regulatory measures to address potential export of mercury-added products, especially taking into account obligations after the Convention ratification
- Prepare and adopt regulations limiting the content of mercury in cosmetic products to 1 ppm
- Identify applicable measures for dental amalgam use phasing out in line with Part II of Annex of the Convention and incorporate them into future National Programme for Preventive Dental Health Care

Article 5 – Manufacturing processes in which mercury or mercury compounds are used	
Description of article	
The Article 5 regulates the manufacturing processes in which mercury or mercury compounds, and addresses the following: • Prohibition of the use of mercury or mercury compounds in the manufacturing processes • Setting up the obligation to countries to maintain relevant information on processes that use mercury or mercury compounds • Forbids the use of mercury or mercury compounds in a facility that did not exist before the Convention	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Not allow the use of mercury or mercury compounds in the manufacturing processes listed in Part I of Annex B ☒ Restrict (as specified in the Annex) the use of mercury in the processes listed in Part II of Annex B ☒ Not allow new facilities from using mercury in the processes listed in Annex B, except facilities using mercury catalysts to produce polyurethane ☒ For facilities with processes listed in Annex B, identify and obtain information on mercury or mercury compound use; and control mercury emissions to air, and releases to land and water ☒ Discourage new uses of mercury in industrial processes	
Policy and regulatory measures in place that enable the country to comply with the above listed provisions:	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Integrated Pollution Prevention and Control	The Law sets an obligation of obtaining integrated permits for industrial facilities and activities, subject to IPPC and introduces BAT and BEP

Regulation on Types of Activities and Industrial Facilities Subject to Integrated Permits	The Regulation sets an obligation for obtaining integrated permits for facilities which apply to processes listed in Annex B of the Convention: chlor-alkali plants, acetaldehyde production facilities in which mercury or mercury compounds are used as a catalyst, VCM, Na/K methylate/ethylate, polyurethane production.
Regulation on the criteria for determining best available techniques for the application of quality standards, and the emission limit values in the integrated permit	The Regulation specifies the content of IPPC permits, including (1) the obligation of setting out of conditions for plant operation and related activities, as well as operator obligations with respect to the nature of conducted activities and their environmental impact; (2) specification of application of the best available techniques or other technical conditions or measures and (3) pollutant emission limit values (based on applicable legislation described below), determined for the facility in question. For existing plants integrated permits have to be issued by 31 December 2020.
Regulation on Pollutant Emission Limit Values into the Air from Stationary Sources, Except Combustion Plants	The Regulation sets emission limit values for certain types of plants, including chlor-alkali plants where mercury emissions cannot exceed 1 g/t of chlorine (annual average) for existing plants, or 0.01 g/t of chlorine (annual average) for new plants. Furthermore, stationary source of pollution with a mass flow of mercury and its compounds, expressed as Hg, greater than 2.5 g/h, should be equipped with measuring devices for continuous determination of the mass concentration of mercury. In addition, it sets emission limit value for mercury and its compounds of 0.05 mg/m3 in waste gas from such stationary sources.
Regulation on pollutant emission limit values into the water and deadlines for their achievement	The Regulation defines the pollutants emissions limit values, among others, for mercury released into the water from chlor-alkali facility: • Prescribed emission limit value for mercury at the point of waste water discharge into surface water is 0.05 mg/l or 0.3 g/t (for two-hour or random samples). • Prescribed emission limit value for mercury released by wastewater from chlor-alkali plants before mixing with other wastewaters is 0.04 g/t (for two-hour samples, given as the specific load related to the production capacity of chlorine in the course of 24 h) Also, the Regulation prescribes emission limit values for mercury in effluents from chlor-alkali facilities in terms of recycling and loss of saline solution (0.05 mg Hg/l), as well as recycled and lost saline (1.0 g and 8.0 g Hg/t installed capacity, respectively)

Regulation on Limit Values of Pollutants in Surface and Ground Waters and Sediments and Deadlines for Their Achievement	As regards mercury, this Regulation stipulates limit values in the sediment: for assessment of the status and trend of sediment quality, limit values are 0.3 mg/kg for target value, 1.6 mg/kg for maximum allowable concentration and 10 mg/kg for remediation value. Limit values for assessment of the quality of sediment in dredging sediments from watercourses are 0.3 mg/kg for target value, 0.5 mg/kg for limit value, 1.6 mg/kg for verification level and 10 mg/kg for remediation value. Specific limit values to surface and ground waters are not specified.
Rulebook on Bans and Restrictions of Production, Placing on the Market and Use of Chemicals	The Rulebook introduces the Annex XVII of REACH Regulation and stipulates that five phenylmercury compounds known to be used especially as catalysts in polyurethane systems shall not be produced, placed on the market or used as substances or in mixtures after 10 October 2017 if the concentration of mercury in the mixtures is equal to or greater than 0.01% by weight.
Law on Environmental Protection	See information in the sheet for Art. 3
Rulebook on Methodology for the Development of National and Local Registry of pollution sources (…)	See information in the sheet for Art. 3
Law on Environmental Impact Assessment	The Law introduces the mandatory Environmental Impact Assessment for projects that can have a significant impact on the environment and includes all industrial projects.

Regulation on the List of Projects for Which Environmental Impact Assessment and the List of Projects for Which an Assessment May be Required	The List includes, amongst other, the projects for facilities related to chlor-alkali electrolysis, acetaldehyde production in which mercury or mercury compounds are used as a catalyst, VCM, Na/K-methylate/ethylate, polyurethane. Taking into consideration that all processes listed in Annex B of the Convention have a significant impact on the environment this Law provides a legal instrument to prevent implementation of projects for processes listed in Annex B, as well as to discourage new uses of mercury or mercury compounds in industrial processes other than those listed in Annex B.

Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)

- Implement existing regulatory instruments in relation to integrated permits in order to prevent the use of mercury or mercury compounds in the manufacturing processes listed in Part I of Annex B by the phase-out dates, as well as to specify adequate measures for processes listed in Part II of Annex B. Apply the same instrument to prevent new facilities from using mercury in the processes listed in Annex B, except facilities using mercury catalysts to produce polyurethane
- Adopt national legislation ensuring that metallic mercury is no longer used in the chlor-alkali industry

Article 6 – Exemptions available to a Party upon request	
Description of article	
Article 6 specifies procedures for requiring the exemptions in terms of the deadlines for the phase-out of mercury use in products (Article 4) or industrial processes (Article 5). There is a possibility to require up to five years initial exemption, as well as the second and final exemption. All exemptions expire at the latest ten years after the applicable Article 4 and 5 deadlines. If national situation as regards mercury use in products and/or industrial processes listed in Annex A, or Annex B require more time to meet obligations under Article 4 and/or Article 5, the Party may register for an exemption from the phase-out dates listed in Annex A, or Annex B by notifying the Secretariat in writing. This notification must be submitted on becoming a Party, and must be accompanied by a statement explaining the Party's need for an exemption.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) N/A	
Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
N/A	In relation to mercury added products the adequate bans are already in place, except in relation to cosmetic products where some additional adjustments of legal framework will be needed to limit the content of mercury to 1 ppm. Therefore, no exemptions from the phase-out dates listed Annex A of the Convention will be needed in terms of mercury added products. There were two chlor-alkali plants in the Republic of Serbia operating in the past, but the latest production activities ceased by august 2014. Therefore, there will be no need to register for one or more exemptions from the phase-out dates listed Annex B, but many activities will be needed in relation to final decommissioning of non-operating chlor-alkali plants, as well as in terms of remediation of contaminated sites (ref. article 12).
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• No additional regulatory or policy aspects are foreseen in relation to the need for exemptions from the phase-out dates listed Annex A or B of the Convention	

Article 7 - Artisanal and small-scale gold mining	
Description of Article	
Article 7 applies to artisanal and small-scale gold mining (ASGM), in which mercury is used to extract gold from ore. A Party to the Convention must take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in ASGM, and the emissions and releases to the environment of mercury from such mining and processing. A Party must determine if ASGM in the Party's territory is "more than insignificant" and if this is the case develop and implement a National Action Plan in accordance with Annex C.	
Succinct summary of provisions relevant to the country in question:	
(Select from the below as appropriate to national situation) ☐ Take measures to reduce, and where feasible, eliminate mercury and mercury compound use, emissions (to air), and releases (to land and water) associated with ASGM	
Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure:
Law on Mining and Geological Explorations	See the information under the Art.3

Law on Environmental Impact Assessment	The Law on Environmental Impact Assessment prescribes obligatory Environmental Impact Assessment for projects that can have a significant impact on the environment.
Regulation on the List of projects for which Environmental impact assessment is mandatory and the List of projects for which an assessment may be required	The List of projects for which Environmental impact assessment is mandatory includes also projects for facilities related to production of non-ferrous metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes. Taking into consideration that such processes also cover artisanal and small-scale gold mining this Law provides an instrument to reduce, and where feasible, eliminate mercury and mercury compound use, emissions (to air), and releases (to land and water) associated with ASGM.

Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)

- No additional regulatory or policy aspects are foreseen (ASGM is insignificant or non-existing in the Republic of Serbia)

Article 8 – Emissions

Description of Article

The purpose of Article 8 is to reduce mercury emissions to air from five of the most significant source categories listed in Annex D (coal-fired power plants, coal-fired industrial boilers, non-ferrous metal smelting and roasting processes, waste incineration, and cement production). Depending on the fact whether the measures are for new or existing sources Parties are obliged to: (1) use best available techniques (BAT) and best environmental practices (BEP) to control and reduce emissions from new sources, as soon as practicable but no later than five years after the Convention enters into force for that Party; (2) Select the most applicable control measures among five options to control mercury emissions from existing sources for the Party in question, and ensure compliance with selected measures as soon as practicable, but no later than 10 years after the Convention becomes effective for that Party. Regardless of the type of source the Party must establish and maintain an inventory of mercury emissions, as soon as practicable, but no later than five years after the Convention enters into force and submit information on measures that are taken and their effectiveness. Additionally, a Party may prepare an optional plan which will set out its expected targets, goals and outcomes.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

☒ Require best available techniques/best environmental practices (BAT/BEP) or associated emission limit values (ELVs) for new (as defined in Article 8.2(c)) sources listed in Annex D (coal-fired power plants, coal-fired industrial boilers, non-ferrous metal smelting and roasting processes, waste incineration and cement production)

☒ Require one or more measures identified in Article 8.5 to control/reduce mercury emissions from existing sources listed in Annex D, which shall be operational at the source within 10 years

☒ Require monitoring/reporting and otherwise establish a mercury emissions inventory for sources listed in Annex D.

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Integrated Pollution Prevention and Control	The Law establishes a system for Integrated pollution prevention and control (IPPC) by issuing of integrated permits for industrial facilities and activities, and introducing BAT and BEP.
Regulation on Types of Activities and Industrial Facilities Subject to Integrated Permits	Types of activities and industrial facilities subject to Integrated permits prescribed by this Regulation, among other, also cover sources listed in Annex D (coal-fired power plants, coal-fired industrial boilers, non-ferrous metal smelting and roasting processes, waste incineration, and cement production).
Regulation on Criteria for Determining Best Available Techniques (…)	This Regulation stipulates that the best available techniques or other technical measures, as well as pollutant emission limit values, determined for the facility in question, shall be set out in the integrated permit conditions. For existing plants integrated permits have to be issued by 31 December 2020.
Law on Air Protection	The Law sets an obligation of the operator to prepare a plan for emission reduction from stationary plants. The Law on Air Protection foresees development of Air Protection Strategy and an Action Plan for Strategy implementation.

Regulation on Pollutant Emission Limit Values into the Air from Combustion Plants	The Regulation lays down limit values for emissions of air pollutants from combustion plants, as well as the manner and deadlines for submission of data and the manner of determining the total annual emissions from combustion plants, and in particular: emission limit values for sulphur dioxide, nitrogen oxides, powders and carbon monoxide that are to be set in the integrated permit for new or existing combustion plants taking into account the type, capacity, age, estimated lifetime of the plant and fuel used. The integrated permit for the combustion plant in question may prescribe the emission limit values for other pollutants (including mercury) and deadlines for achieving them, as well as establish additional requirements or changes to high combustion plants in accordance with technical developments.
Regulation on Conditions and Requirements for Monitoring of Air Quality	The Regulation prescribes that the level of air pollution in relation to gaseous mercury as well as other air pollutants is to be determined by instruments for automatic measuring and/or sampling and analysis. The reference method for the sampling and analysis of mercury concentrations in the air are also prescribed, as well as criteria for evaluation of concentration in relation to air quality. Total gaseous mercury is defined as vapours of elemental mercury and reactive gaseous mercury, or mercury compounds soluble in water with sufficiently high vapour pressure to be found in the vapour phase.
Law on Environmental Protection	See explanation under Art.3

Rulebook on Methodology for the Development of National and Local Registry of pollution sources, (…)	In connection to article 8 of the Convention, the mercury emissions to air have to be reported for sources listed in Annex D.
Regulation on Methodology for Preparation of Emissions Inventory and Projections of Air Pollutants	Regulation establishes the methodology for making an Inventory of emissions and projections of air pollutants and obligation to annually update relevant data, in line with the Convention on Long-Range Transboundary Air Pollution – CLRTAP including EMEP/EEA Air Pollutant Emission Inventory Guidebook, and incudes also source categories listed in Annex D.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• Include measures to control/reduce mercury emissions from existing sources listed in Annex D, within foreseen Air Protection Strategy	

Article 9 – Releases to water and land

Description of article

Article 9 stipulates that each Party must identify and then control significant point sources of mercury releases to land and water. There is no required list of sources, so the sources controlled under Article 9 may vary from country to country. Where other Articles of the Convention expressly require control of releases to land and water, governments may reasonably consider those sources addressed by other provisions of the Convention. A party is obliged to require reporting and/or otherwise obtain information as needed to identify significant sources of mercury/mercury compound releases to land or water, and to maintain an inventory of releases from the sources identified, within three years after of date of entry into force of the Convention. A Party with relevant sources is obliged to take measures to control the releases to land and water using at least one of four approaches that are found to be appropriate for sources a country identifies (release limit values; the use of BAT and BEP; a multi-pollutant control strategy that will deliver co-benefits for control of mercury releases; and alternative measures to reduce releases from relevant sources). Additionally, such Party may prepare a national plan setting out the measures to be taken to control releases.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

☒ Require reporting or otherwise obtain information as needed to identify significant sources of mercury/mercury compound releases to land or water and to maintain an inventory of releases from the sources identified

☒ Take one or more measures specified in Article 9.5 to control/reduce mercury and mercury compound releases to land and water from significant sources it identifies.

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	See information provided under Art.3
Rulebook on Methodology for the Development of National and Local Registry of pollution sources (…)	In connection to Article 9 of the Convention, the Rulebook stipulates that the mercury releases to land and water from many sources have to be reported to the Registry, and this should enable identification of significant sources for the Republic of Serbia.
Regulation on Program of Systematic Monitoring of Soil Quality, Indicators for Risk Assessment of Soil Degradation (…)	The Regulation stipulates that for concentrations for mercury that may indicate a serious contamination of soil the limit value is 0.3 mg/kg, while remediation value is 10 mg/kg of absolutely dry matter. In addition, the remediation value of 0.3µg/l is set as concentration for mercury that may indicate a serious contamination of ground water.
Law on Soil Protection	The Law sets limit values for pollutants, hazardous and harmful substances in soil and prohibits discharge and disposal of polluting, dangerous and hazardous materials and waste water on the soil and into the soil. Also, the Law provides legal basis for prescribing the content and manner of maintaining the Cadastre of contaminated sites as a set of data about contaminated, threatened and degraded soil, as well as the type, content, forms, methods and deadlines for submission of data, but corresponding subsidiary legislation has not been adopted yet. Cadastre of contaminated sites should have been established within six months from the date of entry into force of this subsidiary legislation.
Law on Water	The Law on Water prescribes well developed measures for reduction or elimination of pollutant releases into waters, limit values for release of pollutants into the water, as well as the obligation of performing measurements of the amount and quality testing of wastewater.

Regulation on Emission Limit Values of Pollutants in Waters and Deadlines for their Achievement	In relation to mercury this subsidiary legislation provides relevant limit values for mercury released by industrial wastewater from various sources.
Regulation on Limit Values of Pollutants in Surface and Ground Waters (…)	In relation to mercury this subsidiary legislation precisely defines the limit values for mercury in terms of assessing the quality of the sediment.
Regulation on Limit Values of Priority and Priority Hazardous Substances Polluting Surface Waters (…)	In relation to mercury this subsidiary legislation prescribes 0.07mg/l as maximum allowable concentration for mercury in surface waters.
Rulebook on methods and conditions for wastewater quantity measurement and quality testing (…)	The Rulebook prescribes in detail the methods and conditions for measuring the quantity and quality testing of waste water and the content of the report on the measurements. In specific relation to mercury it prescribes reference methods for wastewater monitoring.

Law on Integrated Pollution Prevention and Control	See information provided under Art.18.
Regulation on Types of Activities and Industrial Facilities Subject to Integrated Permits	The types of activities and industrial facilities subject to Integrated permits are prescribed by this Regulation, among other, as well as activities and facilities from which mercury may be released to soil and water.
Regulation on Criteria for Determining Best Available Techniques for Application of Quality Standards (…)	This regulation stipulates that the best available techniques or other technical measures, as well as pollutant emission limit values, determined for the facility in question, shall be set out in the integrated permit conditions. For existing plants integrated permits have to be issued by 31 December 2020.

Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)

- Address the question on mercury releases from relevant sources into sectorial programs, strategies and plans
- Take measures to control/reduce mercury and mercury compound releases from significant sources (such as obligation for dental clinics to install separators for dental amalgam etc.)

Article 10 - Environmentally sound storage of mercury, other than waste mercury

Description of article

In order to prevent the possible adverse effects of mercury due to improper or inadequate care in the collection, handling, transport and storage that can result in emissions and releases into the environment, the Convention requires countries to take measures to ensure the environmentally sound storage of mercury under Article 10. The Article 10 scope is limited to "interim" or temporary storage of mercury destined for an allowed use under the Convention, while long-term management/ disposal of waste mercury and its compounds is covered in Article 11. To implement Article 10, it is necessary to ensure that interim mercury storage is conducted in an environmentally sound manner, taking into account guidelines to be developed by the Conference of the Parties (COP). Interim mercury storage standards may address areas such as location, quantity limits, duration, room temperature and humidity, containers, secondary containment and flooring, labelling, employee training, inspections and monitoring, release/spill response, security, financial responsibility (i.e. bonding, insurance) in the event of spills or facility abandonment, and reporting.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

☒ Take measures to ensure interim mercury storage is conducted in an environmentally sound manner, taking into account guidelines to be developed by the Conference of the Parties (COP)

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title and reference/number of relevant Policy and Regulatory Measure, as well as date	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Law stipulates that management of hazardous materials shall be carried out under conditions and in a manner which ensures reduction in the risk of their hazardous properties for the environment and human health and to the process of production, storage, use and disposal. Legal or natural person who manage hazardous substances are required to plan, organize and take all necessary preventive, protective, safety and rehabilitation measures to ensure that the risk to the environment and human health is reduced to a minimum. Further, the Law sets the obligation for the operator of Seveso facility or complex performing operations in which one or more dangerous substances are or may be present in quantities equal to or greater than the prescribed, to submit a Notice, or to develop Accident Prevention Policy and Safety Report and Plan accident protection, depending on the quantity of dangerous substances which are the subject of this activity and to take measures to prevent chemical accidents and reduce the impact of the accident to human health and the environment, set out in these documents. Although this Law also provides legal basis for the adoption of subsidiary legislation with detailed requirements for storage of hazardous materials, as well as guidance on the conditions and manner of storage, such subsidiary legislation has not been adopted so far.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• Prescribe detailed requirements for storage of hazardous materials, including conditions for mercury and its compounds in order to ensure environmentally sound storage as required by the Convention.	

Article 11 - Mercury waste

Description of article

Article 11 focuses on environmentally sound management (ESM) of mercury wastes and control over its transboundary movement. For the purposes of this Convention, mercury wastes are defined as substances or objects consisting of, containing, or contaminated with mercury or mercury compounds in a quantity above the relevant thresholds, which are disposed of, or are intended to be disposed of, or are required to be disposed of by the provisions of national law or this Convention.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

- ☐ Use a definition of mercury waste consistent with Article 11.2
- ☒ Take measures to manage mercury wastes in an environmentally sound manner, taking into account guidelines developed under the Basel Convention and in accordance with COP requirements to be developed
- ☒ Take measures to restrict mercury derived from the treatment or re-use of mercury waste to allowed uses under the Convention or environmentally sound disposal
- ☒ Require transport across international boundaries in accordance with the Basel Convention, or if the Basel Convention does not apply, consistent with international rules, standards, and guidelines.

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law of Waste Management	The Law prescribes measures for environmentally sound waste management, taking into account the guidelines developed under the Basel Convention[34]. Hazardous waste can be temporarily stored at the site of the manufacturer or owner for a period of 12 months. Specific provisions related to environmentally sound management of wastes consisting of, containing or contaminated with mercury or mercury compounds (specifying operations that do not lead to recovery, recycling, reclamation, direct re-use or alternative uses), are not in place yet.
Rulebook on Storage, Packaging and Labelling of Hazardous Waste	The Rulebook stipulates that the storage of hazardous waste should be carried out in a manner that provides the least risk to human health and the environment. Storage of hazardous waste must be constructed in accordance with laws and regulations governing planning and construction, as well as the technical requirements and standards.
Regulation on Types of Waste Subject to Thermal Treatment (…)	The Regulation prescribes that thermal treatment of waste shall provide and ensure conditions for prevention or limitation of negative effects to the environment, particularly pollution due to emissions into air, soil, surface and groundwater, as well as potential risks to human health from the thermal treatment of waste.

[34] The Republic of Serbia is a Party of Basel Convention and national legislation on waste management is in line with Basel Convention.
Law of Waste Management defines waste as any substance or object which the holder discards or intends or is required to discard, while hazardous waste is defined as waste which by its origin, composition or concentration of hazardous substances may cause danger to the environment and human health and has at least one of the hazardous characteristics regulated by law, including the packaging in which hazardous waste was or is packed. These definitions as in line with Basel Convention and they also cover mercury waste in a sense consistent with Article 11.2 of Minamata Convention.

Regulation on Waste Disposal on Landfill	The Regulation prescribes that disposal of following waste types on landfill is prohibited: 1) liquid waste; 2) waste which, in landfill conditions can explode, which is flammable and has other characteristics that make it hazardous in accordance with a special regulation governing the categories, testing and classification of waste; 3) hazardous medical and veterinary waste generated in medical or veterinary institutions, that is infectious according to a special regulation; 4) waste batteries and accumulators; 5) waste oils; 6) waste tires; 7) waste from electrical and electronic products; 8) waste fluorescent tubes containing mercury.
Rulebook on Manner and Procedure of Management of Waste Batteries and Accumulators	The Rulebook prescribes that the management of waste batteries and accumulators is carried out in a manner that ensures compliance with the environmental requirements related to: (1) labelling of batteries, button cells and accumulators; (2) separate collection, treatment, high rate of recycling for all types of waste batteries and accumulators, as well as and the disposal of remains and residues after treatment or recycling. Waste batteries and accumulators may not be disposed on landfills or incinerated.
Rulebook on the List of Electrical and Electronic equipment (…)	The Rulebook prescribes that management of waste originating from electrical and electronic equipment should be done in the manner that ensures compliance with environmental protection related to: (1) the design of electrical and electronic products, labelling on mandatory separate collection of waste and notification; (2) separate collection and transportation, reuse, utilization, treatment and disposal waste; (3) covering the management costs of electrical and electronic equipment that after use becomes waste.

Rulebook on Medical Waste Management	The Rulebook prescribes that medical waste with a high content of heavy metals represents a subcategory of chemical waste with highly toxic properties and requires special treatment (e.g. the remains from dental amalgam, broken thermometers and manometers containing mercury, discarded batteries with cadmium, etc.). Further, it stipulates that the waste with a high content of heavy metals and waste bottles under pressure cannot be treated by incineration. Waste with a high content of heavy metals shall be treated by physical-chemical processes in plants licensed for treatment in accordance with the law governing waste management.
Regulation on Lists of Transboundary Movement of Waste (…)	The Regulation prohibits the import of hazardous waste containing mercury or mercury compounds, while export and transit is allowed. Transit and export of waste containing mercury is controlled with approvals and permits for transboundary movement and is subject to the observance of all provisions of international treaties, conventions and regulations on the transboundary movement of hazardous waste.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• Prescribe conditions for environmentally sound management of waste consisting of, containing or contaminated with mercury or mercury compounds in national legislation • Ban usage of mercury derived from the treatment or re-use of mercury waste for uses that are not allowed under the Convention	

Article 12 – On contaminated sites
Description of article
Article 12 requires Parties to endeavour to development of appropriate strategies for identifying and assessing sites contaminated by mercury or mercury compounds. Any action to reduce risks posed by contaminated sites shall be done in an environmentally sound manner, incorporating where appropriate, an assessment of risks to human health and the environment. Article 12 calls for the creation and adoption of COP guidance to Parties for approaching the evaluation and remediation of contaminated sites, but contains no mandatory obligations to establish liability or propel progress in cleaning up contaminated sites. Article 12 allows governments to develop their own legal framework, within their financial and technical capability, to remediate mercury contaminated sites.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) ☒ Develop strategies for identifying and assessing mercury/mercury compound contaminated sites ☒ If risk reduction activities are taken at contaminated sites, they are taken in an environmentally sound manner, incorporating risk assessment where appropriate

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Law defines endangered environment as sites where contamination or risk from contamination exceeds the capacity of the environment. Legal and natural person who degrades the environment is obliged to carry out clean-up and remediation of degraded environment, in accordance with the clean-up and remediation design.
Regulation on Establishment of Criteria for Assessment of Status of Endangered Environment and Priorities for Clean-up and Remediation	The Regulation prescribes that the determination of the status of environmental endangerment shall be based on the type and concentration of pollution sources, the degree of contamination determined on the basis of measurements, tests and evaluation indicators, and the impact of pollution on human health and natural resources. The ministry responsible for environmental protection, according to those criteria, determines the status of the endangered environment and priorities for clean-up and remediation for areas of importance for the Republic of Serbia. However, clean-up and remediation activities are the responsibility of the legal or physical entity which caused environmental degradation, in accordance with the design for recovery and remediation. These projects must be approved by the ministry. Furthermore, it stipulates that, in cases when the contamination in a particular area exceeds the effectiveness of measures already undertaken, or when the capacity of the environment is threatened or there is risk of permanent degradation or damage to the environment, the specific recovery plan is to be developed and adopted by the Government.
Rulebook on Methodology for the Development of National and Local Registry of pollution sources (…)	See explanation under Art.3. In connection to article 12 of the Convention, the Rulebook enables identification of specific pollution sources and potentially contaminated areas in connection to industrial activities related to mercury.
Law on Soil Protection	The Law prescribes limit values for pollutants, hazardous and harmful substances in soil and prohibits discharge and disposal of polluting, dangerous and hazardous materials and waste water on the surface of the soil and into the soil. This Law foresees the establishment of a Cadastre of contaminated sites as a set of data about contaminated, threatened and degraded soil within 6 months of adoption of relevant subsidiary legislation which has not been adopted yet.

