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Part I: Environmental governance and financing

Chapter 1

Legal, policy and institutional framework for environmental protection and sustainable development

1.1 Legal framework

Whilst it currently is under its 44th Government, the Constitution (OG 01/07, 38/13-1) was adopted in 2007, after a national referendum in 2006. In so doing, it has incorporated all the key principles for good environmental and social governance stemming from the multilateral agreements, it has in time signed, ratified, and given supremacy over national legislation, while aligning its legislation to the relevant European Union (EU) Directives, as a candidate country for accession.¹ The Constitution states that Montenegro is “a civil, democratic, ecological state upholding social justice and based on the rule of law”.

According to the Constitution, *the state is responsible for the preservation of nature, sound environment, sustainable development, balanced development of all its regions and the establishment of social justice* (Preamble). The right to “a sound environment” is considered a human right, which includes the right to participate in environmental decision-making through “timely” access to information. Further, the protection of nature (and natural heritage) is acknowledged as both a citizen and a state duty, however natural resource are considered *res publica*, therefore owned by the State, as is the cultural heritage. Affecting environmental issues, the prohibition to experiment in cloning is a constitutional subject. Montenegro is also defined by its constitution as a “free and open market, where actors enjoy freedom of entrepreneurship and competition, independence of economic entities and the responsibility accepted in the legal undertakings, protection and equality of all forms of property”.

Law and policy making processes are mostly initiated by the Government and members of Parliament, whereas the Parliament adopts all primary legislation. The Government and ministries can issue secondary legislation as mandated by the Constitution. The President of the country is ultimately responsible to proclaim a law or to send it back for review. The 2023 Preliminary Opinion on the Legislative Process in Montenegro of the Organization for Security and Co-operation in Europe (OSCE) concludes, verifiably, that in the last decade the law drafting process has been mostly reactive to the requirements of the EU requirements for accession.² In so doing, the legislative process on environmental issues has on the one hand been progressing with speed between 2016 and 2018, notwithstanding the limited capacity of the Ministerial human resources to fulfil this process alongside other administrative duties and the financial resources necessary for implementation, which is still found wanting.³

In terms of implementation, there have been controversial opinions on the creation of an Administration for Inspection Affairs, which brings together all inspectors for the various sectoral legislation, including environment.⁴ However, in April 2024, the Administration was abolished, and the inspectors are expected to return to their respective ministries. The change of 85 laws has already begun by the Ministry of Public Administration to, presumably, reposition the inspectors in their sectors.⁵

Sustainable development

Progress has been made in the past decade to mainstream the principles and practices of sustainable development in all key legislation on environmental issues. The Law on the Environment (OG 52/16, 03/19) is dedicated to sustainable development, and it mandates implementation of the 2016 National Strategy for Sustainable Development (NSSD) for the period up to 2030 among other strategic policy documents. The Law on Agriculture

¹ EU (2010).

² OSCE (2023).

³ EU (2023a). OSCE (2023). Ministry of Sustainable Development and Tourism (2020).

⁴ Montenegro (Administrative inspection).

⁵ Institute Alternative (2024).

and Rural Development (OG 56/09, 34/14) has the sustainable management of agricultural resources in its objectives and measures. The Law presents the measures for sustainable agriculture resource management, including the sustainable use of genetic resources and of mountain pastureland. However, some key regional development and economic sector laws, such as the Law on Regional Development (OG 20/11), Law on Foreign Investments (OG 018/11, 073/19) and Law on Investment and Development Fund (OG 08/09, 080/17) do not refer to the concept of sustainable development.

Environment

The 2016 Law on the Environment had repealed the 2008 Law. The 2016 Law aligns with *EU acquis* and international conventions. Since 2013, several pieces of sectoral legislation have been amended, specifically between 2015 and 2020, to create an updated legal framework for the 10 segments of environment listed in the Law on the Environment. In the last decade, progress has also been made in preparing the strategic documentation, as mandated in the 2016 Law, including:

- Assessment of the impact of plans, programmes and projects on the environment;
- Responsibility for environmental damage;
- Integrated pollution prevention and control (IPPC);
- Nature protection;
- Protection of air, water, sea, land, forests and geological resources;
- Chemicals management;
- Waste management;
- Protection against the negative impact of climate change;
- Ionizing and non-ionizing radiation;
- Noise protection.

The full implementation of the information system on environmental protection, as mentioned under the Law on the Environment, as a consolidated system, is still ongoing. A cyber-attack on the automation system of the Government occurred in 2023. This impacted all websites, including those providing environmental information. However, the website of the Environmental Protection Agency (EPA) is running. The website is in the Montenegrin language.

The Law on Environmental Impact Assessment (OG 75/18) is implemented by a unit in the Environment Protection Agency, with three employees, and is linked to the Law on Spatial Planning and Construction of Structures (OG 64/17, 44/18, 63/18, 11/19, 82/20, 86/22, 4/23) (see chapter 2).

Regarding the Law on Nature Protection (OG 54/16, 18/19), it has a clear sustainable use approach and is linked to the Law on the Environmental Impact Assessment, with the introduction of Appropriate Assessments (AA). Both are implemented by the EPA, but the Appropriate Assessment (AA) process is less proactive on public participation at an earlier stage. The Law on Nature Protection applies to land and water ecosystems and aligns the Red Species List to criteria of the International Union for Conservation of Nature (IUCN) (see chapter 10). Amongst the main goals of this law are the determination and monitoring of the state of nature; the harmonization of human activities, economic and social development plans, programmes and projects with sustainable use of renewable and rational use of non-renewable natural values and resources; the protection and preservation of cross-border valuable parts of nature and protected natural assets and the preservation of the natural properties of the land, preserving the quality, quantity and availability of water, including quality sea water. Importantly, the law states that *Strategies, spatial plans, plans for the installation of temporary facilities, plans and programmes for the management and use of natural resources (mining, energy, transport, shipping, water management, agriculture, forestry, hunting, fishing, tourism and other activities that may have an impact on nature), strategic development plans and programmes must contain guidelines and conditions for nature protection*. This act, therefore, must be read with the sectoral legislation, such as the Law on Game and Hunting (OG 52/08, 48/15) and all acts establishing protected areas and hunting concessions. In terms of implementation, the complementary acts of reference are also the Law on National Parks (OG 47/91, 28/94, 39/16), whereas hunting concessions are defined by regulations based on the geographic area.

The Law on Game and Hunting was amended in 2015 to make hunting concessionaires financially responsible for the breeding and protection programmes, and to introduce the practice of sanitary game shooting in hunting

season. Further, it prohibits the hunting of species on the endangered list of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Therefore, the Recommendation 1.1(a) of the third EPR of Montenegro that pertain to legislative updates has been broadly followed.

The Law on the Protection of the Marine Environment (OG 73/19) refers directly to areas within the Natura2000 Network, includes special protection of protected sea and coastal areas, monitoring and reporting mechanisms, and addresses the negative impacts of climate change. It transposes the provisions of the Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy and links to the Convention on the protection of the marine environment and the coastal areas of the Mediterranean. Its scope encompasses open sea, river mouths (estuaries), the sea coastal area, including inland sea waters, the territorial sea under the sovereignty of Montenegro, and the seabed. This law must be read with new and updated legislation on aspects of water management and pollution, to gather a complete picture for its implementation, specifically the Law on Water (OG 27/07, 73/10, 32/11, 47/11, 48/15, 52/16, 84/18) and the Law on Municipal Wastewater Management (OG 02/17) and the Law on the Protection of the Sea Against Pollution from Vessels (OG 20/11, 26/11, 27/14), in accordance with ratified international agreements. From these acts stem the 19 Regulations adopted in the last decade and the others updated, as applicable. In terms of natural resources management, this Law must be read with the Law on Freshwater Fisheries and Aquaculture (OG 13/18), repealing the previous Law on Fisheries and the Law on Marine Fisheries and Mariculture (OG 56/09, 40/11).

The Law on Administrative Procedure (OG 56/14, 20/15, 40/16, 37/17) contains the basic administrative procedures in the country, including those related to the management of natural resources and the protection of the environment.

The Law on Water is complemented by the Law on Communal Activities (OG 55/16, 002/18, 66/19), the Law on Municipal Wastewater Management and the Law on the Provision of Healthy Water for Human Use (OG 80/17).

The Law on Liability for Damage to the Environment (OG 27/14, 55/16) stipulates measures for remediation of environmental damage and prescribes the mandatory insurance against damage to the environment.

The Law on Industrial Emissions (OG 17/19, 03/23) repealed the Law on Integrated Prevention and Control of Environmental Pollution (OG 80/05, 54/09, 40/11). The Law includes the principle of the best available techniques (BATs) to prevent, mitigate and eliminate pollution from industrial installations, as well as updated emission limits values, equivalent parameters and technical measures.

The Law on Genetically Modified Organisms (OG 22/08, 40/11) has not been updated despite more updated regulations stemming from the Law on Food Safety (OG 57/15).⁶ Whilst any genetically modified organisms per se are not produced in Montenegro, imports are allowed. As at May 2024, no safety assessment on genetically modified food was conducted. The Law on Food Safety regulates the conditions for food safety and hygiene, and safety of animal feed of animal origin and non-animal origin food. The Law also stipulates obligations and responsibilities of food and feed business operators, including those regarding the traditional products, as well as other issues of importance for the safety of food and feed, such as the hazard analysis and critical control points, all aimed to protect the lives and health of people, the environment, the consumers and the efficient functioning of markets. Since adoption, the Law has been progressively implemented by a vast number of Regulations and accompanied by several programmes, for all aspects and stages of production, processing and distribution of food and feed. One of the objectives of the law is the promotion of human health.

The Law on Waste Management (OG 34/24) was adopted in April 2024 to harmonize the national legislation with the EU legislation on the matter (see chapter 9). It repealed the Law on Waste Management (OG 064/11, 039/16). The adoption of the new Law on Waste Management was planned for 2021, but further delayed due to the political situation in the country. The new law strengthens the extended producers' responsibility and will provide a set of by-laws for its implementation related to the following product types: electrical and electronic equipment, vehicles, batteries, tires, packaging, single-use plastic products and fishing gear containing plastic (see chapter 9).

⁶ FAO (GM Foods Platform – Montenegro).

The Law on Air Protection (OG 25/10, 40/11, 01/15, 43/15) was adopted to avoid, prevent or reduce the harmful consequences of air pollution to human health and the environment. The few changes made to the original legislation pertain to the required compliance with relevant EU Directives, as part of the accession programme.

The Law on the Provision of Healthy Water for Human Use establishes the parameters for water quality, the obligations of legal entities performing the activity of public water supply, the activities in the case of deviations from prescribed values of parameters, the rules for monitoring the health of water for human use, as well as other issues of importance for correct water for human use, to protect human health. This law transposed EU Council Directive 98/83/EC on the quality of water intended for human consumption. It does not apply to the systematic testing of radionuclide content in water for beverages, natural mineral water recognized by the state administration body responsible for health affairs and water that is considered a medical product.

Environmental-related provisions in sectoral legislation

Tourism and leisure

Tourism and leisure sectors in Montenegro are based on natural resources, whether in the coastal areas or the forested areas inland. The Law on Tourism and Hospitality (OG 02/18, 04/18, 013/18, 25/19, 67/19, 76/20, 130/21) has been amended several times since its promulgation in 2018 trying to balance out the need for the sector to develop and provide employment and financial flows, and the need to protect natural resources from the pristine water sources in mountains to the coastal ecosystems of the Adriatic Sea. Still, it does not provide direct prescriptions for environmental protection. Rather, it is focused on providing standards for a high-quality tourism experience. It mandates to the requirements of the Law on Environmental Impact Assessment to decide on what development needs an environmental assessment of any type, and the Law on Food Safety for the catering sectors. However, it has cancelled provisions in the Law on Noise regarding catering services and the Law on Communal Activities regarding noise from acoustic devices. The Law on Tourism and Hospitality must be read with the Law on Tourism Organizations (OG 11/04, 46/07, 73/10, 40/11, 45/14, 42/17, 27/19), the Law on Tourist Tax (OG 11/04, 13/04, 73/10, 48/15), the Law on Mountain Paths (OG 51/08, 53/11), the Law on Ski Resorts (OG 13/07, 40/11, 21/14, 44/17) and the Law on Rafting (OG 53/11, 53/16, 57/16) in order to clarify the environmental-related provisions, which remain rather broad, namely in defining the impacts of tourism activities on nature and biodiversity.

The Government, in partnership with international donors, implemented the “Go Carbon Neutral” project,⁷ which aimed at reducing the greenhouse gas (GHG) emissions of the national tourism sector with four areas of interventions:

- Policy related to low-carbon tourism, spatial planning and eco-certification of accommodations (EU Ecolabel certification);
- Low-carbon transport;
- Pilot low-carbon tourism projects;
- Establishment of a tourism sector climate change mitigation fund, awareness raising on low-carbon tourism and tourism sector GHG inventory.

The Project started in 2014 and ended in 2019 covering key tourism areas. In terms of policy impacts, the Project was instrumental in the creation of the Environmental Protection Fund (Eco-fund), the preparation of the Law on Industrial Emissions and the inclusion of ecological fees in the Law on Road Transport (OG 82/20).⁸

Forestry

The Law on Forests (OG 74/10, 40/11, 47/15) contains the provisions aimed at regulating the cultivation, protection, preservation and improvement on forests. This legislation has not been updated since but is implemented by a series of regulations which have been updated or adopted in the last decade, mostly pertaining to the use of timber forest products for the forestry industry. The only notable exception is the Regulation on the evaluation of function and purpose of forests (OG 09/13), which contains several forest evaluation terms related

⁷ Moving Towards Carbon Neutral Tourism in Montenegro (no date).

⁸ Montenegro (2020a).

to the forest production, ecological and social use of forest land; establishes the classification of the forest land based on purpose (commercial, protective and forests of special purpose); imposes rules regarding the protection against erosion and landslides; and establishes the evaluation issues regarding the effective impact of infrastructure construction works.

Stemming from the Law on Forests, several decisions and regulations have been adopted in the last decade pertaining to the utilisation of timber and non-timber forests products, for traditional and commercial uses. The 2014 Regulation on granting the timber use of state-owned forests (sanitary timber); 2019 Regulation on methods of marking of trees for cutting, receiving and marking of wood assortments; 2021 Decision on granting state-owned forests for use by selling timber in dormant state (regular timber in 2021); and 2022 Decision on giving state-owned forests for use by selling timber in dormant state (regular felling in 2022) are implementing bylaws of the Law on Forests, the Law on State Property (OG 21/09) and the Law on Concession (OG 04/09, 44/10).

Industry

The Law on the Environment created the enabling conditions for the transposition of elements of the Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances, including the adoption of two critical Rulebooks on (1) the detailed content of accident prevention Plan and accident protection Plan, and (2) on quantities of dangerous substances by category which defines the risk degree of Seveso facilities. Further, the Seveso facilities register is fully accessible on the website of the EPA.

The Law on Industrial Emissions, in accordance with the Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control), prescribes the application of the BATs to prevent, mitigate and eliminate pollution from industrial installations (see chapter 13). The BATs are at the core of the established permitting system, and their application is mandatory for IPPC installations. The emission limits set by the Law for large and medium combustion plants are to be considered very stringent. However, the Law also establishes the possibilities of special exemption to BATs or levels of emissions when the cost of the installation is determined to be “disproportionally high” compared to environmental benefits. The Law on Industrial Emissions *regulates measures for the prevention and control of emissions arising from industrial plants [...], which may have negative effects on human health, the environment or material goods and other matters of importance for the integrated prevention and control of environmental pollution*. This commitment is found in the principles of integrated prevention and control of environmental pollution and the elements of permitting.

These laws should be read with the legislation under the Ministry of the Interior responsible for disaster management:⁹

- Law on the Protection and Rescue (OG 13/07, 05/08, 86/09, 32/11, 54/16, 146/21);
- Law on Transport of Dangerous Materials (OG 05/08, 33/14, 13/17);
- Law on Explosive Substances (OG 49/08, 31/14, 31/17);
- Law on Flammable Liquids and Gases (OG 20/10, 48/15).

Energy

The Law on Energy (OG 5/16, 51/17, 82/20, 29/22) regulates energy activities (electricity and gas) and the provision of safe and high-quality energy, as well as encourages the use of sustainable energy from renewable sources and methods of production, including cogeneration. It considers energy as a good and service of public interest. This law aims at harmonizing the organization and functioning of the national energy sector with those of the European countries. The Law places the onus on the local self-government to provide local energy plans, including the required assessments, which need to prioritize heating/cooling systems from renewable sources. However, the Law on Energy, further, stipulates that it does not apply to:

- Exploration and exploitation of coal, except exploitation for the production of electricity and heat energy;
- Exploration and exploitation of oil and gas, development, production or refining of crude oil or gas;
- Energy efficiency in final energy consumption.

⁹ Dragutinovic (2021).

The Law should be read with other legislation related to energy efficiency, such as the Law on the Environment, the Law on Strategic Environmental Assessment (OG 80/05, 73/10, 40/11, 59/11, 52/16) as well as the Law on Efficient Use of Energy (OG 57/14, 25/19, 140/22). The latter complies with Directive 2012/27/EC on energy efficiency; Directive 2010/31/EC on the energy performance of buildings; Directive 2010/30/EU on energy labelling of energy related products; Directive 2009/125/EC establishing a framework for the setting of eco-design requirements for energy-related products.

Lastly, the Law on Energy is implemented by nine regulations adopted between 2016 and 2018 on aspects of pricing, calculation of energy share, promotion of renewable sources, biofuels and bioliquids, and energy permits.

Mining

The legal framework for the management of mineral resources includes the Law on amendments to the Law on Exploration and Production of Hydrocarbons (OG 41/11, 12/13), including offshore explorations, the Law on Geological Explorations (OG 28/93, 42/94, 26/07, 28/11), the Law on Mining (OG 065/08, 074/10, 040/11) and the 2011 Regulation on the State Plan for Exploitation of Mineral Raw Materials (OG 44/11). These regulate the extraction, transformation and transporting of Critical Raw Materials (CRMs) and may require updating in order to transpose the EU Regulation 2024/1252,¹⁰ establishing a framework for ensuring a secure and sustainable supply of CRMs.

Health

In the objectives of environmental protection (Law on the Environment), the law states the clear relations between environmental and human health, with sustainable development being the key approach to support both. It also declares the human right to have a healthy environment and access to justice: environmental health is one of the objectives of activities financed by the Eco-fund. Human health is further referred to as an outcome of protection of all segments of environment, of inspections thereof, of the accident prevention and control for Seveso plants, of the planning of protection zones surrounding industrial activities, and of the safe disposal of critical pollutants, as well as of the monitoring on the state of the environment and the information about the environment. The Law on the Environment, therefore, creates the enabling framework for sector-specific legislation to be issued on several aspects pertaining to human health.

Chemicals

The Law on Chemicals (OG 51/17) specifies the classification, labelling, packing, marketing, export and import of chemicals, as well as any other issue relevant for the protection of human health and the environment from the harmful effects of chemicals. The Law was strengthened by the Seveso article of the Law on the Environment, which adopts a risk management approach to plants and complexes. All related Rulebooks have been adopted.

The Law on Biocidal Products (OG 054/16, 034/24) regulates the manner of placing biocidal products on the market and their use, import, export, as well as other issues relevant to the use of biocides. All related Rulebooks have been adopted.

Construction and Spatial Planning

The Law on Spatial Development and Construction of Structures OG 51/08, 40/10, 34/11, 47/11, 35/13, 39/13, 33/14) underpins the land-use planning in the country, which has, among others, the goal of rationally using the natural environment and its resources, as well as their protection. Overall, this legislation is an improvement from the previous Law (OG 51/08), as it legally frames all aspects of spatial planning and construction (both private and public) in environmental law, horizontal, vertical, and regional cooperative governance, and disaster risk reduction. It establishes a digital spatial information system where any administrative body is obliged to send any document of relevance issued. However, there does not seem to be public access to this digital system. Both the spatial plan and the general regulation plan are drafted at national level and adopted by the Parliament for a period

¹⁰ EC, 2024 Regulation (EU) 2024/1252 establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1724 and (EU) 2019/1020Text with EEA relevance. PE/78/2023/REV/1.

of 20 years and 10 years, respectively. Despite the provision for representation of the local self-government in the preparation of the plan, the centralisation of planning for local spaces reduces the ownership of the plans by the individual local governments, which will still be tasked with fundraising for the implementation. The repercussions are even more significant with the participation process, although it is supposed to happen at conceptual planning state. The scale of this exercise is too wide, and time constrained to allow for a meaningful contribution from municipalities, citizenry and the private sector. The Law has special provisions for “complex engineering facilities”, which loosely refers to infrastructure development. The Law states that *in addition to the actions referred to in Article 67 of this law, [it] also includes the performance of investigations, operations, installation and testing of installed equipment, testing and commissioning of the facility*. For these facilities, both the national and local inspectors can order the demolition of a partial or fully constructed building or fine the owner of the projects if in breach of any procedural misconduct. But once permits have been granted according to the law, the building remains. The fines range from €500 to €40,000: a small price to pay if no remediation is to be included or if the damage to the environment is irreversible. For the installation of barrier-free mobility facilities, the Government charges no fee or cost of issuance, and the permits can be done at municipal level, until the General Regulation Plan is adopted, then it will at national level. As at June 2024, the General Regulation Plan has not yet been adopted, but a decision was taken on the preparation of the Strategic Environmental Assessment of the General Regulation Plan in 2020.

Besides this overarching act, there are some key pieces of legislation that affect all type of infrastructure development that have been promulgated and amended in the past decade. The Law on Public-Private Partnership (OG 73/19) provides the regulatory framework for public-private partnerships in Montenegro and outlines the provisions for the country’s procurement and management process, whereas the Law on Public Procurement (OG 79/19, 03/23) governs the process of public procurement in Montenegro. Also, the Law on Concessions (OG 08/09, 073/19, 125/23) is limited to the regulations for natural resources, goods in general use and other goods of general interest, which are state-owned or performing activities of public interest. The Law on the Environment ensures that any infrastructure project is developed in a manner that minimizes its impact on the environment and its natural resources, including cultural heritage, as well as marine and coastal areas. Furthermore, the Law on the Environmental Impact Assessment and Law on Strategic Environmental Assessment govern the assessment of environmental impacts of infrastructure projects. These laws, with the Law on the Environment and the Regulations on Projects subject to Environmental Impact Assessment (OG 20/07, 47/13, 53/14, 37/18), can influence the design, location and implementation of infrastructure development. The Law on Liability for Damage to the Environment defines what is a liability and the types of fines and remediations that can be imposed on the offender. Finally, the Law on Participation of Private Sector in Delivery of Public Services (OG 31/02, 08/09) applies to the delivery of public services through leasing and management, concession, and Build-operate-transfer contracts in the parts that do not contradict the Law on Concessions, which takes precedence.¹¹

Others

In addition to these, there are also specific regulations such as the Rulebook on the Form of Public-Private Partnership Feasibility Analysis and the Rulebook on the Methodology for Value-For-Money Assessment¹².

The Law on the Protection and Rescue addresses disaster risk reduction (DRR) objectives and activities and is in line with the 2017 DRR strategy with a dynamic plan of activities for the implementation of the strategy for the period 2018–2023; and the Coordination Team for protection and rescue was appointed in 2022.

Implementation and enforcement issues

Overall, the last decade has witnessed an increased number of sectoral plans, programmes and strategies; the amendments of sectoral legislations, regulations and rulebooks to keep updated with EU directives and regulations; the update of socio-economic sectors requiring the compliance with environmental standards; and the allocation of environmental responsibilities to 25 institutions within the national and local government spheres¹³. Possibly due to the rapid changes in governments and the numerous evolutions in the names and

¹¹ Institute Alternativa (2012).

¹² World Bank (2023).

¹³ Kandić (2023).

allocations of ministerial responsibilities¹⁴, the country has not steadily progressed from legislation drafting to implementation and enforcement, with still several grey areas in terms of roles and responsibilities, as well as competences within the ministry responsible for environment, across ministries and between the national and local scale.

Two critical constraints towards consistent law implementation and enforcement have been identified. As at June 2024, the human capacities within the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development for conducting daily law implementation tasks, drafting new laws with the fast-paced turnover of governmental conditions, and supporting top management duties were simply not sufficient. Neither were the financial capacities of the budget sufficient to enhance drafting and implementation, as well as ensuring the functionality of integrated platforms, working group and committees for legislative implementation¹⁵. Directly affecting the implementation of the Law on the Environment is the employment of only six inspectors to monitor the implementation of said law, and of the stemming legislation, at the national level. For matters falling under the municipal mandate and competences, the support of the Union of the Municipalities of Montenegro is paramount to provide relevant capacity and foster cooperation between the national and local spheres of government. This is because the Law on the Environment establishes that the state and local self-governments provide financial resources for the protection and improvement of the environment. Thus, the Recommendation 1.1 (b) of the third EPR has not been fulfilled.

1.2 Policy framework

The 2018 Decree on Procedure of Drafting, Alignment and Monitoring Implementation of Strategic Documents (OG 54/2018) and the accompanying Methodology for Policy Development, Drafting, and Monitoring of Strategic Planning Documents together form the basis for the current system of strategic planning in Montenegro. The Decree stipulates sectoral and inter-sectoral approach to strategic planning, focuses on the alignment between over-arching and sectoral strategic documents and alignment with the EU policy framework. Among the additional support mechanisms are the Network of Public Servants for Strategic Planning and the Training Programme for Civil Servants for Strategic Planning, both aiming to enhance capacity building within the ministries.

According to the latest 2023 Report of the EC on Montenegro,¹⁶ the overall quality of strategic documents has been improving. The legal framework and institutional structures for policy development are in place. The general secretariat of the Government increased its attention to incorporating gender and environment into all policies. Stronger coherence has been achieved between strategic documents. Nevertheless, further work is needed to make this process more effective and practical, including by training all stakeholders. Proper costing of strategic documents and their linkages to the budgetary process continue to require particular attention. Therefore, implementation of the Recommendation 1.2 from the third EPR is ongoing.

Furthermore, the evidence-based¹⁷ policymaking remains only partially ensured, and the issue has been raised by several publications on this topic.¹⁸ According to the national study (2021)¹⁹, significant number of strategic documents do not use relevant data to improve the formulation of goals and indicators definition. In addition, the progress reports and implementation reports are not always timely developed and publicly available.

Sustainable development

The NSSD is an umbrella strategy. It replaced the 2007 NSSD, for which the implementation level was reported at 60 per cent of planned measures.²⁰ The NSSD builds on the implementation outcomes of the previous strategies, incorporates the evolution of the international agenda, and responds to the needs of the EU accession process and

¹⁴ EU (2023a). ECE (2019).

¹⁵ OSCE (2023).

¹⁶ Directorate-General for Neighbourhood and Enlargement Negotiations (2023).

¹⁷ 'Evidence' refers to multiple sources of data, information and knowledge, including quantitative data such as statistics and measurements, qualitative data such as opinions, stakeholder input, conclusions of evaluations, as well as scientific and expert advice.

¹⁸ EC (no date).

¹⁹ RESPA (2024).

²⁰ Djurovic (2018).

relevant acquis. The 2016 NSSD is based on the 2030 Agenda on Sustainable Development and defines strategic goals in six thematic areas: i) human resources; ii) social resources; iii) natural resources; iv) economic resources; v) sustainable development governance; and vi) financing for sustainable development.

The Strategy considers four types of resources - human, social, natural and economic, as well as the institutional and legal framework. Among the constraints for sustainable development, recognised by the Strategy, are those pertaining to:

- Human resources: brain and physical drain is hampering the local economy with youth abandoning the northern region towards the economic centres or abroad, youth with access to education remains in the country if decent jobs are available (mostly private sector and international organizations) or migrates to other countries. Albeit the largest employer, state salaries are not competitive.
- Social resources: the Montenegrin society is, like many in the world, struggling to find cohesion on critical aspects of sustainability from the use of natural resources to managing waste. With the relatively low average salaries, (the minimum wage has recently increased to €500 per month), facing increased costs of living, the country's population does not prioritize environmental issues over monetary considerations.
- Natural resources: living with the legacy of unsustainable development, despite a relatively small industrial sector, means that much must be done to protect the resources available - from pristine water sources to indigenous forests and coastal ecosystems. The struggle, given social and economic contexts, is to find the strength to implement much needed legislation against other interests and opportunistic affiliations.
- Economic resources: the country is basically a net importer and, since the turn of the century, has struggled to create an active economy in any sector, including agriculture. Fighting unemployment and the grey economy are critical priorities to set the country on a sustainable development path that revolves on decent jobs and a just transition, to avoid further deterioration of the natural resources and social capital.

The 15-year Action Plan is an integral part of the 2016 NSSD. It corresponds to the six thematic areas, and further details 30 strategic goals, 102 measures, 601 sub-measures, and multiple indicators. With regards to the third thematic area – natural resources (iii), the following strategic goals are defined:

- Improve the efficiency of renewable natural resource management
- Stop degradation of values of renewable energy sources (biodiversity, water, sea, air, soil)
- Enable symbiosis of effects of environmental performance improvement and protection of human health
- Solve problems of unsustainable capacitating of space generated by unrealistic demand in terms of quantity and low quality of built-up areas
- Enable resource-efficient use of metallic and non-metallic resources
- Mitigate natural and anthropogenic hazard impacts.

The Action Plan does not define the milestones. However, the progress reporting is foreseen every two years starting from 2019 onwards. The 2016 NSSD underlines that the monitoring and reporting is the key for successful implementation of the NSSD and recognizes that the main shortcomings in the implementation of the 2007 NSSD are related to this phase. However, according to the 2022 Second Voluntary National Review (VNR),²¹ very limited progress has been achieved in establishment of the planned system for monitoring the achievement of the NSSD goals or SDGs. Consequently, absence of reliable, up-to-date, and disaggregated data/indicators for NSSD 2030 and the SDGs undermines the possibility to assess the situation and timely adjust policies and measures to ensure the goals are achieved. The reported weaknesses (incompleteness) or unsuitability of the primary information systems were highlighted in several sectors, including health, education, environment and waste management.

A Roadmap Towards the Circular Economy was developed in 2022 by the Chamber of Economy of Montenegro with the support of the United Nations Development Programme (UNDP).²² It has been recognised as an important milestone for the development of the national transition path to a circular economy. The Ministry of Economic Development has further introduced the National Strategy for Circular Transition until 2030. It defines six strategic goals and lists several operational goals for the two-year period of 2023–2024. Further evaluation and revision of the Strategy is foreseen following the assessment of the defined actions.

²¹ Montenegro (2022).

²² UNDP (2022).

EU integration process

Montenegro continues the EU integration process. The 2016 National Strategy with Action Plan for transposition, implementation, and enforcement of the EU acquis on Environment and Climate Change for the period 2016–2020²³ was adopted to achieve transposition of the EU environmental *acquis* into the legal system of Montenegro. The Strategy specifies EU legislation that is already transposed and, on the other hand, EU legislation that is to be transposed at the national level for the following subsectors: air quality; waste management; water quality; nature protection; industrial pollution; chemicals; noise; civil protection; climate change. Specific measures for each one of these subsectors are laid down under the Action Plan. According to the final implementation report, 229 out of 348 activities were completed during 2016–2020. However, important activities in the waste and water sectors and on nature protection remain pending. Further accession documents included Montenegro's Programme of Accession to the European Union for 2021–2023²⁴, and for 2022–2023²⁵. As of May 2024, the Montenegro Programme of Accession to the European Union 2024–2027 was being drafted. Reportedly, 42 obligations are foreseen under the negotiation chapter 27— Environment and climate change.

Economic and social development

The 2016 NSSD is also the primary strategic document for socioeconomic development in Montenegro. In addition, the Strategy for the Development of Micro, Small and Medium Enterprises was introduced for 2018–2022 and a new strategy is being drafted.

The National Strategy for Gender Equality 2021–2025²⁶ with a two-year action plan was introduced in 2021, which followed the 2017–2021 Action Plan for Achieving Gender Equality with the Implementation Programme for 2017–2018, reflecting the importance of the role of women in the socio-economic development of the country.

Environment

At the time of the third EPR of Montenegro, the country adopted its National Strategy for Climate Change until 2030,²⁷ under which the Third National Communication on Climate Change²⁸ was published in 2020. The Strategy accounts for the other existing policy documents, such as the Energy Development Strategy until 2030, and the National Strategy for Renewable Energy. It further focuses on harmonization with the EU climate change legislative framework. The country has not developed the National Adaptation Plan (NAP) foreseen by the Strategy, but there is a circulating draft. The Intended Nationally Determined Contributions (NDCs) were updated in 2021, and the First Biennial Transparency report is planned to be developed by the end of 2024.

The National Strategy on Waste Management for the period 2015–2030 is the key policy document on waste management in Montenegro. The National Waste Management Plan for the period 2015–2020, further revised in 2018, was based on the Strategy. A new national waste management plan was reportedly planned for the third quarter of 2022; however, as at June 2024, it has not been adopted.

The 2015 Water Management Strategy until 2035 continues to be implemented. Implementation reports follow the Regulation on detailed contents of the water management strategy and on strategy implementation reports (OG 017/16). The Strategy recognizes the necessity of significant changes in the practice of planning and managing in water sector, on the principle of sustainable development. The National Strategy for Integrated Coastal Zone Management was as well adopted in 2015²⁹ and planned for a 15-year period. Furthermore, the implementation of the Municipal Wastewater Management Plan of Montenegro for 2020–2035 is also ongoing.

²³ Montenegro (2016).

²⁴ Montenegro (2021b).

²⁵ Montenegro (2022a).

²⁶ Montenegro (2021a).

²⁷ Montenegro (2013). Montenegro (2021).

²⁸ Montenegro (2022b).

²⁹ Montenegro (2015).

The 2015 National Biodiversity Strategy with the Action Plan for the period 2016–2020, which replaced the National Biodiversity Strategy with the Action Plan for the period 2010–2015, was the main strategic document for biodiversity management in Montenegro but has now expired, however, a new National Biodiversity Strategy financed by the GEF is prepared. The Strategy required development of the National Biodiversity Monitoring Programme until 2021, which has not been implemented.

There has been no follow-up to the National Strategy for Air Quality Management for 2013–2016. At the session of November 10, 2022, the Government adopted the National Plan for Protection and Rescue from Radiation and Nuclear Accidents. In addition, the Radon Protection Programme with the Action Plan for the period 2019–2023 have been adopted in December 2018.

The 2023 Strategy on Chemicals Management for 2024–2026 followed the two previous strategies - for 2019–2022 and 2015–2018.

The Programme for Phytosanitary Measures in 2014, 2015, 2019, 2020 and 2021 has contributed to the implementation of the Law on Genetically Modified Organisms.

Sectoral development with a possible impact on environment

Tourism and leisure

A Tourism Development Strategy for 2022–2025 with the Action Plan was developed by the Ministry of Economic Development, and it is reported on annually. It replaced the earlier Tourism Development Strategy to 2020 with the Action Plan. The current Strategy dedicates some attention to the “green and responsible tourism” under which it proposes creation of a national certificate for responsible tourism in parallel to already existing international labels. The “Go Carbon Neutral” project is an example of the Government’s efforts to reduce the GHG emissions from the tourism sector in the country. The Strategy further recognises that tourism in Montenegro is at risk of multiple climate hazards and increased environmental pollution. Among the Strategy’s seven operational goals and numerous related measures, a limited number of activities is linked to incentivising “responsible” tourism, namely activity 3.1.1 on incentive measures for the development of green/eco types of hospitality facilities for accommodation, and activities under goal 4 on voluntary environmental certificates for accommodation facilities and national certificates in the tourism industry. These have a target deadline in 2022 and 2023, respectively. The Strategy also aims at tackling the needs of the key community infrastructure developments in the water and waste management sectors. The Strategy is harmonized with the Spatial Plan of Montenegro until 2040.

Since 2013, several programmes for cultural, rural and health tourism were developed between 2018 and 2021, in partnership with international agencies.

Forestry

The National Forestry Strategy 2014–2023 had two general objectives: i) improve the sustainable management of the forest resources and subsequent increase of the forest stock, and ii) increase the general income deriving from forestry sector, timber industry and other dependent activities performed on the territory of Montenegro (see chapter 12). Following the 2018 evaluation, which reported on the unrealistic planning and lack of financial and human resources, the Strategy was revised with the focus on improving the business environment in the sector. The draft of the next national forest strategy is reportedly under development. The latest National Forestry Inventory dated from 2013.

Industry

Industrial development in Montenegro has been framed by the Industrial Policies for the period 2019–2023 and for the period 2024–2028.³⁰ These strategic documents support the to develop the competitiveness of the national economy and align with the key EU policies within the accession process: smart specialization, digital agenda, green growth, and circular economy. The latest Industry Policy for the period 2024–2028 is the latest strategic

³⁰ Montenegro (2024d).

document on the industrial sector aimed at the development of the competitiveness of the Montenegrin economy in this sector. The Policy refers to environmental protection and continues recognizing green circular economy as one of the important directions for future development. In particular, the operational objective 2.2 focuses on “Supporting industry towards climate neutrality” and stipulates a share of RES in final consumption value of 47 per cent by 2028.

Fisheries

The Fisheries Strategy 2015–2020 with the Action Plan ³¹ followed the 2006–2016 Fisheries and Aquaculture Development Strategy, with a more pronounced focus on the elements necessary for harmonization with the EU acquis in this field. One of its strategic goals was creating the links with the tourism sector. Notably, the latest Tourism Development Strategy did not put an emphasis on the fisheries sector. Among its other aims were to make fisheries more productive and sustainable. Drafting of the next fisheries sector development strategy is ongoing.

Energy

The 2011 Energy Policy of Montenegro until 2030 and the 2014 Energy Development Strategy of Montenegro by 2030 were supported by the midterm Action Plan for 2016–2020. The National Renewable Energy Action Plan 2020 to 2030 was developed to implement the Directive 2009/28/EC on promotion of the use of energy from renewable sources. The country’s National Energy and Climate Plan, which should outline the coal phaseout path, is pending.

Health

The National Healthcare Development Strategy for 2023–2027 ³² with the Action Plan for 2023–2024 is a framework document in the healthcare sector which defines strategic priorities for the health system of Montenegro. The Strategy mentions social inequalities and environmental pollution as significant factors impacting health and well-being of the population. To this end, the Strategy calls for the monitoring of the better environmental and social conditions that impact the health of citizens.

The Strategy draws links with the other relevant strategies, *inter alia* the Government Midterm Work Programme 2022–2024, the Programme for the Control of Bacterial Resistance to Antibiotic Resistance Control Programme for 2022–2024, Strategy for the Protection of Persons with Disabilities from Discrimination and Promotion of Equality for the Period 2022–2027.

1.3 Strategic environmental assessment

Montenegro has been applying the strategic environmental assessment (SEA) to plans and programmes since 2008, after the provisions of the Law on Strategic Environmental Assessment entered into force. In 2016, the Law on Strategic Environmental Assessment and the Law on Nature Protection, as well as several regulations of subsidiary legislation, were further aligned with the Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment. The country applies the SEA tool to strategies, programmes and plans when their implementation may cause significant impacts on the environment. The country has a practise of issuing a separate decision to develop a SEA for certain national level plans and programmes.

Responsibility for conducting the SEA procedure lays with the authority responsible for preparing a plan or programme (for national level planning documents), or with the local government (for the local level planning documents). The evaluation and approval of the SEA reports for national plans and programmes are undertaken by the one-person unit with the EPA, and by the local environmental authority for the local plans and programmes. The consultation with other authorities during different stages of the SEA procedure is a requirement of the Law and is implemented by the EPA. However, its efficiency of implementation should be further strengthened.

³¹ Montenegro (2015a).

³² Montenegro (2024a).

The sectors in which SEA may be required include agriculture, forestry, fishery, hunting, energy, industry, including mining, transport, telecommunications, tourism, regional development, spatial and urban planning, and land use, coastal zone management, water management, and waste management. Planning documents in these areas are subject to SEA if they set a framework for future development of projects that are subject to EIA. SEA is implemented for all planning documents that are likely to have effects on legally designated protected areas.

According to the Law on Strategic Environmental Assessment, the need for SEA is determined by the authority in charge for the development of the plans and programmes on a case-by-case basis considering two groups of criteria: those related to the plan or program, and those related to the possible impacts on human health and the environment.

Public participation in SEA is required by the national legal framework. The public is notified about the draft plans and programmes via printed and electronic media resources, and via the website of the EPA.

