Industrial Pollution and Risk Management

Overview

Industry is one of the main sources of pollution in Serbia due to outdated technologies and equipment, as well as low energy and raw material efficiency. All of these are consequences of insufficient investments aimed at improving the current state of affairs, but also of the slow pace of application of regulations governing the issuance of integrated permits that ensure prevention and control of environmental pollution.

This report covers industrial pollution from the following industries: the metal processing and production industry, within which 22 operators are required to obtain an integrated permit; the mineral industry, with integrated permits necessary for 25 operators; and the chemical industry, where 11 operators are required to hold integrated permits. Given that industrial pollution primarily affects the quality of air, water and soil, as well as waste management, in this sense, the report presents data on the impact of industrial pollution on the respective areas in particular.

The most important legal regulation for industrial emissions, for which harmonization with EU regulations (specifically with the Industrial Emissions Directive – IED)[226] has begun, is the Law on Integrated Prevention and Control of the Environment Pollution[227] with the appropriate by-laws. For the purposes of further harmonization with the IED, the preparations for drafting a new law began in early 2025, and the Starting Points of the Draft Law on Integrated Prevention and Control of the Environment Pollution were published.[228] According to information in the Starting Points, since the start of the Law's implementation, 57 integrated permits were issued (for 36% of the total number

226 Industrial Emissions Directive 2010/75/EU

227 Official Gazette of RS, no. 135/2004, 25/2015 and 109/2021, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/skupstina/zakon/2004/135/7/reg

228 Starting Points of the Draft Law on Integrated Prevention and Control of the Environment Pollution, https://www.ekologija.gov.rs/saopstenja/najave/obavestenje-o-pocetku-izrade-nacrta-zakona-o-integrisanom-sprecavanju-i-kontroli-zagadjivanja-zivotne-sredine

of metal processing and production industry operators, 52% of the mineral industry operators and 45% of the chemical industry operators).

In addition to this Law and the by-laws, this important legislative framework also includes the laws on environmental impact assessment and on strategic environmental assessment, which were adopted in late 2024 after extensive preparations, as well as strategic documents on air protection, water management, the application of clean production principles, environmental protection, industrial safety, etc.

Strategic and Legislative Framework

One of the most significant legal instruments for reducing industrial pollution is the Directive 2010/75/EU233, which replaced the previous Directive on Integrated Pollution Prevention and Control in 2010. The post-screening document for Chapter 27[229] stated that Directive 2010/75/EU would be fully transposed into the legal system of the Republic of Serbia by 2018 through amendments to the Law on Integrated Prevention and Control of the Environment Pollution, which was adopted back in 2004 as one of the first laws passed in the process of harmonizing Serbia's legislation with the EU acquis. However, after multiple amendments to the Law, mainly reflected in extending deadlines for obtaining integrated permits, the process of preparing a new law, with the aim of full harmonization with the Directive, was started only in 2025, and the Starting Points of the Draft Law on Integrated Prevention and Control of the Environment Pollution were published.

229 https://www.ekologija.gov.rs/sites/default/files/eu_integracije/Radna_verzija_Post_skrining_dokumenta.pdf

A significant contribution to the implementation of the Industrial Emissions Directive has been made by the multi-year project called Green Transition — Implementing Industrial Emissions Directive in Serbia 2021–2027.[230] In addition to the preparation of specific implementation plans for the Directive and facilitating the process of obtaining integrated permits (which resulted in the development and adoption of two by-laws at the beginning of 2024 concerning the request for issuance, and the content and appearance of the integrated permit), it also includes efforts to improve administrative capacities and work of the Inspectorate, etc.

The implementation of the Law on Integrated Prevention and Control of the Environment Pollution is accomplished through by-laws. Four by-laws were adopted back in 2005 — namely, the Rulebook regarding the content and manner of keeping the Register of Issued Integrated Permits;[231] the Regulation establishing the criteria for determining the best available techniques, for the application of environmental quality standards, as well as for determining the limit values of emissions in the integrated permit;[232] the Regulation prescribing the detailed content of the program of measures to adapt the operation of existing facilities or activities to the prescribed conditions for issuing an integrated permit[233] and the Regulation prescribing the types of activities and facilities for which an integrated permit is issued.[234] Subsequently, two more regulations were adopted, which were amended at the beginning of 2024. One regulated the content, appearance, and method of filling out the application for the issuance of an integrated permit,[235] while the other regulated the content and appearance of the integrated permit.[236]

230 https://iedserbia.org/o-projektu/

231 Official Gazette of RS, no. 69/2005, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/ministarstva/pravilnik/2005/69/4

232 Official Gazette of RS, no. 84/2005, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/uredba/2005/84/2

233 Official Gazette of RS, no. 84/2005, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/uredba/2005/84/3/reg

234 Official Gazette of RS, no. 84/2005, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/uredba/2005/84/1

235 Rulebook on the Content, Appearance, and Manner of Filling in the Application for the Issuance of Integrated Permit, Official Gazette of RS, no. 30/2006, 32 dated March 30, 2016, 44 dated June 8, 2018 – as amended, 4 dated January 19, 2024.