Decision on Establishing the National Environmental Protection Programme	The Decision sets the basis for planning and management in area of environmental protection for a period of at least ten years.
Law on Environmental Impact Assessment	The Law introduces the environmental impact assessment as a preventive environmental measure based on the elaboration of studies, consultations with the public and analysis of alternative measures, aiming to collect data and predict harmful effects of certain projects on the human health, flora and fauna, soil, water, air, climate and landscape, material and cultural goods and the interaction of these factors, as well as determine and propose measures that adverse effects can be prevented, reduced or eliminated, bearing in mind the feasibility of these projects.
Law on Strategic Environmental Impact Assessment	The Law introduces the strategic assessment report as a part of the documentation submitted with the plan or program, and includes the identification, description and assessment of potential significant effects on the environment due to the implementation of plans and programs, as well as the alternatives discussed and adopted on the basis of the objectives and extent of plans and programs.

Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)

- Include identifying and assessing mercury contaminated sites into strategies/programmes to be developed in relation to environmental protection area, in particular taking into account the existence of two non-operating chlor-alkali plants
- Adopt relevant subsidiary legislation and establish the Cadastre of contaminated sites, taking into account the Convention requirement as regards obtaining of information needed to identify significant sources of mercury/mercury compound releases to land or water

Article 13 – Financial Resources and Mechanisms
Description of Article
The first obligation under this Article is that a Party undertakes to provide resources for national implementation activities within its capabilities (including domestic funding, bilateral and multilateral funding and private sector involvement). Convention recognizes that providing financial assistance to developing countries and countries with economy in transition, will improve the effective implementation of the Convention. As a formal mechanism to provide this assistance, Article 13 establishes a Financial Mechanism with two components: (1) the Global Environment Facility Trust Fund, and (2) an International Programme to support capacity building and technical assistance.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) ☒ Access domestic resources as may be needed to implement Convention obligations ☒ Access financial resources available under the Convention financial mechanism and other resources available from multilateral, regional, and bilateral funding sources)

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Republic of Serbia, the autonomous province or local municipalities, within their competences, ensure the financing and achieving of the environmental protection goals, in accordance with this Law. Funds for environmental protection can be provided through grants, loans, international assistance funds, foreign investment funds intended for environmental protection funds from the instruments, programs and funds of the EU, UN and international organizations. • Financing environmental protection is performed by applying the "user pays" principle, the "polluter pays" principle and the principle of "responsibility". Polluter, in accordance with the regulations, shall bear the total cost of the measures for preventing and reducing pollution, which include the costs of environmental risks and the costs of remedying environmental damage. • State bodies, within their financial capabilities, eliminate the consequences of environmental pollution and reduce the damage in cases where the polluter is unknown, as well as when the damage originates due to environmental pollution from sources outside the territory of the Republic of Serbia. • The Green Fund of the Republic of Serbia is established as a budgetary fund for recording the funds intended for financing the preparation, implementation and development of programs, projects and other activities in the field of conservation, sustainable use, protection and improvement of the environment.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• The Republic of Serbia, as an country with economy in transition, should consider application for financial resources available under the Convention financial mechanism, in implementing its obligations under this Convention	

Article 14 – Capacity building, technical assistance and technology transfer
Description of Article
Under Article 14 of the Convention, Parties, within their respective capabilities, are required to cooperate to provide capacity building and technical assistance to developing countries and Parties with economies in transition, to assist them in implementing their obligations under this Convention. A variety of mechanisms to deliver this assistance is anticipated. Capacity-building and technical assistance may be delivered through regional, subregional and national arrangements, including existing regional and subregional centres, through other multilateral and bilateral means, and through partnerships, including partnerships involving the private sector. Cooperation and coordination with other multilateral environmental agreements in the field of chemicals and wastes should be sought to increase the effectiveness of technical assistance and its delivery.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) N/A

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
N/A	As a country with economy in transition, in preparation for implementation of relevant conventions, the Republic of Serbia needs and uses available arrangements developed in relation to capacity building, technical assistance and technology transfer. Additionally, the Republic of Serbia is a candidate for EU accession. EU supports reforms in the candidate countries through financial and technical assistance. This includes building capacities of the countries throughout the accession process, resulting in progressive, positive developments in the region. One of priority sectors for implementing capacity building/ technical assistance projects in the period 2014-2020 is Environment & climate action. The projects in this sector are mainly focused on alignment with the EU Acquis in the area of environment and climate; stronger institutional framework at central and local levels; better treatment of waste and water; improved air quality etc.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• The Republic of Serbia, as an country with economy in transition, should consider adequate arrangements for capacity building, technical assistance and technology transfer, taking into account the current EU candidate status and existing multilateral or bilateral partnerships, in order to prepare itself for Minamata Convention implementation	

Article 16 – Health aspects
Description of Article
Mercury adversely impacts both human health and the environment. Article 16 promotes program development related to the health aspects of mercury, recognizing the activities that will involve the World Health Organization (WHO), national public health ministries, and other organizations involved in the delivery of health services. Article 16 provides non-binding guidance to the health ministries and other actors on the activities they can undertake to minimize the mercury exposure of vulnerable populations, and the adverse consequences of such exposures. In considering health-related issues or activities, the Parties should consult, collaborate, and promote cooperation and exchange of information with the WHO, the ILO, and other relevant intergovernmental organizations, as appropriate.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) ☒ Promote the development and implementation of strategies to identify and protect populations at risk, such as developing fish consumption guidelines ☒ Promote occupational exposure educational and prevention programs ☒ Promote prevention, treatment, and care services for affected populations

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Health Care	The Law foresees the adoption of the program in the field of protection of human health from environmental pollution caused by harmful and hazardous substances in air, water and soil, disposal of waste materials, hazardous chemicals, ionizing and non-ionizing radiation, noise and vibration as well as carrying out systematic testing of foodstuffs, general use articles, mineral drinking water, drinking water and other water bodies that are used for the production and processing of food and sanitary-hygienic and recreational needs, in order to determine their health and hygiene correctness and the prescribed quality (monitoring). The program is to be adopted by mutual agreement of the Minister in charge of health and Minister responsible for environmental protection.
Regulation on National Programme of Health Care for Women, Children and Youth	As stipulated by this programme, the health of children, youth and women during pregnancy, childbirth and motherhood, is one of the priorities of the health care system of the Republic of Serbia. Taking care of mother and child and the measures in favour of these population groups are realized in cooperation between the sectors of health, education and social protection. The starting point for the development of the Programme are the European strategy for health and development of children and adolescents, the World Health Organization (hereinafter WHO) with supporting documents (2005), as well as the Study of health and health care of women, children and youth in the Republic of Serbia, 1991-2007. The principles on which the program is based are: monitoring the life course; equality and accessibility; age- and gender-sensitive approach to providing health care; protection of human rights; care for vulnerable groups; community participation; the participation of individuals; Partnership for Health (intersectoral cooperation); quality of health care services for women, children and youth and unified health information system.
Regulation on National Programme for Preventive Dental Health Care	The National Programme for preventive dental health care aiming at dental caries prevention, thereby minimizing the need for dental restoration, was adopted in 2009. The time frame for implementation of National Programme was six years. National Programme for the subsequent period is yet to be adopted.

Law on Safety and Health at Work	The Law prescribes preventive measures, which amongst other include design, construction, operation and implementation of technological processes with all the equipment for work, in order to provide safe work of employees and compatibility with chemical, physical and biological agents, microclimate and lighting in the workplace and in working and auxiliary facilities.
Rulebook on Preventive Measures for Safe and Healthy Work When Exposed to Chemical Substances	The Rulebook lays down minimum requirements for preventive measures for occupational health and safety that the employer is obliged to fulfil in order to eliminate or reduce the risk from injury or damage to health of employees that arise or may arise from exposure to chemical substances in the workplace or result from any activity involving chemical substances. In relation to preventive measures for occupational health and safety, this subsidiary legislation prescribes occupational exposure limit of 0.02 mg/m^3 (TWA) for mercury and bivalent inorganic mercury compounds, mercury oxide and mercury chloride.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• Consider the issue of mercury impact on human health, in order to identify and protect populations at risk, as well as to promote prevention, treatment and health care services for exposed populations, in the relevant national health care programs and action plans	

Article 17 – Information exchange

Description of article

Article 17 focuses on the exchange of information between countries. It identifies key information that Parties to the Convention need to share with each other and identifies mechanisms for sharing the information. Parties to the Convention shall facilitate the exchange of: scientific, technical, economic, and legal information concerning mercury and mercury compounds, including toxicological, ecotoxicological, and safety information; information on the reduction or elimination of the production, use, trade, emissions, and releases of mercury and mercury compounds; information on technically and economically viable alternatives, epidemiological information concerning health impacts associated with exposure to mercury and mercury compounds, in close cooperation with the WHO and other relevant organizations, as appropriate.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

- ☒ Collect and disseminate information on annual quantities of mercury and mercury compounds emitted, released, or disposed; and other information specified in Article 18
- ☒ Share information on the health and safety of humans and the environment as non-confidential, in accordance with Article 17.5
- ☒ Report to the COP on progress in implementing Convention obligations under Article 21

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Law prescribes the obligation to establish the information system for environmental protection, for efficient identification, classification, processing, monitoring and record/keeping on natural resources and environmental management in the Republic of Serbia. The information system shall provide formation, classification, processing, maintenance, presentation and distribution of numerical, descriptive and spatial databases on: quality of environmental media, monitoring the status and protection of the environment, legislative, administrative and organizational and strategic measures, scientific and technical information, the planned prevention measures and exchange of information with other information systems. Also, it stipulates that (1) the subjects of environmental protection systems are required to cooperate with each other and ensure coordination and harmonization in making and implementing decisions, and that (2) the Republic of Serbia cooperates in the field of environmental protection with other countries and international organizations.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions):	
• N/A	

Article 18 – Public information, awareness raising

Description of Article

Article 18 focuses on the sharing of information between government and the public. Article 18 identifies key information that governments need to share with the public and the mechanisms that can be employed for public awareness-raising. Parties shall use existing mechanisms or consider the development of mechanisms, such as pollutant release and transfer registers (PRTR) where applicable, for the collection and dissemination of information on estimates of its annual quantities of mercury emissions and releases.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

- ☒ Collect and disseminate information on annual quantities of mercury and mercury compounds emitted, released, or disposed; and other information specified in Article 18
- ☒ Share information on the health and safety of humans and the environment as non-confidential, in accordance with Article 17.5
- ☒ Report to the COP on progress in implementing Convention obligations under Article 21

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Law prescribes that • State authorities, scientific institutions, educational institutions, health, information, culture and other institutions, as well as other associations, within their activities, encourage, direct and provide awareness rising on importance of environmental protection. According to the Law, awareness raising on importance of environmental protection is ensured through the system of education, scientific research and technological development, improvement of work processes, public information and popularization of environmental protection. • Public authorities are obliged to take all necessary measures to ensure that information on the environment held by or held on their behalf is being actively and systematically disseminated to the general public, in particular by means of computer telecommunication and / or electronic technology. • Public authorities are obliged to regularly update and regularly publish or disseminate information on the environment, in particular: (1) texts of international treaties and agreements, and legislation in the area of environmental protection or in connection with it; (2) strategies, plans, programs and other documents related to the environment; (3) reports on the implementation of legislation in the area of environmental protection, including the implementation of international agreements, strategic documents, plans and programs in area of environmental protection; (4) reports on the state of the environment; (5) information obtained from monitoring activities in relation to the environment; (6) permits and authorizations to perform activities that have a significant impact on the environment; (7) contracts which have been concluded in order to protect the environment; (8) studies on the environmental impact assessment and risk assessment related to environmental factors, as well as related decisions. • The Report on the state of the environment is being prepared and published annually and contains in particular information on: (1) state and changes in the state of the environment on the basis of data and information obtained by monitoring the relevant indicators; (2) implementation of the Strategy, the National Programme and action plans; (3) clean-up plans and other measures undertaken; (4) financing of environmental protection system; (5) other data relevant for the management of natural resources and environmental protection. • Establishment of national and local registry of pollution sources (in order to monitor the qualitative and quantitative changes in the environment and take measures to protect the environment).

Rulebook on Methodology for the Development of National and Local Registry of pollution sources (…)	The National and Local Registry of pollution sources contains data on sources, types and quantities, manner and locations of pollutant releases to air and water, as well as quantities, types, composition, treatment and disposal of waste, in line with the Protocol on Pollutant Release and Transfer Register (PRTR) of the Aarhus Convention.
Law on Ratification of Arhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	The Convention provides for: (1) the right of everyone to receive environmental information that is held by public authorities ("access to environmental information"). Applicants are entitled to obtain this information within one month of the request and without having to say why they require it. In addition, public authorities are obliged, under the Convention, to actively disseminate environmental information in their possession; (2) the right for public participation in environmental decision-making; (3) the right to review procedures to challenge public decisions that have been made without respecting the two aforementioned rights or environmental law in general ("access to justice").
Law on Free Access to Information of Public Importance	The Law stipulates that everyone has the right to be informed whether a public authority holds specific information of public importance, i.e. whether it is otherwise accessible[35]. The information of public importance shall be made available to applicants, taking into account that the applicant has the right to be allowed visual access to a document containing information of public importance, the right to a copy of the document, as well as the right to receive, upon request, a copy of the document by mail, fax, electronic mail or otherwise. The Commissioner for Information of Public Importance is also established by this Law, as an autonomous state body, independent in the exercise of its jurisdiction to protect the right to free access to information of public importance.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• N/A	

[35] Information of public importance is information held by a public authority body, created during work or related to the work of public authorities, contained in a document, and concerns everything that the public has a justified interest to know. Justified public interest to know is present always when it comes to information available to the authority relating to the threat or the protection of public health and the environment.

Article 19 – Research, development and monitoring
Description of Article
Article 19 seeks cooperation among countries to develop and improve on key areas of research, development and monitoring that can support effective implementation of the Convention. These areas include, among others, inventories of mercury use and consumption; monitoring of levels of mercury and mercury compounds in vulnerable populations and in environmental media, information on mercury commerce and trade etc. Parties should, where appropriate, build on existing monitoring networks and research programmes in undertaking the activities addressed by Article 19.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) N/A

Policy and regulatory measures in place that enable the country to comply with the above listed provisions	
Title of relevant Policy and Regulatory Measure	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Law prescribes the obligation of authorities of the State, the Autonomous Province and Local-Self Government to organise environmental monitoring and authorises them to develop monitoring programmes; provides the basis for determining the content and a manner of carrying out monitoring activities, as well as conditions prescribed for authorised organisations allowed to conduct monitoring; sets an obligation for establishment of national and local registry of pollution sources in accordance with this Law and defines the obligation of operators.
Law on Integrated Pollution Prevention and Control	The Law defines that an operator, obliged to obtain the Integrated Permit, must, among other things, plan the environmental emission monitoring in accordance with conditions set out in the permit.
Law on Scientific Research	The Law regulates the system of scientific research in the Republic of Serbia, namely: planning and achievement of public interest in scientific activities. It foresees the adoption of the Strategy of Scientific and Technological Development of the Republic of Serbia (for the period of min.5 and max 10 years) including the Programme on long-term research of national and strategic interest, for the purpose of planning and achieving long-term strategic objectives, priorities and directions of scientific and technological development in the Republic of Serbia.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• Consider the inclusion of research related to mercury and mercury compounds in the preparation of the Program on long-term research of national and strategic interest for the Republic of Serbia	

Article 21 – On reporting
Description of Article
Article 21 on reporting will be a principal basis for evaluating both individual government compliance and the overall effectiveness of the Convention. Parties are obliged to report on the measures undertaken to implement the provisions of this Convention and on the effectiveness of such measures. Article 21 gives authority to the COP to decide on the details regarding reporting requirements and format.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) ☒ Fully participate as a Party to the COP, including voting, if and when required ☒ Participate in one of the dispute resolution processes specified if needed, under Article 25 of the Convention ☒ Determine how future Convention annex amendments will be ratified under Article 30.5 of the Convention ☒ Report to the COP on progress in implementing Convention obligations under Article 21

Policy and regulatory measures in place that enable the country to comply with the above listed provisions:	
Title and reference/number of relevant Policy and Regulatory Measure, as well as date	Explanation on what aspects of the above provisions are being addressed by policy/regulatory measure
Law on Environmental Protection	The Law prescribes the obligation of subjects of environmental protection systems to cooperate with each other and ensure coordination and harmonization in making and implementing decisions and stipulates the cooperation of the Republic of Serbia with other countries and international organizations in the field of environmental protection.
Law on the Conclusion and Execution of International Agreements	This Law prescribes that international agreements shall be executed in good faith, in accordance with the provisions of the agreements, generally accepted rules of international law and the provisions of this Act. The Government is in charge of executing international agreements through the competent authorities of state administration. International agreements which result in commitments of the Republic of Serbia shall be implemented by the state authorities whose jurisdiction includes matters governed by these agreements. The Law on ratification of the international agreement contains the text in the Serbian language, or in one of the languages of the original, if it is not Serbian, with translation in Serbian language, and, among other, may contain reservations. declarations and interpretative statements in relation to the agreement, which are to be inserted in accordance with the provisions of the agreement and generally accepted rules of international law. The Law on ratification of multilateral international agreement may authorize the Government to adopt amendments to the technical regulations based on international agreements. International agreements may be amended in accordance with the provisions of the agreement and generally accepted rules of international law. The provisions of this law related to procedure of conclusion of international agreements are also to be applied in relation to amending the international agreements.
Outstanding regulatory or policy aspects that would need to be addressed/developed to ensure compliance with the Convention's provisions (only in relation to binding provisions)	
• When preparing and adopting the Law on ratification of the Minamata convention consider declaring of one or both of the means of dispute settlement specified if needed, under Article 25 of the Convention • When preparing and adopting the Law on ratification of the Minamata convention consider declaring that, with regard to the Republic of Serbia, any amendment to an annex shall enter into force only upon the deposit of its instrument of ratification, acceptance, approval or accession with respect thereto.	

Table 43 Policy and Regulatory Assessment and Remaining Gaps in Relation to the Minamata Convention

3.2. Institutional Assessment

The assessment aims to provide an overview of institutional roles and responsibilities, to identify potential institutional gaps and inconsistencies in the overall institutional framework, taking into consideration the needed structures and capacities for effective implementation of the Minamata Convention.

The analysis covers both the assessment of the institutional set up (identification of relevant public and non-public stakeholders, presentation of roles and responsibilities) in line with their competences for implementation of the Minamata Convention and assessment of institutional gaps from the perspective of effective implementation of both the binding and non-binding provisions of the Minamata Convention.

The results of the assessment are presented in the format recommended in the UNDP document: "Minamata Initial Assessment Report, Suggested Structure and Contents, February 2017" and builds upon the assessment of policy and regulatory framework, presented under sub-section 3.1.

An overview of institutional framework provided in this part of the study is aimed at presenting the overview of actors in charge of competences over the implementation of the Minamata convention in Serbia, focusing on roles and responsibilities of different institutions involved in the policy making and implementation with respect to chemical and waste management, as defined by applicable institutions' organizational acts and the existing national regulations.

On the basis of assessment of division of competencies established by the Law on Ministries, the internal systematization acts, as well as the applicable legislation defining the roles and responsibilities of relevance for implementation of the Minamata Convention, the following institutions are targeted as highly relevant for implementation of the Minamata Convention:

Institution	Relevant unit 1	Relevant unit 2	Relevant unit 3	Related articles of convention
Ministry of Environmental Protection	Sector for Environmental Management	Department for Chemicals	Division for Chemicals Management	3, 4, 5, 14, 21
			Division for Biocidal Products Management	4
			Division for the Integrated Chemicals Register	3, 4, 14, 17, 18, 21
		Department for Integrated Permits		5, 6, 8, 9
		Department for Protection of Air and Ozone Layer	Division for Air Quality Management and Air Emissions	5, 8
		Department for Environmental Impact Assessment of Projects and Activities	Division for Environmental Impact Assessment of Projects and Activities	5, 6, 7, 12, 18
			Group for Strategic Environmental Impact Assessment (SEIA)	12
			Section for Protection against Major Chemical Accidents	10

Institution	Relevant unit 1	Relevant unit 2	Relevant unit 3	Related articles of convention
Ministry of Environmental Protection	Sector for Waste and Waste Water Management	Department for Waste Management	Division for Transboundary Movement of Waste	3, 10, 11, 17
			Division for Waste Management Permits	4, 10, 11
			Division for the Development of Waste Management System and Cooperation with LSG Units	10, 11, 12
		Department for Water Protection against Pollution		5
	Sector for Nature Protection and Climate Change		Group for Soil Protection and Protection against Erosion and Floods	9
	Sector for Supervision and Precaution in Environment (Inspection)	Department for Accidents and Chemicals	Division for Chemicals	3, 4, 5, 18
			Division for Accidents	10, 18
		Department for Industry	Division for Environmental Protection against Pollution	4, 5, 11, 12, 18
			Division for Integrated Pollution	6, 7, 8, 9, 11, 12, 18
		Department for Delegated Tasks and Education	Division for Delegated Tasks and Education	11, 18
			Group for Soil Protection	12, 18

Institution	Relevant unit 1	Relevant unit 2	Relevant unit 3	Related articles of convention
Ministry of Environmental Protection	Sector for Financial Management and Control	Department of the Green Fund Operations		13
Environmental Protection Agency (SEPA)	Sector for Quality Control and the State of the Environment	Department for National Pollution Sources Registry		3, 7, 8, 9, 12, 17, 18, 19
		Department for Indicators, Reporting and IS		7, 9, 17
		Department of Air Quality Control	Group for Monitoring and State of Air Quality	7, 8
		Department for Water Quality and Sediment Monitoring		9, 12
Ministry of Health	Sector for Public Health and Programmed Health Protection			14, 17, 18
	Sector for Inspection Affairs	Department of Sanitary Inspection		3, 4, 14
Ministry of Trade, Tourism, and Telecommunications	Sector for Market Inspection			3, 4, 14
Ministry of Finance	The Customs Administration			3

Institution	Relevant unit 1	Relevant unit 2	Relevant unit 3	Related articles of convention
Ministry of Mining and Energy	Sector for Geology and Mining			3, 7
Ministry of Agriculture, Forestry and Water Management	Plant Protection Directorate	Division for Plant Protection and Plant Nutrition Products		4
Ministry of the Interior				10
Ministry of Labour, Employment, Veteran and Social Policy	Directorate for Occupational Health and Safety			14
Ministry of Education, Science and Technological Development	Sector for Science			21

Institution	Relevant unit 1	Relevant unit 2	Relevant unit 3	Related articles of convention
Provincial Secretariat for Urban Planning and Environmental Protection	Sector for Cleaner Production, Renewable Energy and Sustainable Development			4, 5, 6, 7, 8, 9, 11, 12
Local self-government units				5, 6, 7, 8, 9, 10, 12
Aarhus centres				18
The Commissioner for Information of Public Importance and Personal Data Protection				18
Ministry for Foreign Affairs	Multilateral Cooperation Sector	UN Department		21

The Table 44 provides an extensive overview of the institutional set up, in line with their competencies for implementation of Convention's Articles 3-19 and 21, as well as the institutional gaps that would need to be addressed prior or soon after the Convention ratification, in order to ensure full and effective implementation of the Minamata Convention.

Article 3 - Mercury supply sources and trade
Description of article
Article 3 contains control measures aimed at limiting the global supply of mercury. It refers to mixtures of mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 per cent by weight; and "Mercury compounds", which includes mercury (I) chloride (known also as calomel), mercury (II) oxide, mercury (II) sulphate, mercury (II) nitrate, cinnabar and mercury sulphide. The provisions of this Article do not apply to: (a) Quantities of mercury or mercury compounds to be used for laboratory-scale research or as a reference standard; or (b) Naturally occurring trace quantities of mercury or mercury compounds present in such products as non-mercury metals, ores, or mineral products, including coal, or products derived from these materials, and unintentional trace quantities in chemical products; or (c) Mercury-added products. Furthermore, Article 3 establishes a prior-informed consent requirement for any export-import of mercury to occur for allowed purposes.
Succinct summary of provisions relevant to the country in question (source NRDC checklist)
(Select from the below as appropriate to national situation) ☒ Not allow new primary mercury mining and phase out existing primary mercury mining within 15 years ☐ Prevent the import and use of mercury from primary mercury mining for artisanal and small-scale gold mining (ASGM) ☒ In accordance with Article 3.5(b), restrict the import and use of excess mercury from decommissioning chlor-alkali plants, and require environmentally sound disposal ☒ Obtain information on stocks of mercury or mercury compounds exceeding 50 metric tons (MT), and mercury supply generating stocks exceeding 10 MT/yr ☒ Not allow the export of mercury unless the importing country provides written consent (national focal point for trade related consent must be designated under Article 17.4 of the Convention), the mercury is for an allowed use or environmentally sound storage, and all other conditions of Article 3.6 are met ☒ Not allow the import of mercury without government consent, ensuring both the mercury source and proposed use are allowed under the Convention (and applicable domestic law)

Relevant national stakeholders	
Ministry of Environmental Protection (MoEP) Division for Chemicals Management	**Role with respect to the above listed provisions:** Division for Chemicals Management within Department for Chemicals (MoEP) is in charge of implementation of Prior Informed Consent (PIC) procedures (i.e. Rotterdam convention) for export of mercury compounds and for implementation of provisions of The Rulebook on Bans and Restrictions of Production, Placing on the Market and Use of Chemicals which regulate the prohibition of export of mercury and its compounds (specifically mercury (I) chloride, mercury (II) oxide, cinnabar ore, cosmetical soaps containing mercury, as well as mixtures of metallic mercury with other substances, including alloys of mercury, with a mercury concentration of at least 95 % (w/w).)
	Relevant institutional capacity in place to comply with the above listed provisions: The Department for Chemicals consists of 4 units: (1) Division for Chemicals Management, (2) Division for the Integrated Chemicals Register, (3) Division for Biocidal Products Management, (4) Division for Classification, Hazard Assessment and Communication of Risks from Chemicals and Biocides. The internal systematization act / staffing plan foresees 5 job posts within the Division for Chemicals Management, out of which one specialized post for chemicals risk management (PIC procedure) and one post for support to the chemicals risk management.
Ministry of Environmental Protection (MoEP) Division for the Integrated Chemicals Register	**Role with respect to the above listed provisions:** Division for the Integral Chemicals Register within Chemicals department (MoEP) is in charge of developing and maintaining the Integral Chemicals Register containing data on chemicals placed on the Serbian market.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts within this Unit.