There is a Department of Horizontal Legislation in the Ministry for Ecology, Sustainable Development and Northern Region Development, responsible also for SEA. There is one person covering the SEA process at the Ministry, and there are two vacancies that are not being filled due to budget constraints. One person deals with the SEAs revision in the EPA. The number of SEAs per year in the period from 2013 to 2023 varied significantly from only 2 in 2016 to over 15 in 2018–2020. Therefore, the human resources allocated for the implementation of the SEA procedure could be insufficient, considering the growing number of SEAs.

In 2009, the country became a party to the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (the SEA Protocol) by adopting the Law ratifying the Protocol on Strategic Environmental Assessment (OG 03/09). The latest Questionnaire for the Report of Montenegro on the implementation of the Protocol on Strategic Environmental Assessment in the period 2019–2021 indicated 3 transboundary SEAs and 10 domestic SEAs. The estimated average duration of the procedure for domestic SEA is around two years.

Overall, Montenegro continued the implementation of the SEA procedure at national and local levels. The legal framework was further developed by amending the 2005 Law on Strategic Environmental Assessment in 2013. The Law foresees the possibility to obtain the opinion of experts and to form a committee to evaluate the SEA report. This partially implements the Recommendation 1.3 of the third EPR. However, no real progress has been reported with regards to the increased capacities to implement the SEA procedure both at the national and local levels. Participation of the public in the SEA process remained low. Therefore, Recommendation 1.4 of the third EPR continues to be valid.

1.4 Sustainable Development Goals

Overall framework for implementation, follow-up and review

The National Council for Sustainable Development and the Office for Sustainable Development at the General Secretariat of the Government are the key governmental bodies responsible for the implementation of the goals of sustainable development in Montenegro. The National Council for Sustainable Development was established in 2002 as an advisory body of the Government with the aim of strengthening the capacity to implement sustainable development policy. The Council is presided by the Prime Minister of Montenegro and consists of 39 members (mostly representatives of the Ministries).

In 2005, the Office for Sustainable Development was established within the General Secretariat of the Government, as the Secretariat of the Council. The Head of the Office for Sustainable Development is the Secretary of the Council. Between 2011 and 2021, the Office for Sustainable Development was integrated into the ministry in charge of the environment, at that time. Since 2021 it was returned to the General Secretariat of the Government. A critical activity initiated by this Office is the creation of a Donor Coordination Fund to create a repository of all funds received for sustainable development in the country, its timeframe and allocation. This will have a tremendous impact on the transparency profile of the Office, especially if the Fund is to take into consideration the EU funds as well.

The NSSD is a key strategic document for the adoption of the Sustainable Development Goals (SDGs) into the national context in Montenegro. The country submitted two VNRs of implementation of the 2030 Agenda for Sustainable Development. The first VNR was prepared in 2016 and reflected on the implementation of the 2007 NSSD. The second VNR was published in 2022 and reflected on the implementation of the 2016 NSSD. It reported positive developments in achieving certain goals under the SDGs in focus of the second VNR (namely SDGs 1, 4, 5, 14, 15 and 17), but also highlighted some gaps and challenges. They are related to the lack of relevant data and information, irregular reporting caused by the limited numbers of the civil servants and frequent changes of the personnel in charge of monitoring of the NSSD and SDGs in various institutions. Moreover, quantitative indicators are missing to assess the progress for some of the goals.

By adopting the NSSD, the country supported prioritization of sustainable development path and introduced a concept of green economy, governance and finance for sustainable development (through SDGs 7, 8, 9 and 12). Furthermore, Montenegro was a signatory to the 2020 Sofia Declaration on the Green Agenda for the Western Balkans, which in turn aligns with the EU Green Deal. However, the transition path towards the green economy has not been identified nor integrated into the other strategic document. Therefore, Recommendation 1.5 of the third EPR is ongoing.

In 2023, the National Council for Sustainable Development issued the Statement of Commitment to the Implementation of Sustainable Development Goals³³. Within this statement, six areas were prioritized: “Leave No One Behind”, “Justice for All”, “Quality Education”, “Gender Equality”, “Green transition and action in the field of climate change”, and “Disaster Risk Reduction”, in addition to enabling institutional and financial framework.

Nationalization of SDGs

Out of 169 targets of sustainable development under 17 SDGs, 167 targets were determined as relevant for Montenegro. The Office for Sustainable Development monitors a total of 61 indicators, with data provided by the Statistical Office³⁴, while another 70 are monitored by the international institutions in the country.

Monitoring of the SDGs is directly related to the monitoring of the 2016 NSSD. The later includes four groups of indicators to measure the progress: i) SDG indicators (231 unique indicators); ii) national indicators (252 indicators); iii) international indicators (31); and iv) so-called complex indicators. The two working reports on the NSSD developed in 2019 and 2022 showed that little progress has been accomplished on the establishment of the planned monitoring system for the NSSD goals and the SDGs.

At the end of 2022, a national digital platform³⁵ for monitoring of sustainable development indicators was launched, with the support of the United Nations. The data collection and its submission to the platform is ongoing. This is done through the Office for Sustainable Development, which serves as a link between the information system and relevant governmental bodies, since the SDG platform has not been opened for access to all relevant stakeholders. Among the commitments of the Statement of Commitment to the Implementation of Sustainable Development Goals is to ensure monitoring and reporting for at least 60 per cent of SDG indicators by 2027.

The current national objective is to create a Strategic Partner Coordination System able to track and monitor funds received towards sustainable development. This has required an update of the Planning and Reporting Information System (ISPI) and the preparation of a project proposal for submission to Eco-fund and to the donors who are currently financing a consultant for data polishing towards SDG reporting. The ISPI system was established by the General Secretariat of the Government and Ministry of Public Administration, Digital Society and Media, as an objective of the Public Administration Reform Strategy, and Montenegro Digital Transformation Strategy 2022–2026³⁶.

Enhancing policy coherence for sustainable development

³³ Montenegro (2923a).

³⁴ Statistical Office.

³⁵ SDG Montenegro.

³⁶ Montenegro (2022b).

SDG 17 is integrated into the national framework through several NSSD strategic goals. With regards to the SDG target 17.14 “Enhance policy coherence for sustainable development”, further progress was reported on its implementation in the second VNR. It is mainly attributed to the 2021 reform of the Office for Sustainable Development and its return to the General Secretariat of the Government. Formation of a working group for sustainable development at the local level is planned, it was reportedly established in the municipality of Danilovgrad. Overall, the political commitment to sustainable development is institutionalized and the long-term objectives going beyond the current electoral cycle are included into national strategies. The horizontal coordination exists, at least at the national level, and, in principle, stakeholders are consulted during development of the legal and policy documents. However, some integration aspects remain weaker, *inter alia* those related to monitoring and reporting on SDGs and other indicators.

Cross-cutting issues

For the case of Montenegro, the ongoing EU accession process and the achievement of 2030 Agenda and SDGs are the intertwined processes. As estimated in the second VNR, around two-thirds of SDG targets (109 out of 169) are closely linked with the requirements of the *EU acquis*. This also applies to the negotiation chapters of the EU accession process, having the most explicit links with the Chapter 19: Social Policy and Employment, Chapter 23: Judiciary and fundamental rights, Chapter 24: Justice, freedom and security, and Chapter 27: Environment and climate change. Furthermore, if the obligations under the Chapter 27 are fully met, around 40 SDG targets will be fulfilled.

Development of the framework for financing sustainable development in Montenegro is ongoing. Certain progress has been made in financing and coordinating sustainable development through the establishment of the Eco-fund. The Eco-fund was established in late 2018 and became operational in 2020. It has reportedly supported projects in energy efficiency, renewable energy, and e-mobility. The Eco-fund uses, among other sources, revenues generated from the environmental taxes paid under the polluter pays principle.

According to the second VNR, around €1.6 billion was allocated in 2015–2020 to finance institutions, programmes and measures linked to the implementation of SDGs 4, 5, 14, 15 and 17. The largest share of expenditures, around 78 per cent (€1.2 billion) was spent on education. Expenditures on gender equality amounted to €4.2 million (0.3 per cent of the total amount for the five SDGs) and were marked by a strong declining trend. Expenditures on marine and terrestrial biodiversity protection amounted to €112.4 million and doubled in the period. Almost €222 million were allocated for various interventions aimed at achieving SDG 17. The share of the annual public expenditure (for these five SDGs) was between 5.7 and 6.9 per cent.

According to the SDG index reflecting the country’s overall performance in meeting the SDGs, Montenegro was ranked 67th among 166 countries with 71.4 points in 2023. Meanwhile, Croatia was ranked 12th with 81.5 points, Slovenia 13th with 81.1 points, Serbia 36th with 77.34 points, Bosnia and Herzegovina 47th with 74.02 points, and North Macedonia 60th with 72.47 points. The country has improved its ranking by 19 compared to 2015, when it was ranked 86th with the SDG index at 68.2 points.

Awareness raising on SDGs

Environmental education and awareness-raising of the population is supported by the NSSD and mentioned in both VNRs. There are five Aarhus Centres in Montenegro established between 2011–2012, in the cities of Podgorica, Nikšić, Berane, Pljevlja and Kolasin. Their focus is on strengthening partnerships among civil society, Government and other stakeholders to reinforce the implementation of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters. Reportedly, they also serve the needs of awareness raising on SDGs. Also, Aarhus caravan conducts regular campaign in waste management -raising awareness.

1.5 Institutional framework for the environment and sustainable development

Since 2013 Montenegro has been governed by three Presidents, the latter only voted in from 2023, and five Prime Ministers, three of these in rapid succession since 2020. The Government turnaround has resulted in several continuous changes in the ministerial organizations both across the sectors and internally, shifting of personnel

and quick updates of the legislation, including some critical environmental legislation. This has, in turn, resulted in understandable delays in the timely delivery of monitoring and evaluation reporting, and updates of Action Plans. The institutional framework presented here is the one in place at the time of fieldwork at the end of April 2024. In July 2024, there was a ministerial reshuffle, and the Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development was split in two new ministries: the Ministry of Ecology, Sustainable Development and Northern Region Development and the Ministry of Tourism.

Governmental authorities

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development had five core responsibilities, as follows:

- Proposing policies and systems for the protection and improvement of the environment and climate change;
- Cooperating with non-governmental organizations dealing with environmental protection;
- Determining, coordinating and supervising the implementation of measures to protect and improve the quality of the environment;
- Coordinating the development and implementation of environmental strategies;
- Achieving international cooperation, including cooperation with the European Commission and data exchange in areas of the environment.

This ministry had maintained most of the competences of its predecessors but had not retained any responsibilities on genetically modified organisms which is implemented by the Administration for Food Safety of the Ministry of Agriculture, Forestry and Water Management, together with the Administration for Inspection. Further, the Ministry was sharing responsibilities with other ministries on water management. Whereas it was responsible for wastewater management, the Ministry of Health with the Institute for Public Health were responsible for drinking water, and the Ministry of Agriculture, Forestry and Water Management were responsible to issue permits for the relevant sectors. However, water permits require EIAs and these are managed by the EPA, with a staff of two dedicated officers, under the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development. There were at least 38 regulations, programmes and plans implementing the various aspects of the water law, under the competences of two ministries and local administrations

As at June 2024, with a total number of 97 permanent and 16 temporary employees, the Ministry was divided into five Directorates and other positions with a varying number of staff (see Table 1.1).

Table 1.1: Staff divisions in the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (as at June 2024)

Unit of work	Permanent	Temporary (management)	Temporary (employees)	Maternity/Sick leave
Minister's Cabinet	2	Secretary 1	3	
Directorate for sustainable development and development of the Northern Region	4	Director 1		
Directorate for Climate Change and Nature Protection	5	Director 1	2	3
Directorate for international cooperation and EU funds	13	Director 1	1	2
Directorate for ecology	17	Director 1	3	1
Directorate for development of tourism and tourism legislation	27	Director 1		1
Other functions	10		6	1

Source: Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development, 2024.

The EPA is the agency responsible to perform all professional and related administrative tasks in the field of environmental protection across all segments and sectors, working with the Administration for Inspection as needed. The Agency is divided into two departments and four sectors, targeting all areas of responsibility. Testing for chemical and other pollutants is carried out by accredited laboratories in the country, with the supervision and coordination of the Department of Chemical Analysis for the LCC Centre for Eco-toxicological Testing, and the Institute for Public Health. The EPA shares responsibility with the Ministry for the implementation and enforcement of the legislation on air quality and pollution, as well as ionizing and non-ionizing radiations. EPA also manages the five Aarhus Centres. The Agency counts 74 members of staff plus 10 vacancies, which have not yet been advertised for (see Table 1.2).

The Statistical Office is the central body and competent authority for data collection in the country and uses EU standards and protocols for data collection.

Table 1.2: Human Resources in the Environmental Protection Agency

Unit of work	Permanent	Temporary	Vacancies	Maternity/Sick leave
Environmental Monitoring Sector	11		2	
Nature Protection Sector	11		2	
Permitting Sector	16		4	
Project Management Sector	7		1	
Department for Radiological and Nuclear Safety	6			
Department for Implementation of Economic Instruments	8			
General and Legal Affairs Service	15		1	

Source: Environmental Protection Agency, June 2024.

Local self-governments

At local level, the self-governments maintain technical and financial responsibility for several segments of the environment. The framework law for establishing their mandates remains the Law on Local Self Government (OG 42/03, 28/04, 75/05, 13/06, 88/09, 03/10). However, the Law on Nature Protection allows the local self-governments to declare, in their own territory, nature parks, natural monuments and areas of outstanding features, with previous consent from the National Government. The role of the Union of Municipalities of Montenegro is paramount in ensuring local capacity building and collaborative learning, as well as knowledge and resource sharing. Recommendation 1.6 of the third EPR is still in process and better ways of supporting the local self-governments and sharing the financial burden of responsibilities need to be established.

Environmental Protection Fund

With provisions made under the Law on the Environment, the Eco-fund was established by the Government to provide sustainable financing for activities implementing laws and policies on environment and sustainable development. It operates as a foundation, according to the national legal requirements, and derives its assets from government contributions, eco-fees, international donors, foreign investments for environmental protection and donations. The resources of the Eco-fund are used for financing the preparation, implementation and development of programmes, projects and similar activities at the state and local level in all aspects of sustainable natural resource management. Its main goal is to become self-sufficient with a focus on implementing the Decree on activities that emit greenhouse gases for which a permit is issued for the emission of greenhouse gases (OG 08/20). This decree implements the Law on the Protection against the Negative Effects of Climate Change (OG 73/19) and is implemented by the 2021 Decision on the formation of the Commission for the implementation of the public auction for the allocation of emission credits, and three related rulebooks: Rulebook on the form and the manner of keeping of the permit for the emission of gases with the effect of greenhouses (OG 013/21), Rulebook on the form, content and manner of verification of the report on greenhouse gas emissions (OG 013/21), and Rulebook on the content of the plan for monitoring greenhouse gas emissions from the stationary plant (OG 010/22).

Vertical coordination

There are only two spheres of government: national and local, as the administrative subdivision is that of back-to-back municipalities, without any provincial or regional government. This reduces dramatically the cost of public administration; however, it negatively affects the allocation of authority and accountability. The Government has been adopting a deconcentrated vertical coordination system, whereby the central government drafts and adopts all national legislations and planning but devolves the financial and technical responsibility to implement at local scale to the individual self-governing units. In all legislation on environmental issues, the local self-governing units are responsible for partial or total implementation of environmental activities, based on the geographic scale and scope of the activity, and have to raise the funds from own budgets to fulfil their legal mandate.

The Law on Nature Protection, for instance, mandates the local self-government units to establish the agency responsible for the management of protected areas promulgated by the central government. Whilst the legal framework seems to exist for collaborative governance, the fees to access protected areas are not sufficient to pay the costs of conservation compared to the revenues of other land uses. The same law mandates the local self-government units to *perform tasks related to the establishment of a system of environmental protection and improvement on its territory, proposing and implementing measures, creating and monitoring the implementation of plans, approved programmes and projects in the field of environmental protection*, as well as reporting to the EC on permitting for the harvesting of wild flora and fauna. This requires technical skills that may not be present at local level and can only be acquired through costly consultants, which requires budget availability.

The Union of Municipalities of Montenegro has been trying to fill this knowledge, capacity and resource gap in collaboration with national Government and local self-governments, and with other international partners. Further, the Government has established ProCon, a government-own agency tasked to provide support to local municipalities in the planning, design, monitoring and reporting for all environment and social projects financed under the Framework Agreement with the European Investment Bank (EIB). However, the agency has not been allocated a budget line in the national Government budget and the funding for the salaries of ProCon staff should come from the municipalities, which is not feasible, given EIB financing does not cover 100 per cent of the activities and cannot be used to cover government personnel salaries. Therefore, their budget comes from the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development), with a yearly requested sum, allocated as and when the Ministry receives funding.

Since 2013, the intervention of the Government in facilitating and assisting the local self-government units to fulfil their mandate in terms of environmental legislation requirements has been limited. Given the rising amounts of both EIA and SEA processes in the country and the critical role played by the Union of Municipalities of Montenegro, the gap between national and local self-governments is wide and capacity for local authorities to promote and enforce environmental measures is limited. Recommendation 1.6 of the third EPR has been partially fulfilled.

Horizontal coordination

There are several horizontal coordination bodies – councils, committees, and working groups – established in the Government. The National Council for Sustainable Development continued its operation without major changes in its structure and responsibilities. In 2019, the Government revived the Water Council. There is a Committee on Tourism, Agriculture, Ecology and Spatial Planning in the Parliament which reviews proposals for laws and other regulations covering a broad spectrum of topics, currently consisting of 13 members. A Council for Cooperation between State Administration Bodies and NGOs under the lead of the Ministry of Public Administration has not been operational since October 2020. Furthermore, the Gender Equality Council was created in 2016. The National Investment Committee was set up to coordinate the capital investment activities and its composition was adopted in March 2021. The Council of the Statistical System is an advisory body which has been operative since 2009 with four working groups on different themes.

Horizontal coordination at the local level is represented by the Union of Municipalities of Montenegro, aimed at improving cooperation between the national and local authorities.

Participation of other stakeholders in decision-making

The 2016 Law on Nature Protection establishes the need for the Government to encourage participation of NGOs and other stakeholder in environmental decision making, as it makes environmental protection a shared societal responsibility.

There are less than a dozen NGOs in Montenegro operating at the nexus between environment, culture and society in the country. Yet, there are conflicting reports on the collaborative relationship between the Government, NGOs and other stakeholders. Whilst there are government projects on environmental issues implemented with

independent NGOs, independent reports agree that more should be done to create a collaborative process between them.³⁷ Notably, the Council for Cooperation has not been operative since October 2020.

On the broader stakeholders' participation, the Government implements the legislation in terms of provision on information and organization of public hearing for environmental processes, but the current system relies much on the proactivity of stakeholders to look for the information online or via the local self-government units.

In-service training of civil servants on environment and sustainable development

Training is offered for the local self-government units through the Union of Municipalities of Montenegro and NGOs have collaborated with governmental agencies to provide training, specifically within programmes of international funding agencies. There is, however, no evidence of a structured training calendar for civil servants on environment and development.

The Judicial Training Centre of Montenegro is an independent training centre instituted as a non-profit organization managed by an appointed director on a finite mandate. The Director nomination alternates between judges and prosecutors, and the board is composed of different members of civil servants in the judiciary service, with academia and expert. The Centre is valued by all international donors, from the EU to the International Development Law Organization and UNICEF, mostly because of its transparency in the modus operandi, and its ability to harness the need of the sector in defining training modules and courses with yearly training needs assessments. They offer training for the judiciary on environmental issues, including environmental crimes.

Implementation of international commitments

When looking at the capacity to implement international commitments, the current human capacity is further stretched. The United Nations Office for Disaster Risk Reduction (UNDRR) reports that Montenegro created the national platform for DRR in 2015 which brings together strategic Ministries to ensure the country is consistent with the implementation of the international commitments, such as the Sendai Framework for DRR 2015–2030.³⁸ The platform has supported the development of critical reports, but it has no specific budget allocation, and all activities are funded by international organizations or *ad hoc* budget allocations. The inability to have sufficient budget, despite the support of international donors over the past decade and the financing received by EU institutions during the accession process, is compounded by the instability of the Government and ministerial systematisation.

Environmental monitoring and information

Since 2013, the EPA has made efforts to expand the national environmental monitoring network and improve technical equipment. The country performs monitoring of air, water (surface and groundwater, drinking and bathing water) and soils. However, the timely calibration and maintenance of the measuring equipment to ensure adequate functioning of each monitoring station and the continuity of reliable monitoring data remain a challenge. Other challenges faced by the EPA to maintain the continuity of environmental monitoring include the decrease of sites samples, power cuts, telephone line disruption (e.g., rural background station in Pljevlja), vandalization of the monitoring station and stealing the equipment (e.g., twice the rural background station in Gornje Mrke)³⁹.

The Statistical Office of Montenegro provides on its website water and waste statistics under the “environment” category (www.monstat.org). The Statistical Office collects the information by means of surveys in line with the 2012 Law on Official Statistics and Official Statistical System of Montenegro (No. 18/12 and as amended No. 47/19) and annual plans of official statistics. Statistical surveys on: water use and protection against the pollution in industry; irrigation systems; public water system and public sewage; and municipal and industrial waste are conducted on monthly, annual and multi-annual basis. The statistical yearbooks in 2013–2023 contain a chapter on climate and environment that includes information related to the climate and to water management. There is no chapter on waste statistics; some data on waste are included in other chapters of the yearbook (e.g., employment and earnings in the sector of collection, processing and disposal of waste and its re-use and

³⁷ EU 2023 Report, OCSE Report.

³⁸ UNDRR (2024).

³⁹ Vijesti (2023).

remediation activities). Furthermore, some institutions in possession of environmental information do not have comprehensive websites.

Annual reports submitted by enterprises engaged in industry and mining, agriculture, utilities and municipal assemblies managing public water supply and sanitation are used to obtain data. Data on meteorological and hydrologic phenomena (temperature and humidity, flows and water levels, precipitation, cloudiness, days with rain, snow and wind, bright and cloud days) are taken from the Institute for Hydrometeorology and Seismology of Montenegro as recorded at the respective meteorological or hydrological stations. Data on environmental statistical surveys are submitted based on available evidence, documents or expert estimates.

Montenegro does not have an operational PRTRs as at 2024. The country is working on establishing PRTRs aiming to finalise the process by the end of 2024.

1.6 Assessment, conclusions and recommendations

Assessment

Since 2013, the Government has taken important strides in the path to secure an enabling legal framework and related sectoral legislation towards realising the environmental ambitions of its Constitution and building the structure of the ecological state. By using the sustainable use and management of natural resources approach to its legislation, the country has created a strong structure for its sustainable development. However, this process has been triggered by the accession process to the EU and the ratification of key environmental international conventions and protocols, whereby one fails to see a real indication of what the country sees as its own path for sustainable development. This vacuum is further evidenced by the fact that legislation on the extraction, trade and use of minerals, including CRMs, and fossil fuels, as well as the legislation relevant to infrastructure development, are mostly disconnected from any environmental legislation except for the EIA and SEA.

Whilst the processes are critical to ensure environmental and social consideration to any development, they are rarely strong enough to prevent unsustainable development from happening in countries that are still very reliant on international investment to boost the national economy. In turn, this is supported by the fact that there is no evidence of sustainable development considerations in economy and investment legislation. Since 2013, Montenegro has not been able to mainstream the establishment of an ecological state into its economy and investments mandates, beyond the use of the EIA. As evinced by most country reports published in the last 5 years, the Government of Montenegro has not been able to provide the legislative and government stability to move from legislation to law implementation and enforcement.⁴⁰

Law enforcement and implementation is weak, not because the officers were not apt for the task at hand, but rather because the collective institutional capacity was very limited. There are very few officers involved in environmental law enforcement and implementation at national level, with vacancies opened and not filled. Adequate budgetary resources are lacking, so ministries and agencies are not able to fulfil the environment-based mandates for which they were created by attracting trained and specialized professionals. The local self-governing units undergo much pressure given their various roles in the planning, implementation and financing of environmental legislation, and their inability to financially attract professionals, hence their reliance on the Union of the Municipalities of Montenegro and on ProCon for projects co-financed by the EIB, with the view to increase their portfolio.

Having applied the polluter pays principle in the legislation is of little consequence. The revised legislation has not upgraded the fines and punishment for the offender for these to become a strong deterrent. Combined with the limited capacity for inspection and investigation, the offender may continue with an assumption of impunity with both financial and environmental negative impacts.

The Government has been relying on international donors to implement projects aimed at improving its environment and sustainability profile and implement aspects of its environmental legislation. With the consideration that it is a relatively new state with a stable government until 2020, there is limited evidence that these funds have triggered a tangible change in the country towards care for the environment and sustainable

⁴⁰ OSCE (2023) and EU Accession Report

development practices. This is compounded by the limited attention given to monitoring and reporting of legal instruments and their Action Plans. Integrated reporting is primarily hindered by the use of different protocols for data collection, it was noted that data collected by the Institute for Public Health are not compatible with data collected by the Statistical Office, which follows the EU protocol. Secondly, there is simply not enough personnel to collect and process the data and write timely reports. This implies that legislation is always not amended against the evidence of implementation. It also implies that it is difficult to validate progress against the legislative framework.

The creation of the online SDG monitoring system is a very good start to promote integrated data collection and processing across the government agencies, with the Statistical Office. This process may lead to improved and consequential governance. Also, since 2013, Montenegro shows an overall progress in environmental monitoring. The expansion of national monitoring network and the improvement of technical equipment are key achievements. Main challenges to be addressed include the timely calibration and maintenance of the measuring equipment to ensure adequate functioning of each monitoring station and the continuity of valid monitoring data. Furthermore, the national PRTR is not operational as at June 2024.

Conclusions and recommendations

Improving human and financial capacity within government institutions

The reduced capacity at which ministries, agencies and local self-governing units have been working in the past decade is reflected in the individual and institutional ability to provide a coherent path from legislation to implementation and enforcement. This has been compounded by the rapid pace of legislative amendments and, more recently, in the institutional changes due to government sequencing. After a period of consistent governance for over a decade, the last four years have not provided the stability necessary to boost the capacity of national and local institutions to implement and enforce environmental legislation. Moreover, regular training programmes (e.g., programme design, inspections, monitoring, evaluation and learning), are not sufficiently provided to relevant government institutions.

Recommendation 1.1:

The Government should conduct:

- (a) *An institutional, human and financial needs assessment of the priority roles in each institution and agency working on environmental matters to begin prioritizing budget allocations and fundraise accordingly;*
- (b) *Regular training programmes or workshops for the relevant governmental bodies to contribute to the transposition and implementation of environmental legislation.*

Monitoring and reporting on environment and sustainable development

The ability of the government institutions to monitor progress on legal implementation and report in a timely manner on most of its environment-related action plans has proven to be limited, and the country has been helped by international organizations to report on its international legal commitments. Nonetheless, the creation of the SDG monitoring platform has been a critical starting point for integrated and timely data collection and monitoring, useful to a variety of stakeholders. Moreover, Montenegro committed to ensure monitoring and reporting for at least 60 per cent of SDG indicators by 2027. Until now, however, there are limitations in the reporting aggravated by the use of different data collection tools by the Statistical Office of Montenegro and the government agencies tasked with data collection.

Recommendation 1.2:

The Government should:

- (a) *Provide the necessary conditions to focus on integrated monitoring and evaluation and learning systems using the SDG platform as the pivotal instrument;*
- (b) *Achieve the target of monitoring and reporting on 60 per cent of SDG indicators by 2027 and go beyond this commitment with yearly targets.*

Continuous development of the national policy framework

Improvements have been achieved in the spheres of law and policymaking, including the adoption in 2018 of the Decree on the Procedure of Drafting, Alignment and Monitoring Implementation of Strategic Documents and the accompanying Methodology for Policy Development, Drafting and Monitoring of Strategic Planning Documents. The coherence between cross-sectoral legislation and strategic documents has improved. However, the process of continuous development of the environment-related strategies is missing, whereas the environmental legislation is only reactively updated based on the EU requirements. The country's policy framework is partially outdated since several key policy documents have not been timely developed and adopted. Some strategic environmental documents were not updated, namely the National Biodiversity Strategy with the Action Plan for the period 2016–2020, the National Forestry Strategy, the Fisheries Strategy, the National Strategy for Air Quality Management, the National Waste Management Plan and the Strategy on Ionizing Radiation Protection, Radiation Safety and Radioactive Waste. Furthermore, reporting on the implementation of strategic documents remains weak and fragmented.

Recommendation 1.3:

The Government should:

- (a) *Update environment-related strategic planning documents, based on the latest available data and information, and promote their adoption, as relevant;*
- (b) *Ensure regular and timely implementation reporting for all environment-related strategic documents.*

Improving collaborative governance with NGOs and other stakeholders

The environmental legislation of Montenegro gives ample recognition to the role public participation and stakeholder engagement have in ensuring that government and private sector initiatives are sensitive to the environmental and societal needs of the country. However, as at June 2024, the Government has not created a formalized structure to engage local stakeholders through cooperation with the municipalities who bear the social and financial costs of administration for the environment and sustainable development.

Recommendation 1.4:

The Government should continue to:

- (a) *Proactively engage with NGOs to encourage their contribution to the evaluation process in environmental impact assessments and strategic environmental assessments;*
- (b) *Work with the local self-government units to create a dialogue with local stakeholders.*

Enhancing environmental monitoring and information

Since 2013, the development of environmental monitoring networks is uneven across various environmental media. While the air monitoring network has expanded and acquired new technical equipment, other networks (e.g., water and soil) have decreased in the number of sites sampled or in the number of samples per year, including as a result of insufficient, outdated or non-functioning technical equipment.

Recommendation 1.5:

The Government should support the Environmental Protection Agency and other relevant institutions in the process of optimization of the existing environmental monitoring networks and their upgrade, as necessary, including the maintenance of the technical equipment to ensure the fulfilment of continuous core monitoring requirements.

Several governmental bodies working on environmental matters do not have operational websites as at June 2024. In addition, the country lacks an integrated national environmental information system. The information made available on the Statistical Office website is limited to water and waste data. Montenegro does not have an operational PRTR as at June 2024.

Recommendation 1.6:

The Government should accelerate the development and ensure adequate maintenance of:

- (a) *Websites of institutions in possession of information on environmental matters;*
- (b) *An integrated national environmental information system;*
- (c) *A pollutant release and transfer register.*

Further integration of strategic environmental assessments concerns into the Government's planning documents

Strategic environmental assessments (SEAs) carried out of the Government's planning documents are often placed in annex to these documents. In some cases, important findings highlighted by the SEA, such as those concerning biodiversity conservation and climate change, are not integrated into the planning documents assessed.

Recommendation 1.7:

The Government should ensure that biodiversity conservation and climate change concerns identified in strategic environmental assessments are integrated into related planning documents.

Chapter 2

Regulatory and compliance assurance mechanisms

2.1 Permitting and licensing, including public participation

Regulated community

Several business activities with potential environmental impacts require a permit to operate. Transparency in the granting of permits is ensured through official government websites, information campaigns, official publication of permit-related decisions and public consultation procedures.

Companies need to be registered at the Central Register of Business Entities based on the Law on Companies (OG 65/20) and must apply for business licenses from the competent authorities. Ministries and organizations responsible for licensing are described in the Regulation on the organization and mode of work of the state administration (OG 098/23, 102/23, 113/23). Special permits and business licenses are required for companies operating in certain industries which certify they meet the legal requirements (i.e. construction, fishing and food sectors). For example, companies operating in the energy sector must comply with the requirements of the legislation on energy, ensuring the safety and health of the population, and comply with environmental protection regulations. Also, companies that produce, sell, distribute, or serve food stuff are subject to business licensing, and require imports/exports licenses, as some products are imported into the country.

In 2013, the Montenegrin Employers Federation approved the outcome of a survey carried out by the Enabling Environment for Sustainable Enterprises (ESEE), using a globally accepted methodology of the International Labour Office (ILO). As a result, the Montenegrin business environment is characterized as problematic at both the national and local levels.⁴¹ Obstacles for doing business, so called ‘business killers’, were identified, including an inadequate regulatory framework, a high share of informal economy, corruption at all levels and in all areas, poor institutional frameworks, poor enforcement of regulations, reduced trust in institutions and administrative procedures and incomplete registration of economic activities. Regulations are often vague, and differing interpretations by enforcement agencies and failure to meet deadlines for adopting regulations are cited as shortcomings. ‘Exemptions’ from legal obligations in licensing, evading sanctions after inspections, and gaining benefits through deals are cited as contributing to the informal economy. In 2021, the ILO reported in its Progress review of the ESEE Programme in Montenegro⁴² that since 2013, several activities in line with the recommendations of the ESEE report have led to improvements in the strategic, legal, and institutional framework, as well as transparency. The informal economy remains a key structural challenge.

Single media permitting

Single media environmental permits are granted for a variety of subjects, such as the emission of harmful substances into the atmosphere, extraction of water, discharge of (industrial) wastewater and sewage, imports and exports of waste materials, ozone depleting substances, chemicals, biocides, fisheries and the circulation and use of sources of ionizing radiation. Applications must be submitted to the competent authorities, accompanied by applicable documentation.

Greenhouse gases

The Law on the Protection against the Negative Effects of Climate Change authorizes the issuance of permits for activities that emit greenhouse gases. The introduction of a national Emission Trading System (ETS) is a step towards joining the EU system upon accession. Montenegro continues to align with the EU acquis, adopting legislation on the operation of the European Emissions Trading Scheme (ETS) in line with the EU ETS Directive 2003/87/EC. The ETS framework was adopted on 6 February 2020 and entered into force on 21 February 2020.

⁴¹ Montenegrin Employers Federation (2013).

⁴² ILO (2021).

In practice, ETS applies to three installations: The Pljevlja coal-fired thermal power plant (TPP), Kombinat Aluminijskog Podgorica (KAP), and Tosčelik steel plant, which received 100 per cent of their allowances for free in 2020 and 2021. This represented 60 per cent of the total number of available allowances. Regulated entities must meet several conditions, including monitoring greenhouse gas emissions and developing and submitting a monitoring plan. This is overseen by the Environmental Protection Agency (EPA). In addition, an annual report of verified emissions data, carried out by an accredited organization, must be submitted to the EPA. Non-compliance may result in fines.

Water abstraction and wastewater discharge

The Law on Water applies to surface water, groundwater, saline water, mineral and thermal waters, drinking water, among others, and defines the obligation of permits for facilities and their activities that may affect water resources. This obligation covers wastewater collection, treatment and discharge systems and industrial sectors. For projects that may affect the quantity and quality of water, water management decisions must be obtained from the relevant water authority. These include water requirements, which prescribe conditions for the use of water, a water consent to confirm that the technical documentation for the facilities and works complies with the water requirements, and a water permit which confirms that all requirements of the water requirements have been met. The water permit defines the manner, conditions, and extent of water use, the permitted quantities, limits, conditions of wastewater discharge and other conditions and is valid for a maximum of 10 years.

Facilities that discharge wastewater into the public sewer system or surface water are required to construct and maintain wastewater pretreatment facilities that are subject to conditions, permits and approvals and need to meet the effluent requirements contained in the issued permit. Regional and public wastewater treatment plants need permits. Companies must monitor the quantity and quality of the discharged wastewater monthly and keep records of the tests.

Waste generation, hazardous waste and disposal

Permits with strict conditions for the collection, transport and processing of different types of waste streams were issued for a period of five years and may be renewed for a period of five years. More than 90 per cent of the waste is collected by public utility companies and the remaining is collected by private companies specialized in the collection of specific waste streams. All waste management companies must be licensed by the EPA and be included in EPA's register of waste collectors and have the consent of local authorities to obtain a permit. The consequence is that all waste permits issued must be renewed and updated within a six-month period, including procedures for public participation.

The local municipality is responsible for organizing waste management activities on its territory; however, municipalities have no role in licensing, except for municipal waste. They must give their approval. Currently, four employees of the EPA deal with waste permits. Companies and facilities covered by a waste permit must have a waste management plan approved by the EPA. The waste management plan contains the quantity and type of the waste for which a permit is issued. The waste management plan specifies how waste should be treated and handled and is monitored by the Administration for Inspection Affairs (AIA). Non-compliances can lead to fines. Imports, exports and transit of non-hazardous and hazardous waste to and from Montenegro are subject to permit requirements and international regulations. Permits for import of waste are issued only when there is a need for recycling in Montenegro.

Use of natural resources

The extraction of natural resources is subject to a permit requirement. The same applies to licenses and the granting of concessions for activities such as mining and quarrying.

Integrated permitting

Establishments, types of enterprises and facilities with capacities specified in the Law on Industrial Emissions need an integrated permit for their operation. The application process and the documentation required for it are described in the 2019 Regulation on Integrated License on contents, form and manner of submission of the request for the issuance of integrated environmental license. The integrated permit prescribes measures for the protection

of land, air, water and sea, depending on the location, in accordance with the best available techniques (BAT). The permit is issued by the EPA for a period of up to 10 years. Where applicable, this may include an Environmental Impact Assessment (EIA) report. In addition, the law describes the further procedure of the licensing process, including the role of an independent expert committee that evaluates the application and related documents. The process also includes a procedure with deadlines for public participation. In addition to applying for an integrated permit, operators must, if applicable, submit a programme of measures for adapting the prescribed requirements. The EPA initiated the procedure for revision of integrated permits in 2020.

Licensing

There is a clear lack of capacity and resources of inspectorates in terms of staff, day-to-day operations, and cooperation and coordination with other stakeholders.

Ozone depleting substances

An enforceable licensing and quota system is applied for the imports and exports of ozone depleting substances (ODS), administered by the EPA. Imports are prohibited from countries not party to the Montreal Protocol on ODS. This obligation is laid down in the Law on the Protection against the Negative Effects of Climate Change and the Decree on Ozone-Depleting Substances and Alternative Substances (OG 5/11). Service technicians and repair shops working with ODS need a permit. Fines can be imposed in cases of non-compliance with the provisions.

Forests

Cutting down trees is only allowed if one has the permission of the competent authority. The Law on Forests sets out the conditions for this and prescribes the natural and legal persons to be licensed to perform professional activities in the forests. The AIA, the Forest Guard, police and the Forestry Administration of the Ministry of Agriculture, Forestry and Water Management monitor compliance with the relevant regulations. In the case of infringements, the forestry inspectors are authorized to sanction. Fines can be applied depending on the type of entity that commits a crime and can vary from €300 to €15,000.

Equipment such as drones are used to monitor the extent of logging in locations that cannot be reached by cars. Near Field Communication technology connected with a unique 'ID tag' is used. Awareness raising with citizens will focus on not buying wooden assortments without proper documentation. In case of non-compliance the materials will be confiscated. In terms of policy implementation, monitoring and enforcement related to forestry, and more generally to nature protection, Montenegro has challenges.

Protected areas

In protected areas, the implementation of legislation, including issuing of permits and approvals, monitoring and a reporting system, keeping the registry and inventory and data exchange with international institutions are delegated to the EPA. The system of protected natural areas in Montenegro faces challenges. Insufficient coordination of plans between forestry, environment and protected areas leaves room for abuse of the legal system. Moreover, enforcement of the law is low, and guards lack the capacity to carry out effective control and monitoring.

Use of natural resources and flora and fauna

Montenegro has a general ban on activities in protected natural areas and permits that are required for taking, transporting and returning certain species of living flora and fauna. Trade in certain species requires a permit from the Ministry of Agriculture, Forestry and Water Management. This also applies to keeping animals in parks, ringing birds and many other activities involving protected plants and animals.

Fisheries

An electronic licensing system for sport and recreational fishing at sea has been established. The Montenegrin fisheries policy establishes regulations for the management of fisheries, the protection of marine life, and the

limitation of the environmental impact of fishing activities. These include the setting of catch quotas, the management of fleet capacity, and the establishment of control and inspection procedures.

Radioactive sources and storage of radioactive waste

Montenegro has a centralized radioactive waste storage facility which became operational since 13 June 2012, licensed by the EPA⁴³ based on the Rulebook on Detailed Conditions for Obtaining a License for Radioactive Waste Storage Management (OG 56/11). Holders of a license for conducting radiological activities temporarily store disused sealed radioactive sources (DSRS) and radioactive waste in their facilities until it is transported to the Central Radioactive Waste Storage Facility. The radioactive waste storage, managed by the Centre for Ecotoxicological Research (CETI), complies with all national and international safety requirements. The use of ionizing radiation is limited to use in medicine, industry, education and research. The total amount of radioactive waste and DSRS in Montenegro is very low given the legal obligation due which the DSRS shall be returned to the supplier after exploitation.