236 Rulebook on the Content and Appearance of the Integrated Permit, Official Gazette of RS, no. 30/2006; no. 4 dated January 19, 2024, available at: https://www.ekologija.gov.rs/dokumenta/integrisane-dozvole

The purpose of the integrated permit is to minimize the environmental pollution caused by the operation of the plant by applying the best available techniques (BAT),[237] thus eliminating the risk to human health and the environment that may arise from the operation. The Law on Integrated Prevention and Control of the Environment Pollution was amended twice, in 2015 and 2021, without the participation of the general public and without public discussion. Amendments to the Law, as assessed in the analysis of the Renewables and Environmental Regulatory Institute (RERI) in March 2024, did not eliminate obstacles and problems in the application of the Law but extended the deadline for issuing integrated permits twice. Amendments to the Law from 2021 extended the deadline for issuing permits for existing facilities and activities until December 31, 2024.[238] Preparation and publishing of the Starting Points of the Draft Law on Integrated Prevention and Control of the Environment Pollution in early 2025 initiated the process of adopting a new law with the participation of the general public.

The Starting Points of the Draft of the new Law on Integrated Prevention and Control of the Environment Pollution are based on the document titled Negotiating Position of the Republic of Serbia for Chapter 27 — Environment and Climate Change,[239] which among other things specifies the basic points for revision and harmonization of the existing legal framework governing integrated prevention and control of pollution through air, water and land protection and waste management control.

According to the Starting Points, the effects of adopting the new law are expected to bring about qualitative improvement of the level of environmental protection against industrial pollution: high level of harmonization with the IED; finalizing the regulatory framework by adopting by-laws necessary to introduce new policy instruments for environmental protection against

237 BAT (Best Available Techniques) – techniques and technologies that, at a given stage of development, have the least negative impact on the environment, are reproducible, and economically viable

238 Renewables and Environmental Regulatory Institute (2024): Analysis of the Implementation of the Law on Integrated Prevention and Control of the Environment Pollution, available at: https://reri.org.rs/wp-content/uploads/2024/03/Analiza-sprovodjenja-Zakona-o-integrisanom-sprecavanju-i-kontroli-zagadjivanja-zivotne-sredine.pdf

239 Negotiating Position of the Republic of Serbia for Chapter 27, available at: https://www.mei.gov.rs/upload/documents/pristupni_pregovori/pregovaracke_pozicije/pg_pozicija_27.pdf

industrial pollution; possibility to issue permits in a simplified procedure; an integrated approach taking into consideration the entire environmental impact of the facility; a clear system of responsibilities, procedures and competent institutions involved in the process of issuing integrated permits; synergy between various administrative procedures that require coordinated issuance of permits/authorizations, particularly in respect to water permits, construction and exploitations permits, as well as procedures put in place in order to prevent major accident hazards involving dangerous chemical substances; a more efficient procedure for reissuance/revision of integrated permits by introducing an information system to be used as a tool; making sure that the requirements in the integrated permit, including limit values of emissions, are primarily based on best available techniques (BAT); improved access to information, through public participation and access to justice; better connection with the registers of documents necessary to obtain IPPC permits (documents concerning impact assessment, protection against major accident chemical hazards, waste management permits, water permits, Business Registers Agency, etc.); strengthening inspection supervision and penal policy.

The Republic of Serbia submitted the Negotiating Position for Chapter 27 — Environment and Climate Change (Negotiating Position) in 2020, and therewith, the Draft Specific Implementation Plan of the Industrial Emissions Directive (Specific Implementation Plan), which contains the plan for achieving full compliance of 68 plants for which transitional periods have been requested and for which the Specific Implementation Plan has been prepared. Full compliance is expected only in 2032. Transitional periods have been requested for 19 facilities in the area of metal processing and production industry, mineral industry and chemical industry (for Serbia Zijin Bor Copper, HBIS GROUP Serbia Iron & Steel Smederevo, and Lafarge BFC Beočin and CRH (Srbija) doo Popovac cement plants, among others).