Relevant national stakeholders	
Ministry of Environmental Protection (MoEP) Division for Transboundary Movement of Waste	**Role with respect to the above listed provisions:** the Department for Waste Management is in charge of implementing the permitting system for waste management, including transboundary movement of waste. The Division for Transboundary Movement of Waste, within the Department for Waste Management (MoEP) is in charge of issuing permits for transboundary movement of waste; import, export and transit (industrial waste); supervision and control of shipments of waste within borders and trans-boundary movements of waste tracking the movement of hazardous and non-hazardous waste from the Republic of Serbia to other countries, as well as during the import and transit of waste within the territory of the Republic of Serbia; the development and maintenance of the registry of permits; exchange of information on transboundary movement of waste. This Division is also participating in the work of bodies established under the Basel Convention, the Stockholm Convention and implements the tasks related to the effective implementation of membership obligations.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 employees in the Division for Transboundary Movement of Waste. Out of this number, 2 employees are performing tasks related to the permitting of transboundary movement of hazardous waste.
Ministry of Environmental Protection (MoEP) Division for Chemicals	**Role with respect to the above listed provisions:** The Department for Accidents and Chemicals is responsible for inspection operations and compliance control over the implementation of the national legislation. The Division for Chemicals within the Department for Accidents and Chemicals (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of chemicals legislation, namely - classification, packaging, labelling, advertising of chemicals; content of safety sheets; placing on market of dangerous chemicals and biocides; export/import of dangerous chemicals, including the control of entrepreneurs in the area of production and use of chemicals. These inspectors are competent and responsible for supervision of compliance with the Law on Chemicals, the Law on Biocidal Products and all the legislation promulgated under these laws, including supervision over implementation of the Rulebook on Import and Export of Certain Hazardous Chemicals and Rulebook on Bans and Restrictions of Production, Placing on the Market and Use of Chemicals, which regulates (bans) placing on the market (including import) of mercury-containing measuring devices, as well as production, placing on the market and use of mercury compounds, as substances or in mixtures, when they are intended for use as antifouling agents, as wood preservatives, in the impregnation of textiles, or in the treatment of industrial waters.
	Relevant institutional capacity in place to comply with the above listed provisions: the Division for Chemicals has 5 environmental inspectors. All the inspectors have background in chemistry and/or chemical engineering. All of them are engaged as both office and field staff. The number of employees in MoEP from the Environmental Inspection for supervision and control - national inspectors (15, with shared responsibilities in the field of waste management).

Relevant national stakeholders	
Ministry of Health Department of Sanitary Inspection	**Role with respect to the above listed provisions:** the Sanitary inspection is in charge of inspection supervision of compliance with the legislation on bans and restrictions in chemicals and products intended for general use. The Sanitary inspector control bans and restrictions of chemicals (Annex XVII of REACH) in general use products.
	Relevant institutional capacity in place to comply with the above listed provisions: App. 12 sanitary inspectors employed within the Sanitary Inspectorate are engaged (among other tasks) on supervision of compliance for hazardous chemicals in retail.
Ministry of Trade, Tourism, and Telecommunications Sector for Market Inspection	**Role with respect to the above listed provisions:** the Market Inspectorate is in charge of control of national provisions regarding the compliance conditions of hazardous chemicals in retail. Market inspectors only control issues regarding the compliance of dangerous chemicals in retail.
	Relevant institutional capacity in place to comply with the above listed provisions: App. 10 market inspectors employed within the Market Inspectorate are engaged (among other tasks) on issues of compliance conditions of hazardous chemicals in retail.
Ministry of Finance Customs Administration	**Role with respect to the above listed provisions:** The Customs Administration-CA is the competent authority for control of export and import of mercury products. The Customs Administration performs export and import control of chemicals and products whose export and import is banned and conducts controls of the notification procedure and/or PIC procedure. Inspectors exercise control compliance by exporters under the Law on Chemicals. The Customs Administration has is in charge of border control of imports/exports and prevention of illegal trade.
	Relevant institutional capacity in place to comply with the above listed provisions: N/A

Relevant national stakeholders	
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** the Department for National Pollution Sources Registry is in charge of establishing and maintaining the National and Local Pollution Sources Registry in particular for: systematic and continuous collection of data on pollution into the air, water, waste; collection and analysis of data on industrial and communal pollution; development and maintenance of website enabling the access to data and informing the public (in line with international standards).
	Relevant institutional capacity in place to comply with the above listed provisions: The Department has 9 employees and specialized posts for the: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.
Ministry of Mining and Energy Sector for Geology and Mining	**Role with respect to the above listed provisions:** the Ministry of Mining and Energy is in charge of issuing relevant regulations related to management of waste from the extractive industries, which shall determine requirements, criteria, procedure and methods of disposal, management and categorization of mining waste, as well as for reporting on mining waste. The Ministry is also in charge of maintaining the Cadastre and Information System in the Field of Geological Explorations and Mining which is established by this Law.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees a total number of 37 employees in the Sector for Geology and Mining (Ministry of Mining and Energy) engaged on various tasks.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 3. Additional strengthening of capacities of the Department for Chemicals may be needed. Significant efforts have already been invested in capacity building activities e.g. inspectors have received training, took part in workshops where case studies were discussed within the international cooperation projects; a few Pilot inspections were performed with participation of inspectors from the EU MSs, but these activities were not specifically focused on mercury. It is necessary to strengthen cooperation with the Customs Administration and the Environmental Inspectorate, as well as additional capacity building for the Customs Administration in performing these tasks.	

Article 4 - Mercury-added products

Description of article

Under Article 4, Convention stipulates a combination of measures to phase out mercury uses in many key products, phase down mercury use in dental amalgam, and discourage the manufacture of new products containing mercury. The products covered by the Convention phase-out mandate are specified in Part 1 of Annex A. The phase-out date for these products is 2020, unless additional time is sought under Article 6

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

- ☒ Not allow the manufacture, import and export of products listed in Part I of Annex A not otherwise excluded following the phase out date listed in the Annex
- ☒ Phase down the use of dental amalgam through two or more measures listed in Part II of Annex A
- ☒ Take measures to prevent the incorporation of products listed in Part I of Annex A (i.e., switches and relays, batteries) into larger, assembled products
- ☒ Discourage the manufacture and distribution of new mercury product types

Relevant national stakeholders	
Ministry of Environmental Protection (MoEP) Division for Waste Management Permits	**Role with respect to the above listed provisions:** the Division for Waste Management Permits within the Department for Waste Management (MoEP) is in charge of the permitting system for: collection, transport and treatment of waste (including integrated permits); landfilling; development and maintenance of waste registry and waste management permits; tracking the movement of hazardous waste (including notification) and establishment of database on movement of hazardous waste; development of operational plans for management of communal and industrial waste, as well as for special waste streams (including waste batteries, electrical and electronic system).
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 7 employees in the Division for Waste Management Permits
Provincial Secretariat for Urban Planning and Environmental Protection, Sector for Cleaner Production, Renewable Energy and Sustainable Development	**Role with respect to the above listed provisions:** The Autonomous Province (AP) is responsible for permitting waste operators on its territory, as well as for permitting of landfills within its territories and cities & municipalities are in charge of permitting of landfills within their territories.
	Relevant institutional capacity in place to comply with the above listed provisions: Two employees are engaged on issues of waste management within the Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection). Assessment of capacities at local level has not been performed.

Relevant national stakeholders	
Ministry of Environmental Protection (MoEP) Division for Chemicals Management	**Role with respect to the above listed provisions:** the Division for Chemicals Management is in charge of overall chemicals management, including assessments of technical, social, and economic reasons for introduction of restrictions and bans for placing on market of chemicals; for permitting for export and import of hazardous chemicals, as well as for implementation of the Rotterdam convention i.e. PIC procedures.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts within this Division, out of which one specialized post for chemicals risk management (PIC procedure) and one post for support to chemicals risk management.
Ministry of Agriculture, Forestry and Water Management (MoAFWM) Division for Plant Protection and Plant Nutrition Products	**Role with respect to the above listed provisions:** Division for Plant Protection and Plant Nutrition Products within the Plant Protection Directorate of the Ministry of Agriculture, Forestry and Water Management is in charge of issuance and maintenance of registers of plant protection products placed on market; banning and restrictions of placing plant protection products on the market; monitoring over production, retail and use of plant protection products; maintenance of information system (IS).
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, this Division has 7 employees, out of which: 3 employees are working on data evaluation and risk assessment, and other registration tasks; 1 employee is working on maintenance of registry, IS and reporting related tasks; 2 employees are working on coordination of permitting/approval tasks.
Ministry of Environmental Protection (MoEP) Division for Biocidal Products Management	**Role with respect to the above listed provisions:** the Division for Biocidal Products Management within the Chemicals Department (MoEP) is in charge of development the policy and regulatory framework on biocidal products, as well as its implementation; maintenance of databases and issuing of relevant acts allowing placing of biocidal products on the Serbian market, etc.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts within this Division.

Relevant national stakeholders	
Ministry of Environmental Protection (MoEP) Division for the Integrated Chemicals Register	**Role with respect to the above listed provisions:** the Division for the Integral Chemicals Register within the Chemicals Department (MoEP) is in charge of development and maintenance of Integral Chemicals Register, including collection of data on plant protection products obtained from the Directorate for Plant Protection and data on biocidal products obtained from the Division for Biocidal Products Management within the Chemicals Department (MoEP).
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts within this Unit.
Ministry of Environmental Protection (MoEP) Division for Chemicals	**Role with respect to the above listed provisions:** The Division for Chemicals within the Department for Accidents and Chemicals (the Sector for Supervision and Precaution in Environment) is in charge of surveillance over implementation of chemicals legislation, namely - classification, packaging, labelling, advertising of chemicals; content of safety sheets; placing on market of dangerous chemicals and biocides; export/ import of hazardous chemicals, including the control of entrepreneurs in the area of production and use of chemicals. These inspectors are competent and responsible for supervision of compliance with the Law on chemicals, Law on Biocidal Products and all the legislation promulgated thereof, including supervision over implementation of the Rulebook on Import and Export of Certain Hazardous Chemicals and the Rulebook on Bans and Restrictions of Production, Placing on the Market and Use of Chemicals, which regulate (ban) placing on the market (including import) of mercury-containing measuring devices, as well as production, placing on the market and use of mercury compounds, as substances or in mixtures, when they are intended for use as antifouling agents, as wood preservatives, in the impregnation of textiles, or in the treatment of industrial waters.
	Relevant institutional capacity in place to comply with the above listed provisions: The Division for Chemicals employees 5 environmental protection inspectors. All the inspectors have background in chemistry and/or chemical engineering. All of them are engaged as both office and field staff.
Ministry of Environmental Protection (MoEP) Division for Environmental Protection Against Pollution	**Role with respect to the above listed provisions:** the Division for Environmental Protection against Pollution within the Department for Industry (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of legislation regulating waste-water discharges, including the Regulation on Emission Limit Values of Pollutants in Water and Deadlines for their Achievement which tackles the emission limit values of wastewater originating from dental offices and clinics.
	The internal systematization act foresees 16 posts within this Division. Of this number, 14 employees covering administrative districts of the Republic of Serbia.

Relevant national stakeholders	
Ministry of Health Department of Sanitary Inspection	**Role with respect to the above listed provisions:** the Sanitary inspection is in charge of inspection of compliance with the legislation on bans and restrictions in chemicals and products intended for general use. Sanitary inspectors control bans and restrictions of chemicals (Annex XVII of REACH) in general use products.
	Relevant institutional capacity in place to comply with the above listed provisions: App. 12 sanitary inspectors are employed within the Sanitary Inspection engaged (among other tasks) on issues of compliance conditions of hazardous chemicals in retail.
Ministry of Trade, Tourism, and Telecommunications Sector for Market Inspection	**Role with respect to the above listed provisions:** the Sector for Market Inspection is in charge of control of national provisions regarding conditions for keeping of hazardous chemicals in retail. Market inspectors only control issues regarding keeping of hazardous chemicals in retail.
	Relevant institutional capacity in place to comply with the above listed provisions: App. 10 inspectors employed within Sector for Market Inspection are engaged (among other tasks) on issues of compliance conditions of hazardous chemicals in retail.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 4. Additional strengthening of capacities of the enforcement authorities (inspection) after the full harmonisation of the national legislation with the Convention's requirement might be needed. In addition, further strengthening of cooperation between involved inspectorates should be considered.	

Article 5 –Manufacturing processes in which mercury or mercury compounds are used
Description of article
The Article 5 prohibits the use of mercury in existing manufacturing processes, primarily those listed in Part I of Annex B (chlor-alkali and acetylene production); defines the restrictions of mercury use in processes listed in Part Ii of Annex B and prohibits establishment of new facilities for activities listed in this Annex.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) ☒ Not allow the use of mercury or mercury compounds in the manufacturing processes listed in Part I of Annex B ☒ Restrict (as specified in the Annex) the use of mercury in the processes listed in Part II of Annex B ☒ Not allow new facilities from using mercury in the processes listed in Annex B, except facilities using mercury catalysts to produce polyurethane ☒ For facilities with processes listed in Annex B, identify and obtain information on mercury or mercury compound use; and control mercury emissions to air, and releases to land and water ☒ Discourage new uses of mercury in industrial processes

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for Integrated Permits	**Role with respect to the above listed provisions:** the Department for Integrated Permits (IPPC Department) within the Sector for Environmental Management (MoEP) is in charge of implementation of IPPC legislation, including: IPPC permitting; monitoring and surveillance over the facilities which have undergone the permitting procedure. This department is in charge of development of regulatory framework for IPPC, developments of Best Available Techniques (BATs) and their integration in the requirements set under the IPPC permits.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, the department has 7 employees.
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**Role with respect to the above listed provisions:** In line with provisions of the Law on Planning and Construction which defines who issues construction permit for the development of the subject installations, the AP authorities and LSGs are in charge of conducting the environmental impact assessments and strategic EIA, as follows: 1) the provincial authority - for projects/ programs where the permits are issued by the authorities of the autonomous province; 2) local governments – where permits are issued by competent authorities of local governments; the MoEP is the competent authority for implementation and control.
	Relevant institutional capacity in place to comply with the above listed provisions: One employee is engaged on issues of IPPC within the Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection). Assessment of capacities at local level has not yet been conducted.
Ministry of Environmental Protection (MoEP) Division for Air Quality Management and Air Emissions	**Role with respect to the above listed provisions:** the Division for Air Quality Management (the Sector for Environmental Management, MoEP) is in charge of establishment the policy and regulatory framework for air quality management (including emission limit values); establishment of system for air quality management; determination of measures for prevention and reduction of air pollution; permitting and authorization of organizations for air quality monitoring.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, this Division has 5 employees working on air quality tasks, out of which 1 employee is working on tasks related to the prevention and reduction of air pollution (including permitting and authorization for measurement and monitoring over their work).

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for Water Protection against Pollution	**Role with respect to the above listed provisions:** the Department for Water Protection against Pollution is in charge, amongst other tasks, of establishment of the regulatory framework for BATs and application of clean technology for large industrial polluters, improvement of quality and protection of waters and groundwater; integral assessment of water quality; monitoring the environmental status of surface water and chemical and quantitative status of groundwater, as well as determination of measurement indicators and methodologies for measurements and assessments.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, there are 6 employees within the Department for Water Protection against Pollution (out of which: 2 employees are working on tasks related to BATs and clean technologies (with divided competences, which include other tasks) and 1 employee working on monitoring and assessment.
Ministry of Environmental Protection (MoEP) Division for Chemicals Management	**Role with respect to the above listed provisions:** the Division for Chemicals Management is in charge of overall chemicals management, including assessments of technical, social, economic reasons for introduction of restrictions and bans for placing on market, export and import of chemicals; for permitting for export and import of hazardous chemicals, including implementation of the Rotterdam convention, i.e. PIC procedures.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts within this Division, out of which one specialized post for PIC procedure and one post for support to the chemicals risk management.
Ministry of Environmental Protection (MoEP) Division for Environmental Protection Against Pollution	**Role with respect to the above listed provisions:** Division for Environmental Protection within the Department for Industry (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of legislation regulating waste-water discharges, including Regulation on Emission Limit Values of Pollutants in Water and Deadlines for their Achievement and Regulation on Limit Values of Pollutants in Surface and Ground Waters and Sediments and Deadlines for Their Achievement which defines the pollutants emissions limit values, among others, for mercury released into the water/air from chlor-alkali facility.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 16 posts under this Division. Out of this number, 14 employees are covering administrative districts of the Republic of Serbia.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for Chemicals	**Role with respect to the above listed provisions:** Division for Chemicals within Department for Industrial Accidents (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of chemicals legislation, including export/import of dangerous chemicals, as well as bans and restrictions for placing on market, export and import of chemicals. These inspectors are competent and responsible for supervision of compliance with the Law on Chemicals, Law on Biocidal Products and all the legislation promulgated thereof.
	Relevant institutional capacity in place to comply with the above listed provisions: Division for chemicals within Department of Accidents and Chemicals is responsible for inspection operations and compliance control over the implementation of national legislation in area of chemicals and biocides. The Division for Chemicals consists of 5 inspectors for environmental protection.
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** the Department for National Pollution Sources Registry is in charge of establishment and maintenance of the National and Local Pollution Sources Registry, as well as for systematic and continuous collection of data on pollution of air, water, and waste; collection and analysis of data on industrial and communal pollution; development and maintenance of website enabling the access to public data and informing the general public (in line with international standards).
	Relevant institutional capacity in place to comply with the above listed provisions: The Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emissions to air; analysis of waste streams; analysis of emissions to water.
Ministry of Environmental Protection (MoEP) Division for Environmental Impact Assessment of Projects and Activities	**Role with respect to the above listed provisions:** The Division for Environmental Impact Assessment of Projects and Activities within the Department for Environmental Management of MoEP is in charge of implementation of EIA procedures in line with national legislation for projects for which development consent (i.e. construction permit) is under the responsibility of national authorities.
	Relevant institutional capacity in place to comply with the above listed provisions: EIA Division has 7 employees, out of which 4 posts for EIA procedure for industrial and infrastructure works, and 2 posts for EIA in the area of use of natural goods and use of resources.
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**The role with respect to the above listed provisions:** In line with provisions of the Law on Planning and Construction which defines who issues construction permit for the development of the subject installation, the AP authorities and LSGs are in charge of implementation of EIA procedures: Provincial authority - for projects for which development consent is under the responsibility of the authority of the autonomous province; Local self-government authority - for projects for which development consent is under the responsibility of the local self-government authority.
	Relevant institutional capacity in place to comply with the above listed provisions: Two employees are engaged on issues of EIA procedures within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection).
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 5. Additional strengthening of capacities for implementation of IPPC procedures may be required.	

Article 6 – Exemptions available to a Party upon request	
Description of article	
Article 6 specifies procedures for requiring the exemptions in terms of the deadlines for the phase-out of mercury use in products (Article 4) or industrial processes (Article 5). There is possibility to require up to five years initial exemption, as well as the second and final exemption. All exemptions expire at the latest ten years after the applicable Article 4 and 5 deadlines. If national situation as regards mercury use in products and/or industrial processes listed in Annex A, or Annex B require more time to meet obligations under Article 4 and/or Article 5, the Party may register for an exemption from the phase-out dates listed in Annex A, or Annex B by notifying the Secretariat in writing. This notification must be submitted on becoming a Party, and must be accompanied by a statement explaining the Party's need for an exemption.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) N/A	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for integrated permits	**Role with respect to the above listed provisions:** the Division for Integrated Permits (IPPC Division) within the Sector for Environmental Management (MoEP) is in charge of implementation of IPPC legislation, including: IPPC permitting; monitoring and surveillance over the facilities which has undergone the permitting procedure. This division is in charge of development of the regulatory framework for IPPC, developments of Best Available Techniques (BATs) and its inclusion in conditions set under IPPPC permits.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, the Division has 6 employees.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for Environmental Impact Assessment of Projects and Activities	**Role with respect to the above listed provisions:** the Division for Environmental Impact Assessment of Projects and Activities within Sector for Environmental Management (MoEP) is in charge of implementation of EIA procedures in line with national legislation for projects for which development consent (i.e. construction permit) is under the responsibility of national authorities.
	Relevant institutional capacity in place to comply with the above listed provisions: EIA Division has 7 employees, of which 4 posts on EIA procedure for industrial and infrastructural works, and 2 posts on EIA in the area of use of natural goods and use of resources.
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**Role with respect to the above listed provisions:** In line with the Law on Planning and Construction which defines who issues construction permit for the development of the subject installation, the AP authorities and LSGs are in charge of implementation of EIA procedures and IPPC permitting: (1) Provincial authority – EIA projects for which development consent is under the responsibility of the authority of the autonomous province and IPPC permits for facilities that are constructed on its territory (2) Local self-government authority – EIA for projects for which development consent is under the responsibility of the local self-government authority and IPPC permits for facilities that are constructed on its territory. The authority in charge of enforcement and control is the MoEP.
	Relevant institutional capacity in place to comply with the above listed provisions: Two employees are engaged on issues of EIA procedures and one on IPPC permitting within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection). Capacities at local level have not been assessed yet.
Ministry of Environmental Protection (MoEP) Division for Integrated Pollution	**Role with respect to the above listed provisions:** Division for Integrated Pollution, within the Department for Industry (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management, as well as for surveillance over implementation of legislation regulating EIA and SEA.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 6 posts under this Unit, including two coordinators of the industry inspection and 4 employees covering administrative districts of the Republic of Serbia.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met:	
Existing institutional system covers all aspects related to the implementation of Article 6, but based on inventory data and findings in relation to Article 4 and 5, there will be no need for requiring of exemptions under Article 6 of the Convention.	

Article 7 - Artisanal and small-scale gold mining	
Description of Article	
Article 7 applies to artisanal and small-scale gold mining (ASGM), in which mercury is used to extract gold from ore. A Party to the Convention must take steps to reduce, and where feasible eliminate, the use of mercury and mercury compounds in ASGM, and the emissions and releases to the environment of mercury from such mining and processing. A Party must determine if ASGM in the Party's territory is "more than insignificant" and if this is the case develop and implement a National Action Plan in accordance with Annex C.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☐ Take measures to reduce, and where feasible, eliminate mercury and mercury compound use, emissions (to air), and releases (to land and water) associated with ASGM	
Relevant National Stakeholders	
Ministry of Mining and Energy	**Role with respect to the above listed provisions:** Ministry of Mining and Energy is responsible for issuing relevant regulations related to management of waste from extractive industries, which shall determine requirements, criteria, procedure and methods of disposal, management and categorization of mining waste, as well as for reporting on mining waste. According to the Law on Mining, the Ministry is in charge of maintenance of Cadastre and Information System in the Field of Geological Explorations and Mining as established by this Law.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees a total of 37 employees in the Sector for Geology and Mining (Ministry of Mining and Energy) engaged on various tasks.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for Environmental Impact Assessment of Projects and Activities	**Role with respect to the above listed provisions:** Division for Environmental Impact Assessment of Projects and Activities within the Sector for Environmental Management of MoEP is in charge of implementation of EIA procedures in line with national legislation for projects for which development consent (i.e. construction permit) is under the responsibility of the Republic authority.
	Relevant institutional capacity in place to comply with the above listed provisions: EIA Division has 7 employees, out of which 4 persons work on EIA procedure for industrial and infrastructural works, and 2 persons on EIA in the area of use of natural goods and use of resources.
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**Role with respect to the above listed provisions:** In line with provisions of the Law on Planning and Construction which defines who issues construction permit for the development of the subject installation, the AP authorities and LSGs are in charge of implementation of EIA procedures and IPPC permitting. For more details, see above.
	Relevant institutional capacity in place to comply with the above listed provisions: Two employees are engaged on issues of EIA procedures and one on IPPC permitting within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection).
Ministry of Environmental Protection (MoEP) Division for Integrated Pollution	**Role with respect to the above listed provisions:** Division for Integrated Pollution, within the Department for Industry (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management, as well as for surveillance over implementation of legislation regulating EIA and SEA.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 6 posts under this Unit, including two coordinators of the industry inspection and 4 employees covering administrative districts of the Republic of Serbia.

Relevant National Stakeholders	
Environmental Protection Agency (SEPA) Department for Indicators, Reporting and IS	**Role with respect to the above listed provisions:** Department for Indicators, Reporting and IS is in charge of establishment and maintenance of registry of contaminated sites and locations. Establishment and maintenance of Information System is also under the competences of this Department.
	Relevant institutional capacity in place to comply with the above listed provisions: The Department consists of the Division for indicators and Reporting (5 posts, of which 1 employee works on tasks related to the collection of data on water quality, and 1 employee works on tasks related to collection of data on soil quality) and the Unit on Information System (4 employees, including specialized posts for: reporting towards EIONET, GIS development, IT support and preparation of reports).
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** Department for National Pollution Sources Registry is in charge of systematic and continuous collection of data on pollution of air, water, waste; collection and analysis of data on industrial and communal pollution; development and maintenance of website enabling the access to data and informing of public (in line with international standards).
	Relevant institutional capacity in place to comply with the above listed provisions: Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.

Relevant National Stakeholders	
Environmental Protection Agency (SEPA) Group for Monitoring and State of Air Quality	**Role with respect to the above listed provisions:** Group for Monitoring and State of Air Quality, within Department for Air Quality Control (Sector for Quality Control and the State of the Environment, SEPA) is performing tasks related to automatic air quality monitoring; preparation and implementation of Air Quality Monitoring Programme; definition of air quality indicators; sampling; reporting on air quality (in line with obligations set at national level, EIA and other international institutions). Department for Water Quality and Sediment Monitoring (Sector for Quality Control and the State of the Environment (SEPA) is in charge of development and implementation of National Programme for monitoring of water quality, sediment and soil; monitoring, including sampling and testing of surface waters; groundwater and reporting on water/soil quality (in line with obligations set at national level, EIA and other international institutions).
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, the Unit for Air Quality Monitoring has 4 employees, out of which 3 employes work on tasks related to the collection and verification of data collected through the air quality monitoring system. The Department for monitoring of water quality and sediment consists of two divisions- Division for monitoring of water quality and sediment (11 employees, of which 8 are performing technical tasks- measurement, sampling, testing) and Division for monitoring of water quality and sediment, Novi Sad (5 employees, of which 3 are performing technical tasks - measurement, sampling, testing). All together, these units have 17 employees (including head of department), according to the internal systematization acts.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met:	
Strengthening the capacity and awareness of waste management in the field of extractive industries to prevent or reduce harmful effects on the environment and risks of human health and the environment.	