In accordance with international standards, the new Law prescribes 23 types of licenses are regulated for acts and/or activities related to the possession and use of devices and open and sealed sources producing ionizing radiation, covering activities involving ionizing radiation sources, such as transport, temporary use, incorporation into products, discharge, dismantling. The EPA issues licenses and maintains the inventory of radioactive sources, disused sealed radioactive sources, professionally exposed persons and radioactive waste. For the most data EPA is using by the Regulatory Authority Information System (RAIS) database. The EPA also issues licenses for conducting (temporary) radiological activities, import, export, transit and transport of ionizing radiation sources, and management of radioactive waste storage. The EPA issued a total of 323 January 20323 licenses in the period between 1 January 2020 and 1 August 2024. Pursuant to the Law on the Transport of Dangerous Goods (OG 33/14, 13/18), the Ministry of Internal Affairs - Directorate for Protection and Rescue is in the period between 1 January 2020 and 1 August 2024 issued 81 consents for the transportation of hazardous materials in the procedure of the regular procedure of issuing permits for the circulation of radioactive materials, issued by the EPA. The Ministry of Ecology, Sustainable Development and Northern Region Development is keeping a database of nuclear material and dual use goods connected with nuclear material and facilities.

Montenegro has a centralized radioactive waste storage facility which became operational on 13 June 2012, licensed by the EPA⁴⁴ based on the Rule Book on Detailed Conditions for Obtaining a License for Radioactive Waste Storage Management (OG 56/11). Holders of a license for conducting radiological activities temporarily store DSRS and radioactive waste in their facilities until it is transported to the Central Radioactive Waste Storage Facility. The radioactive waste storage, managed by CETI, complies with all national and international safety requirements.

In accordance with international standards, 23 types of licenses are regulated for acts and/or activities related to the possession and use of devices and open and sealed sources producing ionizing radiation, covering activities involving ionizing radiation sources, such as transport, temporary use, incorporation into products, discharge, dismantling. The EPA issues licenses and maintains the inventory of radioactive waste by the RAIS database, which contains data on radioactive sources still in use in Montenegro and data on issued licenses. The EPA also issues licenses for conducting (temporary) radiological activities, import, export, transit and transport of ionizing radiation sources, and management of radioactive waste storage. The EPA issued a total of 253 licenses in the period between 1 October 2017 and 31 July 2020.

Construction

A building and use permit are no longer a requirement for all structures and properties. Residential and commercial buildings fall under the permit-free regime and a new property must only be registered with the competent Land Registry. However, stricter conditions are set for the construction of complex structures, including dams, highways, power plants and water treatment plants. An operating license is required for such construction projects. The AIA carries out inspection supervision in the field of zoning and construction through

⁴³ Montenegro (2020).

⁴⁴ Montenegro (2020).

municipal inspectors and building inspectors who have the power to ban or stop construction, impose an operating ban on a company and/or initiate proceedings to revoke a license.

Local authorities are no longer responsible for preparing plans, but they are required to advise on the conditions for preparing technical documentation for development/construction on their territory. However, they must take steps to legalize structures that are no longer subject to licensing requirements. The Law on Spatial Planning and Construction of Structures sets out a strict procedure for legalizing establishments built without the necessary permits. Persons who have built, altered, extended or enlarged establishments without a building permit or other document authorizing construction, or in violation of such a document, will be given a grace period of six months (from the date of entry into force of the new law) to initiate registration procedures at the competent cadastral registers. This requirement applies to buildings built on both private and state land.

2.2 Environmental impact assessment, including public participation

Domestic

An EIA must be carried out prior to the issuance of a development permit/building license and is mandatory for projects that may have an impact on the environment. Specific criteria and regulations determine which categories of projects require an EIA, as well as exemptions, which are specified in the law, and are defined in the Regulation on Projects for which an Environmental Impact Assessment is Performed (OG 020/07, 047/13, 053/14, 037/18). According to this Regulation, projects are divided into two lists. Projects in List 1 are all subject to EIA, while projects in List 2 are subject to discretionary assessment, with EIA required in any case for projects with potentially environmental impacts. Almost all projects related to energy, mining, infrastructure, and production facilities require a full EIA study in accordance with national EIA legislation.

The EPA is the administrative authority responsible for the EIA process for projects for which a development authorization is issued by a state authority, to review permit applications and determine whether an EIA is required under the relevant legislation. In the period from 15 January 2024 to 2 April 2024, 20 permit applications were reviewed by the EPA.

The overall EIA process consists of specific stages: screening, which determines whether a project requires an EIA; scoping to identify the key elements and their size or scope to be included in the assessment; and review, which determines whether the project is being carried out properly and in accordance with legal requirements. An EIA report that thoroughly examines the potential environmental impacts of the project and proposes measures to mitigate them is prepared. During the process, public hearings are held where all relevant documents are made available to the public and relevant stakeholders for feedback. This ensures transparency in the process. This is followed by a decision by the competent authorities. The deadlines for each of these stages vary and are set out in the Law on Environmental Impact Assessment and the Law on Administrative Procedure. Each phase of the process has a defined time period for public participation, including public hearings where interested parties can comment on the proposed plans and studies, as well as raise objections. It is the responsibility of both the project investor and the competent authority to consider, investigate and provide feedback on the reactions. The EIA study must be published on the website of the competent authority and on the e-government portal on the day the public hearing/consultation begins. Also, the study must be published at least 10 working days before the date of the public debate. The public consultation is to be organized and conducted by the competent authority and shall last at least 30 days from the date of public/media announcement. The meetings should be announced in electronic and printed media. The competent authority is obliged to inform the interested public of the decision on granting or rejecting the application for approval of the EIA study within five working days from the date of the decision and to publish it on its website and e-government portal. During the process, a committee of independent experts reviews the application and all related documentation. Statistics on Environmental Impact Assessments have been available since 2015. These data are regularly updated and are available on the official websites of the Government or relevant agencies.

Recommendation 2.2 of the third EPR was to further increase the procedural soundness, transparency and cost recovery of EIA and permitting by improving capacity to conduct project screening, especially at the local level, thus reducing the excessive use of EIA procedures. It was also recommended that the EPA should develop schemes for payment to independent experts who are members of EIA commissions and technical committees on IPPC, ensuring that the integrity of these bodies is not jeopardized. In addition, the Recommendation 2.2

suggested that the Ministry of Agriculture and Rural Development, in cooperation with the Ministry of Sustainable Development and Tourism, should take legislative steps to ensure that water permits are integrated into IPPC permits. This recommendation was partially implemented. The situation regarding the application of EIA procedures remains unchanged from the third EPR. Concerning the payment of experts participating in EIA and IPPC technical committees, this is now made through a separate bank account to which the project initiators pay the money. The EPA then pays experts from this account, ensuring integrity. When applying for an IPPC permit, the water component is now part of the integral permit. The EPA and the Directorate for Water Management of the Ministry of Agriculture, Forestry and Water Management coordinated and work together on this.

Transboundary

Montenegro participates in transboundary EIA processes in accordance with the Espoo Convention on Environmental Impact Assessment in a Transboundary Context and the Protocol on Strategic Environmental Assessment. Montenegro contacts and cooperates with neighbouring countries in situations where transboundary environmental impacts may occur because of planned activities on or near the border with a neighbouring country. Experience with transboundary EIA has been mixed so far. On two occasions, Montenegro has brought situations to the attention of the Implementation Committee under the Espoo Convention and its Protocol on Strategic Environmental Assessment, as it considers that two neighbouring countries are not acting in accordance with the Convention and the Protocol. The first case related to a complaint that Albania had not notified Montenegro of any plans or programmes in this regard, nor had it subsequently notified Montenegro of its planned activities in accordance with the Protocol and the Convention on the planned construction of a number of small hydropower plants on the Cijevna River, including the Broja, Dobrinje, Grabom, Muras 1 and 2, Peshtan and Vriela hydropower plants.⁴⁵ The second case refers to Montenegro's concerns regarding Bosnia and Herzegovina's compliance with its obligations under the Convention and the Protocol regarding the construction of the Buk Bijela hydropower plant on the Drina River.⁴⁶ Montenegro claimed that Bosnia and Herzegovina had failed to comply with the Convention by not notifying Montenegro of the proposed activity, by not giving Montenegro the opportunity to participate in the related EIA. Both situations were reviewed by the Committee and findings were prepared. In accordance with rule 13 of the rules of procedure of the Implementation Committee, the Secretariat transmitted these findings and recommendations as an official document of the Committee to the Parties concerned for consultation and then to the Meeting of the Parties to the Convention at its ninth session (Geneva, 12–15 December 2023) for consideration and to be taken into account in the consideration of the related draft decisions.

Recommendation 2.4 of the third EPR was that the Government should assess the effectiveness of compliance promotion mechanisms, identify relevant measures, define responsibilities, and start implementing compliance promotion activities. This recommendation is partially implemented. Information meetings are occasionally held to inform specific groups about upcoming developments. However, there is currently insufficient information to state that such actions are part of an institutionalized strategy.

2.3 Environmental standards

Emission and ambient quality standards

Montenegro applies EU air quality limit values, as set out in the Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe and is now fully aligned with the revised Directive 2016/2284/EU on the Reduction of national emissions of certain air pollutants. The Law on Air Protection and the Law on Industrial Emissions are in line with the EU air quality acquis, except for the Directive (EU) 2016/2284 on the reduction of national emissions of certain air pollutants.

Montenegro applies the Directive 2008/105/EC on environmental quality standards in the field of water policy, and the provisions of the Directive 2000/60/EC establishing a framework for Community action in the field of water policy to ensure the quality and protection of all waters.

⁴⁵ ECE (2023)

⁴⁶ ECE (2023a).

Product standards

Legislation on food safety is harmonized with EU legislation. Reports of scientific institutes are based on comparing the values obtained through the research with the established emission quality standards included in the applicable legislation. Montenegro applies the Directive 2009/48/EC on the safety of toys, including the applicable standards.

The Law on Construction Products (OG 018/14, 051/17) regulates how construction products are assessed and verified. Materials from well-known manufacturers with certificates from their country of origin are accepted on the market and transposed Regulation 305/2011 on the establishment of harmonized conditions for placing construction products on the market. Montenegrin standards to produce construction products are applied, which take over European standards, and the procedure is carried out in accordance with the Law on Construction Products, which Only products marked with the CE mark, i.e., manufactured in accordance with the harmonized standard, for which a statement of properties has been made and which are marked with the CE mark, can be placed on the market of Montenegro, without the procedure of recognition of foreign documents and signs of conformity.

2.4 Compliance assurance mechanisms

Self-monitoring and reporting by regulated entities, and citizen monitoring

In Montenegro, companies need to comply with imposed licensing conditions and to prepare and implement environmental management plans (EMPs). This is stipulated by environmental, water and air legislation. The implementation of EMPs must ensure that negative environmental impacts are minimized. EMPs should describe the procedures, protocols, and practices that prevent pollution, including waste management strategies and contingency plans. Companies are required to report on the implementation of EMPs to the authorities and must submit the results of their monitoring. Accredited agencies and laboratories carry out measurements on behalf of the companies. EMP implementation is monitored by the AIA inspectors in conjunction with the license granted.

AIA has established a toll-free telephone line for citizens to report complaints. Additionally, various communication and information channels are available, including websites, email service and phone, published on the websites. The market inspectorate has a duty inspector who is available to consumers in the office and by phone every working day from 8 a.m. to 4 p.m. for managing consumer complaints.

The Office of the Ombudsman in Montenegro was established in 2003 with the objective of safeguarding the country's human rights and freedoms. On 15 September 2017, the Montenegrin Ombudsman joined the Balkan Network of Ombudsmen for the Environment and Human Rights by signing a joint declaration. Individuals have the option to appeal decisions made by state organizations. An appeal may be filed with the relevant government organization and the competent administrative court.

Environmental audit

The State Audit Institution conducts audits on energy efficiency, effectiveness of implementation of forest fire protection policy, management of interventions in case of sudden pollution of the Adriatic Sea, and effectiveness of monitoring and reporting on air quality in Montenegro. The State Audit Institution is responsible for conducting audits on the Efficiency of Wastewater Management System.

The EPA conducts audit studies as part of the revision of procedures or the implementation of policies. In 2023, several audit studies were conducted in the area of nature protection in natural parks, and EPA reports on these to the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development) and, where appropriate, to local self-governments. No information was obtained on audits conducted in or on behalf of industry.

Inspections

The AIA is a separate administrative body established by the government which covers 26 inspections. The AIA's inspections focus is on ensuring compliance with legislation and permits in a wide range of areas, including

ecology, forestry, hunting, forest plant protection, water management, fisheries, geology, mining, and sanitary matters. Inspections are conducted in accordance with a work programme and dynamic work plans, which are developed based on experience from previous inspections and compliance behaviour of inspected objects. No risk analysis or prioritization method are applied. Inspections are carried out announced or unannounced and can be triggered by complaints. During on-site inspections, documents and reports are requested and reviewed. All aspects of issued licenses and EMPs are checked. Samples can be taken if needed. An inspection report is prepared and signed by the inspector and made available to the inspected party. On-site, the inspector may decide that immediate intervention is needed to end a violation. This may include issuing a fine and/or ordering the termination of an activity. A decision by the inspector can be appealed. When the offense involves a criminal activity, the case is sent (or via the police) to the public prosecutor. In general, an inspector applies a prevention-oriented approach by using mild coercion to encourage compliance. This also applies to fines, with the lowest category typically applied. As the offense persists, higher penalties are imposed.

Since 2021, AIA uses a Unified Inspection Information System, which connects all AIA inspections and adapts them individually. In 2023, a cyber-attack on the automation system of the Government also affected AIA, significantly impacting the system's operability and thus AIA's executive work. By the end of 2023, AIA employed 316 individuals, including 234 inspectors (100 men and 134 women). Most inspectors are based in Podgorica (119) and the other inspectors are distributed across 16 municipalities (115). Compared with legislation on the required staffing of organizations, there were 141 vacancies across the AIA at the end of 2023. In almost all 26 inspectorates, the staff shortage is between 20 and 50 per cent. This shortage has serious implications for the performance of inspection tasks. The limited availability of qualified personnel in the labour market and the lower salaries of inspectors compared to positions at the same level in the private sector are major factors contributing to the current staffing challenges. Another obstacle is the requirement for staff to reapply for the same position after five years of service, which involves long and sometimes complicated procedures. This factor also contributes to staff leaving the organization and pursuing more lucrative opportunities in the private sector. The administration's budget for 2023 was €6,518,804.18, which, according to the AIA management, is insufficient to cover certain categories of expenditure.

In 2023, 65,602 inspections were jointly carried out by all 26 inspections and 22,875 irregularities were found. A total of 17,867 violations were identified, resulting in a €7,046,600 fine. The collected fines are deposited in a Ministry of Finance account. In 2023, 100 criminal declarations were made by all inspections combined.

There is an ad-hoc and case-based cooperation with the police and the public prosecutor's office on environmental crimes. There is a lack of expertise in the field of the environment among these organizations. The AIA has no training programme or curriculum for the inspectors. Inspectors are trained through an in-service internship and coaching programme. The legal department briefs inspectors on new legislation. No manual or standard operating procedures have been developed for or in use by the inspections. There is a collaborative relationship between national inspectors and their local counterparts. The AIA identifies challenges at the local level due to the prevalence of 'family business.' During the summer season, national inspectors provide assistance.

Recommendation 2.3 of the third EPR was that the AIA should focus environment-related inspection on performance and enhance its transparency and accountability by: (a) developing a clear and transparent approach for inspection planning and reporting, backed by the enactment of relevant standard operating procedures; (b) building capacity in and strengthening the practice of joint and integrated inspections, especially for IPPC installations; (c) enhancing the system of data collection and analysis in support of inspection; and (d) revising the frequency of inspection. This recommendation has not been implemented. The inspection approach is still based on experience from previous inspections and the compliance behaviour of supervised operations. No risk analysis methods are employed to assist in the prioritization and determination of inspection frequencies. No standard operating procedures or manuals are in place. Training curricula and programmes for inspectors are lacking.

Environmental inspections

The Environmental Inspectorate carries out supervision over a broad range of legislation, including laws on environment related legislation and several by-laws. The inspection staff is currently comprised of 15 inspectors, with 9 positions filled. In 2023, the Environmental Inspectorate conducted 2,335 inspections, with a total of 1,063 irregularities identified. A total of 15 criminal charges were filed. In 2023, 46 decisions were made regarding the

imposition of fines for non-implementation of decisions, with a total value of €66,800.00. The Environmental Inspectorate contributes ad hoc to developing environmental policy, legislation, and related matters and participates in inter-ministerial and implementing organization working groups. The shortage of staff puts pressure on the AIA. This also applies to the number of inspectors in the field of ionizing and non-ionizing radiation, which is currently insufficient. Inspectors state that it is essential to provide training and build specialist knowledge within the inspection team. This is currently considered inadequate. To date, there are no manuals, guidelines or standardized operational procedures for inspections.

Radiation protection and safety

The Inspectorate for Radiation Protection and Radiation Safety, as part of the Environmental Inspectorate, conducted in the period between 1 January 2020 and 15 June 2024 a total of 207,793 controls of radioactivity for imports/exports or transit of metals, metal products and raw materials, as well as controls of building material (97,897 performed by CETI and 109,896 by the Institute of Ferrous Metallurgy Nikšić), in accordance with the Checklist and the List of Goods Subject to Radioactivity Control.

Forests and natural resources

The Forestry, Hunting and Plant Protection Inspectorate is responsible for monitoring the application of several key legislation and regulations, including the Law on Forests, the Law on Game and Hunting, the Law on Forest Trees Reproductive Materials (OG 37/07), the Law on National Parks and several other regulations. The inspection staff is currently comprised of 14 inspectors, with 11 positions filled. In 2023, the Inspectorate conducted 1,598 inspections, with 331 irregularities identified. A total of 43 criminal charges were filed. The value of fines imposed for violations was €101,930.00. In addition to its regular activities, the inspection carries out joint activities with other state bodies based on an action plan. This inspection expresses the need to improve working methods and provide appropriate training for inspectors to enhance efficiency. Also, cooperation with other state bodies, judicial authorities, agencies, non-governmental organizations, and international organizations should be established.

Forestry inspection is carried out by AIA with the required authorization. Montenegro lacks the human and financial resources to adequately implement forest monitoring tasks and supervisors lack the requisite knowledge of biodiversity values and legislation. Training plans and curricula are also lacking. This hinders the legally acceptable information to file a lawsuit and contributes to a fragile and inefficient law enforcement system in the field of nature protection in Montenegro. There is no approach to enhance the compliance and enforcement chain in the field of nature protection, as well as to establish and enhance the coordination and collaboration between key players. This applies to the whole of the AIA. One challenge in reducing the risk of illegal activities in forests is the observed mix of interests between the formal representation of the forest department as a government party on one side and leaders of the same organization who have business interests in these activities on the other. This has become a topic of discussion in the media.

Fisheries

The AIA Sector for the Protection of Human, Animal and Plant Health and Safety is responsible for fisheries inspection and employs three marine fisheries inspectors and seven agricultural inspectors who inspect freshwater fisheries. The inspectors collaborate with the maritime border police (Ministry of the Interior) based on a memorandum of understanding to utilize their services, vessels, and assistance during sea inspections. The inspectors primarily conduct inspections at six landing sites and points on land (ports and landing sites) in Herceg Novi, Ulcinj, Bar, Budva, Tivat, and Kotor. The necessity for regular training programmes for staff was identified within this inspectorate. No information could be obtained on the number of inspections carried out.

Sanitary - epidemiological

The Sanitary Inspectorate supervises the implementation of laws on health, drinking water, protection of the population from infectious diseases, restriction of use of tobacco products, cosmetic products, consumer protection, chemicals, biocides, provision of sanitary water for human use, general product safety. The AIA's formation plan outlines the need for 48 health and sanitation inspectors, with 39 currently in place. In 2023, the Sanitary Inspectorate conducted 7,891 inspections, identifying 2,645 irregularities. Inspectors issued 2,524

decisions for offenses committed, with fines totalling €842,600.00. To prevent the introduction of contagious diseases into the territory of Montenegro, the Sanitary Inspectorate monitored passengers, their belongings, means of transport in international traffic and imports of general-purpose articles, cosmetic products, biocides and chemicals at border crossings and clearance points. In 2023, 626 ships were inspected. A total of 6 pest control exemption certificates were issued, 2 certificates of implemented pest control, and 626 certificates (permits) for free movement of ships. Additionally, 326,565 passengers and crew members on ships were subjected to health surveillance. The Inspectorate participated in workshops on training and the introduction of new (international) regulations. The Inspectorate underscores the value of further strengthening the cooperation with other state bodies, which involves exchanging data between individual bodies to prevent and suppress infectious diseases, and to harmonize measures and procedures.

The Phytosanitary Directorate of the Ministry of Agriculture, Forestry and Water Management is responsible for inspections within the country and at the borders. Plants, plant products, phytosanitary and phytopharmaceutical products and provisions imported into Montenegro are inspected at the points of entry. The service issues health phytosanitary certificates and takes measures if necessary. Shipments are imported through 12 border crossing points, where customs and phytosanitary inspections take place, as well as at Port Bar, Podgorica Railway Station, Podgorica Airport, and Podgorica Post Office.

An integrated information system is not yet in place or is not yet fully functional. There is a lack of knowledge among employees about the latest developments on phytosanitary control and a lack of exchange with other EU countries. Some facilities for phytosanitary control are still in unsatisfactory conditions, such as the lack of facilities to store goods in quarantine under special conditions.

Industrial safety

The operator of an industrial plant is obliged to take necessary measures to prevent a chemical accident and to limit its consequences. The operator must meet the conditions for adequate risk management regarding safety and accident prevention as stipulated in the integrated permit. The operator must prepare a defined safety report and an accident prevention plan, to be approved by the EPA. The law also defines protection zones to be included in the planning documents and stipulates that the construction of residential buildings, schools and hospitals, and agricultural production are not allowed in the immediate vicinity of industrial facilities that adversely affect health and the environment. AIA inspects compliance with the permit, EMP, safety report and prevention plan.

Non-compliance response

Environmental crime

The Global Organized Crime Index for Montenegro⁴⁷ for 2023 indicates that environmental crime in the country include both flora and fauna crimes, which refers to illegal trade and possession of species covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and national legislation. Wildlife crimes mainly relate to poaching, and illegal, unreported and unregulated fishing. These types of environmental crimes are increasing since the previous reporting in 2021. Illegal logging is a predominant crime in Montenegro. Small organized criminal groups are involved in illegal logging in areas along the border with Albania and Kosovo.⁴⁸ According to the report, corruption among government officials and institutions is reported to facilitate these criminal activities. Lake Skadar is known to attract illegal, unreported and unregulated fishing mainly by locals. International cooperation in the fight against environmental crime, has improved in recent years. This applies as well to relations with neighbouring countries.

An anti-corruption forum on environmental protection, organized by the Balkan Investigative Reporting Network⁴⁹ Montenegro and the Civic Alliance, was held in Podgorica on 6 March 2024, and was attended by representatives of the executive and legislative powers, environmentalists and journalists. At the forum, it was stated that environmental corruption at all levels of government is one of the biggest challenges in Montenegro. It was recommended that inspectorates respond more adequately to reports of environmental corruption and that

⁴⁷ Global Organized Crime Index (Montenegro).

⁴⁸ References to Kosovo shall be understood to be in the context of Security Council resolution 1244 (1999).

⁴⁹ BIRN (2024).

local authorities cooperate more with citizens who report corruption. It was also suggested that higher standards be set for punishing environmental crime. Procedures for obtaining (building) permits and waste management appear to be highly susceptible to environmental corruption. The Forum mentioned a need for a more deterrent and effective criminal justice policy and response to avoid the perception of impunity. In the area of environmental crime, 97 new cases were registered in the reporting period from June 2022 to June 2023, and 53 cases were legally resolved. The forum said that the lack of administrative capacity at central and local levels and inspection bodies needs to be addressed, as well as insufficient interagency coordination.

Administrative and criminal measures

The Law on Administrative Procedure gives the public the right to appeal and to file a complaint against government decisions on environmental issues. All appeals against a decision made in an administrative procedure by the EPA and the AIA shall be handled by the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development). If a party is not satisfied with the decision of the Ministry, it may file a complaint against the decision with the Administrative Court of Montenegro. Appeals against decisions are considered. This means that a decision taken by the authority is overturned or that an appeal or objection is found to be unfounded and dismissed. Cases may also be remitted to the procedure and reconsidered, or the procedure may be closed because the issue has been resolved. The Administrative Court then rules on the legality of the appeal and the decision. An appeal may be rejected or granted, or a decision of the Ministry may be annulled on well-founded grounds.

Criminal acts are defined in the Criminal Code (OG 70/03, 13/04, 47/06, 40/08, 25/10, 32/11, 64/11, 40/13, 56/13, 14/15, 42/15, 58/15, 44/17, 49/18) including criminal acts against the environment. Directive 2008/99/EC on the protection of the environment through criminal law (Ecocrime Directive) has been fully transposed into the Criminal Code and the Law on Criminal Liability of Legal Persons (OG 2/07, 30/12). The provisions of the new Ecocrime Directive (EU) 2024/1203 will need to be transposed into national legislation, as part of Montenegro's EU accession process. The Directive says that Member States shall take the necessary measures to establish appropriate mechanisms for coordination and cooperation at strategic and operational levels among all their competent authorities involved in combating environmental crimes. The competent authorities are the Ministry of Justice, competent courts, and the Public Prosecutor's Office. AIA is responsible for filing applications for proceedings for offenses, fines, filing applications for criminal sanctions, prohibition to carry out an activity or task, and collection and control of all the data and information needed. The Institute for the Enforcement of Criminal Sanctions is responsible for the enforcement of sanctions. The Criminal Code provides for fines and imprisonment for certain environmental crimes. Penalties also include prescribed measures to protect, preserve and improve the environment.

Recommendation 2.5 of the third EPR was that the AIA, in cooperation with the Ministry of Sustainable Development and Tourism, the Ministry of Justice and the judicial authorities, should provide joint capacity-building for inspectors and judges and strengthen communication mechanisms between them and develop manuals on environmental misdemeanours and crime to facilitate evidence gathering and prosecution. This recommendation has not been implemented. Contacts with other organizations exist on an ad hoc and case-related basis. There is no established framework for coordination and cooperation between the parties, nor is there any joint capacity-building initiative.

Sanctions for non-compliance

Failure to comply with environmental legislation can result in sanctions and legal consequences, depending on the nature, severity and extent of the violation and the resulting damage. Sanctions for non-compliance include fines, compensation payments, corrective actions, suspension or revocation of permits and legal prosecution. Also, legal consequences that may lead to further sanctions are possible, which include lawsuits, court orders, or other remedies. Fines can range from small amounts to significant fines. The AIA applies the principle of minimum penalty when imposing a fine to encourage the violator to cease the violation. More severe penalties are imposed for repeat violations and recidivism. Inspectors record observed violations in reports and letters. Fines paid are collected by the Ministry of Finance.

2.5 Environmental liability, insurance and compensation

The Law on Liability for Damage to the Environment regulates the manner and procedure for establishing liability for environmental damage, and the application of preventive and remedial measures to prevent and eliminate environmental damage. Legal entities and natural persons, who have caused damage to the environment, are liable for damage caused by them and are obliged to take measures to prevent and eliminate such damage. Environmental legislation also applies the ‘polluter pays’ principle, which means that a legal or natural person who has caused damage to the environment must pay for the costs of removing the damage caused to the environment and restoring the site to a satisfactory state. The Law on the Environment also describes the principle of compulsory insurance. Legal entities and natural persons whose activities pose a risk to human health and/or the environment, are obliged to insure themselves against liability for damage to the environment. An entrepreneur is obliged to prove to be insured against environmental damage, which is a condition of the procedure for obtaining (environmental) permits. Failure to maintain such insurance may result in a fine. Between September 2022 and May 2023, twenty-seven procedures for environmental damage have been initiated.

2.6 Voluntary compliance promotion instruments

Environmental management systems

The use of environmental management systems, other than EMPs that are part of issued permits, is not widely known or developed in Montenegro. However, there are several companies that are certified according to ISO 14001:2015.

Labelling

The Law on the Environment is the legal basis for the transposition of Regulation (EC) 1221/2009 on the voluntary participation by organizations in a community eco-management and audit scheme (EMAS). The EU eco-label regulations, as set out in Regulation (EC) No 66/2010 and Decision 2012/481/EU, are transposed by the Rulebook on the detailed content, criteria and method for obtaining the right to use an eco-label (OG 50/17). Once the legal basis for EMAS and eco-labels is established, the implementation can commence with the first application submitted, and EMAS can be implemented once Montenegro becomes a full member of the EU. The then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development) issued the label Rulebook OG 40/17, in line with EU Directive 1999/94/EC on the availability of consumer information on fuel economy and CO₂ emissions. This makes the fuel economy label a legal requirement for all car importers bringing in new cars. Car importers may utilize the proposed label design or develop their own label in accordance with the Rulebook and the EU directive. Products placed on the market must contain the correct product information and be labelled as required by specific legislation. If this is not the case, product information should be provided in the form of manuals and product descriptions. Given the significance of tourism for Montenegro, there are initiatives for the certification of individual registered tourism accommodation issuers to obtain the EU Ecolabel.

Corporate social responsibility

Corporate Social Responsibility in Montenegro is usually associated with charitable activities of companies. Large (international) financial institutions and investors make the inclusion of corporate social responsibility aspects by companies a condition for financing. A few large companies in Montenegro have explicitly included corporate social responsibility in their policies and put it into practice. One example is Hidroenergija Montenegro, which operates small hydropower plants connected to the distribution network and has an employment programme exclusively for local people. The company also often contributes to improving working and living conditions through donations, sponsorships, and protocols with local authorities. To date, the company has realized more than €1 million in direct donations, sponsorships and infrastructure projects in the Berane and Andrijevica areas. Another example is Gruppo Montenegro, which has a code of ethics and acts accordingly. The company has included in its mission and actions that every strategic choice underlying its plans is driven by a sustainable and responsible vision.

Voluntary environmental reporting by companies

Three hotels belonging to international chains are members of Green Key and hold the Green Key certificate as a standard on environmental responsibility and sustainable management in the tourism sector. By doing so, the companies promise that their tourist facilities will meet strict environmental and sustainability criteria. Compliance with high environmental standards is maintained through rigorous documentation and regular audits. Companies participating in this Green Key initiative regularly report data on energy, water, waste, and carbon emissions in their sustainability reports, as well as actions taken. Information on reporting by other companies was not available.

The aim of the SDG target 12.6 is to encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle. This is reflected by the number of companies publishing sustainability reports. As at June 2024, the country does not report on SGD indicator 12.6.1.

2.7 Legal, policy and institutional framework

Legal framework

The Criminal Code defines various environment and health-related acts as punishable when they violate the relevant regulations. Besides the penal provisions contained in the specific (environmental) laws, the Criminal Code also has specific penal provisions. The EU Directive 2024/1203 on the protection of the environment through criminal law and replacing Directives 2008/99/EC and 2009/123/EC, is not yet incorporated into the applicable national legislation, including the Criminal Code.

The Law on Inspection Supervision (OG 39/03, 76/09, 57/11, 18/14, 11/15, 52/16) regulates the principles of inspection control, the methods and procedures in conducting inspections, duties and powers of inspectors and other issues of importance for inspection control. In April 2024, the law was amended with the aim of decentralizing inspections of the AIA to line ministries.

The Law on Water regulates the legal status and all necessary standards and conditions for the implementation of integrated water management and water infrastructure. The rules and requirements prescribed by this Law intend to regulate coastal land and water facilities, conditions and provisions for water activities and other issues relevant to water management and water resources. Competent authorities are designated for drinking water and develops river basin management plans for each river basin district lying entirely within its territory.

The Law on Game and Hunting prescribes all necessary rules and requirements aimed at offering a sustainable, safe and animal and eco-friendly implementation of policies related to the management of wildlife and hunting. This Law establishes measures to prevent the extinction of wild animals, and prohibiting the game of endangered species listed in CITES. The Law provides a list of hunting species, hunting seasons and rules relating to hunting, including measures to regulate hunting, and includes the offences and related penalties.

The Law on Mining regulates the conditions and method of exploitation of mineral resources, mining measurements and plans, concessions and permitting, professional training of workers, safety measures and environmental protection measures during mining works. For a concessionaire to perform mining activities, approval must be obtained. In accordance with the Mining Law, and no later than one year after the completion of the works, the concessionaire is obliged to use the land on the mining field by means of a land reclamation project or to implement the environmental protection measures included in the EIA. The concessionaire is obliged to submit yearly renewable bank guarantee as a guarantee that rehabilitation works will be carried out after termination of the operation. The Regulation on the conditions for issuing licenses for mining prescribes the detailed conditions to be respected when issuing licenses for the performance of mining works in terms of technical equipment and necessary number of engineers with professional education.

The Law on National Parks lays down rules for the management of national parks. The Law applies to five national parks and the use of natural resources and goods within the national parks. An exclusion list of activities prohibited in the parks is introduced in the Law. The management of the national parks and the way of protecting the natural resources are to be carried out through a spatial plan and management plan (see chapter 10).

The Law on Ionizing Radiation Protection and Radiation Safety (OG 56/09, 58/09, 40/11, 55/16) regulates all measures and provisions on radiation safety issues for the protection of human health and the environment from

the harmful effects of non-ionizing radiation generated using various sources of radiation. This includes the conduct of radiological activities, trade in sources of ionizing radiation and radioactive materials, management of radioactive waste, measures in case of radiation accidents, as well as other issues relevant to protection against ionizing radiation and radiation safety. The law prohibits the import, use and possession of radioactive sources that will end their lives as high-level radioactive waste, as well as the import of radioactive waste of foreign origin. The addition of radioactive materials to food and other products is prohibited. The Regulation on the Method of Collection, Storage, Processing and Storage of Radioactive Waste (OG 58/11) determines how radioactive waste and disused sealed radioactive sources are collected, processed, recorded and stored. In May 2024, a new Law on the Protection against Ionizing Radiation, Radiation and Nuclear Safety and Security (OG 49/2024) was adopted.

The Law on Non-Ionizing Radiation Protection (OG 35/13) regulates the protection of life and health of people, persons who work with sources of non-ionizing radiation or in the process of work are in the fields of non-ionizing radiation (professionally exposed persons) and the protection of the environment from the harmful effects of non-ionizing radiation, conditions for the use of sources of non-ionizing radiation and other issues of importance for non-ionizing radiation protection. On the basis of this Law a total 18 bylaws have been developed. The licence and monitoring of non-ionizing radiation are responsibility of the EPA. Up to now several legal entities has been authorised for different prescribed tasks in the area of non-ionizing radiation protection.

The Law on Technical Requirements for Products and Conformity Assessment (OG 053/11, 033/14, 003/23) regulates the manner of prescribing technical requirements for products, conformity assessment of products with prescribed technical requirements (hereinafter referred to as: conformity assessment of products), obligations of product suppliers, validity of conformity documents and conformity marks issued abroad, and notification of technical regulations and conformity assessment procedures.

The Law on Marine Fisheries and Mariculture regulates the complete marine fisheries sector, including mariculture, the management of the living marine resources, fishing, collecting and protecting fish and other marine organisms. The fishery sea of Montenegro includes marine and submarine area of internal seawaters, territorial sea and continental area of Montenegro as defined by the Law and includes the exclusive marine economic zones. This Law further provides for standards necessary for the calculation of fees and charges and prescribes all related offences and penalties, fishing permits and related provisions, and other important issues governing the marine fisheries and mariculture sector. State port measures state that in relation to fishing with foreign fishing vessels, the administration authority may, in accordance with international measures, inspect documents, fishing tools and gear and catch on board of fishing vessels when such vessels are in a port or in a coastal zone. They also can prohibit landings and transshipments if fish and other marine organisms were caught in an illegal manner.

The Law on Air Protection requires industrial operators to carry out self-monitoring and reporting. Information on pollution sources must be submitted to local authorities and to the EPA. The EPA keeps the integrated register of environmental pollutants based on the Regulation on the detailed content and method of keeping the environmental pollutants register (OG 045/17). The Law provides for the establishment of emission limits for stationary and mobile sources of pollution. This law also defines aspects as permitting, inspection, data collection and control provisions.

The Law on Forests regulates the protection of forest areas as an asset of public interest and prescribes rules for the management of forests and forest habitats and relevant measures. Future mechanisms for the implementation of management measures for forest habitats in proposed Natura 2000 sites are also connected.

The Law on the Protection of the Sea against Pollution from Vessels regulates the protection of the sea from pollution from vessels that sail or are located in internal sea waters and the territorial sea of Montenegro, acceptance and handling of waste in ports, as well as liability and compensation for damages in case of pollution. Annex 5 of the International Convention for the Prevention of Pollution from Ships (MARPOL) is also of particular importance.

The Law on the Protection from Noise (OG 28/11, 28/12, 01/14, 002/18) determines all necessary measures and standards and aims to prevent or reduce the harmful effects of noise to protect the environment and human health from noise pollution. This law excludes noise in working and living environment. The Decree on Limit Values

of Ambient Noise Levels, Methods for Determining Noise Indicators and Acoustic Zones, and Methods for Evaluating Harmful Effects of Noise (OG 60/11), forms the regulatory framework for noise levels in populated areas according to settlement zones (outside the building), where the noise level may not exceed the permissible values for a given zone. The Environmental Noise Limits Regulation sets out the limit values for noise exposure, as well as the methodology for determining noise indicators and acoustic zones.

The Law on the Environment establishes the principles of environmental protection and sustainable development, defines the terms, instruments, and measures for the protection of human health and the environment, and outlines the essential topics related to the environment and other issues of interest in that context. As the umbrella law in the environment, it also regulates the environmental monitoring which ensures a continuous control and monitoring of the environment in accordance with this Law and with other specific laws.

The Law on Food Safety regulates the conditions for food and feed safety, the duties and responsibilities of food and feed business operators. Its purpose is to ensure the protection of human life and health, the environment, consumers, and the efficient functioning of the market. The state administrative authorities responsible for food and feed safety are the Ministry of Agriculture, Forestry and Water Management and Administration for Food Safety, Veterinary and Phytosanitary Affairs.

The Law on Product Market Surveillance aims to ensure that the products delivered to the market meet the requirements of protection of the public interest, health and safety of consumers, environment, health and safety at work, as well as free circulation of goods without unnecessary restrictions or limitations.

The Law on Nature Protection regulates most issues in this subsector of the environment, such as legislation on the establishment of an ecological network, including areas for the conservation of bird habitats and species, and wild plant and animal species. The law describes in detail what is prohibited and specifies permitted activities. The environmental inspector monitors compliance with applicable legislation. Failure to comply with these laws and regulations is punishable by fines ranging from €250 to €40,000, depending on the nature of the offense.

The Law on Chemicals and several secondary laws that have been adopted to implement the EU acquis in the field of chemicals management, regulates the management of chemicals. The Law regulates the procedure for classification, labelling and packaging of chemical products based on the assessment of their physical and chemical properties, properties that affect human life and health, and the environment. Importation of chemicals and biocides requires permits issued by the EPA after review.

The Law on Environmental Impact Assessment regulates the administrative procedure for EIA for projects that are likely to cause significant effects on the environment. It defines the procedure and content of the EIA study and its report, the stakeholder engagement and the public involvement process. It sets out the requirements for conducting assessments of potential environmental impacts that projects may have on people, biodiversity, soil, water, air and other natural resources, climate, historical and cultural heritage, and the interaction between these elements. This law is aligned with the Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment.

The Law on Industrial Emissions repealed the Law on Integrated Prevention and Control of Environmental Pollution. The Law regulates environmental pollution, prevention and control by issuing integrated permits for installations and activities that may have negative impacts on human health, the environment and material resources. The integrated permitting system is based on the concept of the best available techniques. Montenegro has installations that fall under the EU Directive 2008/1/EC concerning integrated pollution prevention and control. Most of the Montenegro IPPC installations are in the industrial sector (see Chapter 13). The EPA, responsible for permitting, informs interested authorities, organizations and the public about the prepared register/list of Seveso plants in Montenegro. As at April 2024, there are 6 SEVESO plants of higher risk level.