Table 6: Number of plants for which transitional periods have been requested

Sector	Number of plants	Planned period of implementation
Metal processing and production	6	2025–2027
Mineral industry	10	2026–2028
Chemical industry	3	2026–2028

The potential emission reductions after the full implementation of the Directive are determined in percentages for each sector:[240]

- In the metal processing and production industry, the Plan envisages up to a 70% reduction of PM particles, NOx, and heavy metals released into the atmosphere; when it comes to wastewater, less water pollution is expected due to the removal of organic compounds and metals; and as for waste, there should be less generation and better management of hazardous waste.
- Regarding the chemical industry, significantly lower emissions of NOx (up to 50%) and VOC from chemical processes and combustion processes are foreseen for air emissions; as for wastewater, up to a 50% reduction is expected in the emission of organic compounds into surface water by improving the treatment of wastewater.
- When it comes to the mineral industry, 50% to 80% lower emissions of organic compounds from the production of ceramics are expected. In addition, 25% to 70% lower emissions of PM particles and heavy metals from the production of cement and magnesium, as well as up to 30% lower emissions of NOx, are foreseen on an annual basis.

240 The Implementation of the Industrial Emissions Directive in Serbia project, Specific Implementation Plan for the Industrial Emissions Directive, IED Serbia, https://iedserbia.org/wp-content/uploads/specificni-plan-implementacije-direktive-o-industrijskim-emisijama.pdf

The National Program for the Adoption of the EU Acquis for the period from 2024 to 2027[241] projects that the new Law on Integrated Prevention and Control of the Environment Pollution shall be adopted in the third quarter of 2026. The Law also needs to be aligned with the amendments to the national legislation.

In accordance with the Law on Integrated Prevention and Control of the Environment Pollution, the Register of Issued Permits is maintained by the authorities responsible for issuing integrated permits. The Law stipulates that the Register of Issued Permits is public. The content and manner of keeping the Register are regulated by the Rulebook on the Content and Manner of Keeping the Register of Issued Integrated Permits. Based on the Register, it can be concluded that the first permit was issued by the Ministry in 2011. The last permit in the Register is from March 2025.[242]

In late 2024, a new Law on Environmental Impact Assessment, as well as the Law on Strategic Environmental Assessment, was adopted.[243] In terms of reducing and controlling industrial emissions, it is important that these laws regulate the impact assessment procedure for projects that may have significant environmental impact, the content of the environmental impact assessment study, the participation of interested bodies, organizations, and the public, etc.

The Air Protection Program in the Republic of Serbia for the period from 2022 to 2030 with an Action Plan[244] was adopted in December 2022 (Air Protection Program). During the second half of 2024, preparations for the new Law on Air Protection started. A public hearing on the Draft Law was held in early 2025, and the Air Protection Bill[245] was adopted in early May 2025. The implementation of the Industrial Emissions Directive is recognized as one of the key objectives set in this document.

241 National Program for the Adoption of the EU Acquis (NPAA), https://www.mei.gov.rs/upload/documents/nacionalna_dokumenta/npaa/npaa_2024-2027.pdf

242 https://www.ekologija.gov.rs/obavestenja/integrisane-dozvole/registar-izdatih-dozvola/registar-izdatih-dozvola

243 Official Gazette of RS, no. 94/202a 4

244 Official Gazette of RS, no. 140/2022, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/drugiakt/2022/140/1

245 https://www.paragraf.rs/dnevne-vesti/190525/190525-vest12.html

In April 2023, the Water Management Plan on the territory of the Republic of Serbia for the period from 2021 to 2027[246] was adopted, which is also significant in terms of industrial wastewater management.

During the second half of 2024, the Ministry of Environmental Protection hosted a public hearing on the Draft Environmental Protection Strategy – Green Agenda for the Republic of Serbia for the period 2024-2033, with an Action Plan for Implementing the Strategy for the period 2024-2028, as well as on the Draft Report on Strategic Environmental Assessment of the Strategy.[247] Solving problems in the field of industrial pollution is necessary for achieving the goals of the Environmental Protection Strategy. The draft of the Environmental Protection Strategy states that the previous implementation of the Law on Integrated Prevention and Control of the Environment Pollution revealed the unwillingness of operators to respond to the requirements set by this Law, as well as problems in obtaining the necessary permits, decisions, consents, or approvals from other state authorities and institutions. It also stated that the list of existing operators required to obtain an integrated permit will be expanded to include around 70 new plants. The identified weaknesses indicate the need to strengthen the normative framework and administrative capacities, as well as to educate and train operators in the industrial sector to increase their readiness to respond to the requirements of this Law.

Industrial Policy Strategy of the Republic of Serbia from 2021 to 2030[248] defines as one of its objectives that industry should grow based on resource effectiveness, the potential of new products and technologies in the field of environmental protection, stipulating incentives for industrial production to use high technologies that offer significant levels of environmental protection as one of the measures to be introduced.