Article 8 – Emissions	
Description of Article	
Article 8 is regulating emissions of mercury, namely: control and reduction of emissions of mercury and mercury compounds and measures to control the pollution and set out a national plan to reach the expected target and goals of the mercury emission, using the best available technology	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Require best available techniques/best environmental practices (BAT/BEP) or associated emission limit values (ELVs) for new (as defined in Article 8.2(c)) sources listed in Annex D (coal-fired power plants, coal-fired industrial boilers, non-ferrous metal smelting and roasting processes, waste incineration and cement production) ☒ Require one or more measures identified in Article 8.5 to control/reduce mercury emissions from existing sources listed in Annex D, which shall be operational at the source within 10 years ☒ Require monitoring/reporting and otherwise establish a mercury emissions inventory for sources listed in Annex D	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for Integrated Permits (IPPC Department)	**Role with respect to the above listed provisions:** Department for integrated permits within the Sector for Environmental Management (MoEP) is in charge of implementation of IPPC legislation, including: IPPC permitting; monitoring and surveillance over the facilities which has undergone the permitting procedure. This division is in charge of development of regulatory framework for IPPC, developments of Best Available Techniques (BATs) and its inclusion in conditions set under IPPC permits.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, the department has 7 employees.

Relevant National Stakeholders	
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**Role with respect to the above listed provisions:** In line with provisions of the Law on Planning and Construction which defines who issues construction permit for the development of the subject installation, the AP authorities and LSGs are in charge of implementation of IPPC permitting procedures: Provincial authority issues the IPPC permits for facilities that are constructed on its territory, and local self-government authority – IPPC permits for facilities that are constructed on its territory.
	Relevant institutional capacity in place to comply with the above listed provisions: One employee is engaged on issues of IPPC within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection), and the authorities of local self-government for IPPC for structures for which they issued the construction permits. The Provincial Secretariat for Urban Planning and Environmental Protection is in charge of monitoring air quality and provision of information to the public and relevant institutions for preparation of air quality programmes and short-term action plans and undertaking of measures to achieve the target values. Local self-governments are in charge of monitoring air quality within the local network and provision of information to the public and relevant institutions for preparation of air quality programmes and short-term action plans and undertaking of measures to achieve the target values. A total of five employees are in charge of environmental protection issues (including air quality) within the Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection). The Provincial Secretariat: one employee is in charge of issuing integrated permits within the Sector for Cleaner Production, Renewable Energy and Sustainable Development, and capacities at local level have not yet been assessed.
Ministry of Environmental Protection (MoEP) Division for Air Quality Management and Air Emissions	**Role with respect to the above listed provisions:** Division for Air Quality Management and Air Emissions (Sector for Environmental Management, MoEP) is in charge of establishment of policy and regulatory framework for air quality management (including ELVs); establishment of system for air quality management; determination of measures for prevention and reduction of air pollution; permitting and authorization of organizations for air quality monitoring; establishing of air quality monitoring network (Air Quality Control Programme in the national network), authorization for air quality measurements, delineation of zones and agglomerations, approval of air quality plans and short term action plans, co-operation with other countries and for enforcement of the Law on the Air Protection, as well as for implementation of CLRTAP convention.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, this Division has 5 employees working on air quality tasks, out of which 1 employee is working on implementation of tasks deriving from CLRTAP.

Relevant National Stakeholders	
Environmental Protection Agency (SEPA) Group for Monitoring and State of Air Quality	**Role with respect to the above listed provisions:** Group for Monitoring and State of Air Quality is performing tasks related to the automatic air quality monitoring; preparation and implementation of Air Quality Monitoring Programme; definition of air quality indicators; sampling; reporting on air quality (in line with obligations set under national and international obligations.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, the Unit has 4 employees, out of which 3 employee works on tasks related to the collection and verification of data collected through the air quality monitoring system.
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** Department is in charge of systematic and continuous collection of data on pollution into air, water, waste; collection and analysis of data on industrial and communal pollution; development and maintenance of website enabling the access to data and informing of public (in line with international standards), as well as for the inventory of emissions, environmental information system and reporting; incl. the emission inventory, established in line with obligations set by UN/ECE LRTAP Convention and EMEP protocol.
	Relevant institutional capacity in place to comply with the above listed provisions: the Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.
Ministry of Environmental Protection (MoEP) Division for Integrated Pollution	**Role with respect to the above listed provisions:** the Division for Integrated Pollution, within the Department for industry (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management, as well as for surveillance over implementation of legislation regulating EIA and SEA.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 6 posts under this Unit, including one coordinator of the industry inspection and 4 employees covering administrative districts of the Republic of Serbia.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 8. Additional capacities and technical support are needed for the improvement of AQ system, development and implementation of Air Quality Strategy.	

Article 9 – Releases to water and land	
Description of article	
Article 9 addresses the releases of mercury, in terms of controlling and reducing releases of mercury and mercury compound. Each state should within three years after of date of entry into force of the Convention identify the relevant releases of mercury into land, water, and air. If the source exceeds maximum allowable emission, state needs to take measures to control releases and prepare a national plan setting out the plan to reach expected targets, goals and outcomes. National plans to control the release needs to be submitted to the Conference of the Parties not later than 4 years after the entry of the state to the convention	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Require reporting or otherwise obtain information as needed to identify significant sources of mercury/mercury compound releases to land or water and to maintain an inventory of releases from the sources identified ☒ Take one or more measures specified in Article 9.5 to control/reduce mercury and mercury compound releases to land and water from significant sources it identifies	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for integrated permits (IPPC Department)	**Role with respect to the above listed provisions:** Department for integrated permits (IPPC Division) within the Sector for Environmental Management (MoEP) is in charge of implementation of IPPC legislation, including: IPPC permitting; monitoring and surveillance over the facilities which has undergone the permitting procedure. This department is in charge of development of regulatory framework for IPPC, developments of Best Available Techniques (BATs) and its inclusion in conditions set under IPPPC permits.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, the division has 7 employees.

Relevant National Stakeholders	
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**Role with respect to the above listed provisions:** According to the Law on Planning and Construction, the AP authorities and LSGs are in charge of implementation of IPPC permitting procedures: Provincial authority –IPPC permits for facilities that are constructed on its territory; Local self-government authority –IPPC permits for facilities that are constructed on its territory. Assessment of the local level has not been conducted yet.
	Relevant institutional capacity in place to comply with the above listed provisions: One employee is engaged on issues of IPPC within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection). The assessment of capacities at local level has not been performed yet.
Ministry of Environmental Protection (MoEP) Department for Water Protection against Pollution	**Role with respect to the above listed provisions:** Department for Water Protection against Pollution within the Sector for Waste and Waste Water Management (MoEP) is in charge, amongst other, for establishment of regulatory framework for BATs and application of clean technology for large industrial polluters, improvement of quality and protection of waters and groundwater; integral assessment of water quality; monitoring over ecological status of surface water and chemical and quantitative status of groundwater; as well as for determination of measurement indicators and methodologies for measurements and assessments.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, this Department has 6 employees, out of which: 2 employees are working on tasks related to BATs and clean technologies (with divided competences, which include other tasks) and 1 employee is working on monitoring related tasks.
Ministry of Environmental Protection (MoEP) Group for Soil Protection and Protection against Erosion and Floods	**Role with respect to the above listed provisions:** Group for Soil Protection and Protection against Erosion and Floods within the Sector for Nature Protection and Climate Change (MoEP) is in charge of development of National Strategy, mid-term and annual plans for protection an use of soil; monitoring over implementation of legislation regulating the soil protection; establishment and management of monitoring over quality of soil; mapping and monitoring of polluted spots; development of databases.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, this Unit has 3 employees, out of which 1 employee is working on policy development and implementation of legislation on soil protection.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for Integrated Pollution	**Role with respect to the above listed provisions:** the Group for Soil Protection and Protection against Erosion and Floods within the Sector for Nature Protection and Climate Change (MoEP) is performing the surveillance over implementation of national legislation regulating soil pollution, including establishment of database for monitoring of soil quality; assessment of degradation risks, **sanitation and remediation** measures etc. The Division for Integrated Pollution within the Sector for Industry (Department for Supervision and Precaution in Environment (MoEP) is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management, as well as for surveillance over implementation of legislation regulating EIA and SEA.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 4 posts under the Unit for Soil Protection and 6 posts under Division of Integrated Pollution, including one coordinator of the industry inspection and 5 employees covering administrative districts of the Republic of Serbia.
Environmental Protection Agency (SEPA) Department for Water Quality and Sediment Monitoring	**Role with respect to the above listed provisions:** Department for Water Quality and Sediment Monitoring within Sector for Quality Control and the State of the Environment (SEPA) is in charge of development and implementation of National Programme for monitoring of water quality, sediment and soil; monitoring, including sampling and testing of surface waters; groundwater and reporting on water/soil quality (in line with obligations set at national level, EIA and other international institutions).
	Relevant institutional capacity in place to comply with the above listed provisions: Department consists of two divisions - Division for monitoring of water quality and sediment (11 employees, out of which 8 are performing technical tasks - measurement, sampling, testing) and Division for monitoring of water quality and sediment, Novi Sad (5 employees, out of which 3 are performing technical tasks- measurement, sampling, testing). All together, these units have 17 employees (including head of department), according to the internal systematization acts.

Relevant National Stakeholders	
Environmental Protection Agency (SEPA) Department for Indicators, Reporting and IS	**Role with respect to the above listed provisions:** Department for Indicators, Reporting and IS is in charge of development of programme for monitoring of physical, chemical, biological, microbiological characteristics of surface waters and groundwater. Department is in charge of analysis of collected data; definition of indicators; and development of periodical and annual reports on environment; systematic monitoring of quality of air, water, groundwater. Department for Indicators, Reporting and IS is in charge of establishment and maintenance of registry of contaminated sites and locations, as well as for establishment and maintenance of Information System.
	Relevant institutional capacity in place to comply with the above listed provisions: Department consists of Division for indicators and reporting (5 employees, out of which 1 employee works on tasks related to collection of data on water quality, and 1 employee works on tasks related to collection of data on soil quality) and Unit on Information System (4 employees, including specialized posts for: reporting towards EIONET, GIS development, IT support and preparation of reports).
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** Department for National Pollution Sources Registry is in charge of establishment and maintenance of the National and Local Pollution Sources Registry, as well as for systematic and continuous collection of data on pollution into air, water, waste; collection and analysis of data on industrial and communal pollution; development and maintenance of website enabling the access to data and informing of public (in line with international standards).
	Relevant institutional capacity in place to comply with the above listed provisions: The Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 9 (no gap has been identified).	

Article 10 - Environmentally sound storage of mercury, other than waste mercury	
Description of article	
In order to prevent the possible adverse effects of mercury due to improper or inadequate care in the collection, handling, transport and storage that can result in emissions and releases into the environment, the Convention requires countries to take measures to ensure the environmentally sound storage of mercury under Article 10. The Article 10 scope is limited to "interim" or temporary storage of mercury destined for an allowed use under the Convention, while long-term management/ disposal of waste mercury and its compounds is covered in Article 11.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Take measures to ensure interim mercury storage is conducted in an environmentally sound manner, taking into account guidelines to be developed by the Conference of the Parties (COP)	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Section for Protection against Major Chemical Accidents	**Role with respect to the above listed provisions:** Section for Protection against Major Chemical Accidents (SEVESO unit) within MoEP is in charge of development of policy and regulatory framework on prevention of chemical accidents, as well as for implementation of national legislation in this area. The unit provides consents on Safety Reports and Prevention Plans[36]; maintains the register of SEVESO facilities; defines the safety measures and measures for the protection of the environmental and human health etc. The Unit for major chemical accidents within MoEP is in charge of exchange of information in the transboundary context, with regional and international organizations and EU, as well as for education on prevention of large chemical accidents, and provides support to the inspection services in performance of their tasks.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts working on tasks related to management of risk from major chemical accidents (coordination of identification of the safety measures and measures for environmental protection and protection of human health, revision and approval of Safety Reports and Prevention Plans), education on prevention of major chemical accidents etc.

[36] For the purpose of evaluation the safety reports, the Minister may issue a decision to appoint the special working group – Technical commission. Members of Technical Commission are seveso officers (MoAEP), seveso inspectors (MoAEP), officers of MoI, labor inspectors, independent experts and various other inspectors, if needed, depending on the location and type of establishment and dangerous substances involved.

Relevant National Stakeholders	
Ministry of the Interior	**Role with respect to the above listed provisions:** Within the Ministry of Interior, Sector for Emergency Situations, there are organisational units at LSG level – departments and services for emergencies. The Ministry of Interior, jointly with the Public Prosecutor's Office, conducts investigations in order to determine elements of possibly committed a criminal offence.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 3940 posts under this Sector.
JLocal Self-Government Units	**Role with respect to the above listed provisions:** Local self-government units are responsible for preparation of external emergency plans for territories of their jurisdiction, which are an integral part of the Plans of Protection and Rescue in Emergency Situations. Plan of Protection and Rescue in Emergency Situations is prepared by competent authority in LSG in cooperation with the competent service, and the plan is adopted by executive authority of LSG.
	Relevant institutional capacity in place to comply with the above listed provisions: N/A
Ministry of Environmental Protection (MoEP) Division for Accidents	**Role with respect to the above listed provisions:** Division for Accidents within Department for Accidents and Chemicals (Sector for Supervision and Precaution in Environment, MoEP) is in charge of implementation of SEVESO regulation, including implementation of: prescribed prevention, readiness and response to accident measures and safety management measures. This division also performs the surveillance over AP/LSGs in performance of delegated roles and responsibilities in this area.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 12 posts under this Division.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 10. Unit for major chemical accidents is understaffed and needs significant strengthening of capacities. Coordination mechanisms are established; however, further work on strengthening of cooperation between relevant institutions is required.	

Article 11 - Mercury waste

Description of article

Article 11 is focused on environmentally sound management (ESM) of mercury wastes and control over its transboundary movement. For the purposes of this Convention, mercury wastes are defined as substances or objects consisting of, containing, or contaminated with mercury or mercury compounds in a quantity above the relevant thresholds, which are disposed of, or are intended to be disposed of, or are required to be disposed of by the provisions of national law or this Convention. Such definition is in line with Basel Convention definition of waste which applies to wastes covered under this Convention for Parties to the Basel Convention, while Basel Convention non-Parties should apply the Minamata convention definition for mercury waste.

Succinct summary of provisions relevant to the country in question

(Select from the below as appropriate to national situation)

- ☐ Use a definition of mercury waste consistent with Article 11.2
- ☒ Take measures to manage mercury wastes in an environmentally sound manner, taking into account guidelines developed under the Basel Convention and in accordance with COP requirements to be developed
- ☒ Take measures to restrict mercury derived from the treatment or re-use of mercury waste to allowed uses under the Convention or environmentally sound disposal
- ☒ Require transport across international boundaries in accordance with the Basel Convention, or if the Basel Convention does not apply, consistent with international rules, standards, and guidelines.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for Transboundary Movement of Waste	**Role with respect to the above listed provisions:** Division for Transboundary Movement of Waste within the Sector for Waste and Waste Water Management (MoEP) is in charge of permitting of transboundary movement of waste; import, export and transit permitting; supervision and control of shipments of waste within borders and trans-boundary movements of waste tracking the movement of hazardous and non-hazardous waste from the Republic of Serbia to other countries jointly with the Sector for Control and Surveillance, as well as during the import and transit of waste at the territory of the Republic of Serbia; development and maintenance of registry of permits; exchange of information on transboundary movement of waste. This Division is also participating in the work of bodies established under the Basel Convention, the Stockholm Convention and implements the tasks related to the effective implementation of membership obligations.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts in the Division for Transboundary Movement of Waste. Out of this number, 1 person is performing tasks related to the permitting of transboundary movement of hazardous waste.
Ministry of Environmental Protection (MoEP) Division for Waste Management Permits	**Role with respect to the above listed provisions:** Division for Waste Management Permits within the Sector for Waste and Waste Water Management (MoEP) is in charge of permitting system for: collection, transport and treatment of waste (including integral permits); landfilling; development and maintenance of waste registry and waste management permits; tracking of movement of hazardous waste (including announcements) and establishment of database on movement of hazardous waste; development of operational plans for management of communal and industrial waste, as well as for special waste streams (including waste batteries, electrical and electronic system).
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 employees in Division for Waste Management Permits.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for the Development of Waste Management System and Cooperation with LSG Units	**Role with respect to the above listed provisions:** Division for the Development of Waste Management System and Cooperation with LSG Units is, amongst other, in charge of determination of measures for sanitation and remediation upon the closure of illegal and/or non-sanitary landfills and dumpsites, as well as for support to the LSG units in performance of their (delegated tasks); exchange of information and institutional strengthening.
	Relevant institutional capacity in place to comply with the above listed provisions: Unit for development of waste management system has 8 employees.
Provincial Secretariat for Urban Planning and Environmental Protection	**Role with respect to the above listed provisions:** The Autonomous Province (AP) is responsible for permitting waste operators on its territory. The Autonomous Province has been entrusted the issuance of permits for incineration of waste for all activities in its territory and for all establishments that obtained construction permit from the competent authority of the AP. Local self-government units are involved in the issuance of the mentioned permits by giving opinions to the submitted documentation in the permitting process.
	Relevant institutional capacity in place to comply with the above listed provisions: Two employees are engaged on issues of waste management/permitting within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection).
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** SEPA- Department for National Pollution Sources Registry is in charge of establishment and maintenance of the National and Local Pollution Sources Registry, including maintenance of register of issued permits.
	Relevant institutional capacity in place to comply with the above listed provisions: The Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for industry	**Role with respect to the above listed provisions: Department for industry**, within the Sector for Supervision and Precaution in Environment (MoEP) is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management, EIA and SEA procedures, as well as for surveillance over implementation of competences which are delegated to the AP and local-self-government. **Division for Integrated Pollution**, within the Department for industry is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management. This division is in charge of surveillance over implementation of competences which are delegated to the AP and local self-government. **Division for environmental protection** within the Department for industry is, amongst other, in charge of surveillance over implementation of legislation regulating waste management.
	Relevant institutional capacity in place to comply with the above listed provisions: In total, the Department for Industry has 20 employees and consists of following units, out of which: Division for Integrated Pollution 5 employees, Division for Environmental Protection 14 employees.
Ministry of Environmental Protection (MoEP) Division for Delegated Tasks and Education	**Role with respect to the above listed provisions:** Division for Delegated Tasks and Education, within the Sector for Supervision and Precaution in Environment (MoEP) is in charge of coordination of inspection work which is delegated to the AP and local level, including synchronization of working plans, development of methodological guidance, and supervision over delegated tasks.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 6 posts under this Department.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 11.	

Article 12 – On contaminated sites

Description of Article

Article 12 requires Parties to endeavour to development of appropriate strategies for identifying and assessing sites contaminated by mercury or mercury compounds. Any action to reduce risks posed by contaminated sites shall be done in an environmentally sound manner, incorporating where appropriate, an assessment of risks to human health and the environment. Article 12 calls for the creation and adoption of COP guidance to Parties for approaching the evaluation and remediation of contaminated sites, but contains no mandatory obligations to establish liability or propel progress in cleaning up contaminated sites. Article 12 allows governments to develop their own legal framework, within their financial and technical capability, to remediate mercury contaminated sites.

Succinct summary of provisions relevant to the country in question:

(Select from the below as appropriate to national situation)

☒ Develop strategies for identifying and assessing mercury/mercury compound contaminated sites
☒ If risk reduction activities are taken at contaminated sites, they are taken in an environmentally sound manner, incorporating risk assessment where appropriate

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Group for Soil Protection	**Role with respect to the above listed provisions:** Group for Soil Protection within Department for Delegated Tasks and Education (Sector for Supervision and Precaution in Environment, MoEP) is performing surveillance over implementation of national legislation regulating soil pollution, including establishment of database for monitoring of soil quality; assessment of degradation risks, **sanitation and remediation** measures etc.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, this Unit has 4 employees, out of which 1 employee is working on sanitation and remediation measures.
Ministry of Environmental Protection (MoEP) Division for the Development of Waste Management System and Cooperation with LSG Units	**Role with respect to the above listed provisions:** Division for the Development of Waste Management System and Cooperation with LSG Units within the Department for Waste Management is, amongst other, in charge of determination of measures for sanitation and remediation upon the closure of illegal and/or non-sanitary landfills and dumpsites.
	Relevant institutional capacity in place to comply with the above listed provisions: Division for the Development of Waste Management System and Cooperation with LSG Units has 8 employees.
Environmental Protection Agency (SEPA) Department for National Pollution Sources Registry	**Role with respect to the above listed provisions:** SEPA - the Department for National Pollution Sources Registry is in charge of establishment and maintenance of the National and Local Pollution Sources Registry, as well as for Cadastre of contaminated sites which should be established within six months from the date of entry into force of relevant subsidiary legislation.
	Relevant institutional capacity in place to comply with the above listed provisions: Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.

Relevant National Stakeholders	
Environmental Protection Agency (SEPA) Department for Water Quality and Sediment Monitoring	**Role with respect to the above listed provisions:** Department for Water Quality and Sediment Monitoring (Sector for Quality Control and the State of the Environment (SEPA) is in charge of development and implementation of National Programme for monitoring of water quality, sediment and soil; monitoring, including sampling and testing of surface waters; groundwater and reporting on water/soil quality (in line with obligations set at national level, EIA and other international institutions).
	Relevant institutional capacity in place to comply with the above listed provisions: The Department consists of two divisions - Division for monitoring of water quality and sediment (11 employees, out of which 8 are performing technical tasks- measurement, sampling, testing) and Division for monitoring of water quality and sediment, Novi Sad (5 employees, out of which 3 are performing technical tasks- measurement, sampling, testing). All together, these units have 17 employees (including head of department), according to the internal systematization acts.
Ministry of Environmental Protection (MoEP) Division for Environmental Impact Assessment of Projects and Activities	**Role with respect to the above listed provisions:** Division for Environmental Impact Assessment of Projects and Activities within the Sector for Environmental Management of MoEP is in charge of implementation of EIA procedures in line with national legislation for projects for which development consent (i.e. construction permit) is under the responsibility of the Republic authority.
	Relevant institutional capacity in place to comply with the above listed provisions: Division for Environmental Impact Assessment of Projects and Activities has 7 employees, out of which 4 persons work on EIA procedure for industrial and infrastructural works, and 2 persons on EIA in the area of use of natural goods and use of resources.
Ministry of Environmental Protection (MoEP) Group for Strategic Impact Assessment on Environment (SEIA)	**Role with respect to the above listed provisions:** Group for Strategic Impact Assessment on Environment (SEIA) within the Sector for Environmental Management of MoEP, is in charge of implementation of SEIA procedures, in particular - providing opinions on decisions on the need for development of SEIA; organization and participation on public hearings and providing consents on measures foreseen by the SEIAs for projects that undergo this procedure, according to the Law. The unit is also in charge of cross-border cooperation and information exchange on transboundary SEIAs, EU and international bodies.
	Relevant institutional capacity in place to comply with the above listed provisions: According to the internal systematization act, SEIA Unit has 3 employees

Relevant National Stakeholders	
Provincial Secretariat for Urban Planning and Environmental Protection and local self-government units	**Role with respect to the above listed provisions:** In line with provisions of the Law on Planning and Construction which defines who issues construction permit for the development of the subject installation, the AP authorities and LSGs are in charge of implementation of SEIA and EIA procedures: (1) Provincial authority - for projects/programmes for which development consent is under the responsibility of the authority of the autonomous province; (2) Local self-government authority - for projects/ programmes for which development consent is under the responsibility of the local self-government authority. The authority responsible for enforcement and control is MoEP.
	Relevant institutional capacity in place to comply with the above listed provisions: Two employees are engaged on issues of SEIA and EIA within Sector for Cleaner Production, Renewable Energy and Sustainable Development (Provincial Secretariat for Urban Planning and Environmental Protection).
Ministry of Environmental Protection (MoEP) Department for industry	**Role with respect to the above listed provisions:** Department on Industry is in charge of surveillance over implementation of legislation regulating air pollution, water pollution, groundwater pollution, IPPC, and waste management, EIA and SEA procedures, as well as for surveillance over implementation of competences which are delegated to the AP and local-self-government. Division for Environmental Protection within the Department for industry (Sector for Supervision and Precaution in Environment, MoEP) is in charge of surveillance over the implementation of legislation regulating air pollution, waste management, waste-water and discharges and the implementation of EIA procedures.
	Relevant institutional capacity in place to comply with the above listed provisions: This department has 20 employees. The internal systematization act foresees 20 posts under this Division.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The existing institutional system covers all aspects related to the implementation of Article 12. Additional strengthening of capacities will be needed.	

Article 13 – Financial Resources and Mechanisms	
Description of Article	
The first obligation under this Article is that a Party undertakes to provide resources for national implementation activities within its capabilities (including domestic funding, bilateral and multilateral funding and private sector involvement). The Convention recognizes that providing financial assistance to developing countries and countries with economy in transition, will improve the effective implementation of the Convention. As a formal mechanism to provide this assistance, Article 13 establishes a Financial Mechanism with two components: (1) the Global Environment Facility Trust Fund, and (2) an International Programme to support capacity building and technical assistance.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Access domestic resources as may be needed to implement Convention obligations ☒ Access financial resources available under the Convention financial mechanism and other resources available from multilateral, regional, and bilateral funding sources)	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department of Green Fund Affairs	**Role with respect to the above listed provisions:** the Green Fund of the Republic of Serbia is established as a budgetary fund for recording the funds intended for financing the preparation, implementation and development of programs, projects and other activities in the field of conservation, sustainable use, protection and improvement of the environment. This fund is managed by the Ministry of Environmental Protection (MoEP). **Relevant institutional capacity in place to comply with the above listed provisions:** The internal systematization act foresees 15 posts within this Department.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met:	
Establishment of fully functional Green Fund.	

Article 14 – Capacity building , technical assistance and technology transfer	
Description of Article	
Under Article 14 of the Convention, Parties, within their respective capabilities, are required to cooperate to provide capacity building and technical assistance to developing countries and Parties with economies in transition, to assist them in implementing their obligations under this Convention. A variety of mechanisms to deliver this assistance is anticipated. Capacity-building and technical assistance may be delivered through regional, subregional and national arrangements, including existing regional and subregional centres, through other multilateral and bilateral means, and through partnerships, including partnerships involving the private sector. Cooperation and coordination with other multilateral environmental agreements in the field of chemicals and wastes should be sought to increase the effectiveness of technical assistance and its delivery.	
Succinct summary of provisions relevant to the country in question:	
(Select from the below as appropriate to national situation) N/A	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP)	**Role with respect to the above listed provisions:** MoEP, Chemicals Department, as a focal point for Minamata convention, for capacity-building, technical assistance and technology transfer for all relevant stakeholders related to the Minamata convention. One of the main focuses of MIA project is capacity-building and technical assistance for relevant stakeholders in Serbia.
Department for Chemicals	**Relevant institutional capacity in place to comply with the above listed provisions:** Department for Chemicals has 24 employees. 1 employee is performing tasks related to Minamata convention, beside other obligations and tasks.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
The Republic of Serbia, as a country with an economy in transition, should consider adequate arrangements for capacity building, technical assistance and technology transfer, taking into account its current EU candidate status and existing multilateral or bilateral partnerships, in order to prepare itself for the Minamata Convention implementation.	