The Law on Alien and Invasive Alien Species of Plants, Animals and Fungi (OG 18/19) regulates the manner and rules for preventing the introduction and spread of alien and invasive alien species of plants, animals and fungi, to mitigate and minimize adverse effects that can occur to biodiversity, ecosystem and human health in general. This Law further provides for rules for permitting, monitoring, inspection, reporting and lists the necessary penalty measures, and contains basic rules for dealing with alien species. The content and provisions of the EU

Regulation No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species are transposed into the law.

The Law on the Protection against the Negative Effects of Climate Change is the legal basis for a national ETS covering emissions from the industry and power sectors. The 2020 Decree on Activities for which a GHG Permit is Issued sets the thresholds for sectoral coverage and inclusion, the rules for permit trading, auction allocation rules, benchmarking, and a market stabilization reserve. However, a national ETS is not yet established.

The Law on Waste Management (OG 34/24) repealed the Law on Waste Management (OG 064/11, 039/16) and further harmonizes Montenegrin's waste legislation with EU legislation. It regulates the types and classification of waste, planning, requirements, obligations and responsibilities of legal bodies and physical persons, conditions for issuing waste licenses, inspection and supervision, among others. The Law on Waste Management regulated the issuing of permits to process and/or dispose waste. The 2024 law is complex, and it is a challenge for the next six months to complete renewing issued permits.

Institutional framework

Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development

As at June 2024, the Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development had the main responsibilities and competences for policymaking, legislation, strategy and planning on environmental protection and climate change. It had also a role in issuing water permits. In July 2024, after the EPR mission, there was a ministerial restructuring. This ministry was split in the Ministry of Ecology, Sustainable Development and Northern Region Development and Ministry of Tourism.

The EPA is responsible for implementing environmental and climate action strategies, programmes, laws, and regulations and conducts EIAs and IPPC licensing. The EPA is the main body responsible for environmental permitting. It also monitors environmental conditions, including ionizing and non-ionizing radiation, maintains relevant registers and databases, and coordinates reporting on the state of the environment. The EPA's human resources are insufficient to fulfil all tasks and responsibilities in a timely manner and with the necessary quality. A large number of legislative amendments has been made, for instance. This naturally leads to the implementation of new policies, procedures, and processes, as well as adjustments to existing ones. It also encompasses licensing, monitoring, and other related activities. Currently, there is an insufficient staff capacity to accommodate this.

Ministry of Energy and Mining

As at June 2024, the Ministry of Energy and Mining was in charge of the sectors of energy, mining, geology, and concessions. It was involved in concession allocation and oversight of mineral resource exploitation, geological research, and hydrocarbon production. Licensing and granting concessions were also the responsibility of the Ministry. In July 2024, there was a reshuffle, and this ministry was separated into two new bodies: the Ministry of Energy and the Ministry of Mines, Oil and Gas.

Ministry of Agriculture, Forestry and Water Management

The Ministry of Agriculture, Forestry and Water Management is responsible for the management, policy development on the use and protection of water resources, protection against adverse effects of water and water pollution, forest conservation and management, hunting, fishing and food safety. The Ministry is also responsible for administrative and inspection oversight on veterinary and phytosanitary matters. The Ministry is responsible for licensing and issuing water documentation, including single water permits. For many types of (industrial) activities along riverbanks, no or inadequate permits have been issued. Moreover, there is no complete list of unlicensed companies. Efforts are being made to create a cadastre of activities and/or companies that require a permit.

The Directorate for Water Management lacks capacity to adequately staff both the policy development and licensing functions. It is expected that once the cadastre is completed, a major catch-up exercise will be undertaken, for which there is currently insufficient staff capacity. The Directorate for Fisheries is responsible for licensing of professional and recreational fishery.

Administration for Inspection Affairs

The AIA was established in 2012 to consolidate all inspections previously managed by line ministries. The AIA oversees 26 inspection services, which are responsible for conducting inspections of a wide range of legislation. These services are divided into four sectors, each comprising eight organizational units. Furthermore, the AIA is divided into three divisions and an internal audit division. The AIA fleet comprises 97 vehicles and 40 leased vehicles. The AIA is experiencing a shortage of staff, which is negatively impacting the performance of inspection tasks. The limited availability of qualified personnel on the labour market and the lower salaries of inspectors compared to positions at the same level in the private sector are key factors contributing to the current staffing challenges. Another challenge is the requirement for staff to reapply for the same position after five years of employment. This involves lengthy and complicated procedures. This factor also contributes to staff leaving the organization to pursue more lucrative opportunities in the private sector. The administration's budget for 2023 was about €6.5 million, which, according to the AIA management, is insufficient to cover certain categories of expenditure. Annually, the AIA provides a report to the Government on its activities in all areas of responsibility. All documents are available to the public.

The Environmental Inspectorate carries out supervision over environmental and related topics and legislation. Standard operating procedures for inspectors are not available. The Inspectorate also supervises the implementation of environmental monitoring and reporting and takes measures and actions to eliminate identified irregularities and ensure that regulations are properly applied. The monitoring of the legality and effectiveness of work and the legality of administrative actions by the environmental inspectorate is overseen by the ministry in charge of ecology and sustainable development.

The Mining Inspectorate oversees technical norms and standards, granted permits and concessions and EMPs related to mining, health and safety at work, and waste management. In AIA's Department of Geology, Mining and Hydrocarbon Inspection, three positions relate to the Mining Inspectorate, one of which is filled with responsibilities for inspections in the country. Mining facilities are subject to inspection with focus on compliance of the works with the technical documentation, the provisions of the concessions and measures and standards of environmental protection.

The Inspectorate for Radiation Protection and Radiation Safety carries related inspections based on an annual plan and programme and 13 internal inspection procedures. The controls of radioactivity of goods during imports are carried out with support from the CETI and the Institute of Ferrous Metallurgy Nikšić.

Recommendation 2.1 of the third EPR was that the Government should establish mechanisms that will improve communication and coordination within the environmental compliance system, and strengthen capacity at all levels, with a focus on environment related inspections, and by enhancing information management and sharing among the different agencies responsible for compliance assurance. It was also recommended developing more structured coordination and cooperation mechanisms and operationalizing the integrated register of environmental polluters. Moreover, the recommendation asked for centralizing responsibilities on IPPC matters at the national level, and systematically assessing human capacity for environmental regulation, implementation and enforcement. This recommendation has been implemented to a very limited extent. There has been minimal coordination and cooperation with other stakeholders in the compliance system, as well as with other partners. However, an integrated information system has been developed for the AIA and is in operation, linking inspections and exchanging information between them. The human capacity and quality at both the inspectorates and the central organizations of the ministries are insufficient. At the AIA, the shortfall is between 20 and 50 per cent. The capacity of the licensing officers is also under significant pressure. There is no comprehensive register of polluting companies and there is also insufficient insight into companies that should have a license. The lack of inventories and registers also applies to other environmental fields. As per the recommendation, IPPC licensing is carried out centrally.

In April 2024, the Government took the decision to dismantle the AIA and transfer individual inspections to line ministries. A draft of the legislation has been prepared for this purpose. There is concern that the transfer of inspections to line ministries may result in a loss of independence for the inspectorates, as they will soon be organizationally directly under a ministry. This could lead to increased direct and political influence on the performance of their inspection tasks. In some cases, senior officials within ministries also serve as shareholders

or owners of companies. They further claim that the AIA is frequently requested to conduct customized inspections. This places inspectors in a challenging position. At the same time, there is significant pressure from citizens and NGOs to address situations in violation of laws on the ground. This dilemma presents a challenge to the inspector's integrity. The AIA has warned that the new positioning of inspectorates may exacerbate the situation. Furthermore, there is a concern that the close working relationships between different inspectorates will be negatively affected by a reduced communication, which could result in a reduction in the efficiency and effectiveness of their actions. Another concern is if the joint information system, which is now of great importance, will remain operational. This remains unclear.

Administration for Food Safety, Veterinary and Phytosanitary Affairs

The Administration for Food Safety, Veterinary and Phytosanitary Affairs is the competent authority for food safety, veterinary and phytosanitary legislation enforcement and monitoring. The Food Safety Sector oversees legislation enforcement in food and feed safety at all stages of production, processing and distribution. The Veterinary Sector oversees legislation enforcement in animal health, welfare, veterinary medicines, antimicrobial resistance and residue monitoring. The Phytosanitary Sector oversees legislation enforcement in plant health, plant protection products, seed and planting material, protection of plant varieties, and GMOs. Analysis of samples taken during official controls is conducted by accredited laboratories pursuant to ISO/IEC 17025 and ISO/IEC 17011. Veterinary inspections are carried out at the place of departure or final destination of the consignment, in quarantine facilities and at 10 veterinary border inspection posts. Official controls of food and feed to be placed on the market are carried out by food inspectors and veterinary and phytosanitary border inspectors.

Administration for Maritime Safety and Port Management

The Administration for Maritime Safety and Port Management through the Port State Control inspects foreign-flagged ships according to international regulations. Montenegro is a member of the Paris Memorandum of Understanding on Port State Control. The Port State Control operates in accordance with the MARPOL Convention, which, among other things, applies to the protection of the sea from pollution by ships. Discharge of waste at sea is prohibited. The discharge of water from the separator is permitted under certain conditions, provided that the oil content does not exceed 15 ppm. Approximately 50 ships are inspected each year. Standard procedures and reports are followed. Inspectors have the technical resources to carry out inspections. Samples are taken regularly and tested by certified laboratories. The authority uses an international system for the exchange of information.

Municipalities

The municipalities have established special services to address environmental concerns, including the management of municipal waste, the provision of water and the treatment of wastewater. These services are provided by public utility companies. In addition, municipalities are responsible for maintaining local registers of polluters and performing EIA and SEA procedures for projects and plans of local significance. They also conduct acoustic zoning and noise mapping for agglomerations. Local municipal inspectors also conduct inspections, whether in cooperation with the local police.

Centre for Ecotoxicological Research

The CETI is an institution involved in environmental testing and monitoring on subjects such as food safety, consumer goods, analysis of all toxins in toys, cosmetics, ionizing radiation protection and nuclear safety, waste categorization, occupational health and safety. CETI plays a role in the implementation of some governmental monitoring programmes, as well as in the examination of samples on the market and imported into Montenegro, to check compliance with the prescribed safety requirements. CETI provides services to business entities and state bodies in market competition and through project activities. In accordance with the Statute (OG 007/22, 117/23), the supervision of the work of CETI was carried out by then Ministry of Tourism, Ecology and Sustainable Development and Northern Region Development. CETI has obtained the status of a 'reference institution' for soil contamination, analysis of physical and chemical parameters in the marine ecosystem, radionuclides in all segments of the environment and noise analysis. CETI is selected as a reference institution to implement the Marine Ecosystem Monitoring Programme, the Monitoring programme for Dangerous and

Harmful Substances in Soil, the Environmental Noise Monitoring Programme and the Programme for Testing the content of Radionuclides in the Environment.

Institute for Public Health

The Institute for Public Health is a specialized medical institution at the tertiary level of health care that performs tasks through epidemiological, microbiological, parasitological, toxicological, chemical and biological research, as well as other laboratory analyses. The Institute noted that, from a health perspective and on its own initiative, the organization regularly reviews the online measurements of air pollution monitoring. It was noted that there is no warning function when certain limit values are exceeded, which nevertheless happens regularly. Only for sulfur dioxide (SO₂) does the system give an alert when exceeded. The Institute uses EU standards when checking readings. In their absence, WHO standards are used.

Diagnostic Veterinary Laboratory

The Diagnostic Veterinary Laboratory is accredited for microbiological analyses of food of animal origin, meat and meat products, milk and milk products, eggs and egg products, and for parasitological analyses of meat and meat products.

State Audit Institution

The State Audit Institution has the ambition to strengthen audit capacities in the field of environmental auditing, also due to the importance of auditing the success of the implementation of the Sustainable Development Goals.

Energy and Water Regulatory Agency

The Energy and Water Regulatory Agency (REGAGEN) is the regulatory authority responsible for issuing, amending and revoking licenses for the provision of regulated utility services, and also oversees the activities of the utility companies to ensure compliance with the terms and conditions of issued licenses, analyzes the utility companies' performance based on performance indicators (benchmarking); determinates the minimum quality and scope of work for performing regulated utility services, determines the tariff setting methodology based on which utility companies establish service prices and gives consent to the proposed prices for performing regulated utility services.

Coordination with institutions responsible for environmental protection at national, regional and local levels on matters related to regulatory and compliance assurance mechanisms

Montenegro has established basic institutional structures for implementation of requirements in environment and climate change. A complex institutional system has been put in place with a clear division of competences between institutions involved in environment and climate change policy making and enforcement. As at June 2024, 33 institutions with different types of competences were identified. It was not possible to determine with sufficient clarity how coordination between the various governmental bodies with roles and responsibilities in environment and climate change is organized. However, these bodies are currently mainly focused on transposing EU legislation into national regulations, but at the same time are insufficiently prepared for adequate implementation. They feel that too much work is being done in silos and that it is not clear enough who is doing what and who is responsible for what. Institutionalized cooperation, coordination of environmental compliance and assurance mechanisms and strategies are absent or limited to ad hoc situations. This absence is visible in the chain of inspection, police, judiciary and other parties that play a role in this chain. In accordance with vertical division of competences, local self-government units are also competent for implementation of environment and climate change legislation.

International cooperation on compliance and enforcement

Montenegro's political priority is accession to the EU, but the country faces challenges in aligning its legislation with EU requirements and meeting European standards of rule of law, democracy and market economy. Montenegro participates in regional and international police cooperation through Europol, Interpol and the Southeast European Law Enforcement Centre, and has bilateral regional cooperation agreements with partners

with which it has a Stabilization and Association Agreement. On 7 November 2023, the EPA joined the EU Network for the Implementation and Enforcement of Environmental Law as a new member and, since then, participates in several projects. There is also international cooperation with international organizations to combat trade in endangered species, illegal fishing and maritime pollution, among others.

2.8 Assessment, conclusions and recommendations

Assessment

Montenegro has made progress in further developing national laws and regulations, including through the transposition of European regulations into national legislation and related secondary regulations. This has ensured better alignment with international developments in various policy areas. However, there are several key challenges to be implemented. Compared to the situation described in the third EPR, progress in implementing and applying regulatory and compliance safeguards mechanisms has been limited. Many of the recommendations in the third EPR report were not or only partially implemented.

The lack of capacity among policy departments, licensing authorities and inspection organizations to translate regulatory obligations into concrete plans, strategies and implementation is a significant concern. Several international reports confirm this picture. At the AIA, the shortage of staff at most inspectorates is between 20 and 50 per cent. This lack of staff adversely affects work, as the implementation of plans stagnates or slows down. Furthermore, staff turnover contributes to knowledge leakage that is not adequately anticipated by management in a timely manner. In addition to the lack of capacity, there are also challenges in terms of specific knowledge and staff training. For instance, the AIA does not currently have education and training curricula in place. Moreover, there is a lack of procedures and guidelines for conducting inspections. This results in inconsistencies in the execution of inspections and a lack of fairness. Annual plans are primarily based on past inspection experiences and do not utilize risk estimates or prioritization methods. The lack of comprehensive inventories of various topics within the environmental field and adjacent topics significantly impedes effective planning, prioritization and implementation based on risk analyses and distinctive criteria. This is evident in the formulation, updating and implementation of policies, as well as in the implementation of licensing and inspections to monitor and improve compliance.

The coordination, alignment and cooperation between various governmental bodies is limited or unclear. This includes closing the compliance and enforcement chain, where various stakeholders not only have their own roles and responsibilities, but also depend on each other. This has the effect of preventing the uniform execution of inspections and does not contribute to a level playing field. Additionally, working in silos impedes this process. Moreover, the informal economy hinders the implementation of policy and the application of appropriate instruments, which in turn contributes to frustration among the business community and the auditees.

Conclusions and recommendations

Cooperation and coordination in the environmental compliance and enforcement chain

Collaboration and alignment among key entities involved in the environmental compliance and enforcement process is limited. The lack of such cooperation is detrimental as there is a high dependency between organizations such as inspectorates, police, prosecutors and judges to achieve successful handling of criminal cases or application of alternative instruments to promote compliance. Currently, contacts exist on an ad hoc basis, with each case handled on an individual basis. The cooperation is not institutionalized as the country lacks a mechanism for cooperation amongst environmental enforcement organizations. Therefore, there is no agreement between relevant enforcement bodies on key priorities, procedures, coordination, the proportionality of enforcement resources, the quality of reports, knowledge building and training.

Recommendation 2.1:

The Government should:

- (a) *Initiate the development and implementation of a national mechanism for environmental enforcement bodies to coordinate and align approaches and implementation plans;*

- (b) *Formalize the developed enforcement model and use it as a guide for supervisory and enforcement bodies when sanctioning environmental non-compliance;*
- (c) *Facilitate the provision of a training curriculum for enforcement bodies to ensure connection to each other's roles and responsibilities.*

Databases as the basis for planning

Inventories of various topics on which ministries should base their policy, strategy and action plans are lacking. This is exemplified by the lack of inventories of biodiversity. Besides, there are companies operating without a license, illegal constructions in nature parks, waste dumps and complex activities requiring a building permit. The absence of these inventories and databases impedes the development of effective policies and implementation plans. The necessity for this has been highlighted by numerous government entities, as well as international organizations to which Montenegro reports.

Recommendation 2.2:

The Government should:

- (a) *Conduct inventories of the environmental issues that are the basis of environmental policy development, and record them in databases;*
- (b) *Analyse data obtained for policy and planning purposes and, on that basis, develop action plans for implementation.*

Inspection bodies

The Government has decided to decentralize the Administration for Inspections Affairs and transfer the individual inspectorates to line ministries. This decision and its consequences raise some concerns, such as potential loss of independence, distance from other inspectorates with which they currently collaborate intensively and the risk of being less effective and efficient. As at June 2024, the current staff shortage in the Administration for Inspections Affairs is estimated at between 20 and 50 per cent and may further reduce the efficiency and effectiveness of individual inspectorates due to the potential increase in bureaucracy. Furthermore, there is concern that being embedded in a line ministry may lead to pressure being placed on the integrity of the inspector. In addition, inspections do not use risk analysis and prioritization methods to prepare their inspection and action plans. A training curriculum for inspectors is absent. Further, inspections do not use standard operating procedures. Such procedures ensure equal treatment of inspected entities and contribute to a level playing field.

Recommendation 2.3:

The Government should:

- (a) *Bring the number of inspectors up to the required level;*
- (b) *Ensure the independent status of inspectors and clearly separate political, permitting and inspection functions in all relevant institutions;*
- (c) *Ensure adequate training for inspectors;*
- (d) *Encourage further development and use of standard operating procedures for environment-related inspections.*

Chapter 3

Greening the economy and financing environmental protection

3.1 Greening the tax and tariff system

Pollution charges (air, water, and waste generation and disposal)

Under the Law on the Environment, Montenegro implements the polluter-pays principle. Indeed, eco-fees are to be paid by physical and legal entities for emitting pollutants in the air, importing substances damaging the ozone layer, and creating and disposing of hazardous waste. However, air pollution charges and those on hazardous waste have yet to be updated since 2008, i.e. they remain the same as during the third EPR of Montenegro. Table 3.1 summarizes air pollution charges.

Table 3.1: Air pollution fees, €/ton

Pollutant	Fee
Carbon monoxide (CO)	2.2
Sulfur dioxide (SO ₂)	4.0
Nitrogen oxides (NO ₂)	3.2
Gaseous inorganic compounds of fluor	13.5
Heavy metals	31.6
Solid particles	18.9
Pyrene, Phenanthrene, Anthracene	26.7
Benzo(a)pyrene	180.7

As at April 2024, there are proposals being prepared by the ministry in charge of the environment to update such charges. More precisely, the new rates for air pollution emissions proposed are based on current rates but with the following corrections:

- An inflation correction factor, based on the national Consumer Price Index;
- A correcting factor of 1.5 if the firm emits more than the allowed limit;
- A correcting factor of 2 if the firm is emitting without a permit or is incorrectly reporting its emissions levels.

However, as of April 2024, no legal acts regarding these rates' reforms have been formally approved. As at April 2024, the proceeds from such charges are allocated to the Eco-Fund budget.

Water pollution charges are governed by the Law on Financing Water Management (OG 65/08, 40/1). The specific rates were last updated in 2009.⁵⁰ In summary, the effective charge consists of a fixed fee of €0.006 per m³ of wastewater discharged and a variable fee that depends on (i) the pollution content of water discharged and (ii) the technology used for wastewater treatment. The substances comprise general organic pollutants (BOD, COD), nutrients (nitrates and phosphorus), heavy metals, and suspended solids. The more advanced the treatment, the lower the effluents' effective charge rate per m³. Proceeds from water pollution fees are allocated to State budget.

Recommendation 3.1 of the third EPR concerned the efficiency of pollution charges in creating pollution reduction incentives and the transparency of amounts levied through these taxes. While some information on eco-taxes is available through the Eco Fund's financial reports, the pollution taxes have not been updated in the last decade. Hence, this recommendation was only partially implemented.

⁵⁰ 2009 Decision on the amount and method of calculation of water fees and on the criteria and method for determining the level of water pollution. Two amendments to this decision were approved in 2019 and 2020, but they do not concern water pollution fees.

*Taxes and excise duties*Land and property taxes

Annual property tax is levied on ownership of lands and buildings. The tax rates are calculated individually based on property age, area, and location. They usually range between 0.1 per cent and 1 per cent of the property value as of 1st January of the current year. An exception is hotels in coastal areas, for which tax rates can be as high as 5 per cent.

Regarding SDG target 5.a and related indicator 5.a.2 (Degree to which the legal framework (including customary law) guarantees women's equal rights to land ownership and control), Montenegro reported a score of 4 in 2020, indicating a relatively high degree of equal ownership rights over land.

Vehicle taxes

A duty is paid on the vehicle at the time of purchase and each year of use. The rate depends on the type, value, characteristics (in particular, vehicle horsepower), and year of manufacture.

In general, the annual fees vary as follows:

- Between €10–300 for motorcycles;
- Between €25–1,500 for passenger cars;
- Between €300–500 for boats;
- Between €1,000–1,500 for aircraft.

The tax rate is reduced by 5 per cent annually, with a floor of 50 per cent of the initial tax amount. Also, if a vehicle is not subject to VAT, an additional tax of 5 per cent of its value is paid when it is purchased in the secondary market (used vehicle transfer tax).

Excise duties

Montenegro imposes excise duties on several goods. The ones impacting the environment are mainly mineral oils and their derivatives and substitutes. The rates are as follows:

- Unleaded Petrol: €0.554 per litre;
- Unleaded Petrol: €0.549 per litre;
- Diesel: €0.33 per litre when used as motor fuel, €0.259 per litre when used as fuel for industrial and commercial uses, €0.207 per litre when used for heating purposes;
- Liquefied Petroleum Gas: €0.125 per kilogram when used as motor fuel, €0.584 per kilogram when used as fuel for industrial and commercial uses; €0.026 per kilogram when used for heating purposes;
- Kerosene: €0.330 per litre when used as motor fuel and €0.0897 when used for heating purposes;
- Biofuels: €0.350 per litre.

Natural gas, whether used as motor fuel or for heating, is exempt from excise duties.

*Fees for use of natural resources*Water abstraction fees

As is the case for water pollution fees, water abstraction fees are also determined in the Law on Financing Water Management and the 2009 Government Decision. Like many other environmental fees, these have yet to be updated since the third EPR of Montenegro. They are summarized in Table 3.2.

Hydrocarbons tax

According to Law on Hydrocarbon Tax (OG 52/16), companies involved in upstream activities related to the extraction of hydrocarbons (mainly oil and gas), inshore and offshore, are to pay a tax. The tax rate is 54 per cent of the difference between revenues from upstream operations and associated expenses.

Table 3.2: Water abstraction fees

Purpose	Rates
Drinking tap water	€0.015/m ³
Irrigation	€0.004/m ³
Industrial use	€0.02/m ³
Mineral water (bottled)	€0.003/bottle
Hydropower production	€0.0001/kWh
Fish farms	€0.01/kg of fish

Montenegro is, however, a net importer of oil, which is mainly used in the transport sector, according to the International Energy Agency.⁵¹

Hunting and fishing fees

Recreational fishing

A fishing permit is required to engage in recreational fishing in Montenegro. The permit can be permanent (valid for the calendar year in which it is issued) or temporary (valid for up to 30 days and mainly for non-residents). Clubs that are members of the Association for Sport Fishing in the Sea of Montenegro issue the permits. The yearly permit fee varies between €5 (for underage fishermen with classic fishing tools) and €40 for adults using spearfishing and all other fishing tools and equipment. The temporary permit fee varies between €5 and €30.

Holders of a recreational permit can catch only up to 3 kg of fish per day.

Commercial fishing

Companies, entrepreneurs, and other natural persons wishing to carry out commercial fishing in Montenegrin waters and comply with the relevant legal requirements shall pay an established fee (Decision on the amount of the individual fee for commercial fishing and mariculture (OG 08/11)).

Permit holders shall pay the fee in a single amount, based on the fishing capacity and significance of the commercial fisheries, i.e., depending on the engine's power (3€ per kW) and the type of fishing gear.⁵² For example, users of vibrating ropes pay €3,000, while a €100 fee is charged for using a pelagic trawl.

Hunting

According to the Law on Game and Hunting, hunting grounds' users must pay an annual fee. The distribution of these fees is as follows: 30 per cent to the local government where the hunting ground is located, 35 per cent to the Hunting Association for public interest activities, and 35 per cent to landowners that own the lands on which the used hunting ground is established, proportional to the land area and quality. Hunting permit fees vary according to the hunter's residency status (non-residents pay higher fees) and the type of game the hunter is allowed to hunt.

Tariffs

Water supply and wastewater discharge tariffs

The local municipalities generally regulate water tariffs in Montenegro, but since 2017, REGAGEN must approve them. The tariffs are to be approved every year.

⁵¹ IEA (no date).

⁵² FAO (ADRIAMED).

Water tariffs for households—for both water supply and wastewater reception and treatment—are divided into fixed and variable parts. The fixed part varies from €0.3920 in Tuzi to €1.7082 in Cetinje. As for the variable part, the lowest is €0.5429 in Gusinje, and the highest is €3.2494 in Pluzine. As an illustration, households can pay between €5.11 and €20.36 for 10 m³ of water per month (including wastewater treatment), depending on their respective municipality.

The same 2-tier tariff logic applies to legal entities, although the tariffs for the latter are higher in all municipalities.

Tariffs cover operation, maintenance, and infrastructure costs. Municipal budgets are, in principle, to cover investment costs, although these can apply to include investment costs in approved tariffs. However, a recent evaluation by the OECD concluded that water tariffs remain low and insufficient to cover infrastructure investments.⁵³ Also, legislative provisions for water conservation incentives are not drafted or approved.

Electricity and heating tariffs

Electricity tariffs are calculated to cover operating costs (electricity generation, transmission, distribution, and retail costs) and ensure reasonable profits for operators, according to the methodology described in Government Decision (OG 71/22). The allowed revenue also considers capital expenditures, depreciation, and returns on investment estimations to incentivize investments and ensure financial sustainability. The allowed revenue is then divided by the estimated electricity demand the operator faces when calculating the tariff rates. The tariffs are reviewed and adjusted annually to reflect cost changes and consumption patterns.

According to the REGAGEN, as of April 2024, 22 electricity operators were licensed in the country, with Elektroprivreda Crna Gore (EPCG)—the national electricity operator—being the largest. EPCG was established by 1998 Government Decision (OG 1001-2772/1) to carry out energy activities: electricity generation and supply, electricity trading, and construction and maintenance of electric power facilities. EPCG tariffs vary according to several dimensions:

- Type of end-consumer: households and non-households, including a 13 per cent discount for vulnerable households;
- Time of the day: Low tariff hours (11 pm–7 am in the winter; 11 pm–8 am in the summer; Sunday all day) and high tariff hours;
- Tariff model: Basic (default) model, blue model, red model (with no distinction between low and high tariff hours), and green model (with 100 per cent renewable energy).

Table 3.3 summarizes household tariffs as implemented by EPCG. Tariffs for non-household end-consumers are the same as for households, except that the former can only choose between the basic and the green tariffication models. Also, their contract with EPCG specifies the expected monthly amount of energy consumption and EPCG can apply fees if actual consumption is 30 per cent above or below the contractual amount.

Waste collection tariffs

The Law on Communal Activities prescribes how the fees for communal services and, consequently, waste management services are determined through the Decree on Detailed Elements and Methodology for Determining the Prices of Utility Services (OG 55/20). The Law stipulates that the performance of communal activities on a municipality's territory is provided and regulated in more detail by the local government. This also implies that the local government determines the method for calculating the fee or price of municipal waste collection, removal, and disposal services. In most cases, a model based on the living area of the household is applied to determine the waste management fee.

Regarding the fee charged to companies, some municipalities use a model in which the fee is based on the volume of the waste collection containers. Although there is a demand from public utility companies (PUCs) to shift towards a tariffication model that calculates the fee based on the mass of the waste, this model and the model

⁵³ OECD (2024)

based on the number of household members are not applied, as they do not match the existing municipal waste management system and are, as at April 2024, too complex for municipalities to organize and manage.⁵⁴

Table 3.3: Household electricity tariffs by EPCG, €/kWh

Tariffication model	High/Low tariff	Rate
Basic model	HT	5.2424
	LT	2.6212
Blue model	HT_150	4.8434
	LT_150	2.4217
	HT+	5.5340
	LT+	2.7670
Red model	HT	4.4932
	LT	4.4932
Green model	HT	5.2424
	LT	2.6212
	RES fee	0.2000

Note: According to EPCG, in the blue model, consumers get a special low rate for the first 150 kWh during peak hours (HT_150) and the first 150 kWh in low tariff hours (LT_150). Above that, a slightly higher tariff is applied (HT+ and LT+).

The PUCs responsible for collecting and disposing of municipal waste are also responsible for collecting service fees from households and businesses to cover the costs. Although no new data are available, the average fee collection rate was around 56.5 per cent for households and 68 per cent for companies.⁵⁵

According to the EPA, the average monthly fee for households has increased over the past few years and is €7 as at April 2024. According to data from the Statistical Office, this monthly fee is around 0.98 per cent of households' average disposable income in 2022.⁵⁶ However, it is unclear whether this fee accurately reflects the actual costs of the waste management service to ensure full cost recovery. The value of the service fee does not cover capacity building and investments in recycling infrastructure. As at April 2024, funding for these activities primarily comes from foreign development organizations.

As at April 2024, households and companies have no financial incentives to limit the amount of waste they produce or for PUCs to increase the amount of separately collected waste. A notable exception is the recent legislation on waste management (Law on Waste Management (OG 34/24)) that bans lightweight plastic bags and introduces an extended producer responsibility programme to ensure that producers or importers of products bear financial and organizational responsibility for managing waste. However, the secondary legislation necessary to implement the Law has not been developed as of April 2024.

Hence, the current model, combined with the low fee collection rate, puts PUCs in a financially vulnerable position and imperils further improvements in the waste management system. This is especially important as waste generation in Montenegro has increased in the past decade (see Chapter 9), increasing pressure on a weak waste management system. As a result, most municipal waste is disposed of in often unsanitary landfills (94 per cent in 2022, compared to 23 per cent in the EU), and only 4.2 per cent is recycled.⁵⁷

Waste generation tends to go hand in hand with material consumption. Concerning the SDG target 8.4 (Improve resource efficiency in consumption and production) and target 12.2 (By 2030, achieve sustainable management and efficient use of natural resources), domestic material consumption, by type of raw material shows a slow increase and almost doubled in the period 2013–2022 from 7.64 million tons to 13.45 million tons (SDG indicators 8.4.2 and 12.2.2).

⁵⁴ ZWNE (2021).

⁵⁵ ECE (2015).

⁵⁶ Statistical Office (Wages-Data).

⁵⁷ Eurostat (Municipal waste by waste management operations).

Regarding SDG target 1.4 (Proportion of the population living in households with access to essential sanitation services and proportion of people with access to basic sanitation services), Montenegro has made some progress (see Chapter 8). Both indicators saw a positive trend in the period 2013–2022. It is worth noting that the situation is slightly more favourable in urban areas than rural ones.

Recommendation 3.2 of the third EPR of Montenegro called for the end of indiscriminate cross-subsidization of utilities' tariffs and re-evaluating these tariffs to ensure utilities' ability to make necessary infrastructure investments. The Government maintained a certain level of cross-subsidization by protecting a specific category of vulnerable households while implementing regular tariff revisions. This decision matches the recommendation and ensures that equity issues are considered. However, waste collection tariffs are as at April 2024 relatively low, and higher levels of investment in this sector are urgent. Therefore, Recommendation 3.2 was only partially implemented.

Market-based instruments, including an emission cap and tradable permit scheme

Despite challenges in the scheme's initial design and implementation, Montenegro is the only Western Balkan economy to have introduced a national emissions trading system as a cap-and-trade scheme for major carbon dioxide (CO₂) emitters. In December 2019, Law on the Protection against the Negative Effects of Climate Change entered into force. The Law mandates developing a comprehensive set of climate policies, including a GHG inventory, a low-carbon development strategy, and a national Measurement, Reporting, and Verification system. It further provides the legal basis for a national ETS covering emissions from the industrial and power sectors. A bylaw specific to the ETS, the Decree on Activities for which a GHG Permit is Issued was adopted in 2020. This regulation determines sectoral coverage and inclusion thresholds, rules governing allowances trading, allocation rules, and a market stabilization reserve. It includes provisions for banking allowances, a minimum reserve price of €24, and a linear reduction factor for the emissions cap of 1.5 per cent annually from 2020 to 2030. Covered entities must surrender allowances for all their covered emissions. They received 100 per cent of their allowances for free in 2020 and 2021 (grandfathering). For 2022, 64 per cent of all allowances were auctioned. The proceeds from these auctions are allocated to the Eco Fund.

The ETS formally began operations in February 2020 and applied to three installations: the Pljevlja TPP, KAP, and the Tosčelik steel mill. However, two of the three covered installations shut down their operations in 2022 in response to rising energy prices. This is still the case as of April 2024, leaving the Pljevlja TPP as the only operational covered entity.

3.2 Greening the subsidies system

Environmentally harmful and friendly subsidies, including tax reliefs and direct payments

Renewable energy incentives

According to a recent evaluation by OECD, in recent years, despite being possible under the current legal framework, no new auctions took place to assign renewable generation capacity, raising questions about the adequacy of incentives and competitive mechanisms for the deployment of renewables. Montenegro is working on a new Law on Renewable Energy Sources to address this issue.⁵⁸

In the meantime, the current situation regarding the diversification of energy supply is marked by the need for a comprehensive policy framework. Indeed, there is no specific policy to diversify the oil supply, and the economy still needs to develop a natural gas market, lacking the necessary infrastructure. Although the Law on Energy includes provisions for natural gas and oil derivatives, strategies for diversification still need to be included in the nation's policy framework. For example, the 2011 Energy Policy only incidentally mentions supply diversification as part of the broader security of supply concept and needs to establish a clear vision for diversification.

The limited diversification does not ensure supply security and enhance energy dependency. Diversification away from fossil fuels would also have additional positive environmental effects. Diversifying renewable energy

⁵⁸ OECD (2024).

sources is particularly important as the country's reliance on hydropower makes it dependent on hydrology conditions.

Finally, Montenegro is actively working on its renewable energy policy framework. The country is preparing a Law on Renewable Energy Sources, a much-needed step toward further progress in establishing market-based support schemes. In this regard, the Decree on the Manner of Realisation and Amount of Incentive Prices for Electricity Produced from Renewable Energy Sources has been repealed, leading to a cessation of the existing Feed-in Tariff system.

Tax incentives for underdeveloped regions

Montenegro allows companies and entrepreneurs opening businesses in underdeveloped regions (mainly the country's northern regions) to benefit from tax exemptions for eight years, starting from the date of establishment. The tax exemption is limited to €200,000 for eight years. It does not apply to taxpayers operating in the primary production of agricultural products, transport, shipbuilding, fishery, and steel production sectors.⁵⁹ There are, however, no green conditionality provisions to obtain such exemptions.

Other subsidies

Due to high global energy prices, the Government reduced excise duties on selling unleaded fuel and gas oils by 50 per cent in June 2022. When international oil prices stabilized, this reduction was revised and finally abolished. Nevertheless, oil products imported to be used in the agricultural sector benefit from reduced excise duties, which amounts to a subsidy.

Montenegro does not report on the level of fossil fuel subsidies implemented. Hence, no data are available to measure progress towards the achievement of the SDG target 12.c (Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption).

3.3 Evaluation of the impact of the country's efforts in greening the tax, tariffs, and subsidy systems on changing behaviours of the population, enterprises, and public institutions

Montenegro has made some progress in greening its tax, tariff, and subsidy systems, but much work remains. For example, the eco charges for air and water pollution must be updated. Also, while programmes have been implemented to facilitate green investments, there has been no systematic impact assessment of the efficiency of the different environmental policy instruments implemented in the country.

3.4 Investing in environmental protection and green economy

Green procurement

While Montenegro has extensively developed its legislation on public procurement, (Law on Public Procurement) the country has no legal dispositions or national guidelines regarding green public procurement. While no official data are available, the fact that green public procurement rules still need to be implemented suggests that Montenegro did not progress regarding the achievement of SDG target 12.7 on sustainable public procurement implementation.

The country's public procurement market corresponded to 8.74 per cent of GDP in 2022, and the value of all public procurement procedures amounted to some €506 million. This was much above the values achieved in 2021 (4.4 per cent of GDP, €220 million) but significantly below the record level of 2020 (13.1 per cent of GDP, €545 million). The use of the electronic system for public procurement - active since 2021 - helped improve the implementation of public procurement procedures in the country. These figures suggest an opportunity to use those public expenditures to promote the green production of goods and services at the national level.

Public expenditure and investments on environmental protection

⁵⁹ PWC (Montenegro).

No data on Government expenditures on environmental protection are available. Investments in environment are still insufficient despite the improvement of budgetary and policy planning. Procon is in charge of implementation of priority projects related to environment. The Recommendation 3.3 (a) of the third EPR is partially implemented and still valid.

Private sector environmental expenditures and investments

There is no public information or data on environmental expenditures and investments by the private sector. As of April 2024, the Statistical Office is testing a questionnaire to assess environmental protection investments by the private sector.

Given the lack of data, it is impossible to assess the progress on achieving SDG target 11.4 (Strengthen efforts to protect and safeguard the world's cultural and natural heritage) and indicator 11.4.1 (Total per capita expenditure on the preservation, protection, and conservation of all cultural and natural heritage)

Environmental funds and other environment-related funds

The Eco-Fund was officially established in November 2018 (OG 081/18) to act as the central national institution for financing and providing technical support to projects and programmes on environment, climate change, and energy. The parts (b) and (c) of the Recommendation 3.3 (on entrusting a governmental institution to act as an environmental investment centre at the state and local level is implemented. The fund collects environmental fees and taxes to be invested to provide grants, subsidies, and loans to the public and private sectors, as well as non-governmental organizations and citizens. In addition to these eco-taxes, the Fund also benefits from the revenues collected from the auctions of emissions permits for the country's ETS and donations from several international organizations. Table 3.4 provides an overview of the institution's primary sources of revenue.

Table 3.4: Eco-fund revenues, 2021–2023, €

Revenues	2021	2022	2023
Total	1 850 000	8 896 811	10 373 443
Eco-charges	342 631	451 000	687 417
Emissions permits auctions	7 369	7 500 000	9 255 775
Donations	1 500 000	300 056	229 514
Carry-over from the previous year	..	645 755	152 304

Source: Eco-fund's Financial Plans (available at <https://eko-fond.co.me/arhiva>).

No information on the fund's activities' environmental impact was available as of April 2024.

Foreign direct investments

According to the European Commission "Montenegro Report 2023", the EU is the primary source of foreign direct investments (FDI) inflows for Montenegro, accounting for 33 per cent of total FDI inflows in 2022. Other major investors include Russian Federation, Switzerland, and the United Arab Emirates. Tourism, real estate, energy, telecommunications, banking, and construction are attracting the most FDI. Table 3.5 gives FDI inflows to Montenegro for 2023–2022, according to data from the World Bank.

Table 3.5: FDI Inflows, 2013–2022, \$ million

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
FDI	446.5	497.0	699.9	226.7	560.7	485.7	417.6	530.9	693.7	872.6
Per cent GDP	10.0	10.8	17.3	5.2	11.5	8.8	7.5	11.1	11.8	14.0

Development assistance

According to data from the World Bank,⁶⁰ the country received around \$1.2 billion in Official Development Assistance. However, there are no data to assess the SDG target 17.2 (Developed countries to implement fully their official development assistance commitments).