246 Water Management Plan on the Territory of the Republic of Serbia until 2027, available at: https://www.minpolj.gov.rs/download/Plan_upravljanja_-vodama_do_2027-FINAL.pdf?script=lat

247 The Draft Environmental Protection Strategy etc., https://ekonsultacije.gov.rs/topicOfDiscussionPage/371/3 and https://www.ekologija.gov.rs/informacije-od-javnog-znacaja/javne-rasprave/javni-poziv-za-ucesce-u-javnoj-raspravi-o-predlogu-strategije-zivotne-sredine-zelena-agenda-za-republiku-srbiju-za-period-2024-2033-godine-sa-akcionim-planom

248 Official Gazette of RS, no. 35/2020, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/strategija/2020/35/1/reg

The Strategy for the Introduction of Cleaner Production in the Republic of Serbia,[249] which was adopted back in 2009, highlights the importance of the implementation of the Law on Integrated Prevention and Control of Pollution, because the concept of cleaner production as a preventive strategy for environmental protection implies reducing environmental emissions and waste generation in addition to the more efficient use of raw materials and energy. In 2018, the Ministry of Environmental Protection prepared the Program for the Introduction of Cleaner Production in the Republic of Serbia with an action plan for 2019–2021. The activities foreseen in the Program for the Introduction of Cleaner Production in the Republic of Serbia with an action plan should be outlined and implemented through the Circular Economy Development Program in the Republic of Serbia.[250]

The Law on Control of Major Accident Hazards was adopted in 2024[251]. It governs rules for preventing major accident hazards involving dangerous substances and limiting their consequences to the human health and environment for the purposes of securing a high level of protection in the Republic of Serbia in a consistent and efficient manner, the rights and obligations of the facility operators, obligations of the competent institutions, courses of action after a major accident hazard, information, information system, supervision and penal provisions, as well as other issues concerning the matter.

The European Commission Report[252] on the results of the accession process and harmonization with EU regulations for 2024 estimates that, when it comes to industrial pollution and risk management, the harmonization with the majority of the EU acquis is moderate. In the report period, 265 companies were assessed in terms of their full compliance with the EU Industrial Emissions Directive and 52 integrated permits were issued. Reporting methodology was adopted and rulebooks were revised.

249 Strategy for the Introduction of Cleaner Production in the Republic of Serbia, https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/strategija/2009/17/2/reg

250 Circular Economy Development Program in the Republic of Serbia, https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/drugiakt/2022/137/1

251 Official Gazette of RS, no.94/2024, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/skupstina/zakon/2024/94/31

252 2024 Report, https://www.mei.gov.rs/upload/documents/eu_dokumenta/2024/izvestaj_24.pdf

Implementation of Regulations

The effects of the implementation of regulations related to the reduction of industrial pollution can best be assessed by examining the current state of industrial pollution through air, water and soil emissions, generation of industrial waste, etc., dependent on the type of industry and technology applied.

The cement and construction materials industry, ferrous and non-ferrous metallurgy and the chemical industry are large emitters of sulfur, carbon and nitrogen oxides, the total suspended particles that contain heavy metals and gasses containing long-term organic pollutants. The cement plants are located in populated areas near the sites where the raw materials are excavated (Beočin, Kosjerić, Popovac), the insulation construction material production plant is in Surdulica, lime is produced in Požega, the ferrous metallurgy facility is situated in Smederevo while the non-ferrous one is in Bor, metal processing industry plants are located in Sevojno, Guča, Sremska Mitrovica, Nova Pazova, Kikinda and Čoka, and chemical industry plants operate in Šabac, Pančevo and Prahovo, where, according to the population survey from 2022, approximately 700,000 people live, which is close to 10% of the total population in Serbia. The relatively small population in these local communities compared to the total population of Serbia, non-existence of or insufficient or inadequate environmental monitoring, lack of implementation of regulations, nonfunctional national institutions, non-existent or incapacitated (in terms of organization, expertise and staff) local institutions and lack of availability of public information are the reasons behind the inappropriate approach to handling issues concerning environmental pollution.

The Republic of Serbia has ratified the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.[253]

The Environmental Protection Agency has compiled a register of major polluters[254] in accordance with the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. This list includes seven chemical industry plants, six metallurgy and metal processing plants, ten mineral industry plants and one paper production plant and one surface treatment plant. In accordance with the Council Directive 96/61/EC, the Ministry of Environmental Protection has prepared a list of plants that are required to obtain the integrated permit.[255] According to this list, the integrated permit is to be obtained by 66 industrial facilities. In 2024, the Ministry updated the register of SEVESO plants[256] in line with the provisions of the Law on the Control of Major Accident Hazards Involving Dangerous Substances.[257] The register lists upper-tier SEVESO plants – 14 chemical plants and two metallurgy plants; and lower-tier SEVESO plants – ten chemical, eight mineral industry and three metallurgy and metal processing plants.

The register includes 11 chemical plants that are required to obtain the integrated permit, and there is a total of 24 SEVESO chemical plants. All SEVESO plants are required to obtain the integrated permit, which suggests that 13 chemical plants were not registered as mandatory for obtaining the integrated permit.