Article 16 – Health aspects	
Description of Article	
Mercury adversely impacts both human health and the environment. Article 16 promotes program development related to the health aspects of mercury, recognizing the activities that will involve the World Health Organization (WHO), national public health ministries, and other organizations involved in the delivery of health services. Article 16 provides non-binding guidance to the health ministries and other actors on the activities they can undertake to minimize mercury exposure of vulnerable populations, and adverse consequences of such exposures. In considering health-related issues or activities, the Parties should consult, collaborate, and promote cooperation and exchange of information with the WHO, the ILO, and other relevant intergovernmental organizations, as appropriate.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Promote the development and implementation of strategies to identify and protect populations at risk, such as developing fish consumption guidelines ☒ Promote occupational exposure educational and prevention programs ☒ Promote prevention, treatment, and care services for affected populations	
Relevant National Stakeholders	
Ministry of Health Sector for Public Health and Programmed Health Protection	**Role with respect to the above listed provisions:** Ministry of Health (MoH) is the relevant institution to promote strategies to identify all population categories affected by mercury exposure adopt health guidelines regulating mercury exposure, and provide education about dangers of such exposure as well as prevention, treatment, and care services for affected populations.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 11 posts under this Sector.

Relevant National Stakeholders	
Ministry of Health Department for Sanitary Inspection	**Role with respect to the above listed provisions:** Department for Sanitary Inspection, within Sector for Inspection Affairs of the Ministry of Health is, amongst other, responsible for inspection of compliance with the legislation on bans and restrictions in chemicals and products intended for general use. Inspection for medicines and medical devices supervises conformity of production and retail of medicines and medical devices, including those containing mercury.
	Relevant institutional capacity in place to comply with the above listed provisions: Approximately 12 sanitary inspectors employed within Sanitary Inspection are engaged (among other) on issues of compliance conditions of hazardous chemicals in retail.
Ministry of Trade, Tourism and Telecommunications Sector for Market Inspection	**Role with respect to the above listed provisions:** Sector for Market Inspection is responsible for control of national provision regarding conditions for keeping of hazardous chemicals in retail. Market inspectors only control issues regarding keeping of dangerous chemicals in retail, including mercury containing products.
	Relevant institutional capacity in place to comply with the above listed provisions: Approximately 10 market inspectors employed within trade inspection are engaged (among other) on issues of compliance conditions of hazardous chemicals in retail.
Ministry of Labour, Employment, Veteran and Social Policy Directorate for health and occupational safety	**Role with respect to the above listed provisions:** organizes education and publishes various materials and information about the state of health and occupational safety.
	Relevant institutional capacity in place to comply with the above listed provisions: The Directorate consists of the Department for Preparation of Regulations and Expert-Operational Affairs and the Group for Study-Analytical Affairs, with 8 employees (including director)
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met:	
Further strengthening of capacities in order to identify and protect populations at risk, as well as to promote prevention, treatment and health care services for affected populations.	

Article 17 – Information exchange	
Description of article	
Article 17 focuses on the exchange of information between countries. It identifies key information that Parties to the Convention need to share with each other and identifies mechanisms for sharing the information. Parties to the Convention shall facilitate the exchange of: scientific, technical, economic, and legal information concerning mercury and mercury compounds, including toxicological, ecotoxicological, and safety information; information on the reduction or elimination of the production, use, trade, emissions, and releases of mercury and mercury compounds; information on technically and economically viable alternatives; and epidemiological information concerning health impacts associated with exposure to mercury and mercury compounds, in close cooperation with the WHO and other relevant organizations, as appropriate.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Collect and disseminate information on annual quantities of mercury and mercury compounds emitted, released, or disposed; and other information specified in Article 18 ☒ Share information on the health and safety of humans and the environment as non-confidential, in accordance with Article 17.5 ☒ Report to the COP on progress in implementing Convention obligations under Article 21	
Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for the Integrated Chemicals Register	**Role with respect to the above listed provisions:** Department for Chemicals within MoEP assumes the role of national chemicals helpdesk[37], and cooperates with ECHA. Division for the Integrated Chemicals Register within Department for Chemicals is in charge of development and maintenance of Integral Chemicals Register, including analysis of data, preparation of reports and development of information system for chemicals management. As a focal point for the Convention, this Department will perform reporting obligations towards COP on progress in implementing Convention obligations. **Relevant institutional capacity in place to comply with the above listed provisions:** This Department has 9 employees, including specialised posts for: analysis of industrial and communal waste (1 post), analysis of air emissions, analysis of water emissions, and special waste streams.

[37] National helpdesk has been established since 2010 to ensure assistance to enterprises, especially to SMEs, with regard to the requirements of the national legislation as well as with the REACH and CLP (e.g. for importers). This helpdesk is foreseen to become the member of the ECHA helpdesk network once Serbia is the EU member. Its staffs already take part in Help Net activities with the capacity of an observer.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for Transboundary Movement of Waste	**Role with respect to the above listed provisions:** Division for Transboundary Movement of Waste within Sector for Waste and Waste Water Management (MoEP) is, amongst other, in charge of development and maintenance of registry of permits; exchange of information on transboundary movement of waste. This Division is also participating in the work of bodies established under the Basel Convention, the Stockholm Convention and implements tasks related to effective implementation of membership obligations.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization acts foresees 5 employees in the Division for Transboundary Movement of Waste.
Environmental Protection Agency (SEPA) Sector for Quality Control and the State of the Environment	**Role with respect to the above listed provisions:** Sector for Quality Control and the State of the Environment (SEPA) is in charge of establishment and maintenance of National Environmental Protection Information System; for collection of information and reporting to EIONET, as well as coordination with EEA (Primary Contact Point). SEPA is the competent authority for implementation of requirements related to maintaining the national emission inventories and projections and fulfilling the reporting obligations to CLRTAP. **Department for Indicators, Reporting and IS** is in charge of establishment and maintenance of registry of contaminated sites and locations. Establishment and maintenance of Information System is also under competence of this Department. **Department for National Pollution Sources Registry** is in charge of systematic and continuous collection of data on pollution into air, water, waste; collection and analysis of data on industrial and communal pollution; development and maintenance of website enabling the access to data and informing of the general public (in line with international standards).
	Relevant institutional capacity in place to comply with the above listed provisions: Division for indicators and reporting has 5 employees; Unit on Information System has 4 employees, including specialized posts for: reporting towards EIONET, GIS development, IT support and preparation of reports). Department for National Pollution Sources Registry has 9 employees.
Ministry of Health Sector for Public Health and Programmed Health Protection	**Role with respect to the above listed provisions:** Ministry of Health (MoH) is the competent institution for dissemination of information on the health and safety of humans.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 11 posts under this Sector
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
Establishment of a solid coordination system and information exchange system between the different authorities which have competences relevant for this task.	

Article 18 – Public information, awareness raising	
Description of Article	
Article 18 focuses on the sharing of information between the government and the public. Article 18 identifies key information that governments need to share with the public and the mechanisms that can be employed for public awareness-raising. Parties shall use existing mechanisms or consider the development of mechanisms, such as pollutant release and transfer registers (PRTR) where applicable, for the collection and dissemination of information on estimates of its annual quantities of mercury emissions and releases.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) ☒ Collect and disseminate information on annual quantities of mercury and mercury compounds emitted, released, or disposed; and other information specified in Article 18 ☒ Share information on the health and safety of humans and the environment as non-confidential, in accordance with Article 17.5 ☒ Report to the COP on progress in implementing Convention obligations under Article 21	
Relevant National Stakeholders	
Environmental Protection Agency (SEPA)	**Role with respect to the above listed provisions:** SEPA - Department for National Pollution Sources Registry is in charge of establishment and maintenance of the National and Local Pollution Sources Registry.
Department for National Pollution Sources Registry	**Relevant institutional capacity in place to comply with the above listed provisions:** the Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for the Integrated Chemicals Register	**Role with respect to the above listed provisions:** Department for Chemicals is, amongst other, competent authority for educational and awareness raising activities and assumes the role of national chemicals helpdesk. Division for the Integrated Chemicals Register within the Chemicals Department (MoEP) is in charge of development and maintenance of Integral Chemicals Register, including analysis of data, preparation of reports and development of information system for chemicals management.
	Relevant institutional capacity in place to comply with the above listed provisions: Department for Chemicals has 24 employees. The internal systematization act foresees 5 posts within the Division for Integrated Chemicals Registry.
Ministry of Environmental Protection (MoEP) Sector for Supervision and Precaution in Environment	**Role with respect to the above listed provisions:** Sector for Supervision and Precaution in Environment prepares and publishes annual reports on conducted inspections.
	Relevant institutional capacity in place to comply with the above listed provisions: All of the employees within their responsibilities.
Ministry of Environmental Protection (MoEP) Division for Environmental Impact Assessment of Projects and Activities	**Role with respect to the above listed provisions:** Division for Environmental Impact Assessment of Projects and Activities within the Sector for Environmental Management (MoEP) is in charge of cooperation with civil society and general public. In performing these tasks, the unit coordinates with other relevant units within the Ministry (including the ones which are in charge of air, water, waste, chemicals, and industrial pollution).
	Relevant institutional capacity in place to comply with the above listed provisions: Within the Unit which has 7 employees, one person is in charge of coordination with civil society organizations, preparation of information for publication etc.
Environmental Protection Agency (SEPA) Sector for Quality Control and the State of the Environment	**Role with respect to the above listed provisions:** Sector for Quality Control and the State of the Environment (SEPA) is in charge of establishment and maintenance of National Environmental Protection Information System. Sector for Quality Control and the State of the Environment (SEPA) is in charge of collection of information and reporting to EIONET, as well as coordination with EEA (Primary Contact Point).
	Relevant institutional capacity in place to comply with the above listed provisions: Unit on Information System within this Sector has 4 employees, including specialized posts for: reporting towards EIONET, GIS development, IT support and preparation of reports.

Relevant National Stakeholders	
Aarhus centres	**Role with respect to the above listed provisions:** Providing information on environment to citizens and interested parties, awareness raising and dissemination of information.
	Relevant institutional capacity in place to comply with the above listed provisions: N/A
Ministry of Health Sector for Public Health and Programmed Health Protection	**Role with respect to the above listed provisions:** the Ministry of Health (MoH) is the relevant institution for dissemination information on the health and safety of humans.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 11 posts under this Sector.
The Commissioner for Information of Public Importance and Personal Data Protection	**Role with respect to the above listed provisions:** ensures the submission of data to citizens and interested parties, in line with confidentiality policy.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees a total number of 94 posts in the Commissioner's Office.
Ministry of Environmental Protection (MoEP) Department for Chemicals	**Role with respect to the above listed provisions:** As the focal point for the Convention, this Department will perform reporting obligations towards COP on progress in implementing the Convention obligations.
	Relevant institutional capacity in place to comply with the above listed provisions: Department for Chemicals has 24 employees. 1 employee is performing tasks related to the Minamata convention, in addition to other obligations and tasks.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
Strengthening capacities of chemicals management for implementation of awareness raising tasks, assuming the role of focal point.	

Article 19 – Research, development and monitoring	
Description of Article	
Article 19 seeks to develop and improve cooperation among countries on key areas of research, development and monitoring that can support effective implementation of the Convention. These areas include, among others, inventories of mercury use and consumption; monitoring of levels of mercury and mercury compounds in vulnerable populations and in environmental media, information on mercury commerce and trade etc. Parties should, where appropriate, build on existing monitoring networks and research programmes in undertaking the activities addressed by Article 19.	
Succinct summary of provisions relevant to the country in question	
(Select from the below as appropriate to national situation) N/A	
Relevant National Stakeholders	
Environmental Protection Agency (SEPA)	**Role with respect to the above listed provisions:** SEPA, the Department for National Pollution Sources Registry is in charge of establishment and maintenance of the National and Local Pollution Sources Registry.
Department for National Pollution Sources Registry	**Relevant institutional capacity in place to comply with the above listed provisions:** the Department has 9 employees, including specialized posts for: analysis of industrial and communal pollution (1 person); analysis of emission to air; analysis of waste streams; analysis of emissions to waters.

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Division for the Integrated Chemicals Register	**Role with respect to the above listed provisions:** The Division for Integral Chemicals Register within the Department for Chemicals (MoEP) is in charge of the development and maintenance of Integral Chemicals Register, including analysis of data, preparation of reports and development of information system for chemicals management. As the focal point for the Convention, this Department will perform reporting obligations towards COP on progress in implementing Convention obligations, including collection of required statistical data from other relevant institutions and sectors.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 5 posts under this Unit. 1 employee is performing tasks related to the Minamata convention, beside other obligations and tasks.
Ministry of Education, Science and Technological Development Sector for Science	**Role with respect to the above listed provisions:** the Ministry is in charge of proposing and implementing a policy and strategy for scientific and technological development; as well as for development of scientific and technological information systems and programs for the development of scientific and technological infrastructure.
	Relevant institutional capacity in place to comply with the above listed provisions: The Sector for Science has 17 employees.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
Strengthening capacities of chemicals management for performance of monitoring and coordination tasks, assuming the role of focal point. Further capacity building should target the scientific sector (National Poison Control Centre, Centre for toxicological risk assessment established within the Faculty of Pharmacy, Belgrade University, Department for Biology and Ecology, Faculty of Sciences, Novi Sad University, Institute for Biocides).	

Article 21 – On reporting
Description of Article
Article 21 on reporting will be the principal basis for evaluating both individual government compliance and the overall effectiveness of the Convention. Parties are obliged to report on the measures undertaken to implement the provisions of this Convention and on the effectiveness of such measures. Article 21 gives authority to the COP to decide on the details regarding reporting requirements and format.
Succinct summary of provisions relevant to the country in question
(Select from the below as appropriate to national situation) ☒ Fully participate as a Party to the COP, including voting, if and when required ☒ Participate in one of the dispute resolution processes specified if needed, under Article 25 of the Convention ☒ Determine how future Convention annex amendments will be ratified under Article 30.5 of the Convention ☒ Report to the COP on progress in implementing Convention obligations under Article 21

Relevant National Stakeholders	
Ministry of Environmental Protection (MoEP) Department for Chemicals	**Role with respect to the above listed provisions:** As a focal point for the Convention, this Department will perform reporting obligations towards the COP on progress in implementing the Convention obligations, including collection of required statistical data from other relevant institutions and sectors. This includes reporting to the Conference of the Parties, through the Secretariat, on the measures the country has taken to implement the provisions of this Convention and on the effectiveness of such measures and the possible challenges in meeting the objectives of the Convention.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 24 employees within Department for Chemicals. 1 employee is performing tasks related to the Minamata convention, beside other obligations and tasks.
Ministry of Foreign Affairs UN Department	**Role with respect to the above listed provisions:** The Ministry is responsible for the coordination of foreign-policy and other international activities carried out by government bodies, defined within the framework of their competencies. Government bodies cooperate with the Ministry in the carrying out of foreign policy by sending timely reports on the planned and undertaken activities. Government bodies communicate with representatives of other states and international organizations via the Ministry or in cooperation with the Ministry, when this is in accordance with international treaties and the diplomatic practice.
	Relevant institutional capacity in place to comply with the above listed provisions: The internal systematization act foresees 16 employees in UN department.
Remaining Capacity Gaps at National Level that need to be addressed before provisions can be met	
Strengthening capacities of chemicals management for performance of monitoring and coordination tasks, assuming the role of the focal point.	

CHAPTER IV: IDENTIFICATION OF POPULATIONS AT RISKS AND GENDER DIMENSIONS

This section presents the differing gender roles with regards to the exposure and management of mercury. The aim is to ensure that gender considerations are effectively mainstreamed into the National Implementation Plan for Mercury. It is to be noted that the national consultants did not undertake an extensive survey and assessment of gender issues related to mercury exposure in Serbia under this study. Additionally, a descriptive summary is provided below that illustrates patterns which are broadly applicable across human populations related to general exposure and gender risks within various sectors where mercury contamination is likely to occur.

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

There are many studies on the impacts of methyl mercury toxicity to the neurological, cardiovascular, and immune systems of humans. For example, neurological impacts are often measured and become evident through lowered IQ levels (Spadaro and Rabl 2008) and through various neuropsychological tests (Grandjean et al. 1998). Cardiovascular and immunological impacts are often related to chronic exposure to mercury (Sweet and Zelikoff 2010; Downer et al. 2017). However, the relative impacts from methyl mercury's toxic effects can vary across human populations, whereas some groups may be more sensitive than others to the impacts of mercury exposure.

Mercury is recognized as a substance producing significant adverse neurological and other health effects, with particular concerns expressed about its harmful acts on unborn children and infants. The foetus, new-borns, and young children are especially susceptible to mercury exposure because of the sensitivity of the developing nervous system. In addition to in utero exposure, neonates can be further exposed through mercury contaminated breast milk, although only a small percentage of maternal mercury is excreted in breast milk. Individuals with preconditions, such as diseases of the liver, kidney, nervous system, and lung are at higher risk of suffering from the toxic effects of mercury.

The other groups are those individuals exposed to higher levels of mercury, either through occupational, mercury-added products or environmental exposure. This group includes those who regularly consume a regular diet of fish and aquatic organisms, particularly larger predatory animals. Pregnant women and women who might become pregnant are generally the populations considered to be high risk groups because of the potential exposure to the foetus. Young children may also be exposed to the effects of mercury through direct consumption of fish.

Serbian national strategic document identified the following groups of population as vulnerable groups which are at some level at potential risk from exposure to mercury:

- persons with disabilities,
- children,
- youth,
- women,
- older than 65 years,
- members of the Roma minority,
- uneducated,
- unemployed,
- refugees and internally displaced persons and
- residents of rural areas.

The assessment of potential risk of populations and potential health a risk from mercury presented in following sub-sections has been based on the combined approach, i.e. review of the reports of competent authorities, as well as review of published scientific papers (review of 34 articles that have been selected in the register of scientific papers by keyword "mercury and Serbia" were taken into account).

Another important source used for the assessment were the reports of the Institute for Public Health of Serbia "Dr Milan Jovanovic Batut"[38] , which annually publishes "Health-Statistical Yearbook of the Republic of Serbia", and systematically presents basic information about the population, births, incidence and mortality rates, the impact of environmental factors on human health, use of health care, organization and operation of health services. Also, reports and data of the Serbian Environmental Protection Agency[39], as well as other available materials were used.

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

The Republic of Serbia has ratified all the international and regional treaties and conventions that set up standards in the fields of human rights, women's rights and gender equality. The Constitution guarantees the equality of women and men and obliges the State to develop equal opportunities policy (Art. 15), as well as equality before the law, and prohibits both direct and indirect discrimination based on any ground, particularly on race, sex, national origin, social origin, birth, religion, political or other opinion, property status, culture, language, age, mental or physical disability.

Current gender equality strategic framework in Serbia and millstones[40]:

- 2016-2020: National Strategy for Gender Equality[41]
- 2016 – 2018: implementation period of the Action Plan
- 2014-2018: Strategy of Prevention and Protection against Discrimination and its AP.
- 2016: the Gender Equality Index is introduced, in line with the EU methodology to facilitate monitoring the state of play and effects of gender equality policies (and from 2016 to start to collect gender sensitive data).

[38] http://www.batut.org.rs/index.php?lang=2

[39] http://www.sepa.gov.rs/index.php

[40] The applicable anti-discrimination legal framework in Serbia includes: Law on the Prohibition ofDiscrimination, Law on Equality between Sexes, Law on Prevention of Discrimination against Persons with Disabilities, Law on the Protection of the Rights and Freedoms of National Minorities and Law on the Protector of Citizens.

[41] http://socijalnoukljucivanje.gov.rs/en/the-national-strategy-for-gender-equality-until-2020-adopted/

By adopting a systematic approach to gender mainstreaming the Government of Serbia has entered a new strategic phase and expressed commitments to enhance gender equality and promote the position of women by introducing gender sensitive budgeting[42] at all levels of government by the end of 2020.

At this stage, there are no sufficient data for year 2015 to segregate women from men exposure. Given the available framework, the national consultants did not undertake an extensive survey and assessment of gender issues related to mercury exposure in Serbia.

Instead, this report relied on available research papers, strategic documents and the conclusions from a project aimed at reviewing and updating the National Implementation Plan (NIP) under of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Serbia[43], by making a parallel between Hg exposure and exposure to POPs.

When it comes to the occupational exposure, the NIP concluded that men are more exposed to POPs than women because of a higher number of male workers in industries and jobs where POPs are used, the same conclusion can be done for mercury in the MIA project.

Also, women are probably more exposed or at least equally exposed than men to mercury used in production of domestic facilities and kitchen equipment. Men and women who work in informal waste sector are in unfavourable position, not only because of exposure to mercury but due general working and living conditions.

4.2.1 Occupational Exposure

The **inorganic mercury** is a typical source for occupational exposure, and its target organ are kidneys. For people working in chlor-alkali plants, mercury mines, thermometer factories, refineries and dental clinics, as well as the mining and manufacturing of gold extracted with mercury, the **workplace** may be very important source of exposure.

In Serbia, for certain professions (work in mercury related industries, waste management, and other related to Hg inventory results) there is a trend for men to be at greater risk than women in relation to occupational mercury exposure. The exception to this trend may be the medical and dental professional community. The main work groups and associated general patterns identified for occupational exposure may include:

- **R**esearch shows that, in chlor-alkali plants in Serbia, "results indicate that long-term and permanent exposure to mercury vapours induces changes in the important haematological parameters of the peripheral blood"[44].
- Waste collectors, medical waste incinerator workers and landfill workers - These groups are typically comprised of men who are at greater risk of exposure due to the handling of waste from mercury containing devices.
- Medical professionals - It is often the case that women may be more likely to be called upon for the clean-up of medical accidents involving mercury containing equipment, such as sphygmomanometers or thermometers. Therefore, women would be more likely to be exposed to mercury through the handling of medical waste.

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[42] Law amending the Law on Budget System

[43] http://hazardouswaste-serbia.info/fileadmin/inhalte/haz_waste/pdf/pops/POPS4.pdf.

[44] Radmila Maksimović, Ljuba Mandić, Slavica Spasić, The basic haematological measurements in peripheral blood from workers exposed to mercury vapours, Jugoslov Med Biohem 23: 381– 385, 2004

- Gas station attendants - Service attendants in this profession are almost exclusively men, which would predispose men to a greater risk for environmental exposure.
- Environmental/enforcement officers - This group is called upon to investigate environmental pollution cases and are generally gender balanced (but this is a minor exposure route)
- Firemen and first responders to chemical accidents - This group is often primarily male.

It can be concluded for the professions outlined, there is a tendency for men to be at greater risk than women in relation to occupational mercury exposure (the one important exception may be within the medical professional community).

A further study of the gender ratios for these professions in Serbia would be required to accurately confirm and quantify patterns of exposure and at-risk populations, according to gender and occupation type.

However, there is lack of data in general and also lack of gender segregated data related to employees in different industries, recycling companies etc.

4.2.2 Mercury in fish

Consumption of **fish** containing methylmercury may cause adverse effects on humans, especially as regards effects on the central nervous system. Globally, mercury concentrations are lowest in smaller, short-lived fish.

There are many regularly harvested fish from the Mediterranean Sea that can be safely consumed on either a daily or weekly basis (i.e., they have average mercury concentrations under 0.22 ppm, ww), such as anchovies (Australian), sardines, flounder, cod, salmon, and surmullet. These species, and many others, are often harvested commercially and shipped through European markets.

Mercury concentrations are highest in large, long-lived species, many of which are pelagic. Bluefin tuna, albacore tuna, bream, bonito, common sole, hake, bluefish and Atlantic horse mackerel have average total mercury concentrations over 0.22 ppm, ww and are riskier choices for human consumption, where only one meal per month is recommended (Table 45).

Some swordfish and tuna individuals have average mercury body burdens that approach the “no consumption” guidance level of 0.95 ppm, ww (Table 45).

Mercury in Seafood (ppm, ww)	Consumption Guidance
≤ 0.05	unrestricted
0.05–0.11	2 meals per week
0.11–0.22	1 meal per week
0.22–0.95	1 meal per month
> 0.95	no consumption

Table 45 Interpreting mercury concentrations and related risks of exposure.

Fish mercury concentrations can be compared with consumption guidelines and linked with the number of seafood meals that could be eaten at various mercury concentrations to stay within the U.S. EPA's health-based reference dose for methylmercury – with further interpretation by the Great Lakes Commission in the USA (see Table 45). For further reference, the World Health Organization (WHO) and the European Commission (EC) general guidance level for fish mercury concentrations is 0.5 ppm with an "exemption" for larger, predatory fish species (e.g., swordfish, shark, some tuna species) of up to 1.0 ppm, which is similar to the U.S. EPA "no consumption" level.

Seafood mercury concentrations and associated meal frequency guidelines are based on the U.S. EPA reference dose of $1 \cdot 10^{-4}$ mg of Hg/kg of body weight/day, a body weight of 132 pounds (60 kg) for an adult female person, and a fish meal size of about 6 ounces (170 gm). These guidelines are for muscle tissues in fish because >95% of Hg is in the methyl form. However, shellfish mercury concentrations greatly vary in percent methyl and therefore the consumption guidance provided here cannot be directly used with shellfish total mercury data.

Serbia is a Danube river basin country, and Hg content in fish it is very important for population. According to the research performed in 2016, Hg concentrations exceeded the maximum permitted concentrations (MPCs) only in catfish samples (0.62 mg kg^{-1}) from the Danube (D3 sampling site) and barbel (0.78 mg kg^{-1}) from the West Morava (WM1 sampling site)[45].

These results demonstrate that there is a need for future studies that would involve similar analyses and focus especially on smaller rivers that have been neglected so far. In addition, there are no sufficient data to segregate women from men exposure (some signals to children exposure in Belgrade, Serbia[46] are indicating the relevance of such research).

With respect to mercury in fish, the issue is applicable across genders as both sexes generally eat similar quantities of fish. However, the adverse health impacts due to exposure of mercury are more significant in cases of children, pregnant women and women in child-bearing years. This is because the developing organ systems (such as the foetal nervous system) are the most sensitive to the toxic effects of mercury.

Recent studies also demonstrate that there may be increased risk for cardiovascular disease in adults (Downer et al. 2017), which may be particularly important for individuals either sensitive to methyl mercury or those with elevated levels. Men may be more prone to cardiovascular disease than women.

4.2.3. Mercury in dental amalgam

No dental amalgam specific research and interventions have been conducted in Serbia yet. Dental amalgam is the 3rd source of mercury in Serbia, according to this Assessment. The general population may also be exposed to elemental mercury vapours from dental amalgam[47].

It should be noted that there is no gender segregated data related to dentists and patients.