⁶⁰ World Bank (Net official development assistance received (current \$) - Montenegro).

Global Environment Facility and Green Climate Fund

Over 2014–2022, Montenegro has received around \$8.2 million from Global Environment Facility (GEF) to finance projects related to biodiversity protection, climate change, and land degradation. For the 2022–2026 financing period, the indicative allocation for the country is around \$6.3 million.⁶¹

The Green Climate Fund (GCF) reports a total funding of \$4 million allocated to Montenegro concerning two projects and \$3.3 million for readiness activities.⁶²

These contributions and projects help Montenegro make progress towards SDG 15 (Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss). According to UNSTAT data on SDG indicators 15.a.1 and 15.b.1, Montenegro received around \$92.7 million in ODA for biodiversity protection from 2013 to 2021.

European Union

Under the Instrument for Pre-Accession Assistance (IPA), Montenegro received €279.1 million from 2014 to 2020 (IPA II). Forty-nine per cent of that amount (i.e., around €136 million) was allocated to environmental protection, climate change, energy, transport, innovation, agriculture, and rural development projects. For the next phase of IPA (2021–2027), the instrument was allocated an overall budget of €14.2 billion to be split amongst several countries, including Montenegro. However, no specific amount for the Montenegrin Republic is available as of April 2024.

World Bank

The World Bank's activities in Montenegro have been guided by the 2016–2020 Country Partnership Framework, which strongly focused on improving the sustainability and efficiency of public finances and increasing the stability and efficiency of the financial sector. It nevertheless included an enhanced environmental sustainability objective, mainly through financing an energy efficiency project and an industrial waste management and clean-up project.⁶³

As at April 2024, a new Country Partnership Framework for 2023–2027 is being prepared. It should focus on (i) increasing economic resilience and inclusive growth and (ii) improving environmental sustainability. Over 2015–2023, the World Bank has lent around \$350 million (loans of the International Bank for Reconstruction and Development). Some examples of environment-related projects financed by the Bank include:⁶⁴

- The Second Energy Efficiency Project (P165509) aims to improve energy efficiency in health sector buildings and develop a sustainable financing model. The project includes investments in public sector buildings and technical assistance and has an allocated budget of \$7.39 million.
- The Energy Sector Decarbonization Project (P505964) aims to improve the energy efficiency of public buildings and enhance the operational efficiency of the electricity distribution grid in Montenegro. The project will start in 2025 and has been allocated \$47.5 million.
- Industrial Waste Clean-Up Project (P122139): This project, which ran from 2014 to 2024, focused on cleaning various industrial sites of hazardous waste. It had a budget of €44.7 million.

3.5 Eco-innovations in major economic sectors

According to the 2023 EC report on Montenegro, public and private research, development, and innovation investment is relatively low.⁶⁵ For example, in the 2023 European Innovation Scoreboard, Montenegro has a summary Innovation Index of 47 per cent, below the average of the 'emerging innovators' (50.0 per cent). The

⁶¹ GEF (Montenegro).

⁶² Green Climate Fund (Montenegro).

⁶³ (World Bank, 2016).

⁶⁴ World Bank (Montenegro – Projects).

⁶⁵ EC (2023).

links between academia, research institutes, and businesses are still weak. Still, according to the EC, only 2.2 per cent of Montenegrin micro, small, and medium-sized enterprises (SMEs) invest in research and development, compared with 22 per cent at the regional level.

With a rate of 0.5 per cent of GDP invested in research and development, spending was just over one-sixth of the EU-28 average (2.18 per cent of GDP) in 2018, the latest year for which Eurostat data are available.⁶⁶

Nevertheless, the country created an Innovation and Entrepreneurship Centre, Technopolis Nikšić, in September 2016. This centre helps national start-ups through 10 support programmes and, at the same time, works to strengthen cooperation with local universities. While the projects concern innovation in a broad sense, some relate more specifically to sustainability and green aspects—for example, the VIRAL⁶⁷ hackathon, organized in 2021, aimed to create sustainable solutions for agricultural enterprises' challenges.⁶⁸

Finally, a five-year strategic plan for the newly established Science and Technology Park Montenegro⁶⁹ was developed, and a public call for the park's first tenants is being prepared. The park was officially created in 2019 as a partnership between the Ministry of Science and the University of Montenegro. It provides infrastructure support (office space, coworking space, meeting rooms, internet access), professional and business support (training, mentoring, marketing), and additional support through networking with partners and institutions. In 2024, the park had a total budget of around €800,000—with around 70 per cent of its funds and 30 per cent from external donors—up from around €350,000 in 2023.⁷⁰

3.6 Green markets

There are no data available on green markets in Montenegro.

3.7 Green jobs

There are no data available on green jobs in Montenegro. The country also does not report on SDG target 8.3 (Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services) and indicator 8.3.1 (Proportion of informal employment in total employment, by sector and sex).

3.8 Public-private partnerships in support of the green economy

According to a recent review by the World Bank,⁷¹ Montenegro has a comprehensive regulatory framework for Public-Private Partnerships (PPPs), including laws on PPPs, public procurement, concessions, and environmental impact assessments. This framework applies to various sectors such as transportation, water supply, energy, ICT, social infrastructure, and other public services. However, data from the Montenegro Investment Agency registry of PPP projects show that only four PPP Agreements were registered in 2022, mainly in the tourism sector.

Data on SDG target 17.17 (Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships) and indicator 17.17.1 (Amount in United States dollars committed to public-private partnerships for infrastructure) show that between 2013 and 2022, only \$253 million was committed to PPPs. Therefore, there is much room for harnessing the potential of PPPs, particularly for infrastructure projects and projects linked to the waste management and energy sectors.

3.9 Other Green Economy Initiatives

⁶⁶ Eurostat (Research and development expenditure, by sectors of performance).

⁶⁷ VIRAL: Vitalising ICT Relevance in Agricultural Learning.

⁶⁸ Technopolis (2022).

⁶⁹ Science and Technology Park Montenegro.

⁷⁰ Science and Technology Park Montenegro (Program and work plan).

⁷¹ World Bank (2023).

Recent green initiatives have targeted tourism, one of the country's most important economic sectors. The EU-level certification scheme "Green Key," which also certifies "green" hotels, has granted certificates to 2 hotels in the country. However, the requirements for this certification are too high for most small establishments in the country. As a response, the Montenegrin Chamber of Commerce and the then Ministry of Tourism, Ecology, Sustainable Development, and Northern Region Development (now Ministry of Ecology, Sustainable Development, and Northern Region Development) launched a local initiative called "zero waste" to certify hotels trying to decrease their environmental impact.

In general, the Chamber of Commerce has identified the low level of knowledge from the private sector regarding the green transition as one of the main reasons for the low level of green economy initiatives observed in the country.

3.10 Legal, policy, and institutional framework for greening the economy

Legal framework

The Law on Energy introduces various charges for REGAGEN funding. The Law has expanded REGAGEN's role in the Surveillance of Wholesale Electricity and Gas Markets. This Law introduced new competencies related to market monitoring and increased penalties for breaches, although the regulator must rely on courts to impose these penalties. Additionally, the Law on amendments to the Law on Energy transferred specific responsibilities, like issuing guarantees of origin, to the Electricity Market Operator.

Public Private Partnerships in Montenegro are regulated under Law on Public-Private Partnerships. Secondary legislation necessary for implementation includes:

- The rulebook on the feasibility Analysis Form for PPP (OG 59/20);
- The rulebook on the Report Form on Implementing the PPP Contract (OG 59/20);
- The rulebook on the Content and Manner of Keeping the PPP Project Proposals Register (OG 59/20);
- The rulebook on the Content of the PPP Contracts Register (OG 059/20);
- The rulebook on the Methodology for Estimating the Obtained Value Compared to Invested Funds (OG 059/20);
- The rulebook on the Content of the Statement on the Conflict-of-Interest Absence of the Tender Commission Members (OG 58/20).

A draft Law on renewable energy sources is in preparation, and a new law on climate change, which aims to transpose the Governance Regulation, was anticipated to be adopted by the end of 2023, but adoption was delayed.

According to the assessment made by the EU Commission in 2023, the legal framework on public procurement is well aligned with the EU *acquis communautaire*.⁷² Amendments to the Law on Public Procurement entered into force in January 2023. Together with the related implementing acts, these amendments further aligned Montenegrin legislation with the EU legal acts in this area. Also, in February 2023, the Government adopted a report on implementing the 2021–2025 strategy for enhancing public procurement and public-private partnership policy in Montenegro and a corresponding action plan 2023. Nevertheless, there is no mention of green procurement.

Policy framework

The 2011 Energy Policy remains the overarching policy, highlighting the pressing need to replace it promptly with new strategic documents. A central component of this update is the National Energy and Climate Plan, which aims to serve as the strategic planning cornerstone in the energy sector until 2030. However, the finalization of the Plan is still ongoing, meaning that Montenegro remains without a policy framework guiding key areas for greening the economy, such as decarbonization and diversification.

Montenegro is one of the first Western Balkan economies to develop a Circular Economy framework. Indeed, the National Strategy for Circular Transition until 2030 was adopted in December 2022 with an Action Plan for

⁷² EC (2023).

2023–2024. The strategy aims at boosting the circular transition through four identified priority sectors (agriculture, forestry, construction, and tourism) and crosscutting areas (technological development and innovation, energy efficiency, green public procurement, education, and promotion). The Action Plan has over 60 activities and 23 stakeholders on board. It focuses on promoting secondary materials and productions and programmes offering financial incentives and instruments to increase business circular initiatives and non-financial instruments to increase business opportunities in green and innovative technologies.

Institutional framework

REGAGEN is an autonomous, nonprofit body legally and functionally independent from state authorities and energy and water utilities.

Three institutions are involved in managing and regulating PPPs in Montenegro:

- The Montenegro Investment Agency: The Agency institutionally monitors the procedures for awarding contracts and compliance with concluded contractual rights and obligations through legal provisions that more clearly define the project's reporting and monitoring. In addition to the legal competencies concerning PPP, the Agency also deals with investment promotion (e.g., providing support to foreign and domestic investors) and monitoring development projects.
- The Ministry of Finance and Social Welfare through the Directorate for Public Procurement Policy. Under legal provisions, the Ministry of Finance and Social Welfare supervises the implementation of the Law. Its institutional position as a policymaker and regulatory body implies its involvement in the project approval process. This new legislative and institutional framework is fully harmonized with EU directives.
- The Commission for Protection of Rights in Public Procurement Procedures.

In the future, strengthening coordination and cooperation between the competent authorities—the Ministry of Finance and Social Welfare and the Montenegro Investment Agency –and especially between the national and local levels in all PPP contract implementation phases is essential.

3.11 Assessment, conclusions, and recommendations

Assessment

Montenegro has made strides towards a circular economy by adopting the Circular Economy Strategy and an associated Action Plan. Despite this progress, effective waste management remains a challenge. The private sector and the general population remain lowly aware of environmental issues and the challenges of a green transition.

Measures have been taken to combat pollution in Montenegro, with notable investments planned for wastewater treatment and enhanced chemical management. However, the air quality policy framework has yet to be adopted, and efforts to reduce air pollution, for example through more stringent taxation, remain to be scaled up.

While PPP-related laws have been revised and are quite comprehensive, they lack uptake. Very few contracts have been signed, and the Government does not promote PPPs. The regulatory framework for public procurement has also been revised. However, it fails to introduce provisions to incentivize green procurement and use procurement contracts to contribute to greening the economy.

The country does not publish data on several indicators that are important in assessing the effectiveness of the different environmental policies implemented. These include public and private expenditures on environmental protection, level of fossil fuel subsidies (including indirect ones), impact assessment of green projects financed by the Eco Fund. Also, the country does not publish data on several SDG targets 8.3, 11.4, 12.7 and 12.4.

Conclusions and recommendations

Strengthening of environmental taxation

While economic incentive mechanisms exist, Montenegro still faces challenges in achieving environmental protection goals for water, waste and air. Hence, further actions in environmental taxation are justified due to the

considerable potential for increasing revenue from environmental taxes. The current level of revenues from economic incentive mechanisms does not allow for sufficient environmental protection activities. In addition, the legal framework to support the development of renewable energy is insufficient.

Recommendation 3.1:

While protecting the vulnerable parts of the population, the Government should:

- (a) *Update taxes on air and water pollution and waste generation;*
- (b) *Revise water abstraction fees;*
- (c) *Finalize the adoption of the new legislation on the promotion of renewable energy sources.*

Green public procurement and public-private partnerships

Green public procurement is a potential major instrument for environmental protection. However, as at April 2024, it is not implemented in Montenegro. As for public-private partnerships, while the legislative and regulatory frameworks exist, there is room for improvement in using them for cofinancing green projects, particularly in the areas of waste management, energy production and general infrastructure.

Recommendation 3.2:

The Government should:

- (a) *Create national guidelines for green public procurement and disseminate them across all public authorities;*
- (b) *Ensure that Government officials are trained to increase their knowledge of practices in green public procurement;*
- (c) *Mainstream environmental concerns in public-private partnerships and encourage the implementation of such partnerships in areas with positive environmental impacts.*

Promotion of green markets and private sector green entrepreneurship

Montenegro has developed initiatives to support entrepreneurship, but there is room for upscaling them, especially regarding green entrepreneurship. Environmental awareness levels are low within the private sector.

Recommendation 3.3:

The Government should:

- (a) *Support green entrepreneurship via facilitated access to funding, dissemination of market information, tax incentives and green grants;*
- (b) *Promote environmental awareness and green entrepreneurship within the private sector.*

Chapter 4

Implementation of international agreements and commitments

4.1 General priorities for international cooperation related to the environment and sustainable development

Montenegro collaborates with international partners, allies, and organizations to advance its foreign policy priorities, including in environment and sustainable development. One of the key pillars of its foreign policy is maintaining an active and recognizable role in the Western Balkans region, focusing on fostering good relations with neighbouring countries to collectively move towards a European future.

Montenegro participates in over 30 regional initiatives and forums, including Central European Initiative, Black Sea Economic Cooperation, Southeast European Cooperation Process, and Union for the Mediterranean. It is engaged to both expert discussions and high-level political dialogues on management of natural resources, sustainable development and green economy, aimed at strengthening cooperation and establishing essential contacts at national, regional, and international levels. With such regional engagement Montenegro aspires to enhance its visibility on the global stage, particularly within the United Nations and other international organizations, emphasizing the importance of multilateralism in addressing global environmental challenges.

In this context, Montenegro participates in numerous environmental and sustainable development forums, including those under the United Nations Environmental Programme (UNEP), United Nations Economic Commission for Europe (ECE), and Organization for Economic Cooperation and Development (OECD).

The main objective of the country's foreign policy is achieving membership in the EU, which involves comprehensive reforms and adherence to EU standards, including those related to environmental protection and sustainable development. The national sustainable development strategy also underscores the commitment of Montenegro to implementing multiple multilateral environmental agreements (MEAs) as means to provide a structured approach to addressing environmental challenges and promoting the sustainable use of natural resources, aligning national priorities with global objectives (see Chapter 1).

Moreover, the national strategy highlights the importance of international cooperation in critical areas such as green energy, water supply, sanitation, environmental governance, and climate change adaptation. It stresses that this cooperation is crucial for attaining sustainable development goals and targets, mobilizing international technical assistance and financing to facilitate the greening economy. However, the implementation of MEAs in Montenegro depends on international financial support. The Recommendation 5.1 of the third EPR of Montenegro is not implemented.

4.2 Implementation of multilateral environmental agreements in the period from 2016 to 2023

Montenegro is a Party to above 95 global and regional MEAs. The third EPR of Montenegro recommended that Montenegro prioritize joining an additional two MEAs to enhance its environmental governance. Further to Recommendation 5.3 of the third EPR of Montenegro, Montenegro joined the Protocol on Pollutants Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) and the Water and Health Protocol.

Air related multilateral environmental agreements

Convention on Long-range Transboundary Air Pollution and its protocols

From 2016 to 2024, Montenegro made limited progress in implementing the Convention on Long-range Transboundary Air Pollution and its protocols, including the EMEP Protocol, the Gothenburg Protocol on Heavy

Metals, and the Protocol on Persistent Organic Pollutants (POPs). As of April 2024, Montenegro has not developed a legislative framework to set emission ceilings and has not signed or ratified the 2012 amended Gothenburg Protocol.

Montenegro regularly reports under the Convention and its ratified Protocols, but due to resource constraints, participation in meetings and technical groups is limited to online sessions. Notably, Montenegro participated in the Working Group for the revision of the Gothenburg Protocol. In 2022–2023, under the French Government-funded project “Technological Pathways in Serbia, Georgia, Kazakhstan, Moldova, Montenegro, and Armenia,” Montenegro developed a case study exploring pathways toward ratifying the amended Gothenburg Protocol.⁷³

The air pollutant emission inventories were initially developed between 2010 and 2013 with support from the former Ministry for Environment, Land and Sea Protection of Italy but were not maintained for seven years. Montenegro resumed development and submission of emission inventories in 2020 with support from the Environment Agency Austria under the EU twinning-light project.⁷⁴ However, significant challenges related to the quality of projections and calculations in the inventory have led to reported breaches of the requirements of the Protocol on Persistent Organic Pollutants.

Montenegro has one EMEP station in Velimlje that monitors SO₂, NO_x, PM₁₀, and PM_{2.5}. However, it lacks proper software for data transfer and validation and cannot publish and share the data publicly. Additionally, the Institute for Hydrometeorology and Seismology lacks accreditation.⁷⁵

The draft programme for pollution reduction, aimed at implementing the Gothenburg Protocol, was developed in 2021 but has not been adopted as of April 2024 due to frequent government changes and a lack of political will. Montenegro also faces challenges in implementing the Convention and the Protocols it has adopted, including limited expertise in the national inventory compiling team, insufficient data quality, unresolved roles and responsibilities, and a weak network of experts and professionals to support effective implementation.

Vienna Convention for the Protection of the Ozone Layer, Montreal Protocol on Substances that Deplete the Ozone Layer and Kigali Amendment

As a Party to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer since 2006, Montenegro in 2019 became Party on Fifth amendment to the Montreal Protocol, Kigali amendment. From 2016 to 2024, Montenegro undertook legislative actions to implement the Vienna Convention and the Montreal Protocol. In addition to the Law on Air Protection, the Law on the Protection against the Negative Effects of Climate Change, incorporates elements of, regulates the market, use, and handling of ODS and their alternatives. It establishes quotas for ODS importation and details protocols for the recovery, disposal, and destruction of these substances. The EPA oversees the issuance of permits for activities involving ODS.

Montenegro also adopted several sub-laws to support this framework, such as the 2021 Regulation on ODS and Alternative Substances; the 2020 Rulebook on Permit Documentation for ODS Import/Export; the 2021 Rulebook on Licensing for Installation and Maintenance of ODS-containing Equipment; the 2021 Rulebook on Skill Development for ODS-related Activities.

In addition, Montenegro successfully implemented the HCFC phase-out management plan stage I (2011–2020), reducing HCFC consumption by 35 per cent by 2020. The stage II (2020–2025) of the plan aims for further reduction.⁷⁶ In the Stage II, Montenegro intends achieve an accelerated reduction of consumption and total elimination of HCFCs by 2025, well ahead of the planned 2040 final year. Both projects were funded by Multilateral fund for implementation of Montreal Protocol and implemented with the assistance of UNIDO with the funding of \$635,500 for the second phase.

⁷³ TFTEI (2023).

⁷⁴ Environment Agency Austria (2021).

⁷⁵ TFTEI (2023).

⁷⁶ UNIDO (Preparation of an HFC phase-down plan).

Concerning the SDG indicator 12.4.1 (Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required, by each relevant agreement) of SDG target 12.4 (By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment), the country reported that in 2020, the country meets its commitments and obligations in transmitting information as required by Basel Convention on hazardous waste, and other chemicals by 100 per cent, by Minamata Convention on hazardous waste, and other chemicals by 66.67 per cent, by Montreal Protocol on hazardous waste, and other chemicals by 100 per cent, by Rotterdam Convention on hazardous waste, and other chemicals 96.55 per cent, and by Stockholm Convention on hazardous waste, and other chemicals by 50 per cent. Some efforts are still needed to implement the Stockholm Convention.

United Nations Framework Convention on Climate Change

From 2016 to 2024, Montenegro made significant strides in implementing the United Nations Framework Convention on Climate Change (UNFCCC) and its protocols. As a non-Annex I party, Montenegro ratified the Paris Agreement in 2017 and the Doha Amendment to the Kyoto Protocol in 2018. The country enhanced reporting, developed policies, integrated climate change into the national agenda, and pursued international climate projects.

The Ministry of Ecology, Sustainable Development and Northern Region Development is the primary national entity responsible for environmental and climate change policies and serves as the National Focal Point to the UNFCCC. The Climate Change Directorate at Ministry handles the submission of national reports, such as national communications and Biennial Update Reports (BURs), to the UNFCCC. Until the end of 2021, these reports were supported by UNDP through GEF-funded projects. Since 2022, the Ministry has taken full responsibility for developing national communications and biennial transparency reports, with UNDP providing oversight. The reporting and planning activities are still funded by GEF and other donors.

Montenegro submitted its Third National Communication in October 2020, updating its national GHG inventory for 1990–2017 according to the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines. The First BUR was submitted in January 2016, followed by the Second BUR in May 2019, which further improved the GHG inventory for 1990–2015 and developed a framework for Monitoring, Reporting, and Verification (MRV). The Third BUR was submitted in February 2022.⁷⁷

In 2023, Montenegro submitted its First Biennial Updated Report on Greenhouse Gas Inventory, covering emissions data from 1990 to 2021 and forecasting up to 2030. This report used the 2006 IPCC Guidelines and their 2019 Refinements, aligning national reporting with international standards.

First Nationally Determined Contribution (NDC), submitted in 2021, sets a target to reduce GHG emissions by 35 per cent below 1990 levels by 2030. As of April 2024, with support from the NDC Partnership, the NDC has been revised aiming to a 55 per cent reduction by 2030, covering various sectors, including water, infrastructure, transportation, agriculture, forestry, tourism, and health. The revision process is expected to be completed by the end of 2024.

The Ministry of Ecology, Sustainable Development and Northern Region Development, in cooperation with UNDP, initiated a project funded by the GCF to integrate climate change risks into planning processes and develop the NAP to Climate Change (see Chapter 6). Montenegro has nominated several climate change mitigation and adaptation projects totalling \$176 million under its cooperation with the GCF for 2021–2023. The GCF is expected to provide \$75.4 million, with the remainder projected as co-financing. However, Montenegro has yet to participate in or benefit from the support offered by the UNFCCC Technology Mechanism. The EU accession assessment estimates about €483 million needed for environmental standards, with more than €87 million for climate change efforts, including €2 million expected from donors by 2025. Despite progress, Montenegro faces challenges related to technological, financial, and institutional capacities, highlighting the need for ongoing international support to achieve its climate goals.

⁷⁷ UNFCCC (Montenegro).

*Biodiversity related multilateral environmental agreements*Convention on Biological Diversity

Montenegro implemented the Convention on Biological Diversity (CBD) with efforts directed to legislative, institutional, and practical measures to conserve biodiversity. The Ministry of Ecology, Sustainable Development and Northern Region Development oversees these efforts and act as a national focal point. It provided timely reports to the CBD Secretariat, including the Sixth National Report in 2018. Despite limited participation in CBD meetings from 2016 to 2020 due to insufficient capacity, the Ministry's restructuring in 2021 improved attendance at CBD meetings. The participation was funded by the Convention's secretariat.

National measures included the submission and adoption of National Biodiversity Strategies and Action Plan (NBSAP) from 2016 to 2020 prepared with support of UNDP and funding of GEF (\$100,000). After COP15, the Ministry started preparing a new NBSAP with UNEP's support, expected to be finalized at the end of 2025.

Montenegro also enhanced its legislative framework to implement the Convention, including by revising the Law on National Parks, Law on Nature Protection to enhance nature protection management, and Law on the Protection of the Marine Environment in 2019. In 2023, Montenegro also prepared a revised Law on Nature Protection to enhance the management of protected areas and integrate regulations concerning genetic resources per the Nagoya Protocol. As of April 2024, the draft Law was not adopted.

Protected areas have expanded, with 1.79 per cent of marine and 13.2 per cent of terrestrial areas protected by 2023. The establishment in 2021 of marine protected areas like Platamuni, Katič, and Stari Ulcinj, marked significant progress. Two additional protected areas were established in June 2024, notably Sopot and Dražin vrt. The EPA maintains a public database on protected areas, initially developed with IUCN and German Development Cooperation (GIZ)'s assistance. As of April 2023, it contains information on 74 protected areas which is 10 more than in 2016. Not all protected areas have developed national plans (see Box 9.1). However, conservation efforts lead to an increase of the number of protected species. For example, the number of Chamois increased from 450 in 2020 to 710 in 2023.

Educational initiatives included integrating biodiversity topics into primary and secondary school curricula, involving 35 per cent of teachers. Informal education programmes by civil society organizations engaged students and experts in biodiversity monitoring. Local communities were integrated into protected area management through socio-economic forums and local action plans for biodiversity.

Major projects supporting CBD implementation include:

- Biodiversity Mainstreaming into Sectoral Policies and Practices (2023–2024) funded by GEF, focusing on ecosystem protection and integrating biodiversity-friendly practices in agriculture, forestry and tourism.
- Establishment of Natura 2000 Network (2016–2019) funded by the EU (\$2.2 million), laying the foundation for the Natura 2000 Network through extensive field mapping and data gathering. New EU funded project “Support to the Establishment of the Natura 2000 Network for Montenegro” (2024–2027) will build on these efforts enhancing habitat and species mapping (\$1,623,150)
- Promoting Protected Areas Management through Integrated Marine and Coastal Ecosystems (2018–2022) funded by GEF and UNEP (\$1,600,000), improving conservation and sustainable use of coastal and marine biodiversity. The project supported the designation of the first marine protected areas (Platamuni, Katič, and Stari Ulcinj).

The remaining challenges include inadequate staffing and financial resources for NBSAP and CBD implementation, and the need for better integration of biodiversity into sectoral policies.

In line with SDG targets 15.a (Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems), and 15.b (Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation), between 2013 and 2022, Montenegro made efforts to mobilize resources for biodiversity protection. Data from the global SDG statistical database indicates that, during this period, the country received approximately between \$0.2 million in 2019 with a

maximum of \$32.8 million in 2018 of total official development assistance for biodiversity (SDG indicators 15.a.1 and 15.b.1: Total official development assistance for biodiversity, by selected countries) (see Table 4.1). These funds support the achievement of the SDG targets 15.a (Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems) et 15.b (Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation).

Table 4.1: SDG indicators 15.a.1 and 15.b.1: Total official development assistance for biodiversity, by selected countries, 2013–2022, millions of constant 2021 \$

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	10.42	4.26	43.15	17.18	8.33	49.71	32.17	19.60	164.06	10.42
Bosnia and Herzegovina	1.54	0.81	4.13	19.26	11.27	18.12	9.25	4.37	3.22	1.54
Montenegro	0.94	0.32	19.20	6.93		32.80	0.19	21.07	0.52	0.94
North Macedonia	1.43	0.80	3.81	14.45	14.37	6.37	9.86	21.82	0.84	1.43
Serbia	0.48	0.22	23.20	43.15	19.18	25.21	48.10	84.10	8.91	0.48

Source: OECD, 2024.

Note: Commitments; Based on OECD, CRS databased, 2024; Constant 2022 \$ million; Other Official flows are not marked on biodiversity.

Cartagena Protocol on Biosafety

From 2016 to 2024, Montenegro experienced difficulties in implementing the Cartagena Protocol on Biosafety regulating the handling, transfer, and use of living modified organisms (LMOs). Since 2019, the Administration for Food Safety, Veterinary, and Phytosanitary Affairs served as the national focal point replacing Ministry of Agriculture, Forestry and Water Management. The University of Montenegro Biotechnical Faculty acts as the national contact. The country submitted its third and fourth national reports under the Protocol in 2020 and as of April 2024 the submission of the Fifth report has been pending. The National Focal Point was unable to participate in the meetings and Protocol's activities due to lack of funding and limited capacity.

Montenegro partially sets legal framework for the implementation of the Protocol, integrating biosafety issues in the Law on Nature Protection and national biodiversity strategy (2016–2020). It regulates the transboundary movement, handling, and use of LMOs, including those used as pharmaceuticals (Law on Medicines (OG 56/11)). Legal requirements mandated that exporters notify national authorities before the intentional transboundary movement of LMOs, although no such notifications were received in the period 2013–2023.

The country reported no cases of unintentional or illegal transboundary movements of LMOs and lacked specific measures for monitoring or managing LMOs released into the environment. Montenegro did not enter any bilateral, regional, or multilateral agreements regarding transboundary movements of LMOs and lacks specific procedures for handling, transport, packaging, and identification of LMOs.

Public awareness and education on biosafety were not adequately addressed in national legislation or policies, and there was no national communication strategy on biosafety. However, since a change of focal point in 2019, to raise awareness, Montenegro conducted three workshops funded by UNEP, aimed at strengthening the National Biosafety Framework by involving inspection agencies, producers, administration, and customs.

A 2022–2024 project on Support to Preparation of the Fourth National Biosafety Reports to the Cartagena Protocol on Biosafety, funded by UNEP with \$25,000 aims to strengthen biosafety reporting mechanisms, enhance stakeholder engagement and seeks to improve transparency, accountability, and compliance with biosafety regulations.

Challenges in the implementation of the Protocol persist, including the absence of a risk assessment mechanism for LMOs, limited human and insufficient financial resources, and insufficient training for national experts in risk assessment and management.

Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits

Montenegro ratified the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits in 2020, recognizing it as a key goal of the CBD. The Ministry of Ecology, Sustainable Development and Northern Region Development, nominated as the National Focal Point, oversees its implementation.

From 2021 to 2023, with TAIEX support, Montenegro worked on amending the Law on Nature Protection to address gaps in the current legislation regarding benefit-sharing of genetic resources in line with the Nagoya Protocol and the EU Regulation (No. 511/2014) on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union. The draft revised law is expected to be adopted by the end of 2024.

Montenegro has not yet submitted any reports to the Nagoya Protocol secretariat and reported irregular participation in Convention activities until 2022. Since then, Montenegro has engaged with the Protocol and participated regularly in all meetings.

Efforts were made to raise awareness among officials about the Protocol's requirements and upcoming legislative amendments.

As of July 2024, SDG indicator 15.6.1 (Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits) of the target 15.6 (Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed) is not yet achieved. Montenegro is a Party to Nagoya Protocol and to the International Treaty on Plant Genetic Resources for Food and Agriculture. However, it does not yet have (1) legislative, administrative and policy framework or measures reported to the Access and Benefit-Sharing Clearing-House although is Party to the Nagoya Protocol; and (2) legislative, administrative and policy framework or measures reported through the Online Reporting System on Compliance of the International Treaty on Plant Genetic Resources for Food and Agriculture. The country reported four Standard Material Transfer Agreements transferring plant genetic resources for food and agriculture to the country.

Ramsar Convention of Wetlands of International Importance

From 2016 to 2024, Montenegro, as a Party since 2006, has implemented the 1975 Ramsar Convention to preserve wetlands of international importance. The Ministry of Ecology, Sustainable Development and Northern Region Development oversees this implementation, with the Directorate for Climate Change and Nature Protection serving as the national focal point. Montenegro has been participating in the Ramsar Convention's activities and, from 2022 to 2025, serves as a substitute member of the Standing Committee. In this role, Montenegro, along with Belgium, Austria, the Czech Republic, Slovakia, Sweden, Slovenia, and Georgia, represents Europe and oversees the Ramsar Convention Secretariat's work.

Significant efforts were made in Lake Skadar National Park, where a 2021–2025 five-year management plan was adopted in August 2023 to promote sustainable development and protect the ecosystem. The pelican population notably increased from ten individuals to between 250 and 300 adults, demonstrating successful conservation efforts.

Ulcinj Salina Nature Park, declared a Nature Park in 2019 and recognized as a Ramsar site, serves as a critical bird habitat along the Adriatic migration corridor. Salt production ceased in 2013, transforming the area into a protected zone has enhanced its ecological significance. Tivat Salina Special Nature Reserve saw a rise in bird species from 114 in 2008 to 185 by 2020, indicating effective habitat management.

In 2016, a compliance issue arose regarding a commercial project in Lake Skadar National Park. An appraisal in 2018 led to recommendations for activity restrictions, a new spatial and management plan for the National Park, and the establishment of a monitoring system to protect wildlife habitats. The Government regularly reports on its implementation, with the latest report submitted in 2023.⁷⁸

Challenges in implementing the Ramsar Convention include low awareness of wetland importance, lack of financial resources, and limited monitoring capacities. Various projects were implemented to support the

⁷⁸ CoE (2016). CoE (2016).

Convention's implementation, focusing on sustainable wetland management, biodiversity conservation, and fostering international cooperation. Key projects included the "Ulcinj Salina – Protecting, restoring and conserving a key wetland for nature and people" (2018–2023) led by EuroNatur Foundation,⁷⁹ and the "Establishing biodiversity monitoring in Ulcinj Salina" (2021–2024) led by the Centre for the Protection and Research of Birds.⁸⁰ Additionally, the EU-funded project "Skadar Lake without Chemical Pollution" (2021–2023) was implemented in partnership with the Centre for Eco-toxicological Research and Green Centre Albania.⁸¹

Convention on the Protection of the World Cultural and Natural Heritage

From 2016 to 2024, Montenegro focused on the implementation of the Convention for the Protection of the World Cultural and Natural Heritage concerning Durmitor National Park, the country's only natural site of outstanding universal value. The Ministry of Culture and Media served as the national focal point for the UNESCO Convention, while the Ministry of Ecology, Sustainable Development and Northern Region Development handled natural heritage issues on the UNESCO site. The country's permanent delegation to UNESCO, led by the Ambassador in France, participated regularly in meetings of the Convention.

A key event was the 2018 UNESCO advisory mission, which reviewed boundary modifications and assessed the Park's conservation status. The mission highlighted the need to balance regional development with conservation and made several recommendations. These included reinstating pre-2013 boundaries, establishing a buffer zone, reconsidering boundary modifications, halting ski facility expansions, conducting rigorous EIAs for all projects, revising tourism strategies for sustainability, and closely monitoring visitor impacts and downstream effects on the Tara River.⁸²

Montenegro annually reported on the implementation of these recommendations to the Convention, including on its activities to halting ski resort construction, revising the spatial plan, and conducting the EIA for the Komarnica hydro-power plant. The country also used compliance mechanisms under the convention to ensure Bosnia and Herzegovina, and Serbia carried out proper EIAs and SEAs for the Buk Bijela hydro-power plant, which is likely to have a significant impact on the park's environment and species it hosts, including the endangered Danube Salmon.

To raise awareness about the Park's value, Montenegro in cooperation with and funding from UNESCO, UNDP, UNICEF and UN Peacebuilding Fund implemented the project "Education for the Sustainable Development of UNESCO Heritage" within the UN Regional Programme "Dialogue for the Future." This initiative aimed to promote dialogue and social cohesion in and between Bosnia and Herzegovina, Montenegro, and Serbia.

Since the country does not report on the SDG indicator 11.4.1 (Total per capita expenditure on the preservation, protection and conservation of all cultural and natural heritage, by source of funding (public, private), type of heritage (cultural, natural) and level of government (national, regional, and local/municipal)), the achievement of SDG target 11.4 (Strengthen efforts to protect and safeguard the world's cultural and natural heritage) cannot be assessed. Producing this indicator would allow evaluation of the specific efforts taken by Montenegro to protect the world's cultural and natural heritage and would better correspond to the intended meaning of SDG target 11.4.

Bern Convention on the Conservation of European Wildlife and Natural Habitats

From 2016 to 2024, Montenegro has taken some steps to prepare joining the Convention on the Conservation of European Wildlife and Natural Habitats that it signed in 2006. The Ministry of Ecology, Sustainable Development and Northern Region Development oversaw the implementation, with regular participation in the Standing Committee and the Group of Experts on Protected Areas and Ecological Networks.

⁷⁹ MedWet (2019).

⁸⁰ IKI (2022).

⁸¹ University of Tirana (2020).

⁸² UNESCO (2018).

Montenegro proposed 32 locations for the Emerald Network and mapped 60 per cent of its territory by 2023 according to Natura 2000 methodology. This was mostly done with the funding from EU IPA projects focusing on habitat mapping and biodiversity conservation.

In 2016, a compliance issue concerning the development of a commercial project in Lake Skadar National Park. The 2018 UNESCO advisory mission led to several conservation recommendations, including establishing a monitoring system for protected species like the otter (*Lutra lutra*) and restricting speedboats to conserve habitats.

A key project implemented during the review period was, “Conservation and sustainable use of biological diversity on Lakes Prespa, Ohrid, and Skadar,” implemented by GIZ and financed by the German Ministry for Economic Development and Cooperation, involved mapping Natura 2000 habitats in Lake Skadar National Park. This project trained local experts in mapping terrestrial and aquatic habitats, contributing to better transboundary lake management and compliance with EU environmental objectives.

The key challenges reported are how to manage the future Emerald Network and establishing a comprehensive management structure.

Convention on the Conservation of Migratory Species of Wild Animals

From 2016 to 2024, Montenegro has implemented the Convention on the Conservation of Migratory Species of Wild Animals (CMS). Located on the Adriatic corridor, a major migratory route, Montenegro’s membership in the CMS is crucial for the conservation and sustainable use of migratory animals and their habitats. The country has developed and enacted relevant legislation, such as the Law on Nature Protection, which prohibits the taking of species listed in Appendix I of the CMS.

The EPA serves as the national focal point and has consistently participated in CMS activities, including COP14 held in Uzbekistan in February 2024. Montenegro currently enjoys the status of a substitute member for Monaco in the Standing Committee.

Montenegro is cooperating with the CMS Secretariat on capacity-building activities. For example, in September 2024, it had organized a workshop on developing, implementing, and monitoring national action plans on illegal killing, taking, and trade of migratory birds for several Balkan countries. It will also present its draft action plan against illegal bird killing, expected to be adopted by the end of 2024, to address significant challenges such as smuggling protected species and enhancing monitoring and enforcement capabilities.

Montenegro has also engaged in other regional conservation efforts, particularly for large carnivores like the Balkan lynx and brown bear, and migratory birds. Due to joint conservation efforts, the brown bear population in Durmitor National Park increased from 19 in 2019 to 32 in 2023.⁸³

Projects such as “Establishing Natura 2000 in Montenegro” (2016–2019) have been pivotal, supported by EU funds, enhancing data collection and habitat mapping. Another EU-funded project, “Support to the Establishment of the Natura 2000 Network for Montenegro” (2024–2027),⁸⁴ with a budget of €1.3 million is expected to contribute to identifying and establishing the Natura 2000 network, focusing on the conservation of the most valuable and endangered species of animals, plants, and habitats, including birds, as required by EU Nature Directives.⁸⁵

Despite progress, Montenegro faces challenges, including the need for increased international cooperation, enhanced institutional capacity, and more effective enforcement of the CMS. Continued efforts are essential to fully realize the Convention's objectives.

⁸³ EPA of Montenegro.

⁸⁴ GIZ (2020b).

⁸⁵ Epitsa (2024).

Convention on International Trade in Endangered Species of Wild Flora and Fauna

Recognized as a transit country for animal smuggling, Montenegro's accession to the CITES in 2006 underscores its commitment to combating illegal wildlife trade. Thus, from 2016 to 2024 Montenegro made efforts to implement the CITES. The Ministry of Ecology, Sustainable Development and Northern Region Development oversees CITES implementation, with the EPA acting as the national focal point.

Montenegro has consistently participated in CITES activities and submitted timely annual reports to the CITES Secretariat, including the most recent report for 2022.⁸⁶ The country's representatives regularly attended CITES Conferences of the Parties (COPs) with funding from the secretariat.

National measures include the amendment of the Law on Nature Protection in 2016 to better regulate the trade and transport of internationally protected species as well as control of trade, inspections and customs. Communication of EPA with the customs administration is well established through a related Memorandum of Understanding in place. The EPA conducts annual education workshops with customs, police, and scientific institutions to raise awareness and improve enforcement. These efforts resulted in successful actions regarding confiscation of protected animals.

One major project in the planning phase is the "Sanctuary for Wildlife and Abandoned Dogs," with a budget of €5,000,000. This sanctuary will house captive animals and wildlife species subjected to illegal trade, providing necessary facilities for their care and rehabilitation.