253 Law on Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Official Gazette of RS – International Contracts, no. 8/2011.

254 Law on the Ratification of the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Official Gazette of RS – International Contracts, no. 8/2011.

255 Ministry of Environmental Protection, List of plants that are required to obtain the integrated permit https://www.ekologija.gov.rs/sites/default/files/2022-10/spisak_.pdf

256 Ministry of Environmental Protection, Register of SEVESO plants, https://www.ekologija.gov.rs/dokumenta/zastita-od-hemijskih-udesa/registar-seveso-postrojenja

257 Law on the Control of Major Accident Hazards Involving Dangerous Substances https://www.ekologija.gov.rs/dokumenta/zastita-od-hemijskih-udesa/registar-seveso-postrojenja

Table 7: Number of operators required to obtain the integrated permit, SEVESO plants and major polluters

Industry	Number of plants required to obtain integrated permit	SEVESO plants		Major polluters
		Upper-tier	Lower-tier	
Metal processing and production	22	2	3	5
Mineral industry	25		8	10
Chemical industry	11	14	10	7
Paper production	4			1
Surface treatment plants	4			1
TOTAL	**66**	**16**	**21**	**24**

It is necessary to revise and update all the registers, given that some of them are outdated, and that there are conspicuous discrepancies in the numbers of major polluters, SEVESO plants and plants that are required to obtain the integrated permit.

Air Emissions and Air Quality in Industrial Local Communities

The European Union further prescribes the obligations of its Member States to adopt an integrated regulation pertaining to industrial pollution. The Council Directive 96/61/EC[258] of 24 September 1996 concerning integrated pollution prevention and control (IPPC Directive) applies to industrial and other plants and activities classified according to the level of pollution and risk to the human health and environment potentially caused by these activities. Based on this Directive, the European Union has prepared documents on best available technologies for certain industries, pollution reduction and prevention systems, monitoring and air quality management methodology. Implementation of this

258 COUNCIL DIRECTIVE 96/61 /EC of 24 September 1996 concerning integrated pollution prevention and control https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31996L0061

Directive in Serbia has been ratified by the Law on Integrated Prevention and Control of the Environment Pollution.[259]

In 2024, Serbia prepared an official Informative Inventory Report (IIR)[260] in line with the UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP).

Industry takes up third place, coming up after the energy industry and traffic, in emissions of $PM_{2,5}$ and PM_{10} particles, total suspended particles, nitrogen oxides and carbon monoxide; it takes up second place in emissions of sulfur dioxide, arsenic, cadmium and mercury and is the largest emitter of lead and nickel.

Table 3 shows the total air emissions and industry emissions in 1990 and 2022, the share of industry in the total emissions in the respective years, as well as emission trends during the 1990-2022 and 2021-2022 periods.

Table 8: Total pollutant air emissions, industry emissions and trends[261]

Polluting matter	Total annual emissions in kt		Annual industry emissions in kt		Share of industry in total emissions in %		Industrial emissions trend, in %	Industrial emissions trend, in %
	1990	2022	1990	2022	1990	2022	1990–2022	2021–2022
NO_x	183.0165	184.9173	18.0917	14.3169	9.73	7.74	–19.61	3.95
SO_2	576.5929	184.9173	29.9822	13.9327	5.70	3.69	–53.53	3.66
CO	517.8765	366.7421	20.1935	42.5996	3.90	11.62	110.96	6.95
NH_3	126.0121	71.0173	8.3014	0.3347	6.75	0.47	–96.06	71.17
$PM_{2,5}$	54.6950	60.2295	4.7792	3.7391	8.74	6.21	–21.76	27.30
PM_{10}	73.2571	78.3041	10.6249	8.2671	14.50	10.56	–22.19	18.59
TSP	158.1582	94.3478	77.5659	18.5830	49.04	19.70	–76.04	9.29
Pb	372.1959	42.1402	9.3093	22.9811	2.50	54.53	–146.86	–5.83
Cd	3.9904	2.1778	2.4832	0.6336	62.23	29.10	–74.48	–38.77

259 Official Gazette of RS, no. 135/2004, 25/2015, 109/2021, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/skupstina/zakon/2004/135/7/reg

260 Ministry of Environmental Protection, Environmental Protection Agency (2024): REPUBLIC OF SERBIA INFORMATIVE INVENTORY REPORT TO LRTAP CONVENTION FOR 2024, available at: https://sepa.gov.rs/wp-content/uploads/2024/09/INFORMATIVE-INVENTORY-REPORT-2022.pdf (reviewed on 5/9/2025)