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[45] Milošković et al, Spatial monitoring of heavy metals in the inland waters of Serbia: a multispecies approach based on commercial fish, Environmental Science and Pollution Research, 2016, Vol.23 (10), pp 9918–9933

[46] 4% of tested children (in Belgrade) are "exposed to Hg concentrations exceeding the level proposed by US EPA"; Đukić Ćosić et al, Assessment of mercury intake via fish and fish products among children in Belgrade, Serbia: A pilot study, Toxicology Letters, 2016, Vol. 258 (S), pp. S206

[47] Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport. UNEP, 2013

4.2.4. Mercury in environment

Exposure may also arise from **localized pollution through air and water, and from mercury spills** at work or home (like from certain old gas meters and other measurement devices containing mercury). Location of higher risk from exposure to environmental mercury pollution in Serbia are the ones included in the Inventory. It should be noted that no scientific papers have published evidence of higher risk to the population by air and soil from coal combustion in the larger power plants in Serbia.

Related research until now is mostly focused on mercury context in agriculture soil. The obtained results indicated that the measured levels of Hg in the soil are not limiting factors for production of safe food in AP Vojvodina, Serbia[48]; the spatial distribution of Hg confirmed that most of Vojvodina Province area has geochemical origin of Hg.

It should be noted that several studies on risks of mercury exposure have been conducted over previous years in Serbia focusing on the specific situation caused by industrial processes and consequences of the bombing in 1999. A specific case in Serbia (HIP Petrohemija annual report on environmental impact, 2012)[49]: 8 t Hg spill as the consequence of 1999 bombing of plant HIP Petrohemija, Pančevo).

Based on the testing results of samples of groundwater, by comparing the values obtained after the remediation and values that may indicate significant contamination according to the Regulation on a program of systematic monitoring of soil quality, indicators for assessing the risk of soil degradation and methodology for development of remediation programs ("Official Gazette of RS ", No.88 / 10), it can be concluded that all values are below the detection limit or are significantly lower than the values that may indicate serious contamination.

In addition, the mercury concentration in the **water samples from the monitoring wells MW-13, MW-12, MW- 23, MW-16, MW-20, SDC SDC-3 and-4, were higher than the values provided for by Regulation on remediation.** Emissions at the site and the quality of surface water resulted in the assessment that total emissions of pollutants amount to 4.36 kg Hg / year.

Data for 2008 showed that “Mercury concentration at the site of the accident (after the bombing) in 1999 showed that it took 6 years for concentration to drop below the limits and led to the remediation by means of standard industrial crops Tansy. Concentrations of Hg in the Tansy plants from the contaminated site were 5, 10, 100 and 200 times greater than in the industrial zone, the highway, Ada Ciganlija and Topčider, respectively”.[50]

A further study of gender impacts in Serbia would be required to accurately confirm and quantify patterns of exposure and at-risk populations, according to gender.

[49] http://www.hippetrohemija.com/upload/documents/flipping_books/a34f49201b6dfbdead1bffb13fe97e51/Izvestaj_ZZS_2012/files/assets/basic-html/index.html#1

[50] Stevović et al, Environmental study of heavy metals influence on soil and Tansy (Tanacetum vulgare L.), African Journal of Biotechnology 2010, Vol. 9(16), pp. 2392-2400

4.2.5 Mercury in imported consumer goods and domestically produced food

According the data from Health-Statistical Yearbook of the Republic of Serbia, 2015:

- Chemical safety of domestically produced consumer goods in the Republic of Serbia, 2015, ratio of samples tested on Hg /non-compliant is 2783/0.
- Chemical safety of imported consumer goods in the Republic of Serbia, 2015, ratio of samples tested on Hg / non-compliant is 4485/4.
- Chemical safety of domestically produced food in the Republic of Serbia, 2015, number of samples tested on Hg / non-compliant is 47/0.
- Chemical safety of bottled water imported into the Republic of Serbia, 2015, number of samples tested on Hg /non-compliant is 33/0.

These data shows that products in the Serbian market are not in majority of cases contaminated with Hg. However, there is an issue of lack of systematic monitoring of Hg concentrations in products, as indicated under Chapter 2, results of the Inventory. The recommendations presented in Chapter 6, the Action Plan, comprise stronger surveillance of this aspect of trade/import activities, through more comprehensive approach of involved institutions.

A further study of the gender ratios in Serbia would be required to accurately confirm and quantify patterns of exposure and at-risk populations, according to gender.

4.2.6 Mercury in cosmetics

Women, man and children may also receive extra doses when they use specific **products containing mercury compounds** such as skin-lightening creams, soaps and traditional medicinal products.

Women are more susceptible to exposure by mercury added cosmetics and personal products such as soaps, creams and shampoos. The use of skin lightening creams may also serve as an avenue for mercury exposure, but was not investigated through this study.

Nonetheless, local women may use skin lightening creams to remove blemishes due to excessive sun damage and it is likely that the general public have limited knowledge, as well as evidence of the use of harmful chemicals in cosmetics.

A further study of the gender ratios in Serbia would be required to accurately confirm and quantify patterns of exposure and at-risk populations, according to gender.

In summary, it is clear from the above considerations that men should be principally targeted for issues of occupational exposure, especially in the field of waste management and first responders, such as firemen and disaster risk managers. However, in the medical profession, both genders are equally susceptible to mercury contamination. Women are a more important target group in regard to mercury in cosmetics. These trends are useful when considering training, education, and awareness-raising strategies regarding mercury exposure as they allow for more gender-sensitive communication strategies that can target the sexes differently to achieve maximum benefit.

CHAPTER V: AWARENESS/UNDERSTANDING OF WORKERS AND THE PUBLIC; AND EXISTING TRAINING AND EDUCATION OPPORTUNITIES OF TARGET GROUPS AND PROFESSIONALS

Article 18 of Minamata Convention focuses on the sharing of information between government and the public. Article 18 identifies key information that governments need to share with the public and the mechanisms that can be employed for public awareness-raising. Parties shall use existing mechanisms or consider the development of mechanisms, such as pollutant release and transfer registers (PRTR) where applicable, for the collection and dissemination of information on estimates of its annual quantities of mercury emissions and releases.

When developing this document, the approach used was aimed to building trust between the actors and solutions that provide mutual benefits. The communication awareness raising activities under this assessment (Project Communication Strategy) target two key categories of focus groups: (1) institutions, which are in charge of different aspects of policy, legal and implementation measures of relevance for management of Hg and (2) non-public stakeholders, which may be divided in three sub-groups: CSOs, economic subjects and general public, with particular focus on vulnerable groups. Because of the inclusive and participatory approaches used, stakeholders have a greater sense of ownership for outcomes.

To underline, that stakeholder involvement is at the same time awareness raising:

- Multi-stakeholder participatory Workshops (3 in 2017[51] and 1 in 2018)
- knowledge based advocacy towards children and youth[52] and ending mercury use in dentistry[53], as noted vulnerable and professional groups needed special attention.

Project provided initiatives towards relevant information on mercury through media[54]. Brochures developed during MIA project implementation by consultants were used as the source of information.

The matrix below shows that there is a complexity of involved stakeholders, as well as the target groups, resulting in a situation where one actor may be both the source of dissemination and the target group of the awareness raising activities. Additionally, some institutions are the information providers (e.g. statistical and other reports) which may or may not initiate specific campaigns; while other institutions in their information sharing campaigns focus on their respective field of work.

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[51] 1. http://www.ijp.rs/iz-instituta/vesti/uvodna-radionica-za-pripremu-inventara-zive_93/; 2. http://www.ijp.rs/iz-instituta/vesti/odrzana-druga-radionica-posvecena-pripremi-inventara-zive_98/; 3. http://www.ijp.rs/iz-instituta/vesti/predstavljanje-inventara-zive-_100/

[52] During this Assessment preparation, consultants perform presentation about the harmful effects of emissions of mercury and mercury compounds on human health to teachers of about 90 Federation for Environmental Education Eco-Schools in Serbia by SAICM NGO Focal point (EASD) , http://ambassadors-env.com/blog/2017/10/21/eko-paket-godisnji-sastanak-ekoskolskih-koordinatora-u-skolskoj-20172018-godini/ , 20/10/2017

[53] To inform about technic and economic sustainable alternatives for products that contain mercury; to promote and show data about alternatives to mercury, including economic and environmental benefits of those alternatives; place extra emphasis on the need for minimization of usage of instruments and material that contains mercury; better promotion of relevant medical protection and treatment of population exposed to mercury and mercury mixtures, etc.; http://ekolist.org/bez-upotrebe-zive-u-stomatologiji-do-2022-godine/

[54] Example video: https://www.youtube.com/watch?v=d01fZXZmtR4 , RTS "ALL COLORS OF LIFE"…

This further implies the need to develop a strong, comprehensive and harmonised awareness raising plan, with clearly defined roles and timeframes, enabling the systematic campaign and achievement of objectives of Article 18 of the Convention.

In line with above listed observations, the messages designed through the awareness raising campaign, as well as measures towards the dissemination of information (particularly, the ones which are relevant for prevention and remediation measures) have to be adjusted to the objectives linked to each target group.

For example, the state institutions, particularly the ones with limited, but important roles, may be influenced to include additional (prevention, remediation, monitoring, enforcement) measures in their regular scope of work; representatives of industry/economic subjects to monitor, report and introduce the additional prevention measures, including capacity building for its own workers; CSO's to further disseminate the information and support the awareness raising campaign etc.

Vulnerable groups, as well as the general public may be covered through campaigns done via media, as well as through design of specific, educational packages for school or medical institutions; which normally requires an initiative coming from one or more state institutions, or civil society (e.g. specialized CSO).

Institution/target group	Role in development/ implementation of awareness campaign	Relevance as the target group
MoEP: Department for Chemicals	High: This unit is the competent authority for educational and awareness raising activities and assumes the role of national chemicals helpdesk and should assume the leading role in further awareness raising/ educational activities.	N/A with the exception of regular updating on developments in the area, through international cooperation activities and capacity building via TA projects. Also, as the decision-making authority, the feedback provided through communication with national stakeholders may be relevant for design of further activities.
MoH	High: Being a relevant institution for dissemination of information on public health and safety, this Ministry's focus group would be the health-care institutions /workers (brochures, guidelines), as well as the general public, through campaigns implemented in health institution.	N/A with the exception of regular updating on developments in the area, through international cooperation activities and capacity building via TA projects. Also, as the decision-making authority, the feedback provided through communication with national stakeholders may be relevant for design of further activities.

Institution/target group	Role in development/ implementation of awareness campaign	Relevance as the target group
- Ministry responsible for environment (Departments for: Waters, Air Protection, IPCC, EU integration and International Cooperation, Waste, Environmental Inspection, SEPA) - Ministry of Mining - Ministry of Energy - Customs Administration - Market Inspection - Statistical Office of Serbia	High: Development/ integration of specific mercury-related awareness raising measures in their regular work (sector-specific campaigns); linking of mercury-related issues in the TA projects; development of specific guidance documents on mercury management/risk management intended for sectors which are under their competences	Medium: The awareness raising may be directed to better positioning of mercury related issues in their respective area of competence (incl. need for development of specific monitoring, reports, guidelines documents etc.) and its stronger involvement in awareness raising campaigns including design of specific awareness raising measures targeting the stakeholders whose activities are regulated through their respective areas of work
- Scientific-research institutions (Institute for Public Health, research institution and others) - Educational institutions (Universities, Faculty of Technology/Chemistry, Faculty of Dental Medicine, and others) - Association of dentist	High: Beside the research and scientific work which are an important aspect of policy making, these actors are seen as highly relevant for undertaking specific campaigns and awareness/ knowledge sharing activities.	Medium: The awareness raising campaign should be linked to the identification of relevant organization units and highlighting their role in overall awareness raising/information sharing campaigns.
- Health institutions, primary and secondary health protection, - Primary and secondary schools	High: the primary and secondary health care institutions, as well as primary and secondary schools, are an important channel for comprehensive awareness raising targeting the general public	High: As target group, these institutions, should be convinced to enable and take the active part in awareness raising/knowledge sharing campaigns, which is achieved through activities of relevant national institutions; LSGs, CSOs and professional associations

Institution/target group	Role in development/implementation of awareness campaign	Relevance as the target group
Association of municipalities Local self-governments	High: Association of municipalities, in cooperation with national stakeholders, should support the streamlining of global (overall) campaign to the local level, by providing the guidelines to the LSGs to undertake the specific awareness raising measures. Most often this would require broadening the further dissemination of general awareness products/activities designed and implemented at national level. Possibility for development of specific, local campaigns is not excluded (particularly in the areas which have higher concentration or risks). The assistance in such measures should be provided by national institutions, to both the Association and individual LSGs, upon their request.	High: As target group, these stakeholders should be motivated to undertake the specific activities related to the mercury management issues and take part in the existing ones.
- CSOs with focus on chemicals; SAICM NGO Focal point - NGOs with focus on professional medical/dental associations	High: the civil society may contribute to the general and specific campaigns, or create special project/integrate measures related to the awareness raising on mercury issues in their work, targeting specific occupational categories or public	High: As target group, these stakeholders should be motivated to undertake the specific activities related to the mercury management issues and take part in the existing ones.
Chamber of Commerce and other business sector associations	High: primarily focusing on economic subjects and operators, which represent one of the major sources of mercury release. Through its network and mechanisms, the Chamber of Commerce can ensure the dissemination of information, best practices, awareness raising etc.	High: As target group, these stakeholders should be motivated to undertake specific activities related to the mercury management issues and take part in existing ones. In addition, its monitoring activities may be extended to the mercury related issues (even if the state institutions don't impose such obligation yet) and contribute to the better statistics and awareness raising on need for monitoring among the operators/economic subjects.

Institution/target group	Role in development/implementation of awareness campaign	Relevance as the target group
Business sector — mercury producers, users and traders, importers of goods that contain mercury and mercury mixtures; chlor-alkali facilities	High: The awareness raising activities of these subjects are focused on their own employees or associates, and prevention of mercury exposure. Despite the limited scope, the business sector is considered as very important actor in awareness raising activities, as these activities may significantly affect the occupational risk that occurs is such working surroundings.	High: When observed as a target group, the activities intended to this category should be focused on its mobilization to apply capacity building, knowledge sharing and awareness raising activities in their own work. The role of the Chamber of Commerce, as well as relevant institutions, is crucial for achievement of this objective, and should involve preparation of materials, guidelines, etc. for performing this type of activities.
Media	High: As important communication channels, media contribute to the overall awareness raising.	Medium: The focus of activities of national/local stakeholders should be on attracting the media to cover this topic. Specific budgets for communication of campaigns may be designated through budgets or TA projects.

Project related GENDER:

- National Expert Team: 6 (f) – 1 (m)
- International expert: 2 (f)
- Participants on W1 : 58 (f) – 6 (m)
- Participants on W2: 22 (f) – 5(m)
- Participants of W3: 30 (f) – 7 (m)
- Steering Committee: 3(f)-2(m)
- Project related Working Group of Competent Authorities: 16(f) – 6(m)
- Ministry of Environmental Protection – Unit for Chemicals: 11 (f) – 1(m)

CHAPTER VI: IMPLEMENTATION PLAN & PRIORITIES FOR ACTION

Serbia signed the Minamata Convention on Mercury on October 9, 2014, committing itself to the ratification and early implementation of the Minamata Convention as soon as possible.

Being an EU candidate country, Serbia is gradually aligning its strategic, legal, regulatory and institutional framework to the EU Acquis, aspiring to achieve full transposition and implementation of requirements of full body of EU Acquis[55]. Therefore, the applicable legal framework is to the great extent already covering relevant aspects needed for implementation of Minamata Convention, and to some extent, the measures for closure of identified gaps are already integrated in national planning documents of the Republic of Serbia.

Beside the set of EU Directives and Regulations pertaining to the relevant environmental subsectors (waste management, air quality, water management, industrial pollution control, chemicals management), the EU approximation activities will need to cover the new Mercury Regulation (Regulation (EU) 2017/852 of the European Parliament and the Council of 17 May 2017 on mercury, and repealing Regulation (EC) No 1102/2008)[56] , a new legal instrument which complements the EU Acquis in the context of the Minamata Convention.

"National legislation, in part which relates to ban of export of mercury, complies for the most part with Regulation (EC) No 1102/2008[57], except Article 1, point 3 of the Regulation and provisions prescribed only for EU member states (e.g. reporting to the Commission). This legislation has been in force since 2010. Amendments to the Ordinance on the import and export of certain hazardous chemicals, which will produce full compliance with Regulation (EC) No. 1102/2008 in the part related to the ban on exports of mercury, is in the process of adoption. The draft of a legal act for the implementation of Regulation (EU) No. 1102/2008 is underway. Development of national legislation in the part related to the safe storage is at an early stage. Full compliance of legislation in the part related to safe storage is expected to be achieved by the end of 2018."
Section 2.27.11, National Programme for Adoption of Acquis 2014-2018, revised version adopted in November 2016.

Complementary to the process of approximation to the environmental Acquis, the ratification of the Convention will create new obligations for Serbia (e.g. monitoring and reporting obligations), and consequently affect legal and administrative framework, as well as implementation policies and practices relevant for chemicals and particularly mercury management; health protection; monitoring, reporting and general- enforcement mechanisms. Also, the entering into force of ratification Law may impose more concrete and shorter deadlines for some measures which have not been considered previously within the targeted timeframe. Given the strategic orientation of Serbia – the EU accession process and ongoing priority setting which involves the new Mercury Regulation - the implementing measures set for the Minamata Convention should take into account the requirements of the new Mercury Regulation (and in particular - the stricter requirements set at EU level through this instrument) and the implementation planning for both instruments should be aligned and performed in parallel.

The following section (**PART A- Outcomes of the needs assessment**), relies on the assessment of the current policy, legal, institutional set up, and takes into consideration the state of play in the country (inventory of mercury, estimations of emissions, number of contaminated sites) carried out under preparation of this project, provides an overview of gaps and needs from the perspective of implementation of Minamata Convention and requirements set through its most relevant articles.

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[55] As a candidate country for EU membership, Serbia is in the process of harmonization of its national legislation pertaining to the sound management of chemicals and wastes with related EU legislation such as the REACH Regulation, CLP Regulation, Regulation on Export/ Import of Chemicals; the Waste Framework Directive, Shipment of Waste Directives, as well as a set of EU legal acts related to Mercury, including the Mercury Regulation, IPPC Directive, SEVESO Directive.

[56] The Union and 26 Member States (MS) have signed the Minamata Convention. Two MS which have not signed the Convention (Estonia and Portugal) have expressed their commitment to ratify it. The EU and all MS are therefore committed to its conclusion, transposition and implementation. The new Mercury Regulation complements the EU Acquis that are needed to ensure the complete alignment of the EU Acquis with the Convention so that the Union and its MS are able to respectively approve or ratify and implement the Convention. Moreover, some of the actions undertaken by the Union are going beyond the Convention requirements.

[57] Regulation (EC) No 1102/2008 on the banning of exports of metallic mercury and certain mercury compounds and mixtures and the safe storage of metallic mercury (Metallic Mercury Regulation)

While needs assessment follows the requirements of the Minamata Convention, the recommendations provided under this part also take into consideration the requirements of the new EU Mercury Regulation, with an intention to draw attention of decision makers to Regulation's provisions which will be also included in national agenda. The needs assessment is then reflected in the recommended measures grouped under intervention areas, comprising the action plan (**PART B- Priority intervention areas**).

A Outcomes of needs assessment

Article 3: Mercury supply sources and trade

Article 3 of the Convention aims at reduction and limitation of global mercury supply through measures such as ban of primary mercury mining/setting of the 15 years phase out period for the existing ones; bans of import of mercury/its compounds and introduction of PIC procedures for export/import of allowed mercury. As such, the implementation of this Article requires establishment of a solid regulatory framework and strong enforcement capacities.

State of play

There is no primary mining of mercury in Serbia. In terms of introduction of ban for new mining facilities with primary mercury mining, the applicable Law on Mining and Geological Explorations introduced the permitting procedure, which combined with EIA procedures, excludes the possibility for establishment of such type of facilities.

The preconditions for implementation of provisions of Art 3 pertaining to the import and export of mercury have already been established in Republic of Serbia, through applicable chemicals management legislation (for more details, see Chapter 3 of this report), and already comprises the ban of the import i.e. manufacture, placing on the market and use of mercury containing devices compounds, as well as mercury compounds as substances or in mixtures for different purposes, in line with mercury specific provisions of Annex XVII REACH (Regulation (EC) No 1907/2006). Ban of export applies to mercury/its compounds in line with requirements of EU Regulation (EC) No 1102/2008. The PIC procedure applies to mercury compounds, and enforced in line with requirements of Rotterdam Convention. Furthermore, the transboundary movement is regulated in a way that import of mercury containing waste is fully in line with Basel Convention required procedures.

Identified gaps

Applicable legal framework does not regulate the non-approval of import of mercury in cases when mercury source and **proposed use** is not allowed under the Convention (e.g. primary mining or excess mercury from the decommissioning of chlor-alkali facilities).

Although placing on the market of mercury and its compounds is restricted i.e. banned as explained above, there are no specific provisions considering the excess mercury from decommissioning chlor-alkali plants in terms of other usages. Specific provisions related to environmentally sound management of waste consisting of, containing or contaminated with mercury or mercury compounds (specifying operations that do not lead to recovery, recycling, reclamation, direct re-use or alternative uses and storage), are not in place yet. Also, there is no national legislation specifying that excess mercury from decommissioning chlor-alkali plants is exclusively considered as waste, and that it must be disposed of in accordance with waste management regulations, which is also the case for metallic mercury extracted from cinnabar ore.

Recommendation

In order to comply with the requirements of the Minamata Convention as regards **not allowing the export of mercury or its compounds without importing country government consent, ensuring both the mercury source and proposed use are allowed under the Convention**, the existing national legislation provisions should be extended. In line with overall recommendation to carry out the implementation planning simultaneously with the alignment with **new Mercury Regulation**, the revision of legal provisions should ensure the full compliance with the Regulation's specific requirements.

Article 4- Mercury- added Products

Article 4 of the Convention requires phasing out of mercury in products, phasing out dental amalgam and discouraging of manufacture of new products containing mercury. The Convention foresees phasing out by 2020, with possibility for introduction of exceptions, under conditions and as defined under Article 6 of the Convention. Similar to Article 3 measures, the implementation of this Article requires establishment of comprehensive legal and regulatory framework (introduction of bans, ELVs and targets/deadlines in relation to mercury-added products), as well as strong enforcement framework involving different institutions (market and environmental inspection, customs administration, monitoring institutions).

State of play

The preconditions for implementation of Art. 4 in terms of manufacture, import and use have been created with regard to batteries, electronic equipment (as of 2011), plant protection products and biocides (through procedure of prior registration). The applicable chemicals legislation foresees phasing out of new mercury-containing measuring devices, by introduction of phased ban in cycles (2011 for general use measuring devices, and 2017, 2018 and 2020 for professional use measuring devices), as well as bans for articles or any parts thereof containing phenylmercury compounds (for more details, please see Chapter 3 of this Report). Chemicals legislation prohibits export of mercury and its compounds, as well as cosmetical soaps containing mercury.

With regard to phasing out of dental amalgam, the National Programme for preventive dental health care aiming at dental caries prevention, thereby minimizing the need for dental restoration was adopted in 2009, for the period of 6 years. New sets of measures for the period after 2015 have not been adopted yet. Emissions of dental amalgam from dental institutions to water are regulated through the water management legislation, which introduced the obligation of amalgam separation until the end of 2025.

General safety regulations also apply to certain types of mercury-added products, including cosmetics; however, with limit values that are not aligned with the Convention requirement to limit the content of mercury in cosmetic products to 1 ppm.

Identified gaps

The preparation of the first mercury inventory (for more information, please see Chapter 2) carried out as part of preparation of this report, demonstrated the gap with regard to assessment of the quantity of mercury-added products on the market/in use before the introduction of ban of import i.e. placing in market. This also applies to medical and scientific institutions.

The illegal market is a specific issue, particularly for thermometers containing Hg, with no reliable quantitative assessment of such products. Safety regulations generally considered as enforced; however, there are no specific obligations in the law and the competent institutions do not perform monitoring on the basis of the parameters which would include the Hg content in products. Therefore it is not possible to develop clear statistics and systematic awareness raising campaigns which may be carried out for phasing out of such products.

The absence of new set of measures for phasing out dental amalgam is considered as the major gap. In addition, the deadlines set for the full application of separation measures (2025) imply that the overall phasing out plan could exceed the three year period upon ratification, as required by the Convention.

Recommendation

With reference to the first gap listed above, the recommendation includes finalization of baseline assessment and update of inventory, at least at the level of public institutions, health care, research and educational facilities. This is an extensive task which may require additional funding in case that the option is selected to complete a comprehensive assessment in the short term.

With regard the **illegal market**, the recommendations combine the (repeated) public awareness campaign on adverse effects of mercury with priority on elimination of illegal products by the market inspection. Market inspectors need training to prepare the inputs for statistical overviews and enable the assessment of quantities of illegal products on the market and priority on further measures for their elimination.

There is need to strengthen the legal framework with respect to cosmetic products especially in terms of limiting the content of mercury in cosmetic products to 1 ppm, accompanied with adequate enforcement and awareness raising measures.

The overall monitoring framework for mercury-added products needs to be strengthened. The preparation of the inventory demonstrated that there is no obligation of institutions with competencies for import and/or trade to collect any statistics which would enable the monitoring of the phasing out of mercury-added products. This applies both to imported goods and domestic production – there is only limited possibility to collect statistics, and in some cases estimates rely only on the capacities of the Chamber of Commerce.

This situation is reflected in setting clear targets for management of mercury – waste in particular (taking into consideration product life-cycle), as well as in the setting of priorities within specific areas of intervention (e.g. in inspection work, identification of areas which need capacity building). A strong awareness raising/capacity building programme could be initiated by the Ministry of Environment, with possibility for development of a comprehensive action plan which should increase the capacities of relevant actors and strengthen the inter-institutional cooperation.

Finally, the institutions in charge of monitoring, such as SEPA or the Statistical Office, can be invited to include the new reporting and monitoring parameters which would enable more precise assessments needed for further action planning and improvement of accuracy of inventory and assessments. The economic subjects (importers, producers) may be targeted by the Chamber of Commerce, with support of the Ministry of Environment and Ministry of Trade through systematic awareness raising campaign and introduction of voluntary reporting and monitoring mechanisms, in addition to already applicable regulatory framework.

Finally, in line with the overall recommendation to carry out the implementation planning simultaneously with the **alignment with new Mercury Regulation**, the revision of legal provisions should be considered. Namely, the Article 5 of the Regulation stipulates the prohibition of export, import and manufacturing in the Union of the mercury-added products (products and deadlines for achievement of zero import/export/production are set in the Annex II of Regulation), with the exemption of products that are essential for civil protection, military service, research, calibration of instrumentation or reference standards.

In addition, dental amalgam is specifically regulated (Article 10), with strict phase-down deadlines. Although the deadlines set in the Regulation are not mandatory for Serbia, given its status of acceding country and national approximation agenda, the competent authorities may wish to initiate earlier information sharing and adjustments of regulatory framework.