Despite progress, challenges remain, such as harmonizing the national legislation with CITES resolutions, insufficient resources for CITES-related activities, the lack of institutional capacity and political will to fully implement the Convention. The roles of the management and scientific authorities for CITES are not clearly defined.

Montenegro does not report on implementing SDG targets 15.7 (Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products) and 15.c (Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities). The proportion of traded wildlife that was poached or illicitly trafficked (SDG indicators 15.7.1 and 15.c.1) is not reported (see Chapter 11). An analysis "Environmental Crime in Montenegro", funded by OSCE, revealed that 18 turtles were seized at a single border crossing, and illegal animal trafficking was intercepted in Brodarevo in January 2022. However, the true scale of CITES species smuggling in Montenegro is likely much higher than official data suggests, with cases involving lions, kangaroos, African turtles, and tigers. Over the past decade, the most frequently smuggled species have been birds, reptiles, and plants.⁸⁷

United Nations Convention to Combat Desertification

From 2015 to 2023, Montenegro implemented the United Nations Convention to Combat Desertification (UNCCD), focusing on land degradation and drought mitigation. The Ministry of Ecology, Sustainable Development and Northern Region Development acts as the National Focal Point. Montenegro submitted timely reports to the UNCCD Secretariat and participated in Convention activities. Montenegro also has been chairing the Committee for the Review of the Implementation of the Convention since May 2022, representing first time ever Annex V countries at the Committee.

In 2015 Montenegro developed a National Action Plan for Combating Land Degradation and Mitigating the Effects of Drought with GEF funding and UNEP's support. In 2020, with the support of the secretariat and the UNCCD Global Mechanism Montenegro prepared and submitted its first National Drought Plan focusing on strategic drought management.⁸⁸ Proportion of land that is degraded over total land area (SDG indicator 15.3.1) has been stable between 2015 and 2019 at 6.7 per cent, in line with the SDG target 15.3 (By 2030, combat

⁸⁶ CITES (no date).

⁸⁷ Cakovic D. (2023).

⁸⁸ Montenegro (2020c).

desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world).

The country identified 15 potential hot spots and developed 25 measures to achieve Land Degradation Neutrality (LDN) by 2030. A project proposal titled “Application of Agroecological Measures for Sustainable Land Use” was prepared for UNCCD support.

As part of a project under the UNCCD initiative, Montenegro established LDN targets in 2016, identifying 15 hot spots, setting 4 targets and developing 25 measures to achieve LDN by 2030. The High-Level Note confirming these targets was signed in May 2019.⁸⁹ Montenegro responded to the UNCCD call for LDN transformative project proposals and with consultancy support from UNCCD prepared a project proposal “Application of Agroecological Measures for Sustainable Land Use” for achieving LDN targets. However, it finds it challenging to find an international organization that will act as an implementing agency. Montenegro plans to join the project “Enabling activities for implementing UNCCD COP15 decisions on drought,” implemented by the Division of Land and Water at Food and Agriculture Organization of the United Nations (FAO) in cooperation with the UNCCD Secretariat and the Global Mechanism.

In addition, Montenegro participated in workshops and training sessions, such as “Improving negotiation skills and preparation of Strategy and Action Plan for land protection and increasing drought resistance” in Istanbul (January-February 2023) and “Activities to implement UNCCD COP decisions on droughts” in Istanbul (May 2023), “Land Degradation and Drought” in Skopje, North Macedonia (June 2023).

Challenges included a lack of national data for reporting on land and drought indicators.

Water protection and sea and coastal zones

Convention on the Law of the Non-navigational Uses of International Watercourses

Montenegro is a Party to the Convention since 2013. The Ministry of Agriculture, Forestry and Water Management is responsible for the implementation of the Convention. However, no information was provided on the progress made in the review period.

Convention on the Protection and Use of Transboundary Watercourses and International Lakes

Since its accession in 2014, Montenegro has engaged in implementing the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention). Strategic documents, such as the Law on Waters and the Strategy for Water Management as amended in 2018, outline the priorities and principles for sustainable water use and protection.

Representatives from the Ministry of Agriculture, Forestry, and Water Management as a focal point to the Convention and as a body having overall responsibility to water management, including transboundary agreements, regularly participate in the Convention’s activities with funding by ECE.

Montenegro regularly and timely reports under the Convention, including in 2023 on the SDG indicator 6.5.2 on the proportion of transboundary basin area with an operational arrangement for water cooperation of the SDG target 6.5 (By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate). According to 2023 report on that target, from 2017 to 2023, the proportion of Montenegro’s transboundary basins with operational water cooperation arrangements dropped from nearly 80 per cent to 67 per cent. This decline reflects the inclusion of aquifers in reporting, which saw a slight increase in operational arrangements from 20 per cent to 21 per cent from 2020 to 2023. The proportion for transboundary river and lake basins remained stable at 84 per cent throughout the 2017–2023 period.

During the period 2013–2023, in addition to 2011 agreements on the Drin River, the Danube River Protection Convention and 2007 agreement with Croatia on Mutual Relations in the Field of Water Management, Montenegro signed a framework agreement on mutual relations in the field of management of transboundary

⁸⁹ Montenegro (2018).

waters between Montenegro and Albania in 2018. This agreement addresses the management of shared water resources, including the Bojana/Buna River, the Cijevna River, and Lake Skadar. It replaced an agreement of 2001, to provide a new impetus to cooperation within a bilateral commission, with an emphasis on exchange of information and consultations, monitoring and assessment and implementation of the Water Framework Directive (see box 4.1).

As a party to these agreements, Montenegro, from 2017 to 2023 (including during the COVID-19 period), regularly participated in joint bodies established under these agreements: the Permanent Montenegrin-Albanian Commission for the Management of Waters of Common Interest; The Drin Core Group covering the Bojana River and Lake Skadar; the International Commission for the Protection of the Danube River.

However, since 2015, there have been inconsistencies in convening meetings of the Commission for Water Management between Croatia and Montenegro halting the discussions regarding the Plat artificial lake and the Bijelečko and Sutorina Rivers.

Box 4.1: Use of the advisory procedure under the Water Convention by Montenegro regarding the possible transboundary impact of the planned construction of additional small hydropower plants on the Cijevna River in Albania

In November 2019, Montenegro raised concerns about potential transboundary impacts of planned small hydropower plants on the Cijevna River in Albania to the Implementation Committee under the Water Convention. The Committee, in its tenth meeting, decided to handle this as an advisory procedure WAT/IC/AP/1 and invited both countries to participate, which Albania agreed to in January 2020. Both countries provided necessary information, and by its eleventh meeting, the Committee facilitated discussions and further data exchanges.

By February 2021, a joint consultation further to the advisory procedure enabled significant dialogue. This led to agreements on setting up a joint technical working group for monitoring and assessment under the permanent Montenegrin-Albanian bilateral commission for the management of waters of common interest set up further to the related 2018 jointed agreement and ensuring regular bilateral commission meetings. By 2022, the bilateral commission and the joint technical group were established and operational, marking a successful implementation of the Committee's advice. This cooperation enhanced data sharing facilitated cooperation on EIAs under the Convention on Environmental Impact Assessment in a Transboundary Context, and laid foundations for management of shared water resources in Cijevna River.

In 2024 a ECE supported project was initiated to assist Montenegro and Albania to set monitoring equipment for water quality and to further enhance collaboration under the 2018 bilateral agreement.

Montenegro is not a Party to the Framework Agreement to the Sava River Basin but participates only as observer member at the meetings of the International Sava River Basin Commission (Sava Commission) further to its 2013 agreement with the Sava Commission. In 2020, it has signed Memorandum of Understanding on cooperation concerning the regular functioning and maintenance of the Flood Forecasting and Warning System in the Sava River Basin together with Croatia, Bosnia and Herzegovina, Serbia, and Slovenia.

In 2021 Montenegro initiated bilateral cooperation with Serbia on water management under the Drina River Basin, focusing on rivers such as Lim, Čehotina, and Tara Rivers. In 2023 Montenegro together with Bosnia and Herzegovina prepared a draft agreement on mutual relations in the field of management of waters of common interest, notably river and lake basins shared by the countries and belonging to the Adriatic Sea basin.

In addition, in the period 2013–2023, Montenegro has participated in development of several joint water management plans in collaboration with neighbouring countries and international bodies, including Danube River Basin Management Plan and the Strategic Action Programme for the sustainable management of the extended Drin basin. These activities have been supported by various projects and initiatives, including among other projects:

- The GEF SCCF West Balkans Drina River Basin Management Project, which focuses on integrated cooperative management and climate change adaptation in the Drina River Basin;
- “Enabling Transboundary Cooperation and Integrated Water Resources Management in the Drina River Basin,” GEF funded project, implemented by UNDP in cooperation with ECE under the Global Water Partnership – Mediterranean (GWP-Med), which includes efforts on wastewater treatment, nutrient management, and flood management.

The country has also participated in the EU funded project “Improving Joint Activities in Flood Management in the Sava River Basin,” which aims to develop flood risk management plans and establish a flood forecasting and warning system. Additionally, Montenegro has benefited from multiple projects funded by the IPA and EUs aimed at implementing the Directive 2000/60/EC establishing a framework for Community action in the field of water policy, developing river basin management plans, and enhancing flood resilience.

Despite these efforts, Montenegro faces several challenges and obstacles. There is inconsistent data exchange and coordination with neighbouring countries, particularly with Albania and Croatia. Comparability of data and information represents the main difficulties and challenges facing data exchange. Furthermore, capacity and financial constraints and reliance on international aid pose significant barriers to effectively implementing environmental agreements.

Montenegro reports on SDG indicator 6.a.1 (Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan) amounted \$141 million in the period 2013–2020, decreasing from \$20 million in 2013 to 15 million in 2020, rising to \$29 million in 2014. Montenegro is participating to achieving SDG target 6.a (By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies).

Protocol on Water and Health

Montenegro became a party to the Protocol on Water and Health in 2020, aiming to protect human health through better water management and by reducing water-related diseases. The Recommendation 5.3 (b) of the third EPR of Montenegro is fully implemented. The Ministry of Health is responsible for implementation, with the Institute of Public Health serving as the National Focal Point. The first national report is being prepared and is due in November 2024.

Since 2020, Montenegro has participated in all relevant activities and the work of the Protocol’s bodies. Major achievements include developing a baseline study in the water sector and setting targets per the Protocol. Various assessments related to water, sanitation, and hygiene were conducted from 2020 to 2024. Montenegro has focused on increasing the resilience of water and sanitation infrastructure to climate change, addressing issues like floods, landslides, and water scarcity during peak tourist seasons.

Several key projects have been implemented to support the Protocol’s goals with a total budget of approximately \$170,000. The Water, sanitation and hygiene (WASH) in Healthcare Facilities project, supported by WHO and implemented by the Institute of Public Health from July to December 2021, focused on improving WASH services to prevent infections and ensure high-quality healthcare. Another project, supported by UNICEF from April to December 2022, assessed WASH conditions in schools and developed a national improvement plan. The equitable access to water and sanitation project, supported by ECE from December 2022 to June 2023, aimed at ensuring WASH services are accessible to all, including vulnerable groups.

Challenges in implementation include the need for better cooperation mechanisms, enhanced data sharing, and improved public awareness. Recommendations for future actions include improving legislation, enhancing stakeholder coordination, and increasing public awareness of the importance of water safety and climate resilience.

Convention for the Protection of the Mediterranean Sea Against Pollution

Montenegro is a Party to Barcelona Convention for the Protection of the Mediterranean Sea Against Pollution and 6 out of its 11 Protocols. The Ministry of Ecology, Sustainable Development and Northern Region Development is responsible for the implementation of the Convention and acts as a national focal point for the Convention. Very limited information was made available to the EPR team on the implementation of the Convention and the related Protocols during the review period. The national reports on the Convention’s implementation were not accessible from the Convention’s website.

The available information was related to the country's participation in the First Subregional Meeting on Environmental Assessments in a Transboundary Context in the Mediterranean Sea by the Italian Ministry of Environment and Energy Security under the framework of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) and its Protocol and in collaboration with the United Nations Environment Programme Mediterranean Action Plan secretariat for the Barcelona Convention (Rome, 28–29 May 2024). It shows the country builds on synergies between various instruments.

To support implementation of the Barcelona Convention and Integrated Coastal Zone Management, Montenegro in cooperation with Albania carried out a project “Implementation of Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning”. The project of \$1.7 million was funded by the GEF's international waters program, with \$300,000 allocated from Montenegro's GEF National Allocation in the area of biodiversity. Results include the reform of the marine environment monitoring system by applying the ecosystem approach and developing a marine area plan.⁹⁰

Concerning the SDG target 14.c (Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want), Montenegro's score for the implementation and ratification of United Nations Convention on the Law of the Sea and its two implementing agreements (SDG indicator 14.c.1) was 40 per cent and 67 per cent, respectively, in 2021.

International Convention for the Prevention of Pollution from Ships (MARPOL)

In 2017, Montenegro adopted the Decree on limit values of polluting substances in liquid fossil fuels, requiring vessels to switch to low-sulfur fuels (0.5 per cent sulfur as of 2020) before entering Montenegrin waters. Ships docked in Montenegrin ports are further restricted to using fuel with sulfur content no higher than 0.1 per cent m/m (mass by mass) of sulfur.⁹¹ This decree aligns with EU Directive 2016/802, supporting the country's compliance with MARPOL standards. Since 2017, Montenegro has implemented a systematic annual fuel quality monitoring programme, inspecting 20 per cent of ships entering its waters. These inspections include reviewing logbooks, examining bunker delivery notes, and sampling marine fuel to ensure adherence to MARPOL's sulfur limits.

To enhance enforcement capabilities, Montenegrin maritime officials have been engaged in training through the European Maritime Safety Agency, including a seminar in Copenhagen in June 2018 on implementing guidelines for port state control officers checking compliance with MARPOL Annex VI, as well as specialized “Safety and Environment” training in Scheveningen, the Netherlands, in March 2019, to build capacity for upholding MARPOL standards effectively. Additionally, in 2019 Montenegro established an air quality monitoring station in Kotor to measure emissions from maritime activities. With these actions, the Ministry of Transport and Maritime Affairs, in cooperation with the ministry responsible for the environment, has taken effective steps to implement MARPOL Annex VI on the Prevention of Air Pollution from Ships and fully fulfilled Recommendation 5.4 of the third EPR.

Waste and Chemicals

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal

National reports for 2021 and 2022 are not available at the Basel Convention reporting mechanism site, indicating lack of capacity and political will to implement the Convention.

The Law on Waste Management (OG 34/24) prevents illegal traffic of hazardous and other wastes. This law requires permits for the import, export, and transit of waste, issued by the EPA, which maintains a register of all permits. The Criminal Code and the Law on Waste Management criminalize illegal traffic of waste. The export of hazardous wastes is restricted and allowed only if there is no adequate disposal option within the country.

⁹⁰ GEF (Implementation of Ecosystem Approach in the Adriatic Sea through Marine Spatial Planning).

⁹¹ Montenegro (2019b).

Montenegro lacks capacity for the recovery or disposal of hazardous wastes and prohibits their import.⁹² The country has not reported statistics on the generation and movement of hazardous wastes.

According to the 2023 Minamata Convention reports, the EPA and Revenue and Customs Administration fully implement the Basel Convention, as per the Rulebook on the detailed content of the documentation submitted with the application for a permit for import, export and transit of waste (OG 083/16, 076/17) and Decree on the Manner and Conditions of Waste Storage (OG 033/13, 065/15). Waste can be stored in temporary, waste processors' storage, and underground facilities under specified conditions.

No information was made available regarding gaps in or difficulties with the implementation of the Convention.

Stockholm Convention on Persistent Organic Pollutants

From 2016 to 2024, Montenegro made strides in implementing the Stockholm Convention on Persistent Organic Pollutants. In 2019, with funding from GEF and assistance from UNEP,⁹³ Montenegro updated its National Implementation Plan (NIP) for the Stockholm Convention, which included an Action Plan for 2019–2023.⁹⁴ In 2024, the Ministry of Ecology, Sustainable Development and Northern Region Development initiated an evaluation of the NIP's implementation, with the final report expected by September 2024. The Ministry is appointed as a national focal point to the Convention. It regularly and timely reports under the Convention and attends the meetings under the Convention.

To implement the NIP and prepare for EU accession, Montenegro adopted numerous strategic documents. These include the 2019 Chemicals Management Strategy (2019–2022), the 2023 National Chemicals Management Strategy (2024–2026), the Waste Management Strategy by 2030, and the National Strategy for the Transposition, Implementation, and Enforcement of the EU Acquis in the Environment and Climate Change (2016–2020). These strategies were accompanied by a series of laws and by-laws covering chemicals, waste, air, water, and land, as defined in the NIP action plans. These laws were developed with assistance and funding from the EU with the view to prepare for the EU accession to the country. The updated legislative framework allowed for the management of 14 additional chemicals added to the Convention's list of POPs. However, enforcement of legislation and measures to reduce risks from hazardous chemicals for better protection of human health and the environment remain insufficient.

Many concrete actions under the 2019–2023 NIP, were implemented with GEF funding and UNDP assistance, particularly under the project “Comprehensive Environmentally Sound Management of PCBs.” The project was completed in December 2022 resulting in identification of about 640 tons of polychlorinated biphenyls (PCBs) waste and, removal and disposal of 475 tons of PCB waste and equipment and permanent, decontamination and return into use 80 tons of PCB transformers, removal of 1,050 tons of PCB-contaminated soil and reconstruction of one warehouse to meet the requirements of the storage of hazardous chemicals.

Rotterdam Convention on the Prior Informed Consent

The Ministry of Ecology, Sustainable Development and Northern Region Development and EPA are the key institutions responsible for ensuring compliance with the Convention ensuring that Montenegro regularly submits national reports and responds to questionnaires about export notifications and information exchange.

According to the latest 2020 report under the Convention Montenegro has made some efforts to implement the Rotterdam Convention in the review period, including enhancing its legislative and administrative frameworks with adoption among others of Law on Biocidal Products that regulates the placing on the market and use of biocidal products, Rulebook on the list of chemicals and products whose export is prohibited (OG 71/18, 68/20, 99/20, 86/22) and Rulebook on more detailed content of prior notification for chemicals export (OG 61/17). The new legislation is enhanced also with the view to harmonize the legislation with the related EU Directives, including Annex VI of Regulation (EC) No 1272/2008 (CLP Regulation) and Annex XVII of the EU REACH regulation.

⁹² Basel Convention (2019).

⁹³ UNEP (no date).

⁹⁴ Ministry of Sustainable Development and Tourism (2019).

The imports, exports, and transit of hazardous waste require a permit issued by the EPA, which maintains a register of all permits. The notification and movement documents must be in Montenegrin and accompanied by the relevant permit for transboundary waste movement. The EPA maintains a helpdesk and provides publicly accessible information on regulatory actions. Safety data sheets and labelling requirements ensure adequate information on risks and hazards is available.

Montenegro has mechanisms to enable it to respond to requests by importing Parties for advice and assistance, including obtaining further information to help them take action and strengthening their capacities to manage chemicals safely during their life cycle. Despite these efforts, Montenegro faces challenges due to limited financial resources and technical expertise, highlighting the need for ongoing international support to achieve its objectives under the Rotterdam Convention.

Minamata Convention on Mercury

Following the ratification of the Minamata Convention on Mercury in 2019, Montenegro has taken significant steps towards its implementation. The country developed a comprehensive national legislative framework that prohibits the export of mercury, outlines procedures for removing mercury from waste, and eliminates its use in agriculture, cosmetics, and other products. This legislation also establishes protocols for reducing mercury emissions and discharges into air, water, and land: Law on Ratification of the Minamata Convention on Mercury (OG 3/19); Law on the Environment; Law on Chemicals; Rulebook on the List of Hazardous Chemicals and Products Whose Export is Prohibited (OG 68/20); Regulation on Prohibited or Permitted Uses, Production and Placing on the Market of Chemicals That Represent an Unacceptable Risk to Human Health and the Environment (OG 71/18); Law on Waste Management; Regulation on the Manner and Procedure for the Establishment of the System of Taking, Collecting and Treatment of Waste Deriving from Batteries and Accumulators and on the System Functions (OG 39/12). Montenegro, in addition puts efforts to raise public awareness about the risks associated with mercury exposure and the importance of the Minamata Convention, including through educational campaigns, outreach activities, and dissemination of information to promote informed decision-making and behaviour change conducted by NGO sector.

Montenegro adopted the NIP for the Minamata Convention on Mercury for 2022–2023, alongside an Action Plan for the same period and the Minamata Initial Assessment Report.⁹⁵ The institutional framework for implementing the Convention includes the National Focal Point located at the Department for Ecology and the Department for Waste Management and Utility Services of the Ministry of Ecology, Sustainable Development and Northern Region Development. The Department for Pollution Control and Chemicals Management is responsible for drafting the national legal and strategic framework for chemicals management. Other governmental institutions involved include the EPA, Directorate for Inspection Affairs, Ministry of Health, Institute for Medicines and Medical Devices, Ministry of Agriculture, Forestry, and Water Management, Water Administration, Institute of Public Health, and the Centre for Eco-toxicological Research, as outlined in the 2022–2023 NIP.⁹⁶

The NIP sets a strategic goal of protecting the environment and human health from the negative effects of mercury, with operational goals detailed in the Action Plan. To achieve these goals, activities include raising public awareness, improving regulation implementation, and establishing a waste register. Funding for these activities comes from the national budget (€48,000), donor funds and IPA (€244,500), and a World Bank loan (€271,900 excluding VAT). One project from the list of activities “Phasing out mercury measuring devices in healthcare” has been initiated in 2022 with funds from GEF funded and operational support from UNEP and WHO and Ministry of Health, as a beneficiary.

Montenegro regularly and timely submits its reports under the Convention⁹⁷ and participates in the Convention’s activities and meetings, and a representative serves on the Implementation and Compliance Committee

However, the country faces challenges due to limited financial resources and technical expertise – so far majority of the activities have been implemented with the donor funding. Implementing control measures and ensuring

⁹⁵ Montenegro (2021g).

⁹⁶ Montenegro (2024c).

⁹⁷ Minamata Convention (Montenegro).

compliance with treaty provisions are difficult without sufficient technical assistance and capacity-building support. Public awareness about the risks of mercury exposure and the importance of the Minamata Convention remains limited.

Strategic Approach to International Chemical Management

The participation of Montenegro in the Strategic Approach to International Chemical Management (SAICM) highlights its commitment to enhancing chemical management. The 2023 adoption of the Global Framework on Chemicals, succeeding SAICM, marked a significant milestone. The 2023 Report under SAICM detailed legislative advancements in chemical safety, hazardous waste management, pollution prevention, and control of hazardous substances.⁹⁸ The country aims to continually align its laws with EU standards as part of its accession process.

Challenges remain in enforcement and inter-agency coordination, alongside addressing data gaps on chemical hazards and exposures.

From 2022 to 2025, Montenegro is implementing a \$249,737 project, funded by a special trust fund and co-financed in-kind, to strengthen synergies between the Basel, Rotterdam, Stockholm, and Minamata Conventions. This project, in collaboration with UNEP and UNDP, aims to enhance cooperation among stakeholders, improve regulatory frameworks, build capacity, raise awareness, and establish efficient national reporting mechanisms.

Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation

Montenegro has not yet taken legislative steps toward joining the 2010 Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation or Beijing Convention. This convention criminalizes the acts of using civil aircraft for the purpose of causing death, serious bodily injury or serious damage; of using civil aircraft to release or discharge any biological, chemical or nuclear weapon or similar substances to cause death, serious bodily injury or serious damage to property or to the environment; and of using any biological, chemical or nuclear weapon or similar substances on board or against civil aircraft.

Cross-cutting multilateral environmental agreements

Convention on Environmental Impact Assessment in a Transboundary Context

The Ministry of Ecology, Sustainable Development and Northern Region Development is the authority responsible for transboundary EIA procedures and serves as the national focal point under the Convention. Montenegro regularly reports under the Convention and participates in the work of the governing bodies of the Convention. However, due to resource constraints, expert-level participation in these meetings is limited to online sessions, with the permanent mission in Geneva representing the Party in person.

From 2016 to 2024, Montenegro has made significant progress in implementing the Espoo Convention through various legislative, institutional, and procedural measures. Key legislative frameworks include the Law on Environmental Impact Assessment and the 2018 Regulation on Projects Subject to Environmental Impact Assessment, supported by several regulations and rulebooks detailing the EIA process, including the content for EIA applications and reports.⁹⁹ For the period from 2024 to 2029, Montenegro nominated a permanent and an alternate member to serve on the Implementation Committee under the Convention. The nominated member did not attend the in-person session of the Committee in June 2024, initially due to governmental resource constraints and later, when resources were provided by the secretariat, due to time constraints. This reportedly affected the planning and the deliverables of the Committee.¹⁰⁰

Practically, from 2016 to 2024, Montenegro participated as an affected Party in three transboundary EIA procedures: the construction of small hydropower plants on the Cijevna River by Albania, the construction of the Buk-Bijela Hydropower Plant on the Drina River by Bosnia and Herzegovina, and the construction of the

⁹⁸ SAICM (2023).

⁹⁹ Montenegro (2022e).

¹⁰⁰ ECE (2024), paras. 3-5.

Ugljevik 3 TPP by Bosnia and Herzegovina. In these procedures, Montenegro successfully used the compliance mechanism under the Convention to ensure that its authorities and the public were notified and afforded the opportunity to participate efficiently in line with the Convention.

Montenegro reports that resource constraints, translation and interpretation issues, and coordination burdens are key current challenges for the efficient implementation of the Convention.

Protocol on Strategic Environmental Assessment

From 2016 to 2024, Montenegro has been active in implementing the Protocol on Strategic Environmental Assessment. The Ministry of Ecology, Sustainable Development and Northern Region Development serves as the national focal point, ensuring compliance and effective involvement in activities under the Protocol. The country's legislative framework is based on the Law on Strategic Environmental Assessment that mandates SEA for various plans and programmes, ensuring their alignment with the Protocol's requirements.

In 2019–2021, Montenegro initiated 10 national and 3 transboundary SEA procedures.¹⁰¹ It reported that limited financial and human resources hinder the full implementation and monitoring these procedures. Moreover, coordination between various governmental agencies and stakeholders remains to be challenging, impacting the efficiency of the SEA process.

Montenegro regularly reports under the Protocol and participates in the work of the governing bodies of the Convention. However, due to resource constraints, expert-level participation in these meetings is limited to online sessions, with the permanent mission in Geneva representing the Party in person.

In the reporting period Montenegro sought synergies between the implementation of the Espoo Convention and other MEAs. This includes aligning SEA procedures with the requirements of the Aarhus Convention to enhance public participation and access to information. Additionally, the country's commitment to the SDGs started to be reflected in its SEA practices, ensuring that environmental assessments contribute to broader sustainable development objectives.¹⁰²

Multilateral agreement among the countries of South-East Europe for implementation of the Convention for the implementation of the Espoo Convention (Bucharest, 2008)– in force since 25 February 2011

As a Party to the 2011 Bucharest Agreement for the implementation of the Espoo Convention, Montenegro has participated in sub-regional events under the agreement. These include a special session on the Convention, the Bucharest Agreement, and the Protocol on SEA at the Third Regional Conference on Environmental Impact Assessment in Vodice, Croatia (14–15 September 2017), and meetings of the focal points of the Espoo Convention and the Protocol on SEA from South-East Europe, held by OSCE in December 2021 and December 2023. The latter were organized by OSCE at initiative of Montenegro.¹⁰³

Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters

From 2016 to 2024, Montenegro made several strides in implementing the Aarhus Convention. Following the 2016–2020 revision, legislative framework of the country became fully aligned with the Convention's provisions. In addition to the Law on Free Access to Information (OG 044/12, 030/17) various regulations across various sectors, including planning, energy, agriculture, and judiciary, have been enhanced to ensure access to information, public participation, and access to justice.¹⁰⁴

¹⁰¹ Montenegro (2022e).

¹⁰² Ibid.

¹⁰³ ECE (2023c), paras. 33-40.

¹⁰⁴ Montenegro (2021h).

Montenegro timely reported under the Convention both in 2017 and in 2021. As of April 2024, the Ministry of Ecology, Sustainable Development and Northern Region Development initiated a process to prepare next report on the implementation of the Convention that is due in 2025.

The country also participates in the work of the governing bodies of the Convention. The participation is funded by the Convention's secretariat.

Despite legislative progress, Montenegro still faces several challenges in the Convention's implementation, including lack of financial sustainability and capacity of national and local governmental institutions dealing with the access to information and public participation that have limited resources to address growing number of public requests for information and managing public participation processes. Underdeveloped information system limits proactive dissemination of information.

Montenegro also faces specific challenges in implementing the Convention's access to justice pillar, such as lengthy judicial review procedures, understaffing in review bodies, and lack of specialized environmental units in juridical bodies.

No progress has been made in the reporting period towards ratification of the 2005 Almaty amendment on genetically modified organisms.

Protocol on Pollutant Release and Transfer Register

Montenegro ratified the Protocol on Pollutant Release and Transfer Registers (PRTR) in 2017. It has thus implemented the Recommendation 5.3 (b) of the third EPR of Montenegro.

During the reporting period, the country enacted or revised key national laws to enhance transparency regarding pollutant releases and transfers, aligning with the Protocol's provisions. These include the Law on the Environment, the Law on Electronic Administration (OG 72/19), and the Law on State Administration (OG 78/18). These laws regulate the establishment of databases, online reporting platforms, and other technological tools for collecting, managing, and disseminating data on pollutant releases and transfers.

In practice, Montenegro has not yet established a publicly accessible nationwide pollution register. From 2021 to 2023, the country participated in the project "Enhancement of Pollutant Release and Transfer Registers in the Western Balkan Countries and the Republic of Moldova," supported by the German Government. A national assessment of legal, institutional, and technical needs, as well as capacity building requirements, was carried out. The draft Terms of Reference for the PRTR register were prepared, and the software is currently in development.

The lack of established mechanisms for collecting data on pollutant releases and transfers from industrial facilities and other sources, as well as the absence of requirements for facilities to report their emissions and transfers of designated pollutants to the competent authority on a regular basis, constitutes a key challenge for the implementation of the Protocol.

Convention on the Transboundary Effects of Industrial Accident

Montenegro has made progress in implementing the Convention on the Transboundary Effects of Industrial Accidents from 2016 to 2024. The country has participated in work of the Convention bodies, reported under the convention in a timely manner, improved legislative frameworks, and established emergency response mechanisms.

Notably, Montenegro has been a participant in the Convention activities, regularly attending COPs and Working Groups, taking active part on the Convention's capacity-building activities – all funded by the Convention's secretariat. A representative from Montenegro is a Bureau member, highlighting the country's commitment to the Convention.

Montenegro has undertaken several measures from 2016 to 2023 to align its legislative and institutional framework with the provisions of the Convention. It enhanced and revised various national laws and regulations related to industrial safety, emergency preparedness, and environmental protection. Key legislation includes laws

on risk assessment, accident prevention, emergency response planning, and liability for industrial accidents. To track progress and identify areas for improvement, Montenegro, with the assistance of ECE, developed a national self-assessment document that outlines the current status, challenges, and priority actions needed.

The Ministry of Ecology, Sustainable Development and Northern Region Development, the EPA, environmental inspectorate and Directorate and Inspection for Protection and Rescue under the Ministry of the Interior established cooperation to facilitate effective implementation of the Convention.

Montenegro nominated a contact point for the ECE Industrial Accident Notification System (IAN); however, the point of contact has not yet used the System. The country indicated a need for training and capacity building to fully implement this mechanism.

Montenegro has also been developing and implementing emergency response mechanisms to address industrial accidents promptly and efficiently. This involves the establishment of emergency response teams, communication protocols, and coordination mechanisms among relevant authorities, resulting in faster and more coordinated responses to industrial incidents.

At the same time, the country reports that implementing and complying with the Convention presents several challenges for it. Ensuring comprehensive regulation and understanding of diverse and evolving industrial systems is complex. Data gaps pose significant obstacles in obtaining and sharing necessary information. Additionally, Montenegro faces difficulties in securing funding, technical expertise, and the infrastructure required for full compliance. There is a pronounced need for technical expertise and training programmes to develop and implement effective measures, highlighting the need for capacity-building support.

4.3 Participation in non-binding processes related to the environment and sustainable development

High-Level Political Forum on Sustainable Development Goals

From 2016 to 2024, Montenegro has taken steps to participate in and report to the High-Level Political Forum on SDGs as part of its commitment to global sustainability efforts.

With the support of the UN system, it has developed National Strategy until 2030, first Voluntary National Review (VNR) at the High-Level Political Forum (2016) and second VNR (2020). In both voluntary reports provided an update on its progress, highlighting areas of achievement as well as challenges in implementing the SDGs and focusing on key areas such as climate action, sustainable economic growth, and social inclusion. The reports also highlighted Montenegro's efforts to align its national strategies with the SDGs and to provide a transparent account of its progress on the global stage.

According to the 2023 SDG report, Montenegro showed progress in achieving of 48.3 per cent goals, limited progress in 31.7 per cent goals while deterioration was recorded in 20 per cent goals. Whilst Montenegro has made such progress towards the SDGs, gaps and challenges remain. These predominantly relate to the cross-cutting issue of governance and institutions, needed to effectively manage the economy, environment, social sectors and to strengthen the realization of the human rights. Additionally, Montenegro's system for enforcement of environmental legislation is weak and the protection of its environment and ecosystems continues to lag. Environmental degradation and climate change typically have the strongest negative impact on the income and health of the most vulnerable. They also undermine tourism, Montenegro's main growth and jobs engine. Insufficient availability of development finance also hinders the ability to drive the 2030 Agenda forward.

In 2022, the UN Sustainable Development Cooperation Framework Montenegro 2023–2027 was developed to support the 2030 Agenda along with the country's EU accession. It reflects the UN's commitment, alongside the Government of Montenegro and partners, to address national development priorities through coordinated efforts until 2027.¹⁰⁵ In this context, the 2018 Mainstreaming, Acceleration and Policy Support exercise mapped synergies between the 2030 Agenda and EU accession, revealing that achieving EU benchmarks would address nearly 65 per cent of SDG targets. Key chapters for progress include 27 (environment and climate change), 23 (judiciary and fundamental rights), and 19 (social policy and employment), with chapter 27 alone addressing 25

¹⁰⁵ United Nations Montenegro (2022).

per cent of the SDG targets. The UNSDCF aligns with these goals, emphasizing national development priorities.¹⁰⁶

The Montenegro SDG acceleration Trust Fund was established to support Montenegro accelerate its progress toward achieving the SDGs. The objectives of the Trust Fund align with the UN Sustainable Development Cooperation Framework 2023–2027 and focus on inclusive economic development, environmental sustainability, human capital development, social inclusion, and people-centred governance. The Fund received financial contributions from the EU (€2 million), Austria (€1.5 million), Switzerland (€1.5 million), and previously Luxembourg. Montenegro contributes €1 million. This initiative coincides with the second Voluntary National Review presented at the 2022 High-Level Political Forum, enhancing the impact of the established Office for Sustainable Development and Montenegro's efforts to better coordinate donor funding for environmental protection and sustainable development.

Environment for Europe process and other environmental indicatives and processes serviced by ECE

Montenegro has not actively participated in the Committee on Environmental Policy or the Ninth Environment for Europe Ministerial Conference in 2022. The country also did not make voluntary commitments to the Batumi Initiative on Green Economy or the Batumi Action for Cleaner Air, both approved at the 2016 conference in Georgia. Additionally, Montenegro's participation in various ECE environmental processes such as Working group on Monitoring and Assessment, the Transport, Health, and Environment Pan-European Programme, and the Education for Sustainable Development Steering Committee, has been limited due to a lack of available funding.

Cooperation on Forests

Montenegro collaborates with and received technical assistance, funding for sustainable projects, and support for implementing international forest management standards from several international organizations, including the International Fund for Agricultural Development, German Corporation for International Cooperation, Austrian Development Cooperation, and the World Bank, to improve forest management and law enforcement (see Chapter 12). Additionally, Montenegro engaged in dialogue with international certification bodies, such as the Forest Stewardship Council and the Programme for the Endorsement of Forest Certification.

Sendai Framework for Disaster Risk Reduction

From 2015 to 2024, Montenegro keeps carrying out activities under the Sendai Framework for Disaster Risk Reduction, focusing on enhancing the country's disaster resilience and preparedness. The Ministry of the Interior, through its Rescue and Protection Directorate, led efforts to implement the framework, resulting in the adoption of a DRR Strategy and Dynamic Action Plan for 2018–2023. These efforts included a comprehensive national risk assessment identifying nine types of risks affecting the country, and the development of 50 hazard and risk maps.

In relation with the SDG target 11.b (By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels) and its SDG indicator 11.b.2, 24 local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies in 2018. Also, the score of adoption and implementation of national DRR strategies in line with the Sendai Framework was 0.775 in the same year (SDG indicator 13.1.2), in line with the implementation of the SDG target 13.1 (Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries).

Montenegro also established a National Platform for DRR in 2014, which facilitated annual expert meetings and coordination among key stakeholders. The country participated in various high-level international forums on disaster risk reduction, aligning with global and European disaster preparedness strategies.

¹⁰⁶ Ibid.

A significant effort was made to prepare the Disaster Risk Management Capability Assessment. The activity was funded by the EU and resulted in enhancing the country's administrative, technical, and financial capacities to manage disaster risks. This project also improved cooperation among civil protection authorities and stakeholders, addressing major risks such as climate change and the COVID-19 pandemic.

The remaining challenges include limited national funding for establishing civil protection units and the need for better public awareness and data integration across ministries. Montenegro continues to work on updating its DRR strategies also on the local level and preparing for future risks, with plans to host the European Forum for Disaster Risk Reduction in November 2024.

10-Year Framework of Programmes on Sustainable Consumption and Production Patterns

Montenegro has not provided any information on the implementation of the Decade on SCP and has not appointed a national focal point for this matter. Montenegro does not report sustainable consumption and production strategies. Montenegro does not report on the achievement of SDG target 12.1.

4.4 Bilateral and regional cooperation on environment, sustainable development and green economy

Montenegro cooperates in the areas of air, water biodiversity and water bilaterally and on a regional basis with all Balkan countries, including Albania, Bosnia and Herzegovina, Bulgaria, Croatia, North Macedonia, Romania, Serbia and Slovenia. It also established cooperation with Türkiye. The collaboration is ongoing based on the specific or general bilateral or multilateral agreements and is usually supported by funding from EU and co-funding from interested EU countries, including Austria, Belgium, Czechia, France, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Poland, Slovakia, Slovenia, Spain and Sweden.

Regional cooperation and initiatives in Western Balkans

Montenegro engages in various regional cooperation initiatives to leverage economies of scale, prepare to the EU accession and address shared challenges across the Western Balkans, including related to environment and sustainable development. In addition to the regional cooperation related to the integrated water resource management and environmental impact assessment described under the section on MEAs, Montenegro benefits from cross-border collaboration in areas like disaster risk management, climate information sharing, and circular economy, generally supported by the EU and other donors.

The Disaster Preparedness and Prevention Initiative (DPPI) was launched in November 2000 under the 1999 Stability Pact for Southeastern Europe,¹⁰⁷ aiming to develop a cohesive regional strategy for disaster preparedness and prevention across 10 member states. The Rescue and Protection Directorate of the Ministry of the Interior is a national emergency/disaster management authority participating in the initiative. It participates in the meetings under the Initiative and capacity-building activities and benefits from the regional cooperation and coordinated efforts with donors and international organizations to align its national practices with international disaster management standards, such as the Sendai Framework for Disaster Risk Reduction 2015–2030. In December 2023 Montenegro organized 46 Southeastern Europe Regional meetings under the Initiative in Podgorica. In November 2024 it will host Europe and Central Asia Regional Platform for Disaster Risk Reduction in Budva.

Cooperation in circular economy in Western Balkans is supported by the European Bank for Reconstruction and Development (EBRD) that in 2021 launched the “Circular Economy Regional Initiative” in Türkiye and the Western Balkans. The GEF supported the initiative with \$13.76 million and an additional \$140 million came from EBRD. This programme focuses on supporting SMEs in adopting circular business models, improving resource management, and reducing environmental impacts like GHG emissions and marine litter. The initiative includes a performance-based interest rate mechanism to encourage sustainable practices and is complemented by \$1 million in technical cooperation from Austria. Similarly, the climate change and green economy cooperation in Western Balkans is carried out under the EU accession framework and is usually funded by EU and EU countries.