261 Environmental Protection Agency, Republic of Serbia Informative inventory report to LRTP convention for 2024

Polluting matter	Total annual emissions in kt		Annual industry emissions in kt		Share of industry in total emissions in %		Industrial emissions trend, in %	Industrial emissions trend, in %
	1990	2022	1990	2022	1990	2022	1990–2022	2021–2022
Hg	2.7684	1.3678	1.3103	0.4629	50.62	33.84	–66.97	–13.96
As	7.7583	4.8501	2.1222	1.0795	27.35	22.26	–49.13	27.35
Ni	16.8907	15.4103	8.3378	8.9518	49.36	58.09	–7.36	–2.87

Abstraction of Water and Discharge of Industrial Wastewater

Water resource management is very important for the Republic of Serbia due to the fact that transit water flowing through Serbia has its most important use in industry. Climate change has a negative effect on international river flows, and especially on availability of water from medium-sized and small domestic watercourses for industrial use. Water management and protection falls under the jurisdiction of multiple ministries and institutions. This is why there are no integrated methodologies and records of the industry's impact on the quality of water in Serbia.

Statistical Office of the Republic of Serbia provides information in its Statistical Yearbooks on abstraction, consumption and discharge of wastewater. According to the information from the 2024 Statistical Yearbook,[262] in 2023 industry abstracted 66 million cubic meters of water. Out of the total abstracted water quantity, industry used 18 million cubic meters for cooling. Out of the remaining 48 million cubic meters, 28 million cubic meters were discharged. There are no data on the amounts of wastewater released after and without treatment, respectively.

The Environmental Protection Agency is monitoring the quality of surface and underground water and prepares annual reports[263], but it does not offer assessment of the industry's impact on the current state of affairs. The Report

262 Statistical Office of the Republic of Serbia (2024): 2024 Statistical Yearbook, available at: https://publikacije.stat.gov.rs/G2024/Pdf/G20242057.pdf

263 Environmental Protection Agency (2024): Results of testing the quality of surface and underground water 2023, available at: https://sepa.gov.rs/wp-content/uploads/2024/12/KvalitetVoda2023.pdf

on the State of the Environment in the Republic of Serbia for 2023[264] provides a list of major nitrogen and phosphorus water polluters, which does not include industrial plants. Industry is the largest heavy metal water polluter.

The share of heavy metal emissions in the total emissions of pollutants in the Republic of Serbia is merely 0.1%, but their monitoring is necessary due to high toxicity and negative impact, primarily to human health.

Over the last six years, emissions of copper and zinc have been declining, whereas emissions of arsenic and chrome have stayed virtually the same. Emissions of other metals have been increasing. It is necessary to revise the methodology of monitoring metal emissions in wastewater, given that large fluctuations over several years raise doubts about the accuracy of these records.

Table 9: Emissions of heavy metals (in t) in wastewater in the Republic of Serbia, per year

Heavy metals in t	2018	2019	2020	2021	2022	2023
Zinc and zinc compounds (Zn)	109	71.8	150	121	121	94.5
Copper and copper compounds (Cu)	55.8	36	23	107	39.2	52.3
Arsenic and arsenic compounds (As)	13.2	21	1.4	11.5	16.7	13.3
Lead and lead compounds (Pb)	12	10	20.3	8.2	13	23.2
Cadmium and cadmium comp. (Cd)	4.3	1.6	4	5.6	3.7	6
Chrome and chrome compounds (Cr)	16.9	24.5	5.2	4.7	12.2	17
Nickel and nickel compounds (Ni)	11.6	5.6	3	3	18.4	20.4
Mercury and mercury comp. (Hg)	0.6	0.1	0.07	0.05	0.2	0.7

Source: Environmental Protection Agency[265]

264 Environmental Protection Agency (2024): Report on the State of the Environment in the Republic of Serbia for 2023, available at: https://sepa.gov.rs/wp-content/uploads/2025/02/ZivotnaSredina2023.pdf

265 Environmental Protection Agency (2024): Report on the State of the Environment in the Republic of Serbia for 2023, available at: https://sepa.gov.rs/wp-content/uploads/2025/02/ZivotnaSredina2023.pdf, table 3.2.2, p. 97.

Industrial Waste

In 2023, the activities of economic operators in Serbia generated 7,754,291 tons of waste, 90,147 tons of which were hazardous waste. Industrial plants generated 138,273 tons of non-hazardous and 15,084 tons of hazardous waste. This makes up for 1.78% of non-hazardous waste (mining waste not included) and 16.73% of hazardous waste generated by economic operations. The total amounts of both non-hazardous and hazardous waste are lower than in 2022.

Industrial Soil Pollution

Soil is a natural resource necessary for sustainable development. Its formation in nature is slow, but it is quickly destroyed in processes of degradation and contamination.