Article 5 – Manufacturing processes in which mercury or mercury compounds are used

Article 5 of the Convention bans the use of Mercury in existing manufacturing process, in particular- the ones listed in part I of Annex B (chlor-alkali and acetylene production); restriction of its use in processes listed in Part II of Annex B (production of vinyl chloride monomer, sodium or potassium methylate or ethylate and polyurethane); and prohibits establishment of new facilities for the facilities listed in this Annex. As such, this Article requires the legal/regulatory measures, to be followed by strong enforcement measures.

The pre-conditions for full implementation of Art 5 of Convention are set through applicable IPPC legislation, as well as EIA procedures, the areas which are already aligned to the great extent to the relevant EU Acquis, with clear plan for full harmonization by the end of 2018.

The national regulatory framework has introduced IPPC permits, as well as concept of BAT/BREF; which are complementary measures to the Art 5 requirement. IPPC permits, which impose the mandatory measures for the operators, are being issued for existing facilities (with a 2020 as a deadline, according to the applicable legislation), as well as for the new ones.

For activities which do not undergo the IPPC permitting procedure, the regulatory system imposes the EIA procedure; while all economic operators need to comply with ELVs to the air, soil and water, in line with sector-specific regulations. This approach of the legal and regulatory system may be considered as a guaranty for the compliance with a larger part of the Annex B activities; with the exemption of use of mercury in chlor-alkali industry, which has not been regulated yet.

Identified gaps

National legislation does not forbid the use of the mercury in chlor-alkali industry; this measure could be introduced through amendments of the applicable legislation.

Recommendations

Given the fact that there are two non-operating chlor-alkali plants in Serbia, but still containing large amounts of mercury, there is the issue of contaminated sites that should be considered in relation to Article 12.

In line with overall recommendation to carry out the implementation planning simultaneously with the alignment with new EU Mercury Regulation, **the revision of legal provisions should ensure the full compliance with the Regulation's requirements** (Article 7 and Annex I, III).

Article 6 – Exemptions available to a Party upon request

Article 6 allows exemptions in implementation of article 4 (phasing out of mercury in products) and article 5 (industrial processes), with a period of exemption up to 10 years. The implementation of this Article therefore requires the baseline assessment (number of operators potentially affected by introduction of ban); analysis of such a need and estimation of realistic and reasonable timeframe in which such a measure would be feasible and its reflection to the official requirement for exemption/national regulatory framework.

State of play

As indicated under Art. 5, national legislation does not forbid the use of the mercury in chlor-alkali production and there are 2 non-operating chlor-alkali plants in Serbia.

The regulatory preconditions for implementation of Art.4 have been created under existing national legislation for most of the mercury-added products subject to Art.4, except cosmetics.

Identified gaps

The need for requiring an exemption has not been assessed yet.

Recommendations

Based on findings within the inventory there is no need for further assessment of the need for exemption in relation to manufacture, import or export of mercury-added products (ref. Article 4) since adequate bans and restrictions are already in place, with the exception in relation to cosmetic products where some additional adjustments of legal framework will be needed to limit the content of mercury to 1 ppm; while the preparation of the inventory demonstrated that manufacturing processes using mercury in chlor –alkali production have ceased by august 2014 and two non-operating chlor-alkali plants exist that should be treated as contaminated sites.

Article 7 - Artisanal and small-scale gold mining

Article 7 of the Convention requires from parties to reduce, and where feasible, eliminate the use of mercury/mercury compounds in ASGM, as well as emissions and releases of mercury from mining and processing. Similar to Art.5, this measure combines the baseline assessment (identification of such facilities) and introduction of phase-out measures, release control measures and bans as part of overall regulatory framework.

State of play

Given that the ASGM processes are insignificant in Serbia, the implementation of this Article will not require additional actions. Namely, the applicable regulatory framework imposes the permitting/registration and EIA procedures, amongst other, for new facilities related to production of non-ferrous metals from ore, which eliminates the possibility for establishment of ASGM activity/processes in the future.

Identified gaps

N/A

Recommendations

N/A

Article 8 - Emissions

Article 8 of Convention deals with reduction of mercury emission to the air from the most significant sources, as listed in Annex D, namely: coal fired power plants, coal fired industrial boilers; non-ferrous metal smelting and roasting processes, waste incineration, and cement production. The foreseen measures involve application of BEP/BAT for new facilities within max.5 years from entering into force of the Convention, and 10 years period for existing ones. These requirements have been implemented through (1) introduction of legal provisions regulating the working conditions for selected types of activities and (2) establishment a strong enforcement system.

Another important requirement of this Article is the obligation of establishing the inventory of mercury emissions (within 5 years), regular monitoring and reporting on measures, and (optional) preparation of action plan with targets.

State of play

In terms of the applicable legal and regulatory framework, the IPPC legislation mainly covers Annex D sources, meaning that the existing (and future) operators will need to obtain the integrated permit (setting, amongst other the ELVs and imposing the monitoring obligations) and to operate on the basis of BAT.

The applicable regulatory framework is harmonized with the (old) EU IPPC directive, ELVs are set in line with the (old) EU LCP Directive, and the alignment with the new version (IED- IPPC Chapter; LCP- emission limit values) is underway. Also, full harmonization of national legislation with the requirements of MCP Directive and Ecodesign Directive is underway.

This means that the majority of EU standards in this area is already introduced in the national legislation, and further alignment will enable the full compliance with the EU set up; therefore, no separate measures for mercury (specifically) would be needed.

Monitoring of the emissions to the air is carried out via AQ monitoring system, organized in line with the CLRTAP/ EMEP-EMEA guidance.

Identified gaps

Mercury is monitored, as part of AQ monitoring system; however, the adjustment to the reporting requirements of the Minamata Convention may be needed; particularly taking into account the guidance adopted by the Secretariat of Convention and reporting obligations, as set by Article 21 of the convention.

Recommendations

Ensure timely monitoring in line with the reporting obligations (Art.19; 21) and guidance issued by the Secretariat. Parties to the Convention also need to decide if there is a need for development of specific plan, and proceed with its preparation if such need has been identified.

Article 9- Releases to water and land

Article 9 of the Convention focuses on control of emissions to water and soil. The parties are obliged to establish an inventory of releases to water and land, introduce the measures for control of releases and, optionally, prepare the national plan. Its implementation therefore requires a combination of legal measures (setting ELVs, setting monitoring obligation), situation analysis (establishment of inventory of sources) and enforcement measures (control and surveillance).

State of play

The applicable water and soil protection legislation has introduced the ELVs which, along with the IPPC legislation and BAT mechanisms, provides a sufficient set of measures for implementation of this article of the Convention (for more details, see Chapter 3 of this Report).

A potential issue could be the coverage of all types of activities and extended timeframes for achievement of targeted levels (e.g. dental amalgam). The environmental monitoring framework is set in a way that operators have an obligation of reporting on mercury releases into National and Local Registry of Pollution Sources (PRTR).

State organizations, local authorities, and polluters are obliged to provide information about the quality and state of soil and water to SEPA.

A reference method in relation to mercury releases is prescribed for wastewater monitoring only. A database of polluted, endangered and degraded sites is to be established as Cadastre of contaminated sites, as an integral part of the Environmental Protection Information System.

Identified gaps

The Convention requires from each Party to identify the relevant point source categories, establish the inventories and conduct regular monitoring within 3 years from entering into force of the Convention. Such an inventory in relation to mercury contamination does not exist; although the Cadastre of contaminated sites may integrate such type of information for releases to soil, after it is fully established.

Recommendations

Ensure that monitoring is conducted in a timely manner and enabling reporting in line with the reporting obligations (Art. 19 and 21) and guidance issued by the Secretariat.

Inventory of point sources of pollution may serve as the basis for further assessment of needs for additional adjustment and strengthening of the legal and regulatory framework (including potential amendments to the applicable legislation regulating releases to water and soil), as well as the need for development of specific plan (if Serbia decides to do so, Convention indicates the maximum 4 years timeframe). This assessment needs to be carried out in parallel with preparation of inventory.

Article 10- Environmentally sound storage of mercury, other than waste mercury

Article 10 of the Convention regulates the interim/ temporary environmental sound storage of mercury intended for allowed use. The Article requires that the necessary activities will be organised in line with the guidance to be adopted by the COP, which will be aligned with the standards introduced through Basel Convention, while the Convention leaves the possibility for adoption of specific Annex on temporary/interim storage of mercury. In addition, the article emphasizes the need for knowledge sharing, capacity building through international cooperation mechanisms.

State of play

National legislation, primarily LEP and waste management legislation regulating transboundary movement of waste, are aligned with EU requirements and Basel Convention. General rules applicable to hazardous substances are applied to the mercury and its temporary storage.

Identified gaps

The national legal framework does not comprise regulations on storage of hazardous materials specifically. The precise gaps with regard the mercury will be identified upon issuance of the guidance on temporary/ interim storage of mercury which may impose additional measures which would require the adjustments to the legislative/regulatory framework.

Recommendations

Carry out the c**omparative assessment of applicable national legislation with guidance** issued by Secretariat and reflect the gaps in new regulatory measures which should be integrated in the national legislation. In line with the overall recommendation to carry out the implementation planning simultaneously with the **alignment with new Mercury Regulation**, the assessment, and subsequent revision of legal provisions should ensure the full compliance with the Regulation's requirements (Article 14 of Regulation specifies the **traceability rules**, which should be analysed from the perspective of current practices and mechanisms, and as far as applicable, reflected in the national regulatory framework).

Ensure regular representation of the Republic of Serbia in work of Convention bodies and other international cooperation and capacity building mechanisms.

Article 11- Mercury Waste

Article 11 of the Convention regulates the environmentally sound management of mercury waste, as well as shipment and transboundary movement of such waste. Its provisions rely on Basel Convention and the guidelines established under that Convention.

State of play

The national legal and regulatory framework is largely aligned with the EU requirements of waste management Acquis (disposal, incineration, recycling and re-use; landfilling, management of medical waste; management of waste batteries etc.), as well as with the Basel Convention, which is considered to be fully implemented in Serbia (for more details, please see Chapter 3 of this Report). However, the national legislation does not regulate the mercury waste management specifically; it is rather regulated through general hazardous waste management regulations.

Identified gaps

The LGA demonstrated that the national legislation does not specify conditions for environmentally sound management of waste consisting of, containing or contaminated with mercury or mercury compounds specifically. Also, this process showed that there is no ban of usage of mercury derived from the treatment or re-use of mercury waste for uses that are not allowed under the Convention.

In line with overall recommendation to carry out the implementation planning simultaneously with the alignment with new Mercury Regulation, the revision of legal provisions should ensure the full compliance with the Regulation's requirements. In this context, it should be noted that the Regulation requires the reporting on large sources, by setting the obligation to MS to annually report on several issues (such as: data on total amount of mercury stored in each of their installations; total amount of mercury waste sent to individual facilities undertaking temporary storage; the conversion, solidification of mercury waste or permanent storage of mercury waste; location and contact details of each facility which performed temporary or permanent storage; copies of certificate etc.)

Although the deadlines set in the Regulation are not mandatory for Serbia at present, given its status of acceding country and national approximation agenda, the competent authorities may wish to integrate these requirements in the national monitoring framework, in order to ensure systemic approach to mercury waste.

Recommendations

Asses the possibility for introduction of specific requirements related to the (1) ESM of mercury containing waste specifically by appropriate implementation of national legislation transposing the EU Landfill Directive, and (2) ban of usage of mercury through revision of applicable legal framework in line with the provisions of new Mercury Regulation.

Ensure regular representation of the Republic of Serbia in work of Convention bodies and other international cooperation and capacity building mechanisms, as well as exchange of information between focal points for Minamata and Basel Convention.

Article 12- Contaminated sites

Article 12 deals with appropriate strategies for identifying and assessing sites contaminated by mercury or mercury compounds. Any action to reduce risks posed by contaminated sites shall be done in an environmentally sound manner, incorporating where appropriate, an assessment of risks to human health and the environment. COP guidance to Parties for approaching the evaluation and remediation of contaminated sites should be established. Governments should develop their own legal framework, within their financial and technical capability, to remediate mercury contaminated sites.

State of play

National legislation, primarily LEP, defines endangered environment as site where contamination or risk from contamination exceeds the capacity of the environment. Legal and natural person who degrades the environment is obliged to carry out reclamation and remediation of degraded environment, in accordance with the project of reclamation and remediation approved by the Ministry. Planning and management in the area of environmental protection is ensured and conducted by the implementation of the National Programme of Environmental Protection that is adopted by the Government for a period of at least ten years.

Identified gaps

The precise gaps with regard the identifying and assessment of mercury contaminated sites will be identified upon issuance of the COP guidance on evaluation and remediation of contaminated sites, which may impose additional measures comparing to the ones which already exist in the national legislation.

Recommendations

Include identifying and assessing mercury/mercury compound contaminated sites into environmental protection strategies/programmes.

Ensure that reduction activities at contaminated sites are taken in an environmentally sound manner, incorporating risk assessment where appropriate.

Ensure regular representation of the Republic of Serbia in work of Convention bodies and other international cooperation and capacity building mechanisms, as well as exchange of information in relation to identifying, assessing, prioritizing, managing and, as appropriate, remediating contaminated sites.

Article 13- Financial Mechanisms and Resources

Article 14- Capacity building, technical assistance and technology transfer[58]

Article 13 of the Convention implies an obligation to all parties to undertake to provide, within their capabilities, resources in respect of those national activities that are intended to implement this Convention, in accordance with their national policies, priorities, plans and programmes. Such resources may include domestic funding through relevant policies, development strategies and national budgets, and bilateral and multilateral funding, as well as private sector involvement. Financing mechanisms are ensured through GEF, and all parties are invited to contribute to its functioning.

Article 14 of the Convention stipulates that parties shall cooperate to provide, within their respective capabilities, timely and appropriate capacity-building and technical assistance to developing country Parties, in particular Parties that are least developed countries or small island developing States, and Parties with economies in transition, to assist them in implementing their obligations under this Convention; through international, regional, sub-regional and national arrangements.

State of play

The national funding of the implementation of environmental policy should be provided through the Green Fund. Some of the priority measures may require setting up specific budgetary lines, the estimations of which are presented in the action plan (part B of this Chapter); although majority of investment related to the introduction of cleaner production technologies and remediation measures will be done by the economic operators. At the same time, some of these measures, if prioritized through development of priority setting for donor funding activities may obtain additional funding through projects (remediation activities, capacity building, awareness raising etc.).

[58] The similarity between the provisions of Article 13 and 14, and proposed recommendations has been noted; therefore, two articles are presented jointly.

Identified gaps

The gaps may be identified upon adoption of action plan and its integration in the national budgetary funding.

Recommendations

Ensure the budgetary allocations for priority actions for mercury management and phasing out, as well as for funding of priority measures which are not covered through donor funded projects.

Being a developing country and EU candidate country, Serbia is eligible for different types of donor funded assistance. The UNDP project funded through GEF which derives this report is the first project dealing with mercury issues in a comprehensive way. Upon adoption of the action plan (and ratification of Convention), **the relevant institutions may streamline the TA/donor funded activities in this area**, covering the priority areas and initiate the development of comprehensive overview of actions which may be supported through donor funded projects. Given that Serbia is a developing country, it is eligible for assistance stipulated under Article 14, this recommendation is considered as common recommendation for Art.13 and 14.

Ensure regular representation of the Republic of Serbia in the work of Convention bodies and other international cooperation and capacity building mechanisms, targeting public institutions (with policy/ regulatory as well as enforcement competences), as well as scientific and research institutions. The measure may include the input for the strategy of scientific development etc.

Article 16- Health aspects

Article 16 provides non-binding guidance to the ministries in charge of health issues and other actors on the activities they can undertake to minimise mercury exposure of vulnerable populations, and the adverse consequences of such exposures. This includes identification of vulnerable groups, development and implementation of strategies and programmes to identify and protect populations at risk, adopting science-based health guidelines related to 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. This article further invites parties to promote development and implementation of science based educational and preventive programmes on occupational exposures; promotion of health-care services for prevention, treatment and care for population affected by exposure to mercury/its compounds, strengthening capacities for prevention, diagnosis, treatment, monitoring of health risks etc. In considering health-related issues or activities, the Parties should consult, collaborate, and promote cooperation and exchange of information with the WHO, the ILO, and other relevant intergovernmental organizations, as appropriate.

State of play

The applicable legislation in the area of health protection sets the framework for systematic approach towards the protection of human health from exposure to harmful and hazardous substances.

For example, the Law on Health Protection foresees the adoption of the program in the field of protection of human health from environmental pollution caused by harmful and hazardous substances in the air, water and soil, disposal of waste materials, hazardous chemicals, ionizing and non-ionizing radiation, noise and vibration as well as carrying out systematic testing of foodstuffs, general use articles, mineral drinking water, drinking water and other water bodies that are used for the production and processing of food and sanitary-hygienic and recreational needs, in order to determine their health and hygiene correctness and the prescribed quality (monitoring).

The program is to be adopted by mutual agreement of the Minister in charge of health and Minister responsible for environmental protection. Occupational health and safety measures are also addressed by national legislation in this area.

Identified gaps

Although foreseen by Law on Health Protection, the Programme of protection of human health from environmental pollution caused by harmful and hazardous substances has not been adopted yet. This programme should address the issue of monitoring. As such, it should provide the basis for further action planning with regard the minimising potential exposure to mercury.

The National Programme for preventive dental health care aiming at dental caries prevention, thereby minimising the need for dental restoration, was adopted in 2009. The time frame for implementation of the National Programme was six years. The National Programme for the subsequent period is yet to be adopted.

Recommendations

The **Programme foreseen by the Law on Health** should be prepared, and jointly adopted by the mutual agreement of the Minister in charge of health and Minister in charge of environmental protection. The competent authorities should ensure that all aspects underlined in the Art. 16 of the Convention are sufficiently addressed, through prioritization of measures and, where applicable, accompanied by revision of regulatory framework, or soft measures, such as guidance documents. This means that the mercury-related chapter should be based on detailed analysis of the legal framework and current practices which should precede the formulation of priority measures, which may range from awareness raising and capacity building to establishment of stricter regulatory framework and enforcement measures.

The National Programme for preventive dental health care should include measures related to the phasing out of dental amalgam, following the best practices and taking into consideration the timeframes set by the Convention. In line with overall recommendation to carry out the implementation planning simultaneously with the alignment with new Mercury Regulation, the revision of legal provisions should ensure gradual compliance with the Regulation's requirements.

The application of deadlines set through the Mercury Regulation is not mandatory for the Republic of Serbia prior the accession and the country can decide not to adopt stricter (EU) rules on the basis of RIA (regulatory impact assessment); however, the planning process (and potentially the new regulatory framework) should take into consideration the projected date of EU accession, as well.

The **measures foreseen in occupational health and occupational safety legal framework should be compatible.** The regulatory and other measures may be supported through the Chamber of Commerce and other voluntary mechanisms, such as associations, which should obtain the partner status in implementation of defined measures which involve stakeholders, operators and specific categories of employees. This type of voluntary networks may significantly contribute to the dissemination of information (including guidelines, brochures), awareness raising and other prevention measures.

Article 17- Information exchange

Article 17 of the Convention imposes the obligation to the Parties to ensure the exchange of information, including: scientific, technical, economic, and legal information concerning mercury and mercury compounds, elimination including toxicological, eco-toxicological, and safety information; information on the reduction or of the production, use, trade, emissions, and releases of mercury and mercury compounds; information on technically and economically viable alternatives, epidemiological information concerning health impacts associated with exposure to mercury and mercury compounds. Parties may exchange the information directly, through the Secretariat, or in cooperation with other relevant organizations, including the secretariats of chemicals and wastes conventions, as appropriate.

State of play

The provisions of national legislation pertaining to participation in the work of international bodies, such as the role of the Party to the Convention, fully recognize the regular exchange of information and stipulate the obligations of relevant institutions towards the international treaties and organizations.

Identified gaps

There are no gaps with regard the participation of representatives of national institutions.

Recommendations

Although the national legislation imposes clear obligations to the relevant institution(s) with regard to fulfilment of the obligations set through the international conventions/organizations, the **proper internal system for exchange of information and reporting to the focal point(s) should be ensured**. Or, from a different perspective, the focal point(s) should have clear communication channels and identified focus groups for certain types of information which are obtained through international information exchange mechanisms.

Internally streamlining the information sharing may require establishment of structures involving the relevant ministries, agencies and institutions, given the competencies for generation of types of information which are subject to information exchange under this Article. This issue may be addressed as a separate measure in overall communication/awareness raising plan (see Art.18 below); as well as through formalization of specific working group involving all relevant stakeholders.

Ensure regular representation of the Republic of Serbia in the work of Convention bodies and other international cooperation and capacity building mechanisms, targeting public institutions (with policy/regulatory as well as enforcement competences), as well as scientific and research institutions. The measure may include the input for the strategy of scientific development etc.

Article 18 – Public information, awareness raising

Article 18 focuses on the sharing of information between the government and the public, indicating the key information that governments need to share with the public and the mechanisms that can be used for public awareness-raising. Parties shall use existing mechanisms or consider the development of new mechanisms, such as pollutant release and transfer registers (PRTR) where applicable, for the collection and dissemination of information on estimates of quantities of mercury emissions and releases.

State of play

The applicable policy, legal and institutional framework is fully aligned with the relevant EU Directives (for more details, please see Chapter 3 of this Report), and all standards and mechanisms related to the availability of information are introduced in the national system.

Identified gaps

With regard the applicable mechanisms, there are no specific gaps which would require specific action; however, there are some indirect gaps. For example, the inventories which are presented through SEPA reports are, in some cases, based on partial information which is to be submitted by the operators. This example implies that information provided to the public may not be comprehensive enough.

On the other hand, the preparation of the inventory (for more details on process and identified gaps, please see the Chapter 2 of this Report) demonstrated that production/trade of products which (may) contain mercury are not sufficiently monitored, or not monitored at all, and that available statistics and reports do not contain the information related to the mercury content.

There is no systematic public awareness campaign, nor comprehensive source of mercury-related information of relevance for decision makers, implementing institutions, economic stakeholders and public.

Recommendations

In order to overcome the situation described under the first bullet-point requires **strengthening of enforcement capacities rather than adjustment of public information sharing mechanisms**, which should be done as part of the general measures for improvement of monitoring and reporting practices. The awareness raising measures (see below) or capacity building measures can contribute to the improvement of this situation, as well.

Adjustment of the reporting format, and ensuring full coverage of mercury-related information, such statistics should be initiated, which means that some of the reporting formats (e.g. questionnaires) could be adjusted or imposed, both for operators/economic subjects and state institutions.

The priority should be the **development and implementation of multi-sectorial awareness raising plan on mercury issues**, targeting (1) decision makers and implementing institutions; (2) economic operators; (3) groups at occupational risks; (4) vulnerable groups and (5) the general public. Such awareness raising plan should involve all relevant institutions, should contribute to the more streamlined actions of public institutions; improvement of preventive measures by the economic subjects; increased monitoring; increased awareness of all vulnerable groups and the general public on mercury related issues.

The implementation of such an awareness raising plan may require **simultaneous and multi-sectorial actions**, with involvement of various institutions (in line with their respective area of competence), and recognized role of associations, such as the Chamber of Commerce or the Association of Municipalities. In addition, awareness raising activities **may be combined with capacity building programmes**, intended to the enforcement institutions, health institutions and selected non-public stakeholders and complemented with a number of knowledge sharing instruments.

Visibility of information related to mercury can be improved by establishment and promotion of **a single web source ("clearing house") hosted by one institution**, with links to other official web-sites and sources of information, as well as with the overview of the most relevant research documents, guiding documents etc.

Article 19- Research, development and monitoring

Article 19 of Convention invites the parties to cooperate in establishing harmonized methodologies for research and monitoring framework, specifically indicating the following aspects: inventories of mercury use and consumption; monitoring of levels of mercury and mercury compounds in vulnerable populations and in environmental media, assessments of the impact of mercury and mercury compounds on human health and the environment, in addition to social, economic and cultural impacts. In addition, Article 19 requires systematized information on mercury, mercury compounds and mercury-added products commerce and trade, information on the environmental cycle, transport, information and research on the technical and economic availability of mercury-free products and processes and on best available techniques and best environmental practices to reduce and monitor emissions and releases of mercury and mercury compound.

State of play

Statistical overviews are prepared by relevant institutions (for more details, please see Chapter 3 of this Report) in line with the applicable legislation, which does not cover all aspects foreseen by this Article sufficiently, or at all. In addition, some of the aspects relevant for implementation of Chapter 19 are not part of current practices. On the other hand, the national legislation regulating the country's obligations towards the international commitments foresees active involvement in work of bodies established under the international treaties; therefore, it can be expected that Serbia will take part in establishment of harmonized methodologies for research and monitoring of above listed areas.

Identified gaps

As indicated under Art.18, the applicable monitoring and statistical system does not cover all aspects needed for smooth preparation of the inventory, and does not ensure systematic monitoring which is needed under the Convention.

Recommendations

Establishment of a systematic approach, where possible, **relying on the "harmonized methodologies"**, for carrying out the monitoring and research on focus areas listed under this Article. In absence of such methodologies, the relevant institutions should **consider the best practices and interact with the countries in similar situation/process.**

The first steps may include the follow up actions to some information gaps, as defined during inventory preparation, and inclusion of some new parameters in preparation of statistical reviews which would enable the creation of more comprehensive information basis, and assessment of current practices (and identification of gaps for achievement of full monitoring, in line with Art.19). This would include the improvement of the reporting formats used by different institutions and introduction of monitoring/reporting obligation to institutions which are not undertaking it yet (e.g. the Customs Administration; Ministry of Trade), ensuring the full coverage of mercury-related information.

The establishment of such statistics would mean that some of the reporting formats (e.g. questionnaires) could be adjusted or imposed to both operators/economic subjects and state institutions.

The inclusion of research related to mercury and mercury compounds in preparation of the Program on long-term research of national and strategic interest for the Republic of Serbia should be considered, as well.

Article 21 – On reporting

Each Party shall include in its reporting the information as called for in Articles 3, 5, 7, 8 and 9 of this Convention. According to the text of the Article 21, the timing and format of the reporting is to be decided during the first COP, taking into account the desirability of coordinating reporting with other relevant chemicals and wastes conventions.

State of play

The Law on the Conclusion and Execution of International Agreements stipulates that international agreements which create obligations for the Republic of Serbia shall be implemented by state authorities whose jurisdiction includes matters governed by these agreements. Upon ratification, the Republic of Serbia will have an obligation of regular interaction, including reporting under the Convention.

Identified gaps

Potential gaps may be identified upon definition of reporting formats for targeted chapters, given the availability of data and compatibility of national monitoring/reporting system with the set of information which will be required under the Convention.

Recommendations

If needed, adjust the monitoring and reporting formats, in line with the reporting requirements of the Convention. Compliance should be ensured with requirements of Art. 3, 5, 7, 8 and 9; taking into consideration the reporting requirements set by the Mercury Regulation, given that gradual alignment will be required and that all reasonable (implementable) requirements may be already now integrated in the national system.