¹⁰⁷ EC (Stability Pact for South-Eastern Europe).

This cooperation is carried out under the framework of the Green Agenda for the Western Balkans is a collaborative initiative between the EU and the Western Balkan countries, launched alongside the Economic and Investment Plan in 2020. It aims to achieve climate neutrality and environmental sustainability by 2050, aligning with the European Green Deal. The agenda is structured around five pillars: decarbonization, circular economy, depollution (air, water, soil), sustainable food systems, and biodiversity protection. The EU has committed €1.25 billion since 2021 to support these goals, focusing on regulatory reforms, energy efficiency, renewable energy, and environmental management.¹⁰⁸

One of the projects implemented under this flagship is the “Green Agenda: Climate Change Adaptation in the Western Balkans” project (2024–2026). It aims to help Montenegro, among other Balkans countries, adapt to the increasing impacts of climate change, such as extreme weather and rising temperatures. It promotes regional cooperation and knowledge sharing, focusing on gender equality and nature-based solutions. It includes scalable demonstration projects in agriculture and urban transport and provides technical advice to improve decision-making and technical capacities. It is implemented by GIZ in cooperation with Regional Cooperation Council, the Network of Associations of Local Authorities of South-East Europe, the Transport Community and the Regional Rural Development Standing Working Group in South-East Europe that facilitate training and development of climate adaptation strategies.

4.5 International technical assistance on environment and sustainable development, including green economy

Since 2013, Montenegro received significant technical assistance funded by global and regional organizations, co-funded by bilateral donors. From 2018 the Ministry of Ecology, Sustainable Development and Northern Region Development does not maintain a compiled date base of all ongoing projects.

Global funds

Table 4.2 summarizes contributions from global funds related to environment and climate change from 2015 to 2022. GEF, the largest grant provider, funded projects totalling approximately \$13.9 million. These projects supported the implementation and reporting of global agreements, including the CBD, the UNFCCC, the Stockholm Convention, the UNCCD, the Minamata Convention on Mercury, the Montreal Protocol on Substances that Deplete the Ozone Layer, and multilateral agreements on international waters and transboundary water systems. From 2014 to 2026, GEF allocated 45 per cent of its funding for biodiversity agreements, 28 per cent for climate change, and 27 per cent for land degradation activities in Montenegro.¹⁰⁹

Table 4.2: Global funds resources for Montenegro, 2015–2024, \$ million

	2015	2016	2017	2018	2019	2020	2021	2022	Total
Adaptation Fund							0.65	0.65	1.30
GEF	0.86	1.09	1.77	1.42	0.23	0.8	0.78	6.95	13.90
GCF			0.16		0.16		0.47	0.79	1.26
Total	0.86	1.09	1.93	1.42	0.67	1.05	1.61		17.71

Source: OECD (Montenegro -DAC).

The GEF, in partnership with UNDP, supported Montenegro in developing its Second and Third BURs and the Third and Fourth National Communications to the UNFCCC. Since 2016, Montenegro has accessed funding from the Adaptation Fund, Climate Investment Funds, and the GCF to support its climate commitments, including developing national and regional adaptation plans and NDCs.

Additionally, GEF funding has supported the country’s efforts in biodiversity mainstreaming into sectoral policies, the Minamata Initial Assessment, and the environmentally sound management of PCBs under the Stockholm Convention, and cooperation on integrated water management of the Drin River.^{110, 111} EU accession

¹⁰⁸ EC (2023a).

¹⁰⁹ GEF (Montenegro).

¹¹⁰ GEF (Project database (Montenegro)).

¹¹¹ GEF (Montenegro).

being a key objective for Montenegro, strongly linked with the 2030 Agenda and the implementation of MEAs and progress in SDGs, makes the EU a crucial partner and donor in driving reforms across multiple sectors.

Between 2015 and 2024, Montenegro received substantial EU assistance through the IPA funds, focusing on environmental and climate policies.¹¹² The IPA II programme (2014–2020) aimed to align Montenegro’s policies with EU standards particularly under Chapter 27 of the EU accession negotiations, emphasizing capacity building, environmental monitoring, and the establishment of a sustainable financing mechanism (Eco Fund), with a total budget of €18.8 million, of which the EU contributed €16 million.

Building on IPA II, the first phase of IPA III provided €6.28 million to further align the legislation with international standards. Key areas included air quality, nature protection, industrial pollution, and disaster risk management, noise prevention, civil protection, and climate change. Additionally, funds were allocated to enhance institutional capacities, implement the EU Emissions Trading System, and establish the Natura 2000 network. For the 2024–2027 period, IPA III allocated €5.5 million, with Montenegro contributing €1.375 million, to improve the maturity of the Environment and Climate Change Project Pipeline. This initiative supports environmental infrastructure development and prepares Montenegro for future EU funding opportunities. The department for EU accession maintains information regarding the IPA funded projects but there is no public access to this database.

Since 2021, Montenegro also benefits from the EU INTERREG programme, which fosters regional development and policy learning across European regions, including the Western Balkans.¹¹³

International organizations

International organizations play a significant role in developing environmental policies, programmes, and projects in Montenegro, providing technical assistance funded by their resources and the GEF. Key activities focus on compliance with MEAs and enhancing environmental governance. OSCE, a major contributor, provided \$16.8 million from 2015 to 2022 for regional stability, including environmental governance.¹¹⁴ The OSCE’s “Environmental Crime in Montenegro” project supports SDG 15, aiding biodiversity conservation and MEA implementation.¹¹⁵

Bilateral Partners

Germany, a key bilateral donor, has focused on governance, environmental protection, and climate action since 2006, with recent initiatives co-funded by the EU under regional projects like “Energy, Transport and Climate Protection in South-East Europe”,¹¹⁶ “Green Agenda: Climate Change Adaptation in the Western Balkans”,¹¹⁷ and “Preventing marine litter in the Western Balkans”,¹¹⁸. The German Development Bank has contributed to Montenegro’s water supply and wastewater infrastructure, particularly on the Adriatic coast. Through multiple project phases, valued at approximately €150 million, the Bank has provided over €100 million in loans and EURO 20 million in grants. These projects have led to the construction of over 190 km of sewer and water networks, with wastewater treatment plants built in several municipalities, including Herceg Novi, Bar, Tivat, and Kotor. The collaboration has been essential for enhancing Montenegro’s infrastructure and ensuring its long-term sustainability.

Austria is another bilateral donor and partner that have a strong and dynamic political dialogue with Montenegro, with Austria supporting Montenegro’s European integration through direct technical support and raising awareness among other EU members about the importance of expanding EU policies. The key areas of cooperation related to waste management and municipal development, environment, tourism, climate change. Montenegro is part of the “Transition to a Low-Emission and Climate-Resilient Economy in the Western Balkans

¹¹² EU (Montenegro - financial assistance under IPA).

¹¹³ EU (INTERREG).

¹¹⁴ OECD (Montenegro -DAC).

¹¹⁵ Cakovic D. (2023).

¹¹⁶ GIZ (Energy, Transport and Climate Protection in South-East Europe).

¹¹⁷ GIZ (Green Agenda: Climate Change Adaptation in the Western Balkans).

¹¹⁸ GIZ (Preventing marine litter in the Western Balkans).

and Türkiye” project, led by Austrian Environment Protection agency, which focuses on building capacities to meet obligations under the Paris Agreement and EU climate and energy strategies.

Other EU countries, including France, Hungary, Luxembourg, Slovenia, and Sweden, also provide co-funded assistance.

International Financial Institutions

Montenegro cooperates with several International Financial Institutions. EIB has provided €57 million for wastewater and water supply projects across various municipalities. The World Bank’s largest project, valued at \$447 million, focuses on industrial waste management, with future plans to reform waste management. The World Bank has also granted Montenegro \$2 million to support carbon pricing readiness under the Partnership for Market Implementation. The 2022–2026 Partnership Framework with the World Bank targets economic resilience, institutional strengthening, and carbon pricing readiness. The EBRD has funded numerous waste management projects and continues to support infrastructure development, including through the “Circular Economy Regional Initiative” alongside other Western Balkan countries and Türkiye.

Coordination with donors

Since 2013, Montenegro faces challenges in coordinating among donors and international partners, including due to the lack of a coordination mechanism and comprehensive database of ongoing projects. Coordination often occurs on an ad-hoc basis. UN organizations, comprising 18 agencies, have coordinated efforts through the UN Country Team in Montenegro.

To address these coordination challenges, Montenegro has been developing a Strategic Partner Coordination mechanism within the Office for Sustainable Development, under the Office of the Prime Minister. This mechanism aims to enhance resource efficiency and strengthen SDG implementation. The Montenegro Acceleration Fund will support these efforts, aligned with the UNSDCF 2023–2027.

A Joint Steering Committee is expected to be established to oversee the UNSDCF implementation, co-chaired by the Minister of Foreign Affairs and the UN Resident Coordinator. The Committee will include key government ministries, UN entity heads, and potentially invite IFIs, bilateral partners, private sector, and civil society representatives. The Committee will provide strategic oversight, ensure alignment with national and international goals, and review progress and future plans annually.

4.6 Assessment, conclusions and recommendations

Assessment

Montenegro has made notable progress in implementing environmental agreements and commitments. However, challenges persist across various areas. Actively participating in over 30 regional initiatives and forums, the country emphasizes the significance of international cooperation for sustainable development.

From 2016 to 2024, Montenegro joined several key MEAs, including the Protocol on Pollutants Release and Transfer Registers (fulfilling the Recommendation 5.3 (a) of the Third EPR of Montenegro), the Water and Health Protocol (fulfilling the Recommendation 5.3 (b) of the third EPR), the Kigali Amendment to the Montreal Protocol, the Paris Agreement under the UNFCCC, the Doha Amendment to the Kyoto Protocol, and the Nagoya Protocol on Access to Genetic Resources.

The country has aligned its national sustainable development strategy with global objectives, in particular underscoring its commitment to biodiversity, pollution reduction and climate change related MEAs.

Montenegro has been participating in most meetings under these MEAs, at several instances securing positions in governing bodies and implementation committees. However, its participation to the meeting is often limited when external funding is unavailable, leading to reliance on online involvement or non-participation. While the country generally submits national implementation reports on time, changes in national focal points have occasionally caused delays on non-reporting.

National focal points are appointed for all MEAs to which Montenegro is a party. They usually understand their roles, but frequent changes in Government and a lack of continuity between outgoing and incoming focal points can hinder effective implementation. This governmental instability further reduces predictability and continuity in the work related to MEAs.

The implementation of these agreements has seen varying degrees of progress. Implementation of MEAs in Montenegro depends on international financial support with the EU accession process being as a key driving force to the related comprehensive reforms in environmental protection and sustainable development. Montenegro has not implemented the Recommendation 5.1 of the third EPR to decouple the implementation of MEAs in Montenegro from the international financial support.

The Recommendation 5.1 of the third EPR of Montenegro is not implemented. For example, Montenegro has shown limited progress in implementing the Convention on Long-range Transboundary Air Pollution and its protocols. It has not participated in the meetings under these treaties and had difficulties in guiding technical assistance to develop its inventories and preparation to the accession to the related protocols.

In terms of biodiversity, Montenegro has made efforts to implement the Convention on Biological Diversity, the Ramsar Convention, and the Convention on the Conservation of Migratory Species of Wild Animals through several legislative, institutional, and practical measures. The country has expanded protected areas and enhanced its legislative framework, although challenges such as inadequate staffing and financial resources persist. Similarly, the implementation of the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access to Genetic Resources has faced difficulties, including limited national capacities, unclear roles and responsibilities among various authorities, and a lack of public awareness regarding both instruments.

With the ratification of the Paris Agreement in 2017 and the submission of various national reports under the UNFCCC, the country has set ambitious targets to reduce greenhouse gas emissions by 35 per cent below 1990 levels by 2030, with plans to further increase this target to 55 per cent. However, Montenegro experiences difficulties in reaching these commitments with challenges related to technological, financial, and institutional capacities, relying on international support to achieve its climate goals.

Implementation of the water related MEAs has also seen some progress. However, challenges such as inadequate data exchange and coordination with neighbouring countries, as well as insufficient financial resources, hinder the full realization of these instruments.

Since 2013, Montenegro experiences challenges with coordinating donor and international partner activities, largely due to the absence of a formal coordination mechanism and a comprehensive project database. Coordination was often ad-hoc and donor driven. To improve this situation, Montenegro has been developing a Strategic Partner Coordination mechanism within the Office for Sustainable Development. Additionally, a Joint Steering Committee will be established to oversee the implementation of the UN Sustainable Development Cooperation Framework 2023–2027, aiming to enhance coordination among partners and donors and resource efficiency for SDG attainment.

Conclusions and recommendations

Ratification of or accession to multilateral environmental agreements

The country has not yet taken legislative steps toward joining the amended Protocol to Abate Acidification, Eutrophication, and Ground-level Ozone under the Convention on Long-range Transboundary Air Pollution, nor has it accepted the amendments to the protocols on Heavy Metals and Persistent Organic Pollutants, despite having favourable conditions for doing so. While Montenegro has developed air pollutant emission inventories, enhancing and maintaining their quality remains a significant challenge. In addition, no progress has been made towards ratification of the 2005 Almaty amendment on genetically modified organisms to the Aarhus Convention. Moreover, the country has not yet started the preparatory work for joining the 2010 Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation.

Recommendation 4.1:

The Government should carry out the necessary preparatory work for and promote joining:

- (a) *The Protocol to Abate Acidification, Eutrophication and Ground-level Ozone as amended and amendments to the Protocol on Heavy Metals and the Protocol on Persistent Organic Pollutants to the Convention on Long-range Transboundary Air Pollution;*
- (b) *The 2005 Almaty amendment on genetically modified organisms to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters;*
- (c) *The 2010 Convention on the Suppression of Unlawful Acts relating to International Civil Aviation.*

Ensure consistent participation in multilateral environmental agreement governing bodies and implementation and reporting under the agreements

Montenegro's participation in the meetings of the governing bodies of multilateral environmental agreements (MEAs) largely depends on financial support from international organizations or other donors. When nominating its members to these governing bodies and implementation committees, the government often fails to fully recognize its obligations to ensure consistent participation. It is essential for Montenegro's nominated members to attend all meetings, as their presence is crucial for achieving quorum, facilitating effective decision-making and meeting the expectations of other Parties. In addition, participation in the meetings under the MEAs facilitates the country's implementation efforts and cooperation with the other Parties.

Recommendation 4.2:

The Ministry of Ecology, Sustainable Development and Northern Region Development should:

- (a) *Continue efforts to ensure the country's participation in meetings and activities under multilateral environmental agreements as well as the fulfilment of its obligations under these agreements, including reporting;*
- (b) *Ensure that adequate time and resources are allocated for nominated staff members to carry out effectively their responsibilities as members of governing bodies of multilateral environmental agreements.*

Enhance public participation in multilateral environmental agreement decision-making and implementation

Montenegro provides for public participation in MEA-related decision-making through various formal mechanisms, including consultations with NGOs before and after important meetings, inclusion of NGO representatives in national delegations, and involving NGOs in the preparation of national reports. NGOs often serve as implementing partners, particularly in biodiversity-related MEAs, due to limited governmental capacity. While draft national reports are sometimes published for public comment, Montenegro lacks a systematic policy for consistently involving the public and NGOs in developing the country's position and implementing MEAs.

Recommendation 4.3:

The Ministry of Ecology, Sustainable Development and Northern Region Development should provide for public participation in the development of the country's position in the framework of multilateral environmental agreements.

Enhance coordination of the technical assistance in support of implementation of multilateral environmental agreements and participation in international processes

Montenegro has faced challenges in donor coordination due to the absence of a systematic mechanism and comprehensive project database, leading to ad-hoc coordination efforts. This lack of centralized data management poses challenges in tracking and coordinating the various initiatives and funding sources effectively and maintaining priorities.

Recommendation 4.4:

The Government should complete the process of developing a strategic partner coordination mechanism for sustainable development, use it to track and monitor funds received and ensure that projects are aligned with the strategic priorities of the country and international goals.

Recommendation 4.5:

The Ministry of Ecology, Sustainable Development and Northern Region Development should develop and make publicly available on its website a database of all technical assistance projects on environmental protection.

Recommendation 4.6

The Government should ensure integration of environmental priorities into the programming processes of international financial institutions and development partners.

Chapter 5

Climate Change

5.1 Current and foreseeable economic and environmental impacts from climate change

Environmental impacts from climate change

Montenegro is particularly exposed and vulnerable to climate hazards, including floods, drought, heavy rainfall or snowfall, windstorms, heat waves, landslides, and forest fires. Changes in temperature and precipitation averages increased climate vulnerability and intensified extreme events. The agriculture, forestry and water sectors are at the highest risk. The coastal area is highly vulnerable to a rise in the sea level and a decrease in rainfall. In 2021, a national climate risk assessment undertaken within the EU project “Risk Assessment of Hazards in Montenegro” identified the main hazards for the different geographic locations (see Table 5.1).¹¹⁹

Table 5.1: Main hazards and related geographical locations according to the National Climate Risk Assessment

Hazards	Geographical location
Storms	Southern region (Herceg Novi – Zelnika-Bijela, and part of Tivat airport) Central region (Podgorica, Danilovgrad, Nikšić, Cetinje) Coastal region (Herceg Novi, Kotor, Tivat, Budva, Bar and Ulcinj).
Droughts	All regions
Cold wave and snowfall	Northern mountainous region
Droughts and forest fires	Northern mountainous region: Tara Canyon (Municipalities Pljevlja, Zabljak and Kolasin), and Tara River Canyon and forest land in the National Park Durmitor.
Storms and floods	Southern region: Boka Kotorska, Cetinje, and the coastal part of Lake Skadar, as well as some parts along the coast. Središnji (Podgorica, Danilovgrad, Nikšić, Cetinje) and Primorski region (Herceg Novi, Kotor, Tivat, Budva, Bar and Ulcinj).

Source: Raičević (2022).

Weather

Montenegro has a Mediterranean climate with warm, dry summers and mild, relatively humid winters, influenced by large bodies of water (the Adriatic Sea and Lake Skadar) and the relief and orientation of mountain chains near the coast.

The country’s atmospheric and climatic variability is intertwined with the North Atlantic Oscillation that, along with the Genoa cyclone and Siberian anticyclone, air depressions in the Adriatic, cyclones across the Adriatic or Mediterranean Sea and high pressure over North Africa, and the influence of El Nino when it is strongly developed, plays a crucial role in shaping weather patterns.¹²⁰

The warming trend significantly alters the country’s weather patterns, with the most noticeable increase in summer, the least in winter, and a higher increase in spring than autumn. Summers have become increasingly hot, especially in the last 20 years.¹²¹ Žabljak has the coldest climate, while Podgorica’s climate is Mediterranean, with the country’s hottest and dry summers.

Projections of average annual temperature shift Montenegro towards warmer conditions, with more extreme hot and less extreme cold weather. The country’s expected average annual temperature range is projected to increase from +1.5 to +2 °C.¹²²

¹¹⁹ Raičević (2022).

¹²⁰ Raičević (2022).

¹²¹ Raičević (2022).

¹²² Montenegro (2020b).

Prolonged heat waves are predominant in August, with more frequent but shorter heat waves in June and July. The precipitation patterns in Montenegro vary across the country. In the southern region, there is high precipitation in the fall and early winter, averaging between 410–606 mm, while the summer experiences very low precipitation, ranging from 117–180 mm. In the northern region, the highest rainfall occurs in May, June, and July, with a secondary peak in October and minimal precipitation in February. Between these two regions, mountains and the continental climate influence a transition zone with modified precipitation.

The rainiest month is November, while the driest is July. Snow falls more frequently in mountain regions in spring than in autumn because spring is colder. In the future, the country's precipitation patterns are expected to change significantly. The northern and northeastern parts of the country will experience frequent heavy rainfall in winter and throughout the year. On the other hand, the central and southern regions will likely see a decrease in precipitation, leading to longer dry periods, especially in the summer. Most of the country is expected to experience a decrease in 5-day periods with over 60mm of rainfall, but the amount of precipitation during individual 5-day episodes will increase. Rain episodes will be more concentrated and intense, potentially leading to severe flooding and landslides. Additionally, the southeastern and western parts of the country are predicted to have more extended consecutive dry periods in the summer and throughout the year.

Montenegro experiences varying wind conditions, particularly along its coast. The frequency of calm wind periods ranges from 4.5 per cent in Ulcinj and Bar to 55 per cent and 60 per cent in Herceg Novi and Budva and over 70 per cent in Cetinje and Pljevlja. Additionally, average maximum wind speeds range from 11 m/s in Pljevlja to over 30 m/s in Herceg Novi.

Local windstorms in summer are brief, typically lasting 5–20 minutes. They are very strong and often accompanied by wind gusts from different directions, hail, heavy precipitation, and a drop in air pressure. In the winter, windstorms occur across the country, lasting longer with predominantly northerly and southerly directions and extremely strong wind gusts of 40 m/s and higher.

Glaciers

The largest ice cap in Montenegro covered an area of nearly 1,500 km², including the Durmitor, Sinjajevina, Moračke, Maganik and Prekornica massifs across the country's centre, whilst valley glaciers formed on satellite mountains such as Vojnik.

The Debeli Namet glacier in the Durmitor massif is one of the lowest altitude glaciers (2,050–2,300 m) at this latitude (42–44°N) in the northern hemisphere¹²³. The rapid growth and decay of the Debeli Namet glacier in response to inter-annual climate variability highlights the sensitivity of small cirque glaciers to short-term climate change.

Žabljak has 76 days on average with snow cover higher than 50 cm, while Kolašin, in the northern part of the country, only 10 days¹²⁴. The longest heatwave event registered in Žabljak, located in the northern mountainous region at 1,450m above sea level and has a predominantly snow-forest climate, lasted almost 17 days in 2012. That specific heatwave event lasted nearly 60 days.

Water resources

Water resources sector is highly vulnerable to climate change due to reduced precipitation, temperature increases, and extreme weather events. The territory is rich in water, with an average annual runoff of 624 m³/s (i.e. 19.67 billion m³). Significant differences exist in the distribution and abundance of water resources, ranging from arid karst areas to areas rich in surface and groundwater. The average specific runoff is about 43 litres/s/km. Of this total runoff, about 95 per cent is from inland water, whilst the remaining 5 per cent is from transit water.¹²⁵

¹²³ Hughes (2008).

¹²⁴ Raičević (2022).

¹²⁵ Montenegro (2021c).

River basins' water balance is influenced by rain and snowfall patterns, with an estimated decrease in the average annual flow of 27 per cent by 2100.¹²⁶

Compared to past decades, in 2011–2020, the precipitation deficit was accompanied by “warm” and “very warm” temperatures in the country during the winter, spring, summer and autumn.

The Third National Communication reports that hydrological droughts occurred in 2011, 2012, 2017, 2018, and 2019. The agricultural drought during the autumn of 2017 transitioned into a hydrological drought, impacting water levels in rivers and hydroelectric plants. This trend continued into 2018 and 2019. The intensity of the drought varied from moderate to very arid to extremely arid in 2017 and 2018.¹²⁷ In 2022, a serious drought caused several impacts throughout Montenegro (see Box 5.1).

Box 5.1: Impacts of the 2022 drought in Montenegro

A severe drought affected Montenegro in August 2022, causing forest fires, low levels of rivers and lakes, a significantly reduced capacity of water sources (some even dried up), water supply issues for the population and livestock, and reduced electricity production.

The low water levels led to the disappearance of Lake Biogradsko on Bjelasica Mountain in the National Park. Additionally, artificial lakes Krupac and Slano near Nikšić, and Piva near Plužine, also experienced extremely low water levels.

Dry watering holes in some pastures in Durmitor forced livestock farmers to move their herds to lower areas in search of water. At the end of July, the municipalities of Berane, Nikšić, Bar and Kotor had restrictions on water supply.

Reduced water levels affected the operations of the hydro power plants (HPPs) of Piva and Perućica. To face electricity consumption levels during the tourist season, Montenegro imported energy for 294 GWH, amounting to approximately €100 million.

The drought in August followed changes in July 2022 precipitation patterns, resulting in reduced hay yield and increased animal feed prices. Crops were also reduced: a decrease of 30 per cent was registered in Nikšić, and up to 60 per cent less in Pljevlja. Fruits and grapes were less affected than arable and vegetable crops.

Forest fires hit many parts of the country, especially in the northern Municipalities of Nikšić, Šavnik, Žabljak and Plužine and Boka Kotorska Bay and Bar in the coastal area.

The risk of flooding varies greatly across Montenegro. River valleys, home to large settlements, agricultural areas, and major roads, are particularly prone to flooding. The Pazicko Polje karst field and the Lim River valley are the most susceptible to flooding. The unsustainable use of natural resources in these areas worsens soil erosion, especially on forest and agricultural land. Montenegro still suffers from inadequate water supply infrastructure, which, coupled with altered precipitation patterns, affects water availability.

Land

Montenegro registers frequent seismic events, particularly in the coastal regions of the Zeta-Skadar and Berane basins. There is a high possibility that future earthquakes could create large landslides and rockslides, especially in areas with intense and often uncontrolled urbanisation.

Urban areas in Montenegro are particularly prone to climate change. Podgorica, Budva, and Bar lack adequately designed infrastructure, especially regarding the capacity and maintenance of rainwater, drainage, and sewage infrastructure.

Urban areas feature little permeable surfaces and are prone to flooding and urban heat island phenomena. The land is generally overexploited in urban areas, requiring sustainably designed infrastructure, drainage and sewerage systems. In tourist cities of the coastal area, like Tivat, there are significant pressures on biodiversity, water and energy from the development of the tourism sector. Flood-prone areas, seismic zones, and areas subject

¹²⁶ Đurović (2023).

¹²⁷ Montenegro (2020b).

to hydrogeological risks are not yet mapped into spatial plans as no-construction zones in local urban plans. There is no integration of climate change into planning and climate-related hazards are exacerbated by widespread illegal and irregular construction. Especially in the coastal zones, extensive, intensive and often unsustainable development is visible.

Moreover, urban plans are developed at the national level, by the Ministry of Spatial Planning, Urbanism and State Property, and do not include climate change-related considerations, such as the percentage of permeable areas, green corridors, green infrastructure, among others. Local municipalities do not intervene in the planning process but are responsible for issuing building permits. Inspections on the correspondence between the building permits and what is ultimately realised are weak, and carried out by the Ministry, which does not have enough personnel to perform the inspections. As a result, there's a general overbuilding, with construction exceeding the initial permits in volume and lacking the prescribed green spaces or parking. The lack of inspections on urban development and construction also facilitates illegal or irregular constructions exceeding or modifying what is in the original permits.

Overbuilding, especially in the coastal zones, creates many problems regarding urban sustainability, waste management and traffic. In addition, many buildings are constructed on seismic and disaster-prone zones, and there are no sustainability and climate change prescriptions for what is realised around the buildings, like green buffer zones, which directly affect the local climate. Cities would benefit from introducing extensive green infrastructure to decrease heat waves and flood vulnerability (see Box 5.2).

Local authorities do not have the competence to intervene at the local level when construction sites threaten nature-protected areas because the competence is national, and state inspections are rare due to lack of personnel. Transferring inspection competencies to the local level would make it easier to control the territory and the sustainability of its transformation.

Box 5.2: Eco-Building in Podgorica

In 2004, Montenegro signed a Memorandum of Understanding for Cooperation for Environmental Protection with Italy. The agreement has enabled numerous projects on sustainable development, environmental management, energy security, and the promotion of sustainable tourism.

Italy financed the realisation of an “eco-building” to be used by the Government as headquarters for the then ministry responsible for environment. The project foresees the development of an environment-friendly master plan for the university campus adjacent to the eco-building. The eco-building features modern technologies, innovative solutions, and natural elements. The main level, dedicated to offices, is conceived as a large plate where the maximum level of natural lighting and ventilation is obtained through the facades, an innovative system of chimneys on the roof and a sequence of open courtyards. The upper level is composed of rectangular volumes of different materials and heights. In May 2024, the building was in the final construction phase, with most of the equipment already operational.

In 2016, two technical agreements were signed by the Ministry of the Environment of Italy and the Ministry of Sustainable Development and Tourism of Montenegro on (1) cooperation for the implementation of the second phase of the project related to the construction of an eco-efficient building in Podgorica, and (2) the revision of the management methods of the Italian Montenegrin Environmental Fund.

Source: Archilovers (2008).

Soil

The country's susceptibility to droughts results in large areas of soil drying quickly due to temperature increases.¹²⁸ Erosion is influenced by precipitation patterns and is impacted by vegetation and soil conservation practices such as forests, agroforestry, and physical infrastructure. Soil erosion occurs due to general terrain exposure, vertical vegetation stratification, and steep slopes, often exacerbated by the irrational and inadequate use of natural resources.

Forest

¹²⁸ Tellam (2020).

The forestry sector is sensitive to decreasing precipitation and increasing air temperatures, resulting in more frequent and intense occurrences of forest fires. The Third BUR reports that forests have become more vulnerable to climate change, air pollution and fires, parasitic fungi, insects, and, to a lesser extent, rodents and parasitic flowering plants. The threats to forest ecosystems in Montenegro include:

- Weakening of the immunity of certain tree species
- Reduced productivity and bioecological stability
- Intensive drying of forests, especially conifers: spruce and fir (larch on Mt. Lovćen), but also relatively poor defoliation
- The occurrence of pathogenic fungal epiphyticia and/or gradation of harmful insects
- Rodent damages
- The appearance of mistletoe
- The occurrence of forest fires
- Snowstorms, windbreaks and frost
- The impact of air pollution
- Illegal logging.

Coastal and central regions' forests are more exposed to high air temperatures during summer, increasing the risk of forest fires. During the summer, forest fires affect littoral mountain slopes along the coastal zone and the district between Podgorica and Cetinje.

From 2005–2015, Montenegro experienced approximately 800 large forest fires, destroying over 18,000 ha of forests and more than 800,000 m³ of stocking volume. In 2017, 124 fires were recorded from February to November, although the worst damages occurred in July and August. The largest burned area was 5,687 ha in Danilovgrad in July, but there were also 28 other fires larger than 500 ha. Prolonged drought and very high temperatures (43.9°C in Podgorica on 7 August 2017) affected water resources, and the strong winds spread the fire faster.

In 2021, 198 forest fires destroyed 43,469 ha between February and November. August was the month when 75 per cent of the damage occurred. The largest fire covered over 6,500 ha, and 11 exceeded 1,000 ha, with 7 greater than 500 ha.¹²⁹

Other natural vegetation

Local experts remark that afforestation is often pursued with plant species imported from China, which introduced into the territory of Montenegro alien insect species, like invasive ladybugs, resistant to warmer temperatures and threatening local vegetation.

Biodiversity

Climate change significantly affects vegetation shifts, species distribution, invasion of alien species and freshwater and marine ecosystems. According to the country profile of Montenegro on the CBD website,¹³⁰ the “impact of alien and invasive species and climate change are still poorly understood but can be expected to have a higher importance among threats to biodiversity in the future”. Available national statistics and monitoring schemes do not adequately address the direct consequences of climate change on natural habitats, animal and plant communities (biocenosis), and ecosystems.¹³¹

Human health

According to the Third National Communication, “there is no reliable data on the impact of climate change on human health, as this data has not been integrated with compulsory health records”.

¹²⁹ San-Miguel-Ayanz (2022).

¹³⁰ CBD (Montenegro).

¹³¹ Raičević (2022).

Warmer temperatures and heat waves have caused increased heat stress in the population, with a particularly negative impact on the health of vulnerable groups (the elderly, children, people with cardiovascular and heart diseases, and the mentally ill).¹³²

In Montenegro, forest fires have several impacts on health, such as watery eyes, coughing, and choking due to large amounts of dust particles and the long-term effects of smoke inhalation.

There are no measures to monitor health impacts associated with reduced access to safe drinking water, food and secure shelter, which are a possible result of climate change impacts.

There are no technical arrangements for bio-meteorological forecasting, early warning, or health monitoring systems for all health problems related to the potential impacts of climate change, particularly targeted towards the young, the old, and people with chronic diseases.

Economic impacts from climate change by sector and costs of mitigation and adaptation

In Montenegro, the most devastating impacts from natural hazards are caused by floods, primarily due to heavy precipitations and droughts.

Agriculture, forestry, and tourism are the sectors most affected by droughts. Heat waves in Montenegro are connected to decreased labour productivity, particularly in agriculture, infrastructure, and construction. Extremely hot temperatures induce reductions in economic activities such as trade and utilities and increases in electricity and water consumption.

No methodologies exist in Montenegro to determine the damage caused by climate change or assess its future economic impacts.¹³³

The last assessment of the economic impact of climate change in Montenegro is from 2010 when floods caused damage and losses, which is estimated at €44 million (1.4 per cent of GDP).

Energy

According to the IEA, in 2021, transport (36 per cent) and residential (31 per cent) sectors are responsible for the most significant final total energy consumption in Montenegro.¹³⁴ Hydropower is the largest source of electricity in Montenegro, with 53.2 per cent, followed by coal (38.2 per cent) and wind (8.5 per cent) and solar (0.1 per cent).

Rainfall patterns, droughts, and water scarcity are responsible for the efficiency of electricity production relying on HPP. The reduced water inflow during droughts directly affects the amount of electricity produced in hydroelectric power plants.

Hydrological conditions in 2020 caused a 19 per cent reduction in electricity production from renewables compared to 2019. In 2022, Montenegrin hydroelectric power plants produced 30 per cent less than in the same period in 2021 because of the prolonged drought period.¹³⁵ Weak river water flows in summer also affect HPP operations because water is needed for cooling.

The impact of long dry periods on electricity supply contributes to increased electricity prices, which, along with the rise in the prices of agricultural products caused by the drought, increases inflation.

Solar and PV potentials are not yet fully exploited, also because Montenegro does not have a single utility-scale photovoltaic facility.

¹³² Montenegro (2020b).

¹³³ Četković (2024).

¹³⁴ IEA (Montenegro).

¹³⁵ Ivanović (2023).

Recommendation 6.2 of the third EPR of Montenegro is partially met. In 2019, the electrical bridge between Western Europe and the Balkans was inaugurated, connecting Montenegro and Italy, for a total project value estimated at around €1.1 billion. Montenegro is completing the 400 kV transmission line from Lastva to Pljevlja. The grid could integrate 1.5 GW of renewable energy power plants with some investments (6.2 (a) and (b)).

Industry

Droughts significantly impact industrial output, mainly due to its reliance on hydropower for electricity.¹³⁶ Conversely, abundant precipitation and strong winds have a short-term positive effect on electricity production, and on the industrial output as well.

Agriculture, fishery, apiculture

Agriculture is highly vulnerable to climate change due to its dependence on water availability and temperatures. Only 1 per cent of arable land is served by irrigation systems, with the rest relying on natural precipitation. The country's vulnerability to natural disasters and extreme weather events severely threatens the agricultural sector. Yields and revenues are expected to decrease due to more intense short rainfall events, flash floods, and more frequent and intense droughts. The costs of irrigation, disease and pest control will likely increase. The situation is dire in the Zeta River Valley, Zeta Plain, and the coastal area, which has the highest risk of droughts due to the sharp terrain inclination. Changing temperatures and rain patterns affect several fruit productions across the country, especially olive in the southern part of Montenegro. There are not yet specific studies assessing this phenomenon's issues and potential adaptation options.

The fishing sector is greatly affected by increased seawater temperature, favouring the distribution, spread, abundance, and impact of invasive species. A 2022 paper on climate-risk assessment in Kotor Bay identified the potential impacts of climate change on fisheries in Montenegro.¹³⁷ Warming Adriatic Sea waters (projected to increase to 25°C by 2071) threaten domestic fish species' survival, influence their permanence or migration to other areas, and facilitate the proliferation of invasive species.¹³⁸ In addition, thermohaline will cause circulation changes that negatively affect blue fish in waters not near the bottom or shore.

Capacity building is needed among officials and scientific institutions to enable local fishermen to enable the operation of fishing techniques that can target and decrease the population of invasive species. At the same time, it would be advisable to research opportunities to market new species. Fishermen and the population involved in the fishery should receive training and be the target of awareness-raising campaigns on monitoring and registering specific species, organising means to notify authorities whenever they discover new non-indigenous species.

Forestry

Economic impacts on the forestry sector are mainly related to forest fires. According to information from the Ministry of Agriculture and Rural Development, the economic cost of losing 6,500 ha of forests due to fires in 2012 was estimated at €6 million. No further cost estimates are available.

Transport

Due to more frequent flash floods and heavy rains, rural roads in the northern mountainous areas have deteriorated significantly. Many are impassable during winter, leading to social, economic, and health issues for rural communities that are becoming increasingly isolated. The economic costs of the disruptions due to climate change on gravel roads, coupled with innovation in tarmacking, make it more cost-effective to pave gravel roads. The Government, both at the central and municipal levels, has expedited a programme to improve rural connectivity but is currently facing funding shortages.¹³⁹

¹³⁶ Ivanović (2023).

¹³⁷ Raičević (2022).

¹³⁸ Montenegro (2020b).

¹³⁹ IFAD (no date).

Tourism and leisure

In Montenegro, tourism is one of the most important sources of revenue, and it has the potential for economic growth and development.

A 2020 publication on adaptation to climate change in Montenegro¹⁴⁰ underlines the risks of climate change to the country's ski resorts, reporting IPCC warnings on the impacts on tourism and recreation activities such as skiing, glacier tourism and mountaineering.

The coastal regions mainly rely on tourism and are the major contributors to the country's economy. Large investments in real estate in coastal areas, pose pressure on space and other coastal zone resources, harming sustainable tourism development.¹⁴¹ At the same time, extensive and excessive cementation in coastal zones, often without strict control, increases the effects of climate hazards (floods, heat waves, droughts). In urban areas, the lack of sustainable infrastructure components in local and national development plans hamper increased resilience to climate change (see Box 5.3).

Box 5.3: Enhance resilience to climate change in urban areas

Sustainable infrastructure is a powerful key to build resilience to climate effects. Overall, different components can be introduced in local and national development plans, as follows:

- Streets, blocks and buildings are designed in terms of for example, morphology, height, orientation, choice of materials, and surrounding vegetation to maximise the benefits of natural ventilation and solar radiation.
- Urban morphology is conceived to avoid the adverse effects of wind turbulence and strong winds.
- Building heights considered existing wind corridors and the effect of high-rise buildings on the surrounding areas.
- Areas dedicated to social activities (e.g., children's playgrounds, outdoor gathering areas, main outdoor movement corridors) are designed considering the local climatic conditions and use appropriate vegetation (trees, shrubs, grass or dry gardens).
- Construction is shaped to reduce heat stress and the urban heat island phenomenon by providing opportune shadowed zones, cooling elements such as green and blue infrastructures, and opportune landscaping using vegetation.
- Planning considered large open spaces and forest areas in urban areas, the maintenance of green corridors connecting parks and green areas, and the preservation of existing and new blue infrastructure.
- Open spaces featured covered areas to protect users from heat and rain.
- Built-up volumes featured as many green roofs as possible, which positively affect the thermal behaviour of the buildings and can retain rainwater and delay its discharge into the sewer, avoiding peak flows.
- In open spaces and neighbourhoods, impervious soil is avoided whenever possible or reduced to decrease heat stress and increase soil capacity to absorb large amounts of water in case of extreme precipitations.
- Parks and open spaces are designed to act as retention areas in extreme precipitation to avoid overflowing urban wastewater systems and reduce flooding risks.
- New developments avoided historical flooding areas.

Healthcare systems

Montenegro does not have official statistics and research data on the direct impacts of climate change and climate extremes on human health and the health system.

In the last 10 years, the all-cause mortality of the population in Montenegro saw an increasing trend, from 5,922 deaths registered in 2012 to 7301 in 2021. The largest share (75 per cent in 2012 and 79.8 per cent in 2021) falls under the age category over 65, the most vulnerable to climate change.¹⁴²

A 2023 study on the economic impacts of climate change in Montenegro has estimated a projection of the number of deaths caused by climate change compared to the *baseline scenario*. The study considered four scenarios:

1. Near future, an increase in the number of deaths by 2050 by 5 per cent (NF1);
2. Near future, an increase in the number of deaths by 2050 by 10 per cent (NF2);

¹⁴⁰ Tellam (2020).

¹⁴¹ Raičević (2022).

¹⁴² Četković (2023).

3. Far future, an increase in the number of deaths by 2100 by 10 per cent (FF1);
4. Far Future, an increase in deaths by 2100 by 15 per cent (FF2).