The new EU Soil Strategy for 2030[266] sets the framework and specific key actions aimed at protection and restauration of soil and securing sustainable exploitation. The Strategy defines vision and objectives for achieving optimal soil health by 2050, with specific actions by 2030, and will contribute to the objectives of the European Green Deal[267]. In addition to the basic Law on Soil Protection[268] the Republic of Serbia also adopted the Rulebook on the Content and Manner of Keeping the Cadaster of Contaminated Sites[269] and the list of activities that might cause soil pollution and degradation, procedure, content of information, deadlines, and monitoring requests.[270] The Environmental Protection Agency carries out an annual Soil Testing program, it collects and processes data on soil, prepares indicators of state of affairs and risk of soil degradation. It also keeps the Cadaster of Contaminated Sites, which is to represent a collection of information on threatened, polluted and degraded soil. The document envisaged by the Rulebook is not publicly available on the

266 https://environment.ec.europa.eu/topics/soil-health/soil-strategy-2030_en

267 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

268 Official Gazette of RS, no. 11/2015, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/skupstina/zakon/2015/112/19/reg

269 Official Gazette of RS, no. 58/2019, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/ministarstva/pravilnik/2019/58/4/reg

270 Official Gazette of RS, no. 102/2020, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/ministarstva/pravilnik/2020/102/6/reg

Agency's website.[271] However, there is a list[272] of sites where it was established that the limits of remediation have been exceeded. The list includes 33 sites, 29 of which are industrial facilities.

Integrated Permits

The Law on Integrated Prevention and Control of the Environment Pollution is implemented by issuing integrated permits for facilities that are subject to this obligation. As specified in the Starting Points, an ex-post analysis of the implementation of the Law on Integrated Prevention and Control of the Environment Pollution was carried out. It was then estimated that lack of necessary documents (exploitation and water permits) has exceptionally slowed down the process of issuing integrated permits, that the problems in issuing integrated permits are usually caused by unresolved property-legal relations, lack of necessary documents for this procedure, procedures at the Land Registry that were left unfinished, incomplete technical documents etc. When it comes to water permits, failures to complete procedures of issuing water permits are usually caused by lack of necessary documents.

According to the Starting Points, the total number of operators in the Republic of Serbia who are subject to the obligation of obtaining the integrated permit is 220, out of which 22 facilities operate in the metal processing and production industry, 25 operators are in the mineral, and 11 operators in the chemical industry, all of which makes up for 26.4% of the total number of all economic operators in Serbia who are required to obtain the integrated permit.

Since the beginning of implementation of the Law on Integrated Prevention and Control of the Environment Pollution, a total of 57 integrated permits were issued. Integrated permits were issued to 36% of the metal processing and production industry operators, 52% of the mineral industry operators and to 45% of the chemical industry operators.

271 https://sepa.gov.rs/katastar-kontaminiranih-lokacija/katastar/

272 https://sepa.gov.rs/wp-content/uploads/2024/12/Industrijski-kompleksi-2017-2023.pdf

Table 10: Overview of the number of plants per type of industry and share of issued permits

Type of industry	Number of IPPC plants	Share of issued permits (%)
1. Metal processing and production	22	36
2. Mineral industry	25	52
3. Chemical industry	11	45
Total	**58**	**133**

The Starting Points of the Draft Law on Integrated Prevention and Control of the Environment Pollution estimate that the fact that few requests were filed during the recent period was also affected by extremely high costs of harmonization of the existing facilities with the best available techniques and limit values of emissions defined in the BAT conclusions and that these facts are also necessary to be analyzed in detail through financial analysis.

In the Industrial Policy Strategy of the Republic of Serbia from 2021 to 2030[273], the Government defined as one of the key measures (Measure 3.2) an incentive program for investments in industrial production encouraging the use of high technologies that produce less impact on the environment, whose application is expected to make a significant contribution to the environmental protection. The effects of this measure will be measured by the investment volume and user satisfaction.

According to the assessment in the Starting Points, inspection supervision of the IPPC facilities was conducted pursuant to the Law on IPPC and Law on Inspection Supervision[274] in line with annual plans for inspection supervision and control lists. This supervision included a complete verification of all the requirements prescribed in the integrated permits. The problem that permeates the present situation refers to facilities that do not hold an integrated permit. This is reflected in divided jurisdiction for separate control of various environmental impacts (e.g., separate for water, separate for air, separate for

273 Official Gazette of RS, no. 35/2020, available at: https://pravno-informacioni-sistem.rs/eli/rep/sgrs/vlada/strategija/2020/35/1/reg

274 Official Gazette of RS, no. 36/16, 44/18 – as amended and 95/18.

waste management etc.), but also in separate supervision between inspectorates on the national, provincial and local levels.

In addition to this, according to the assessment in the Starting Points, the competent institutions have so far, in their application of the Law, published requests for issuance of integrated permits, drafts of permits and permits issued, as well as the related documents, both in the daily press and on their websites.

Financing

Financing in the field of Industrial Pollution and Risk Management is covered in more detail in the chapter Financing in the Field of Environmental Protection and Climate Change.