B Priority intervention areas and action plan

The overall goal of the Serbia National Implementation Plan for mercury is to set and prioritize measures for "reduction, with the aim of complete elimination, national mercury release to the environment and reduction of health impacts of anthropogenic release of mercury".

In other words, based on detailed legal, policy, institutional assessment, as well as the state of play performed through the development of the inventory, and relying on the gap-need assessment outcomes - as summarized above - the implementation plan presents in a succinct manner the activities/actions a country is going to undertake to meet its future commitments under the Minamata Convention. Furthermore, the Action Plan includes cost estimates for planned activities/actions, grouped under several areas of intervention, namely: legal, institutional, remediating, awareness raising etc. as presented below.

The previous sub-chapter provided an overview of implementing requirements, brief overview of state of play and assessed gaps, as well as recommendations for overcoming the gaps and improving the current practices. The overall recommendation to carry out the implementation planning simultaneously with the planning for alignment with the new Mercury Regulation has been reflected in this action plan, with introduction of sub-measures linked to requirements of the new Mercury Regulation directly.

Areas of intervention covered through this Action Plan:

1. Policy measures
2. Legislative measures
3. Strengthening of monitoring and reporting framework
4. Capacity building measures
5. Awareness Raising Measures
6. Phasing out measures
7. Remediation measures (contaminated sites)

Area of intervention 1: Policy measures

The mercury related issues should be adequately streamlined in the national policy and strategic documents, including the sector specific documents (environmental - waste, air, water; occupational health and safety, health issues, mining & geological explorations etc.), enabling further alignment of the national system with the Convention's requirements and objectives, covering all relevant aspects (legislative and regulatory, capacity building, awareness raising, enforcement measures).

In addition to including specific, mercury-related objectives, targets and measures, the enforcement of policy measures should ensure:

- That prioritized actions/measures should receive proper funding through defined budgetary lines and multi-annual/annual financial planning done for the donor funded projects;
- That enforcement institutions perform adequate planning and alignment of their activities with the set objectives (e.g. inspection plans; reporting formats, etc.)

Given that mercury issues fall under the competences of several institutions, and involve a number of stakeholders at regional and national level, the achievement of the above listed objectives would require strong multi-sectorial cooperation and increased awareness of relevant decision-makers on the relevance of mercury-related issues.

In addition to actions addressed through the Intervention Areas 3 and 4 (see below), and the associated actions for capacity building, awareness raising and institutional cooperation, the table below presents the mayor gaps with regard to (policy related) preconditions for full and effective implementation of the Minamata Convention. These gaps, primarily focusing on the need for adoption of missing policy documents, are linked to the requirements of the Article 8, 16 and 19 (for more details, please see part A).

1. Policy related measures	Responsibility	Timeframe	Allocated budget Euro
1.1 Finalization and adoption of the Programme of Protection of Human Health, in accordance with the Law on Health Protection [59]	MoH, MoEP	in accordance with NPAA	N/A
1.2 Finalization of the Programme for preventive dental health care and integration of the measures related to the phasing out of dental amalgam[60]	MoH	in accordance with NPAA	N/A
1.3 Mainstreaming of the mercury-issues in the Programme of long-term research of national and strategic interest of RS, following the requirements of the Article 19 of Convention[61]	Ministry of Science	in accordance with NPAA	
1.4 Decide if the action plan for reduction of emissions to the air is needed/if so, prepare and adopt the action plan with targets[62]	MoEP	in accordance with NPAA	

Area of intervention 2: Legislative and regulatory measures

The improvement of applicable legislative and regulatory framework is the second intervention area of this Action Plan. As described under Chapter 3 of this Report, and summarized under Part A of this chapter, the applicable framework is already aligned to great extent with the Convention requirements, which is a result of previous and ongoing alignment with the EU Acquis.

The EU approximation agenda takes into account the new EU Mercury Regulation, as the new instrument adopted at EU level for effective implementation of the Minamata Convention, in some cases, by introduction of stricter measures. In this context, it is highly recommended that further legislative activities take into consideration the need for additional alignment with requirements of new Regulation, simultaneously with re-assessment of applicable legislation for the purposes of implementation of Convention. Therefore, some of the recommendations have been formulated on the basis of assessment of possibilities for Regulation's implementation, taking into consideration that competent authorities may start with alignment or apply some of the measures before the formal obligation is enforced.

The gaps have been noticed with regard article 3, article 4, article 10, article 11 and 12 of the Convention (for more details, please see part A).

[59] For more details, please see Part A (Article 16) of this Chapter
[60] For more details, please see Part A (Article 16) of this Chapter
[61] For more details, please see Part A (Article 19) of this Chapter
[62] For more details, please see Part A (Article 8) of this Chapter

2. Legislative and regulatory measures	Responsibility	Timeframe	Allocated budget Euro
2.1 Further strengthening of regulatory framework with regard the export of mercury with respect to its intended use[63]	MoEP	in accordance with NPAA	N/A
2.2 Further strengthening of the legal framework regulating the mercury in cosmetic products[64]	MoTTT	in accordance with NPAA	N/A
2.3 Establishment of the regulatory framework for phasing out dental amalgam[65]	MoH	in accordance with NPAA	
2.4 Perform LGA with regard the requirements of Art 5, Annex II of Mercury Regulation (EU) and prioritize actions for further alignment[66]	MoTTT, MoEP	in accordance with NPAA	
2.5 Further strengthening of the regulatory framework with regard the temporary/interim storage of mercury and mercury compounds, specifying the measures on mercury, following the LGA and assessment of practices, as set in the Art. 14 of Mercury Regulation[67]	MoEP	in accordance with NPAA	
2.6 Further strengthening of the regulatory framework with regard to the obligation of reporting on large sources, following the LGA and assessment of practices, as set in Art.12 of Mercury Regulation[68]			

Area of intervention 3: Strengthening of monitoring and reporting framework

The existing monitoring and reporting framework does not provide sufficient information for statistical overviews for all aspects of relevance for monitoring of mercury-related issues. This particularly applies to the products on the market, and import of mercury-added products. On the other hand, the Convention announces the establishment of the specific guidance for monitoring and reporting of mercury, with regard the emissions to the air, water and land; the specific reporting requirements of Articles 3, 5, 7 and 8, as well as establishment of harmonized methodologies.

The existing monitoring framework therefore should be reconsidered from the perspective of these requirements, practices which will be established under the Convention; but also from the perspective of EU practices and requirements of the new Mercury Regulation. Due to the complexity of the monitored aspects, further measures could involve several institutions (the ones with horizontal competencies, such as the Statistical Office, or specialized, such as the Customs Administration) and include the revision of monitoring/ reporting formats, cycles and practices.

The potential gaps have been identified with regard to Article 4, 8, 9, 19, and 21 of the Convention (for more details, please see part A).

63 For more details, please see Part A (Article 3) of this Chapter
64 For more details, please see Part A (Article 4) of this Chapter
65 For more details, please see Part A (Article 4) of this Chapter
66 For more details, please see Part A (Article 4) of this Chapter
67 For more details, please see Part A (Article 10) of this Chapter
68 For more details, please see Part A (Article 11) of this Chapter

3. Strengthening of the monitoring and reporting framework	Responsibility	Timeframe	Allocated budget Euro
3.1 Finalization of the baseline assessment of the presence of the mercury-added products being put in use before introduction of bans[69]	MoEP, MoH, Ministry of Science, MoE (Sector For Quality And Product Safety), MoF (Customs), MoTTT (Sector for Market Inspection)		
3.2 Assess the presence of illegal products on the market, as an input for development of specific action plan for combatting illegal import and trade of such products and overall phasing out plan[70]	MoTTT		-
3.3 Perform the assessment of existing monitoring practices from the perspective of the requirements of inventory update and reporting, focusing on the import and trade activities and mercury added products[71]	Statistical Office, Market Inspection, Environmental Inspection, MoE (Sector For Quality And Product Safety), MoTTT (Sector for Market Inspection)		
3.3.1 In line with assessment results, review the monitoring and reporting system, under leadership of the institution in charge of preparation of statistical reports, including: stakeholder assessment (identification of stakeholders), adjustment of reporting formats (inclusion of new types of information to be obtained), reporting cycles etc. combined with awareness raising/ capacity building measures for the information providers, in a way to ensure the needed assessment for the next cycle of inventory update[72]. This measure may include, if applicable, the revision of the regulatory framework.	Statistical Office, Ministry of Finance (Customs Administration) at the first place other involved institutions as listed under point 3.3.		
3.4 Assess the existing monitoring practices from the perspective of the requirements of AQ monitoring, in relation to the requirements set under Art.8, reporting formats foreseen under Art.21 and guiding documents issued by Secretariat[73]			

[69] For more details, please see Part A (Article 4) of this Chapter
[70] For more details, please see Part A (Article 4) of this Chapter
[71] For more details, please see Part A (Article 4) of this Chapter
[72] For more details, please see Part A (Article 4) of this Chapter
[73] For more details, please see Part A (Article 8) of this Chapter

3. Strengthening of the monitoring and reporting framework	Responsibility	Timeframe	Allocated budget Euro
3.4.1 In line with assessment results, review the monitoring and reporting system, under leadership of the institution in charge of preparation of statistical reports, including: adjustment of reporting formats (inclusion of new types of information to be obtained), reporting cycles etc. combined with awareness raising/ capacity building measures for the information providers, in a way to ensure the needed assessment for the reporting cycles[74]. This measure may include, if applicable, the revision of the regulatory framework.			
3.5 Conduct assessment of existing monitoring practices from the perspective of requirements of water/soil monitoring, in relation to the requirements set under Art.9, and guiding documents issued by Secretariat. Assessment should cover both existing and foreseen solutions, i.e. legal provisions which are yet to be implemented[75]			-
3.5.1 In line with results of assessment, carry out stakeholder assessment, adjustment of report formats (inclusion of new types of information to be obtained), reporting cycles etc. combined with awareness raising/capacity building measures for the information providers, in a way to ensure the needed assessment for the next cycle of inventory update. This measure may include, if applicable, the revision of the regulatory framework.			
3.5.2 Establishment of Cadastre of Contaminated Sites, with specific section related to mercury releases to land, if applicable, or other type of register[76]	SEPA, MoEP		
3.5.3 Establishment of Inventory of Point Sources[77], by integrating it to the existing inventories/registries or establishment of separate inventory	SEPA, MoEP		3 years upon the ratification of Convention
3.6 Enable the reporting under the Convention, by ensuring the full compliance with the requirements of the Article 3, 5, 7, 8 in terms of types of methodologies[78]	SEPA, MoEP		
3.7 Take active part in establishment of harmonized methodologies and their integration into the national monitoring/ research system through above listed actions[79]	SEPA, MoEP		

[74] For more details, please see Part A (Article 8) of this Chapter
[75] For more details, please see Part A (Article 9) of this Chapter
[76] For more details, please see Part A (Article 9) of this Chapter
[77] For more details, please see Part A (Article 9) of this Chapter
[78] For more details, please see Part A (Article 21) of this Chapter
[79] For more details, please see Part A (Article 19) of this Chapter

Area of intervention 4: Capacity building measures

The capacity building and institutional strengthening measures are highly relevant.

In addition to designing and implementing capacity building programme for the surveillance and control institutions (with regard the enforcement, as well as monitoring/reporting capacities), and other institutional stakeholders, it is very important to establish comprehensive capacity building plans for different categories of workers (health care workers, dental services; population exposed to specific types of occupational risk), and ensure the simultaneous and multi-sectorial approach (e.g. preventive measures, occupational safety, presentation of new technologies etc.). The role of voluntary associations is essential for effectiveness of design and implementation of such a systematic programme.

Capacity building measures also comprise additional elements, integrated in overall or specific capacity building measures

- The preparation of a number knowledge capitalization products, such as guidance documents, brochures, research papers, links to other sources of information and competent authorities (incl. national, regional, international etc.), as well as distribution of calendars of events, materials and conclusions from meetings (particularly technical meetings),
- Establishment of solid, comprehensive and regularly updated sources of information (clearing house).

Finally, the capacity building measures proposed under this AP highlight the need for strengthening of inter-institutional cooperation, particularly with regard the exchange of information, establishment of communication channels and ensuring the participation of Serbian representatives in the work of regional/international activities of relevance for mercury-related issues.

The proposed actions refer to the gaps and needs identified under Articles 4, 8, 9, 14, 16, 17, 18 and 19 of the Convention (for more details, please see part A).

4. Capacity building measures	Responsibility	Timeframe	Allocated budget Euro
4.1 Development and implementation of comprehensive capacity building plan for the relevant implementing and enforcement institutions in the area of surveillance and monitoring of the market/export-imports of mercury added products and use of mercury in industrial processes (MoTTT, Market Inspection, Customs, Environmental Inspection)[80]	MoEP, MoH, MoTTT, MoE		
4.2 Development and implementation of comprehensive capacity building programme for the stakeholders involved in (revised) monitoring and reporting format, in particular- the institutions with coordinating role (e.g. Agencies), and non-public stakeholders/information providers - on reporting requirements and formats (see measures 3.3,3.4 and 3.5). This may include presentation workshops and preparation and dissemination of guiding documents, as well as specifically designed training programme[81]	Statistical office, SEPA		-

[80] For more details, please see Part A (Article 4) of this Chapter
[81] For more details, please see Part A (Article 4,8 and 9) of this Chapter

4. Capacity building measures	Responsibility	Timeframe	Allocated budget Euro
4.3 Enabling regular participation of relevant institutions/national representatives in the work of Convention bodies; capacity building and technical workshops; work of regional/international information sharing activities; EU technical bodies etc. including: identification of relevant stakeholders, development of plans of activities and ensuring the budget in foreseen cycles and dissemination of outputs of their activities[82]	MoEP, MoH		
4.4 Establishment of structures for internal communication and information exchange of information on mercury-related issues[83]	MoEP		
4.5 Establishment of a comprehensive source of information related to mercury (all aspects); information sharing on the most accurate research documents; guiding documents and links to specific policy/regulatory framework[84]	MoEP -SEPA, Statistical Office, MoH		
4.6 Development and implementation of the capacity building programme for health institutions, on preventive measures, awareness raising, mitigation measures, treatments etc. including: organization of conferences/presentation workshops; development and dissemination of knowledge sharing products, piloting of selected institutions etc.[85]	MoH		
4.7 Development and implementation of capacity building activities for employees of dental services, following the EU best practices (the new Mercury Regulation indicates, among its priorities, the training of dentistry students and dental practitioners on the use of mercury-free alternatives, in particular for vulnerable members of the population)[86]	MoH		
4.8 Identification of occupational activities with the highest risk in the country; development and delivery of specific capacity building programme(s) with the support of the Chamber of Commerce targeting the environmental managers of facilities (e.g. preventive measures, but also monitoring and reporting requirements) and employees. The actions may include presentation workshops, development of guiding documents and promotional materials etc.[87]	MoH, MoL		

[82] For more details, please see Part A (Article 14,16, 17 and 19) of this Chapter
[83] For more details, please see Part A (Article 17) of this Chapter
[84] For more details, please see Part A (Article 18) of this Chapter
[85] For more details, please see Part A (Article 16) of this Chapter
[86] For more details, please see Part A (Article 21) of this Chapter
[87] For more details, please see Part A (Article 16) of this Chapter

Area of intervention 5: Awareness Raising Measures

Awareness raising is recognized as an important aspect of the future action planning. Article 18 regulates issues related to awareness raising and publically available information, and the already applicable national system is already aligned to the highest standards, thanks to the implementation of the most relevant international conventions and EU standards.

The existing set up should be used for development of a systematic awareness raising campaign, which would involve different policy makers (institutions with competences in environment, work safety, health protection); enforcement institutions (inspections, agencies); supporting structures (professional associations, the Chamber of Commerce), civil society, regional and local authorities, non-public stakeholders (e.g. economic operators), specifically targeted population categories and general public. As explained under Chapter V, the majority of these stakeholders will assume active and passive roles, and the awareness raising plan will need to define the messages and measures (as well as timetable of actions) for each of them.

The awareness raising campaign should be the result of joint work of relevant sectors, ensuring complementarity and synergy between awareness raising actions which will be coordinated by the different institutions, in line with their respective areas of expertise. For example, the Ministry of Health should coordinate the awareness raising measures carried out in health institutions; the Ministry of Education - campaigns in schools; the Ministry of Labour – occupational safety). The roles of supporting structures, such as the Chamber of Commerce should be defined, given the contribution they can make to the overall dissemination of information. The overall campaign may be considered as part of the planning of donor funded assistance.

The measures presented in this part of the Action Plan are based on needs assessment conducted under Article 18 of this Convention (see part A of this Chapter).

5. Awareness Raising	Responsibility	Timeframe	Allocated budget Euro
5.1 Development of comprehensive, multi-sectorial awareness raising plan targeting: decision makers and key stakeholders; implementing, monitoring and enforcement institutions; public stakeholders involved in implementation of educational/ health protection; LSGs; non-public stakeholders, operators and pollution sources; workers exposed to the occupational risks; associations; population at risk; general public[88].	MoEP, MoH		
5.2 Phased implementation of awareness raising plan, in line with identified priorities and division of competences among the relevant institutions	MoH would be in charge of activities related to the health/dental institutions; MoEP, SEVESO Department for prevention of risk in facilities; MoTTT on harmful effects of certain types of products etc.		-

[88] For more details, please see Part A (Article 18) of this Chapter

5. Awareness Raising	Responsibility	Timeframe	Allocated budget Euro
5.3 Establish IT based visibility tools for mercury related issues/ Minamata Convention application (a section within the MoE website, that is dedicated only to mercury related issues - Minamata Convention)[89]	MoEP		
5.4 Ensure regular updates of the knowledge capitalization tools - guidance documents, research papers as well as awareness raising and knowledge sharing tools, such as newsletter/fact sheets/Info graphics are publically available[90]	MoEP, MoH, MoL		
5.5. Ensure the links and regular update of the websites of relevant ministries and other actors involved in the Convention implementation[91]	MoEP, MoH, MoL		
5.6 Increase media and social media presence – electronic (TV, portals, news agencies, radio) and printed (dailies), through press releases, public events, articles, interviews, participation in TV/radio shows and broadcasts etc.[92]	MoEP, MoH, MoL		

Area of intervention 6: Phasing out measures

Proposed phasing-out measures refer to further action planning with regard the phasing out and introduction of bans for economic activities, import/export/trade of mercury-added products, use of mercury added products; as well as carrying out the measures which fill contribute to the finalization of the situation assessment, update of the inventory, and proper action planning for the phasing out of mercury use.

The measures do not apply to the assessment of the need for possible (temporary) exemption from application of Article 4 (mercury added products) and Article 5 (processes using the mercury). There is no need for potential exemptions in relation to manufacture, import or export of mercury-added products (ref. Article 4) since adequate bans and restrictions are already in place, except in relation to cosmetic products where some additional adjustments of the legal framework will be needed to limit the content of mercury to 1 ppm; while the inventory preparation demonstrated that manufacturing processes using mercury in chlor –alkali production have ceased by August 2014 and two non-operating chlor-alkali plants exist that should be treated as contaminated sites.

Another priority should be the phasing out of dental amalgam, with the set of steps recommended: RIA, development of action plan and revision regulatory framework, taking into consideration the specific provisions of the new EU Mercury Regulation.

The potential gaps have been identified with respect to Article 4, 5, 6, and 16 of the Convention (for more details, please see part A).

[89] For more details, please see Part A (Article 18) of this Chapter
[90] For more details, please see Part A (Article 18) of this Chapter
[91] For more details, please see Part A (Article 18) of this Chapter
[92] For more details, please see Part A (Article 18) of this Chapter

6. Phasing Out Measures	Responsibility	Timeframe	Allocated budget Euro
6.1 In relation to the measures 3.1 (finalization of the baseline assessment) develop a phase-out plan[93]	MoEP, MoH, Ministry of Science, MoE (Sector For Quality And Product Safety), MoF (Customs), MoTTT (Sector for Market Inspection)		
6.2 In relation to the measure 3.2 (assessment of illegal market), develop and implement the action plan for prevention of import and placing of banned mercury-added products in the market[94]	MoTTT, Customs Administration		-
6.3 Perform the RIA for introduction of the deadlines for phase out of dental amalgam, taking into consideration the deadlines and targets set in the new Mercury Regulation[95]	MoH, MoEP		
6.3.1 In line with results of RIA, prepare the draft legal/policy document and action plan for formal implementation of the phase-out programme[96]	MoH, MoEP		
6.4 Revise national legislation in relation to mercury added products and chlor-alkali production to make it aligned with requirements of the Convention and corresponding EU Regulations	MoEP, MoH		
6.4.1 Revise national legislation by banning/restricting mercury-added products (in particular cosmetics by limiting the content of mercury to 1ppm) in line with requirements of the Convention and corresponding EU Regulations	MoEP, MoH		
6.4.2 Revise national legislation by banning the use of mercury in chlor-alkali production in line with corresponding requirements of the Convention	MoEP		

93 For more details, please see Part A (Article 4) of this Chapter
94 For more details, please see Part A (Article 4) of this Chapter
95 For more details, please see Part A (Article 16) of this Chapter
96 For more details, please see Part A (Article 16) of this Chapter

Area of intervention 7: Remediation measures (contaminated sites)

Manufacturing processes using mercury in chlor –alkali production have ceased by August 2014, but two non-operating chlor-alkali plants exist that should be treated as contaminated sites.

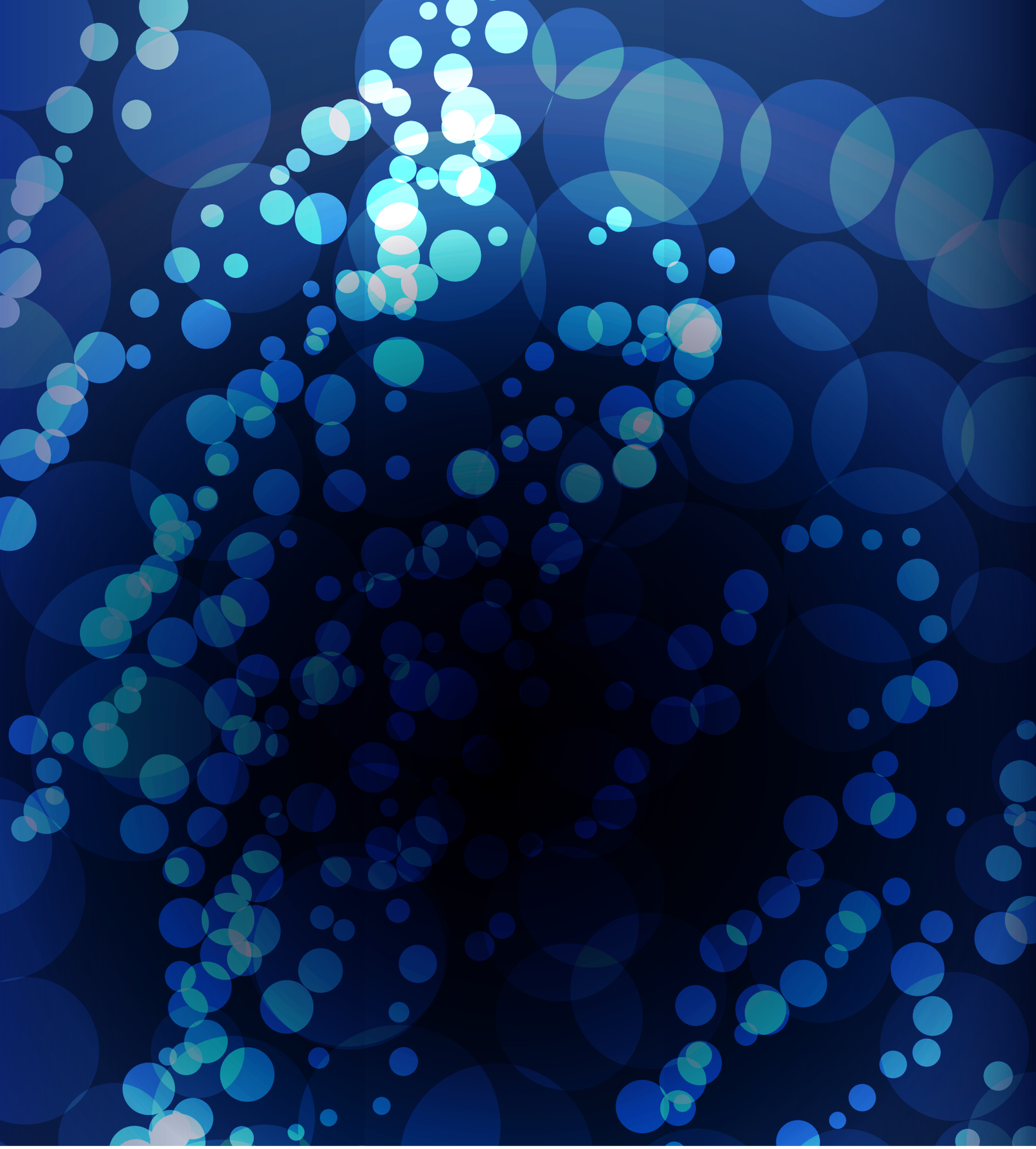
There is an urgent need to select an efficient approach to create a contamination map of each site (Petrohemija and Župa) and thus a coordinated collection of air, water and soil samples in the vicinity of mercury technology along with sampling in both cell halls to determine the potential of occupational exposure upon dismantling of both technologies (in Župa in particular). The Petrohemija company did some sampling and analysis that indicated exceeded limit values which indicates the need for the site remediation.

Since the information is very scarce on the current state of both non-operating mercury facilities, there is an urgent need to observe the status quo as well as identify the most appropriate sampling design and methods for determination of mercury concentrations based on which future activities in relation to decontamination should be defined, in particular applicable technologies and necessary funds.

The key issues will be environmentally sound management of existing mercury stock that is already identified and at least partially collected and stored under semi-controlled conditions and identification of the scope of environmental contamination and sources of mercury releases from dumpsites/pits/lagoons at Petrohemija and from the former mercury cells' structures in both sites. In case of the Župa facility, the status quo is much less clear. The information is lacking, no documentation is available, no sampling took place and no institutional memory exists.

The only official available report is the report from country submissions to the UNEP survey on chlor-alkali facilities.

7.Remediation measures	Responsibility	Timeframe	Allocated budget Euro
7.1 Establish Mercury Partnership with regard to available technologies/funds and share materials, guidance	MoEP, SEPA		
7.2 Update information on Serbian facilities to UNEP	MoEP, SEPA and other stakeholders		
7.3 Establish cooperation at national level	MoEP,		
7.4 Conduct sampling at chlor-alkali facilities	SEPA		
7.5 Take appropriate measures to manage spills	MoEP, SEPA		
7.6. Ensure that action to reduce risks posed by contaminated sites shall be implemented in an environmentally sound manner incorporating, where appropriate, an assessment of risks to human health and the environment	MoEP, SEPA		
7.7. Consider on-site treatment of wastes/stocks of mercury	MoEP		



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