Recommendations

Strategic and Legislative Framework

1. Fully implement the Industrial Emissions Directive (IED), especially through adoption and implementation of the new Law on Integrated Prevention and Control of the Environment Pollution and other regulations; harmonize the Law on Planning and Construction with international standards; implement consistently the new Law on Environmental Impact Assessment (EIA) and the Law on Strategic Environmental Assessment (SEA), as well as the Air Protection Program and the new Law on Air Protection.

2. As part of the preparation for the adoption of the new Law on Integrated Prevention and Control of the Environment Pollution, conduct a comprehensive and objective analysis of its application so far and implement a comprehensive and participatory consultative process.

3. Competent authorities should accelerate the issuance of integrated permits and implement the Action plan for the development of administrative capacities, improve all administrative procedures in the process of issuing and controlling integrated permits, as well as increase capacities at all levels of administrative management, including inspections.

Implementation of Regulations

4. Strengthen the capacities of local communities for the application of regulations both in the field of industrial pollution and in the entire field of environmental protection.

5. Through the implementation of the new Law, improve the existing public Register of Integrated Permits so that it is more up to date and accurate, and make the updated information available to the interested public.

6. Through implementation of the new Law on Integrated Prevention and Control of the Environment Pollution, develop a unique electronic system to support administrative procedures for issuing and controlling integrated permits, which would significantly increase the efficiency of the process.

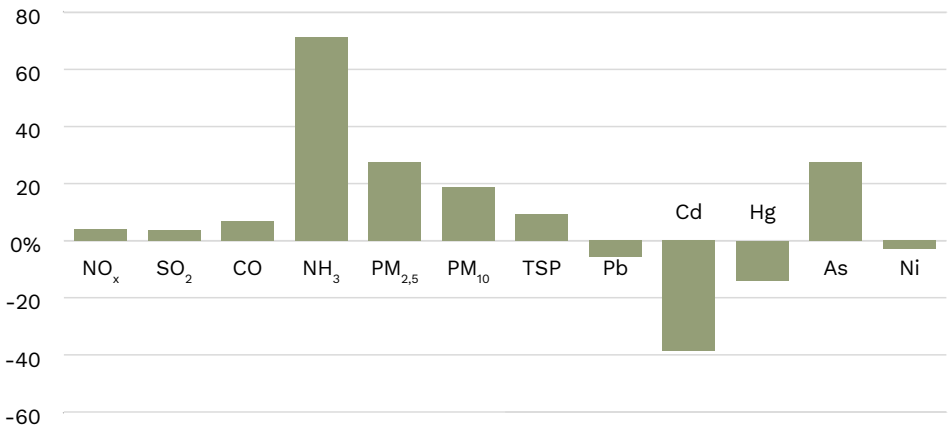
7. Strengthen monitoring systems for water, air, and soil quality in the zones affected by industrial facilities.

8. Educate the business sector, professional institutions, CSOs and citizens on industrial emissions and provide timely and objective information to the public.

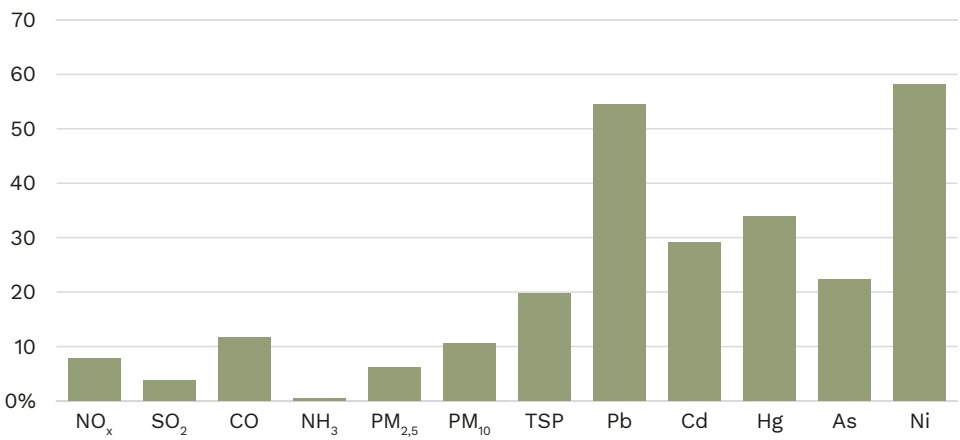
9. Through the implementation of the new Law on Integrated Prevention and Control of the Environment Pollution and other regulations, increase public participation in the process of issuing integrated permits and improve communication between competent authorities and the public.

INDUSTRIAL POLLUTION

Pollutant air emissions trends, 2021-2022



Share of industry in the total emissions in 2022



Source: Environmental Protection Agency, Republic of Serbia Informative Inventory Report to LRTAP Convention for 2024