The authors combined them with an estimated Value of Statistical Life (VSL)¹⁴³ for Montenegro. Table 5.2 shows the estimates of the economic damage of premature mortality because of climate change in €.

Table 5.2: Estimates of the economic damage of premature mortality because of climate change, 2025–2100, €

Year	NF1	NF2	FF1	FF2
2025	187 172	366 548	131 151	192 483
2030	526 879	1 036 130	368 702	541 897
2035	903 793	1 784 811	631 633	929 670
2040	1 321 008	2 619 729	922 002	1 358 999
2045	1 781 848	3 548 603	1 242 014	1 833 322
2050	2 289 885	4 579 770	1 594 032	2 356 330
2055			1 980 591	2 931 987
2060			2 404 405	3 564 549
2065			2 868 382	4 258 585
2070			3 375 636	5 018 996
2075			3 929 501	5 851 041
2080			4 533 546	6 760 359
2085			5 191 592	7 753 000
2090			5 907 723	8 835 447
2095			6 686 313	10 014 649
2100			7 532 036	11 298 054
Cumulative Total 2025 – 2050/2100	30 198 988	59 965 047	231 037 086	344 302 776

Source: Četković (2023).

Note: VSL obtained considering the European Commission Handbook on the External Costs of Transport. EU (2020).

Considering projections, in 2050, the estimated cost of the economic damage of premature mortality because of climate change ranges from €1,594,032 euros in the FF2 scenario to €4.6 million in the NF2 scenario. The cumulative costs (2025–2050 and 2050–2100) range from €30.2 million to 2050 in the NF1 scenario to €344.3 million in the FF2 scenario. These numbers, although projections, provide insight into the extent of economic losses for increased mortality due to climate change.

Costs of inaction

There are no cost-of-inaction estimates available.

5.2 Greenhouse gas emissions from economic sectors

The National GHG Inventory covers the period 1990–2019 and includes emissions for the IPCC sectors of Energy, Industrial Processes and Product Use (IPPU), Agriculture, Forestry and Other Land Use (AFOLU), and Waste (see Table 5.3). Estimates include the following GHGs: CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆). CO₂ is the predominant direct GHG, followed by CH₄, N₂O, HFCs, PFCs and SF₆. In 2019, CO₂ emissions constituted 73.7 per cent of GHG emissions, while CH₄ reached 16.7 per cent and N₂O only 1.7 per cent. The third BUR pictures the trend of GHG emissions from 1990–2019. While emissions are substantially stable from 2013–2019, in 2018–2019, there has been an increase in emissions, mainly due to the energy sector (Montenegro (2021c), figure 6).

For SDG 13 (Take urgent action to combat climate change and its impacts), target 13.2 (Integrate climate change measures into national policies, strategies and planning), Montenegro reports on SDG indicator 13.2.2 (Total greenhouse gas emissions without Land Use, Land Use Change and Forestry (LULUCF) for non-Annex I Parties)

¹⁴³ VSL is the rate of local compromise between the risk of death and money. When compromise values are performed in market contexts, VSL serves both as a measure of the willingness of the population to pay for risk reduction and as a marginal cost of increasing security.

showing that CO₂ emissions increased from 2,150,768 million tons of CO₂ in 2013 to 2,292,498 million tons of CO₂ in 2022.¹⁴⁴

Table 5.3: Trends of GHG emission by sector, 1990, 2013–2019, Gg CO₂eq

	Energy	IPPU	AFOLU	Waste	Total	Total emissions without sinks
1990	2 748.26	1 704.68	–968.35	217.97	3 702.56	5 292.40
2013	2 477.19	401.61	–2 126.30	269.64	1 022.14	3 441.41
2014	2 347.67	395.06	–2 205.03	270.24	807.94	3 314.35
2015	2 551.11	385.96	–2 072.72	269.34	1 133.68	3 507.82
2016	2 388.97	376.18	–2 073.98	269.60	960.77	3 330.64
2017	2 525.25	391.83	–1 523.83	260.33	1 653.58	3 462.82
2018	2 796.59	393.52	–2 177.53	274.68	1 287.25	3 743.49
2019	2 701.70	376.89	–2 232.37	273.08	1 119.31	3 623.25

Source: Montenegro (2021c).

Energy

In Montenegro, the energy sector is the primary source of anthropogenic GHG emissions. In 2015, it accounted for 72.7 per cent of total GHG emissions, which increased to 74.6 per cent of the total emissions of 3.623,25 Gg CO₂eq in 2019 (Montenegro (2021c), figures 7 and 14). The Pljevlja TPP, which uses lignite combustion, and the three boilers for technological steam production within the KAP power plant, were the main emitters in the sector during the review period. Due to the significant emissions from the TPP Pljevlja, “electricity and heat generation” is the main component within the category (Montenegro (2021c), table 14).

The combustion of lignite in TPP Pljevlja, activity 1.A.1 – Electricity and heat generation accounts for the largest share of the total CO₂ emissions from the energy sector (Montenegro (2021c), table 12). Between 2010 and 2019, there has been an increase in CH₄ emissions related to combustion in other energy activities (1.A.4) and fugitive fuel emissions (1.B), including fugitive emissions from the coal mine in Pljevlja (Montenegro (2021c), table 12). The level of methane emissions from the energy sector is relatively low.

Industry

The mining and metals industries are the main industrial production branches in Montenegro. Aluminium and steel production were the most prominent branches in the metals industry sector during the review period, but these facilities are currently closed. Only the production of aluminium alloys is ongoing (see chapter 13). Other industrial capacities include food production, beverages, tobacco, textiles, lime, leather, paper, medications, and rubber and plastic products. While the share of GHG emissions from industry within the total emissions in the early 1990s was about 32.2 per cent, there has been a continuous decline. In 2015, the share of emissions was 11 per cent, and only 10.4 per cent in 2019 (Montenegro (2021c), table 17).

Agriculture, fishery, apiculture

In 2019, the total emissions with sinks from the land use sector amounted to 2.503.93Gg CO₂eq. GHG emissions from the agricultural sector in almost all segments decreased during the reporting period (1990–2019) due to reduced crop and livestock production (around 60 per cent) and a drop in the total animal population. In the total emissions from agriculture, the largest share is attributable to enteric fermentation and ranges from 75–78 per cent, while manure management accounts for 20 per cent (Montenegro (2021c), table 20).

Forestry

Forestry is the most carbon important sink, in Montenegro. Trees in Forests and other wooded land sequester more carbon than is being released by forest fires and utilization. The range of carbon absorbed by forests in Montenegro absorbed ranged from –2,891.74 Gg CO₂ in 2009 to –678.81 Gg CO₂ in 2011. In 2019, wood production contributed to the net removal of 142.43 Gg CO₂eq (Montenegro (2021c), table 20).

¹⁴⁴ SDG Montenegro.

Transport

Emissions from the transport subsector recorded an increasing trend till 2017 (last data available), reaching 761.76 Gg CO₂eq in 2019, proportionally to the number of motor vehicles in the country (Montenegro (2021c), table 11). Road transport makes up the largest share of total emissions from transport, given that there is almost no intra-state air traffic, non-scheduled nautical transport and low GHG emissions from rail transport, refocused from diesel to electric locomotives during 2011 (Montenegro (2021c), figure 15).

Tourism and leisure

GHG emissions from the tourist sector in 2017 were 95.04 kt CO₂eq, according to a World Tourism and Travel Council report.¹⁴⁵ The most significant potential for reducing emissions is in accommodation (56.7 per cent of total emissions in 2017), i.e., mainly through applying energy efficiency measures in hotels and apartments.

5.3 Adaptation and mitigation

The 2021 National Programme of Priority Activities in the Field of Climate Change Mitigation and Adaptation to the Framework of Cooperation with the GCF 2021–2023 reports that from 2014 to 2017, mitigation investments significantly exceeded those in adaptation measures.¹⁴⁶ Estimated financial investments (Loans or grants) for climate change adaptation projects amounted to approximately €13 million in the water, forestry and agriculture sectors, while investments in mitigation projects reached €187 million in the energy, transport, and banking and financial services sectors.¹⁴⁷

In cooperation with the Government, UNDP is implementing the project “Enhancing Montenegro’s capacity to integrate climate change risks into planning” with the support of the Green Climate Fund. It envisages that Montenegro will strengthen its institutional framework, expand the technical capacities of those responsible and involved in climate change adaptation planning, improve the information base needed for effective decision-making and define a resource mobilization strategy.¹⁴⁸ The priority sectors included in the NAP process are agriculture, water, health and tourism. The draft NAP is undergoing a consultation phase and is not publicly available at the date of this report.

The third BUR highlights limited specialized capacity at the national government level to implement and monitor adaptation projects. Climate vulnerability scenarios and adaptation measures are not adequately mainstreamed into policies and plans.

Commitments and scenarios

Montenegro developed three different mitigation scenarios:

1. WOM - “without measures”;
2. WEM- “with existing measures”;
3. WAM- “with additional measures” for 2022–2030.

Under the WOM scenario, the total GHG emissions from all sectors are expected to drop by 22.91 per cent in 2030 compared to 1990, with the waste sector reaching a +137 per cent in 2030 compared to 1990. Compared to the WOM scenario, total GHG emissions in 2030 would drop by 15.70 per cent and 28.69 per cent under the WEM and WAM scenarios, i.e. by 35.02 per cent and 45.03 per cent, respectively, compared to the base year 1990 (Montenegro (2021c), figures 21 and 24). The Action Plan for WEM and WAM scenarios is included in the third BUR. The most ambitious scenario (WAM) includes, in addition to the actions already constituting the WEM scenario, the following ones:

¹⁴⁵ Montenegro (2020b).

¹⁴⁶ Montenegro (2021f).

¹⁴⁷ OECD (2017).

¹⁴⁸ NAP project.

- Coal phase-out and ending of operations of TPP Pljevlja by 2035, accompanied by a timely just transition in the Pljevlja coal mining region;
- Construction of new renewable power plants;
- Increase of the number of electric cars.

The measure with the most significant potential for reduction of GHG emissions is the coal phase-out and ending of operations of TPP Pljevlja by 2035. The third BUR highlights some critical challenges for implementing the projected mitigation scenarios, such as unclear plans for further operation of metals industry plants, insufficiently ambitious NDCs and delays in developing the long-term low-carbon development strategy. In addition, there are categories not included in the GHG inventory, which undermines relevant emission projections. In the WAM mitigation scenario, the ending of operations of TPP Pljevlja is foreseen by 2035, but it is not yet confirmed. The Recommendation 6.2 (d) has not been implemented.

Nationally Determined Contributions

The updated NDC includes an economy-wide emissions reduction target of 35 per cent by 2030 compared to 1990 levels (excluding LULUCF), i.e. a reduction of 2,117 Gg CO₂eq by 2030. In 2023, Montenegro requested support from the NDC Partnership to scale up/enhance the NDC commitments from 35 per cent to 55 per cent of GHG emission reduction by 2030, develop an analysis of the just transition of households, meta, micro, small and medium-sized enterprises from carbon-intensive energy sources to renewable energy sources, and develop a resource mobilization strategy for the new 55 per cent NDC target. In 2024, the NDC is being revised, with the proposed new goal to reduce GHG emissions by 55 per cent by 2030. The document should be ready by 2025 and cover water, infrastructure, transportation, agriculture, forestry, tourism, and health.

Adaptation and mitigation measures

The third BUR identifies 25 mitigation policies and measures: 17 in the energy sector, 4 in the sector of industry and product use, 2 in the agricultural sector, and 2 in the waste sector. The NAP is under development, as are four local pilot sustainable energy and climate action plans (see Box 5.4).

Box 5.4: Sustainable energy and climate action plans

The Open Regional Fund for South-East Europe – Energy, Transport and Climate Protection is co-funded by the EU and the Federal German Ministry for Economic Cooperation and Development. The fund focuses on building regional capabilities to plan and implement decarbonisation measures in the energy, climate, and transport sectors. Since 2021, the EU has co-financed the fund for the “EU4Energy Transition: Covenant of Mayors in the Western Balkans and Türkiye” initiative. In Türkiye, the project on EU4Energy Transition project is funded by the EU and implemented by the Lithuanian Central Project Management Agency. This funding aims to support the implementation of sustainable energy and climate-action plans at the local level as part of the globally active Covenant of Mayors initiative, particularly in the Western Balkans.

GIZ started in 2023 the elaboration of local sustainable climate and energy action plans in Podgorica, Tivat, Pljevlja and Kolashin, with an additional pilot in Berane. The municipality of Tuci already has an SECAP, elaborated in the framework of the ADRIA_Alliance project, funded by IPA CBC Italy-Albania-Montenegro.

GIZ conducted several analyses on local climate conditions and elaborated a baseline GG scenario for the municipalities involved. In June 2024, those initial elaborations were not yet available.

Energy

The Action Plan for WEM/WAM scenarios includes the coal phase-out and ending of TPP Pljevlja operations, to gradually abolish coal for power generation by 2035. Once refurbished, the TPP will decrease its annual output to 50 per cent of its total installed capacity by 2030. The updated NDC and the Action Plan for WEM/WAM scenarios consider new renewable power plants as aimed at building new renewable electricity sources and foresees the following new plants:

- New G8 turbine-generator unit in HPP Perućica (additional 58.5 MW, 50 GWh)
- HPP Piva reconstruction (no additional capacity)
- WPP Gvozd (54.6 MW, 150 GWh)

- WPP Brajići (100 MW, 277 GWh)
- SPP Briska Gora (250 MW, 450 GWh)
- HPP Komarnica (172 MW, 213 GWh)
- SPP Velje Brdo (50 MW, 90 GWh)
- SPP prosumers (10 MW, 18 GWh)

There are no adaptation measures in the energy sector. Existing HPPs should be upgraded to improve their resilience to the changed climate patterns, especially to droughts. Better management of water within a basin and integrating plants with other renewables can improve resilience to droughts. Montenegro should consider diversifying its power sources by incorporating more renewable technologies — such as wind and solar — into its energy mix.

Industry and mining

The Action Plan for WAM/WEM scenarios includes a series of actions related to the industrial sector (1A1 IPCC sector), mainly related to the TPP Pljevlja and which are:

- Environmental refurbishment of TPP Pljevlja;
- Carbon pricing for TPP Pljevlja;
- District heating in Pljevlja;
- Coal phase-out and ending of operations of TPP Pljevlja by 2035, accompanied by a timely just transition in the Pljevlja coal mining region;
- Refurbishment of small hydroelectric power plants (for increased energy efficiency);
- Additional new renewable energy sources.

Mitigation measures concerning improvements at KAP were also proposed, such as electrolysis cell replacement; however, they are not appropriate anymore as KAP operations were closed in 2023.

Agriculture, fishery, apiculture

The agricultural sector is the addressee of two actions included in the Action Plan for WAM/WEM scenarios on support for organic agricultural production; and for manure management. Both actions foresee financial support from the agricultural budget earmarked to farmers involved in organic production¹⁴⁹ and registered with Monteorganica¹⁵⁰; cattle breeders for building and/or refurbishing facilities (pools) for manure storage or for purchasing specialized manure tanks to prevent negative impacts on the environment.

Concerning adaptation, in 2024 Montenegro signed an agreement with IFAD to finance the Adaptation to Climate Change and Resilience in the Montenegrin Mountain Areas Project. Activities foreseen in the project include support for small-scale farmers and rural communities in coping with climate change effects. IFAD has leveraged a \$10 million Adaptation Fund grant to finance the project, which targets 14 municipalities in the Northern mountainous areas of the country.¹⁵¹

Between 2017 and 2023, IFAD carried out a project on rural clustering and transformation in the northern region of Montenegro. A component of the project is aimed at improving smallholders' access to resilient water schemes and farm access roads that support the selected value chain.

Forestry

In the third BUR, the analysis of available mitigation strategies and actions did not cover the forestry sector and carbon sinks due to the lack of a clear strategic framework and data. No actions are envisaged to prevent and mitigate the intensity and spread of wildfires, such as reducing flammable vegetation, thinning tree canopies to prevent fires from leaping across treetops and removing dead wood and debris.

¹⁴⁹ Per hectare of farmed land or minimum number of head of cattle.

¹⁵⁰ Monteorganica is the certification body for organic producers.

¹⁵¹ Source: IFAD website

Transport

The average age of a registered vehicle in Montenegro is 16 years (with vehicles older than 20 years in the northern regions), against the average in the EU of 11 years. The National Climate Change Strategy includes measures to increase the use of public transport and promote energy-efficient and electric vehicles for public and individual transportation. The strategy also emphasizes enhancing the transport sector's resilience to predicted climate impacts due to its vulnerability and critical role in the country's economic and social development.

Tourism and leisure

There are no specific mitigation measures targeted at tourism. However, given the significant emissions produced by infrastructure and real estate in the tourism sector, there are several measures included in the Action Plan for WEM/WAM scenarios that, indirectly, would mitigate tourism's impacts. These are the following:

- Development and implementation of a building energy efficiency regulatory framework;
- Increased energy efficiency in public buildings;
- Financial incentives for citizens/households (to invest in energy efficiency);
- Energy labelling and eco-design requirements for the products that impact energy generation;
- Establishing and implementing energy efficiency criteria in public procurement procedures;
- Systematic mechanisms for the introduction of energy efficiency criteria in public procurement procedures;
- Implementing energy efficiency measures in public municipal enterprises, municipal utility companies and services;
- Reduce the share of bio-waste within municipal waste;
- Building a system for connecting to the sewerage system and wastewater treatment plants.

5.4 Legal, policy and institutional framework

Legal framework

In 2019, the Parliament of Montenegro approved the Law on the Protection against the Negative Effects of Climate Change (OG 73/19). The Law lays the groundwork for the National Monitoring, Reporting and Verification of Greenhouse Gases System and the operation of the Emissions Trading System. Additionally, this law addresses the use of ozone-depleting substances and fluorinated gases. After adopting the Law, the then Ministry of Ecology, Spatial Planning and Urbanism established a working group to draft bylaws and adopted several rulebooks¹⁵²:

- Rulebook on the manner of preparation and content of the inventory of greenhouse gas emissions (OG 55/20);
- Rulebook on the manner of determining the mandatory targets for reducing greenhouse gas emissions (OG 57/20);
- Rulebook on the detailed manner and necessary documentation for issuing a permit for import and/or export of ozone-depleting substances and alternative substances (OG 69/20);
- Rulebook on the content of the plan for monitoring the emission of greenhouse gases from a plant (OG 92/20);
- Rulebook on the plan for monitoring greenhouse gas emissions from aircraft (OG 102/20);
- Rulebook on the detailed content of labels, guides, posters, displays and promotional literature and materials on fuel consumption and carbon dioxide emissions from new passenger vehicles (OG 113/20);
- Rulebook on the form of the permit for the emission of gases with the effect of greenhouses and the manner of keeping records (OG 13/21);
- Rulebook on the form, content and manner of verification of the report on greenhouse gas emissions (OG 13/21);
- Rulebook on detailed conditions of access to the carbon dioxide transport network, procedure and criteria for acceptance of carbon dioxide flows (OG 12/21);
- Rulebook on conditions regarding personnel and equipment for a legal entity that verifies the report on greenhouse gas emissions (OG 12/21).

¹⁵² Montenegro (2021c).

The Law on Efficient Use of Energy introduces measures on energy efficiency, such as actions and activities aimed to directly achieve the improvement of energy efficiency. However, Recommendation 6.2 (c) suggested introducing a national low interest loan programme to rehabilitate buildings to improve their energy performance and to waive legal fees for the regularization of illegal housing where the occupants have introduced energy-saving equipment. This recommendation has not been implemented.

In 2020, the Government issued the Decree on activities that emit greenhouse gases for which a permit for the emission of greenhouse gases in line with the EU climate change acquis. Adopting the regulation was also one of the preconditions for negotiations under Chapter 27 – Environment and Climate Change, in the EU accession process.

Within urban areas, no legal provisions exist to maintain a certain percentage of permeable soil to contrast the urban heat island effect and flooding. Nature-based solutions are not implemented to mitigate the effects of climate change and increase resilience (see Box 5.5).

Box 5.5: Nature-based solutions

In Montenegro, there are no projects aimed at implementing nature-based solutions. A study carried out by IUCN in the framework of the ADAPT project identified several interventions in Montenegro with the potential to be nature-based solutions for climate change adaptation or disaster risk reduction or that could support the further mainstreaming of nature-based solutions (for example, by building capacities or gathering data). Some of them are:

- Projects involving restoration, conservation and/or sustainable management (e.g. protection and preservation of the water and natural resources of the Tara River);
- Capacity building projects (e.g., preserving biodiversity and sharing responsibility);
- Projects focusing on stakeholder engagement (e.g., protected areas for nature and people);
- Projects in rural and urban contexts (e.g., the Balkan Alps' eco and outdoor tourism actions and the campaign Making Cities Resilient).

Ecosystem-based adaptation and nature-based solutions could be implemented both in urban and natural areas, even as a transboundary cooperation, like for Lake Skadar basin.

Source: Popovicki (2023).

If adopted, a draft law on the protection from the negative effects of climate change and protection of the ozone layer would improve:

- Further harmonisation with EU ETS legislation:
 - Extension of the scope of the law to the sector of maritime transport and establishment of the legal base for EU ETS 2 which includes also CO₂ emissions from road transport and central heating systems (Shipment companies and fuel distributors will be also included in ETS).
- Institutional set-up of the National ETS:
 - More precise roles and responsibilities of institutions related to operation of the ETS, as well as procedures for issuing of permits, managing the system of allocation of allowances and reporting;
 - Improvement of the National GHG emissions register.
 - Definition of users of EU funds for modernization and innovation.
- Improvement of the existing MRV System through more precise procedures for institutions;
- Improvement of punitive policy.

Policy framework

The Government has included climate change in its national strategy for sustainable development (see Chapter 1). In 2015, the Government adopted the National Strategy in the Field of Climate Change by 2030. The strategy includes measures to reduce GHG emissions, a draft strategic framework for adapting to climate change, and an assessment of the costs and socio-economic impacts of implementing the proposed measures.¹⁵³ The strategy explores options for low-carbon development and aligning domestic legislation with EU legislation to support

¹⁵³ Montenegro (2021).

the European integration process. It considers institutional strengthening and governance, education and training of actors, research on climate change and technological development, and financing as means of implementation. It incorporated the Intended NDCs and outlined guidelines for developing a NAP following the UNFCCC Adaptation Framework. The Strategy identifies transport as a priority sector for climate change actions. It outlines some measures and targets explicitly related to increasing the use of public transport and the promotion of more energy-efficient vehicles and electric vehicles for public and individual transportation.

However, Montenegro has not yet adopted a long-term low greenhouse gas emission development strategy, in accordance with Article 4 of the Paris Agreement. This, together with the lack of a National Adaptation Plan, indicate that the country has not achieved the SDG indicator 13.2.1 (Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the UNFCCC) of target 13.2 (Integrate climate change measures into national policies, strategies and planning).

The Law on the Protection against the Negative Effects of Climate Change prescribes the obligation to develop a strategy for low-carbon development with an Action Plan. The strategy is planned to be developed in two stages. The first strategy framework will enable the creation of models and scenarios for further low-carbon development (funded in 2023 by the World Bank). The implementation of this activity is planned for 2025.

In cooperation with the UNDP, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development) has started the implementation of the project on strengthening the capacity of Montenegro in integrating the risks of climate change into the planning process. This project will support the development of the NAP to Climate Change and is funded by the Green Climate Fund. The project covers water, health, tourism, and agriculture, the most vulnerable sectors in terms of adaptation. The first version of the draft NAP is reported as under consultation in July 2024 but not available to the public. Recommendation 6.1 (a) of the third EPR of Montenegro is partially met because the NAP, which is still under development in 2024, targets water, health, tourism, and agriculture. However, climate change is not yet fully integrated into all sectoral policies. Moreover, sectoral plans are not coordinated with local development plans, with the result that some protected areas under a sectoral plan are considered as expansion areas for building, like in the case of the Natural Park of Danilo in Podgorica (see Box 5.6). Recommendation 6.1 (b) is not implemented. The National Energy and Climate Plan, under preparation with the support of GIZ, should support the implementation of this recommendation.

Box 5.6: Lack of coordination in the spatial planning

Local spatial plans are elaborated at the national level, with local authorities responsible for issuing construction permits according to the plans. Climate change is not mainstreamed into spatial plans, which often do not consider the provisions of sectoral plans and constraints on the same geographical boundaries (transport, nature protection, local environmental action). As a result, construction may be allowed where other sectoral plans inhibit it for specific purposes (transport corridors, natural areas preservation and so on).

For example, the natural park Danilo in Podgorica is regulated by a local environmental action plan that foresees 3 different levels of protection: in zones 1-2, construction is inhibited, while in zone 3, some activities are possible, with prior carrying out EIAs. The new spatial plan of Podgorica did not consider the provisions of the local environmental action plan and included the territory falling within zone 2 of the sectoral plan in the areas where further construction is allowed.

Horizontal and vertical coordination for spatial planning does not function in Montenegro.

GIS systems would allow planning departments and decision-makers to assess the many constraints to consider comprehensively.

In Italy, experts and the public can access geographical information through “geo-portals” at the regional level. For instance, in the Region of Tuscany, the “Geoscopio” is the web portal where all spatial, legal and planning information is consultable: www.regione.toscana.it/-/geoscopio. Users and practitioners can visualise for example, hydrological constraints, ecological networks, parks and natural reserves protected by law, archaeological sites, landscape protection sites, areas inhibited from construction.

National Energy and Climate Plans are a new framework for EU member states to plan climate and energy objectives, targets, policies and measures in an integrated manner. Montenegro is still finalizing its draft.

The 2016 National Strategy with Action Plan for Transposition Implementation and Enforcement of the EU Acquis on the Environment and Climate Change 2016–2020 contained the necessary actions to meet the EU's climate change requirements and the costs of full alignment with its environmental and climate change requirements. It defined the strategic approach of Montenegro to the EU alignment process for Chapter 27 for all sub-sectors: air quality, waste management, water quality, nature protection, industrial pollution, chemicals, noise, civil protection, and climate change.

Disaster risk reduction

Montenegro adopted the Disaster risk reduction strategy with a dynamic plan of activities for the implementation of the strategy for the period 2018–2023 in 2018. It aims to reduce and prevent new risks and strengthen the capacity of society and state institutions in response to various types of natural and other disasters. In 2024 is in the drafting phase of the national strategy revision process.

Concerning the SDG target 1.5 (By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters), Montenegro reports only on indicators 1.5.1 (Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population), 1.5.3 (Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030) and 1.5.4 (Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies). In 2018, about 1,194.3 per 100,000 were directly affected by disasters, what is an elevated value compared to the other years (SDG indicator 1.5.1, table 5.4). Montenegro had an index of 0.78 in 2018 and 0 in 2019 concerning SDG indicator 1.5.3. No data on SDG indicators 1.5.2 (Direct economic loss attributed to disasters in relation to global GDP) are available for Montenegro. Moreover, in 2018, 24 local governments had adopted and implemented local disaster risk reduction strategies in line with national disaster risk reduction strategies (SDG indicator 1.5.4). Montenegro does not monitor the SDG target 13.3 (Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning).

Table 5.4: Persons affected by disasters, 2013–2021, per 100,000

	2013	2014	2015	2016	2017	2018	2019	2020	2021
Deaths and missing persons attributed to disasters	3	0	0	0.5	0	0		0	0
Directly affected persons attributed to disasters	4.9	0	0	0.9	2.4	1 194.3		0	0

Source: Ministry of the Interior.

On SDG 11 (Make cities and human settlements inclusive, safe, resilient and sustainable), Montenegro does not report on target 11.5 (By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations) and its indicator 11.5.1 (Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population) and indicator 11.5.2 (Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions to basic services, attributed to disasters). Similarly, no data is available on target 11.b (By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels) and its indicators 11.b.1 (Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030) and 11.b.2 (Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies).

Institutional framework for climate change

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development was the body responsible for climate policy adoption, implementation and monitoring. The Climate Change Division was a focal point for the UNFCCC, GEF and Adaptation Fund. It also dealt with waste and

environmental protection. As at July 2024, there was a reshuffle and this ministry is now the Ministry of Ecology, Sustainable Development and Northern Region Development.

The main institutions involved in climate change matters are:

- EPA, which is mandated to update GHG emission inventory regularly;
- Institute of Hydrometeorology and Seismology that has competencies in meteorology, climatology, hydrology, hydrography, oceanography and seismology. It oversees the establishment, development, and work of the meteorological and hydrological observation and forecasting stations on the entire territory of Montenegro. It coordinates information and data on climate, ensuring it contributes to analysing the challenges that require adaptation action. The Institute is responsible for most of the physical climate data tracking and analysis of climate scenarios. It is the contact institution for the IPCC and the World Meteorological Organization;
- Eco-Fund, which was established in 2018 to provide funds financing environmental protection (see Chapter 3);
- Ministry of Economic Development oversees industrial policies, economic recovery programmes, and green economy development.

Coordination between institutions at national, regional and local levels on matters related to climate change

The third BUR reports that Montenegro, within the activities for the NAP, has started working on establishing a coordination system for implementing climate change adaptation measures. The National Energy and Climate Plan, for which a draft is nearly completed with the support of GIZ, aims to facilitate the implementation of essential measures to achieve strategic goals by 2030 and transition to a low-carbon economy by 2050. In 2024, there is still a lack of horizontal coordination among different entities responsible for climate change and no vertical coordination between the national and local levels.

Regulatory, economic and information measures

Montenegro has not been involved in any project supported by international market mechanisms. The Law on the Protection against the Negative Effects of Climate Change entered into force in 2019, mandating the development of a GHG inventory, a low-carbon development strategy, a national system of MRV and a national ETS covering emissions from the industrial and power sectors.

Carbon pricing is a requirement to join the EU ETS and the EU Accession. The 2020 Decree on activities that emit greenhouse gases for which a permit for the emission of greenhouse gases includes provisions for banking allowances, a minimum reserve price of €24 (\$26.08), and a linear reduction factor for the emissions cap of 1.5 per cent annually from 2020 to 2030. The inclusion thresholds are the following¹⁵⁴:

- Power plants with a capacity over 20 MW;
- Installations to produce pig iron or steel (primary or secondary fusion), including continuous casting, with a capacity exceeding 2.5 tons per hour;
- Installations to produce cement clinker in rotary kilns with a production capacity exceeding 500 tons per day or lime in rotary kilns with a production capacity exceeding 50 tons per day or in other furnaces with a production capacity exceeding 50 tons per day;
- Installations for the manufacture of glass, including glass fibre with a melting capacity exceeding 20 tons per day;
- Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tons per day and/or with a kiln capacity exceeding 4 m³ and with a setting density per kiln exceeding 300 kg/m³.

The ETS started in 2020 and applied to three plants: the Pljevlja TPP, KAP and the Tosčelik steel mill. The last two plants are closed. They received 100 per cent of their allowances for free in 2020 and 2021. Allocation was based on auctions or free allocation. In 2022, 64 per cent of all allowances were auctioned.

¹⁵⁴ International Carbon Action Partnership (no date).

Montenegro is developing an online MRV coordination platform for managing information on stakeholders, engagement activities, datasets, QA/QC activities, climate actions and vulnerabilities, impacts, more comprehensive benefits, document storage and improvements to the MRV system, and provide a management overview of the MRV system.

5.5 Assessment, conclusions and recommendations

Assessment

Montenegro is severely suffering from the impacts of climate change. Several economic sectors already affected by climate change will increasingly suffer from its effects. Adaptation measures are not yet in place for the agriculture (in particular to support local farmers and herders), water, building and energy sectors. Studies on the impacts of climate change on crops and other agricultural productions are not conducted. Increased temperatures and droughts cause extensive forest fires during heatwaves. Some invasive and alien species arrived with plants imported from other continents, are spreading due to favourable temperatures. Still, a systematic study and assessments of their impact have not yet been produced.

Changed precipitation patterns severely impact water availability for agriculture, sanitation and electricity production, being HPPs depending on water levels.

Measures to monitor health impacts from climate change, like reduced access to safe drinking water, food, and secure shelter, are not in place, nor are early warning or other health monitoring systems.

Despite the reported consistent damages caused by droughts, economic evaluation of the impacts of droughts has not yet been carried out. Climate-related hazards are exacerbated by widespread illegal and irregular construction. Especially in the coastal zones, extensive, intensive and often unsustainable development is visible. Uncontrolled expansion of human settlements increases the exposure of people and assets to the threat of floods, droughts, and earthquakes.

There is no horizontal or vertical coordination on climate change, which is not yet integrated into local planning. Climate vulnerability scenarios and adaptation measures are not adequately mainstreamed into policies and plans. Local plans are developed at the national level, with the local level not involved in inspections of their effective implementation. The lack of inspections on urban development and construction facilitates illegal or irregular constructions exceeding or modifying what is in the original permits. This situation increases vulnerability and heightens the risk of extensive damage and loss of life during extreme weather events and disasters.

No legal provisions exist to maintain a certain percentage of permeable soil to contrast the urban heat island effect and flooding. Nature-based solutions are not implemented to mitigate the effects of climate change and increase resilience within urban areas.

Furthermore, there is no coordination among sectoral plans, which hinders the sustainable development of planned areas. Local plans do not integrate the provisions and constraints arising from sectoral plans to promote an actual sustainable urban and territorial development. In general, transparency and accountability are still to be fully implemented throughout the planning process. The lack of geo-portals with information on legal and environmental constraints and planning hampers effective governance.

As at June 2024, the institutional responsibilities for climate change were overseen by a new department within the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development). However, the department was still understaffed at the date of the present report. Moreover, all entities dealing with climate change at all levels lack staff to ensure all the activities are effectively carried out. Capacity building is lacking to support the appropriate streamlining of climate change at all levels and implement and monitor adaptation projects.

Conclusions and recommendations

Adaptation measures

Montenegro is impacted by climate change. Several sectors, already affected by climate change, lack adaptation measures. Uncontrolled expansion of human settlements, especially in the coastal zone, increases the exposure of people and assets to the threat of floods, droughts and other extreme weather events. Within urban areas, no legal provisions exist to maintain a certain percentage of permeable soil to lessen the urban heat island effect and flooding. Moreover, health problems related to the negative effects of climate change are neither well known nor monitored in the country.

Recommendation 5.1:

The Government should:

- (a) *Mainstream climate vulnerability scenarios and adaptation measures into policies and plans, and improve coordination mechanisms and capacities for implementation of adaptation measures;*
- (b) *Finalize the National Adaptation Plan and promote the elaboration of local adaptation plans targeting vulnerable sectors;*
- (c) *Develop bio-meteorological forecasting, early warning and health monitoring systems for all health problems related to the potential impacts of climate change, particularly targeted towards the young, the old and people with chronic diseases;*
- (d) *Upgrade rural roads in mountainous areas to adapt to changing precipitation patterns;*
- (e) *Require that, within urban settlements, there are sufficient permeable areas to mitigate the urban heat island effect and reduce flooding risks;*
- (f) *Promote awareness-raising among main economic sectors to deal with the impacts of climate change;*
- (g) *Enhance forest management to prevent wildfires.*

Energy sector

The impact of prolonged dry periods on electricity supply contributes to increased electricity prices. Hydrological conditions in 2020 caused a 19 per cent reduction in electricity production from renewables compared to 2019. In 2022, hydroelectric power plants produced 30 per cent less than in the same period in 2021 because of a prolonged drought period. Nevertheless, the country has not finalized and adopted its integrated energy and climate plan. Although Montenegro ratified the Paris Agreement in 2017, a national long-term low-carbon development strategy has not been developed.

Recommendation 5.2:

The Government should:

- (a) *Address the impacts of droughts on electricity production;*
- (b) *Upgrade existing hydroelectric power plant (HPP) infrastructure, promote better water management within HPP basins and integrate plants with other renewables to improve resilience to drought;*
- (c) *Develop and implement an integrated national energy and climate plan;*
- (d) *Develop and implement a long-term low greenhouse gas emission development strategy.*

Climate change and spatial development

Climate vulnerability scenarios and adaptation measures are not sufficiently integrated into policies and plans. Local plans are developed at the national level, and the local level is not responsible for inspecting their effective implementation. The absence of inspections on urban development and construction leads to illegal or unauthorized construction, which involves exceeding or modifying the original permits. This situation makes areas more vulnerable and increases the risk of significant damage and loss of life during extreme weather events and disasters. Nature-based solutions are not promoted to mitigate the effects of climate change and enhance resilience.

Recommendation 5.3:

The Government should:

- (a) *Mainstream climate change considerations into urban planning;*
- (b) *Promote the implementation of nature-based solutions in urban areas to increase their climate resilience;*

- (c) *Implement geo-portals collecting information on environmental constraints, hazardous areas, disaster-prone areas, and sectoral and spatial plans to promote coordination and harmonization among different levels of planning.*

Climate change legislation

Montenegro is preparing a new law on the protection from the negative effects of climate change and protection of the ozone layer. However, the finalization and adoption of this draft law is lagging.

Recommendation 5.4:

The Government should finalize the draft law on the protection from the negative effects of climate change and protection of the ozone layer.

Climate change and biodiversity

Available national statistics and monitoring schemes do not adequately address the direct consequences of climate change on natural habitats, animal and plant communities (biocenosis), and ecosystems.

Recommendation 5.5:

The Government should enhance the management of data and information on natural habitats, animal and plant communities and ecosystems related to the direct consequences of climate change.

Part II: Management of environmental components and pollution

Chapter 6

Air protection

6.1 Introduction

Air quality remains as a major environmental challenge in Montenegro, in particular when it comes to particulates levels in urban areas and particulates and SO₂ in the northern zone. The recent analysis by UNEP suggests that the city of Pljevlja in Montenegro has highest mortality rate in the West Balkan region due a poor air quality, with approximately 310 deaths per 100,000 people and shortening life in average by 13 months.¹⁵⁵ While Montenegro has made good progress in establishing extensive legislative framework on air pollution, the 2021 World Health Organization (WHO) Air Quality Guideline levels of air quality are not met. A priority sector for action is the residential heating sector, which similarly to other Western Balkan countries, is the dominant source of particulate emission during the heating season.

6.2 Air quality monitoring system

Since 2009, air quality in Montenegro has been monitored following the European standards. Over the years the number of automatic air quality monitoring stations and parameters monitored have been gradually increased. Based on available information, a reasonable level of representativeness of the measuring points has been achieved, yet there are frequent requests to expand the network. Real-time and historical air quality data are available on the website of the EPA since 2014. The Agency regularly publishes monthly reports on the state of air quality and annual reports of the state of the environment, which include an analysis of the air quality data. The air quality data of Montenegro are also reported to European Environment Agency.

As for the areal distribution, Montenegro is divided into three zones for air quality assessment and air quality management, namely the northern, central and southern zones. The zones are significantly different from one another, both in terms of population size and density and of pollution sources. The southern zone is the coastal area, with smaller towns and fewer point sources. The central zone contains the capital Podgorica and other bigger towns and has a higher population density and more point sources of pollution, out of which many have ceased activity during the recent year. The northern zone is not as densely populated, but it hosts the Pljevlja coal-fired TPP, which is the dominant source of most of the main pollutants in Montenegro.

The national monitoring network has in total nine monitoring stations out of which two are in the capital, Podgorica. In 2021, Podgorica also had four indicative measurement stations in addition to the national monitoring network, which gave additional information about impacts of space heating and traffic to the air quality. Based on the review of the monitoring results, the monitoring stations suffer occasionally from malfunctions, and they do not monitor all pollutants. The calibration of the instruments is done outside of Montenegro, which adds to further downtime of the monitoring network. The monitoring system has been updated in an EU funded project, which was considered to be successful.¹⁵⁶

The Institute of Hydrometeorology and Seismology operates the EMEP air quality monitoring station at Velimlje to determine the effects of transboundary air pollution and 16 additional older monitoring stations. The EMEP station was also established as part of an EU funded project, but, for this station, it was not fully successful.¹⁵⁷ The EMEP station is currently providing only indicative results due to lack of equipment. Also, the laboratory of Institute of Hydrometeorology and Seismology does not have an accreditation for EMEP measurements. Out of the 16 older stations, the majority is suffering from malfunctions of the smoke and SO₂ measurements. The equipment is not upgraded and does not have accreditation for the laboratory. The total list of 10 monitoring stations and measured parameters is presented in table 6.1.

¹⁵⁵ UNEP (2021).

¹⁵⁶ EU (2021).

¹⁵⁷ Ibid.

Table 6.1: Monitoring stations and measured parameters

Name	Type	Monitored pollutants
Pljevlja 2-Gagovića imanje	Urban background	NO, NO ₂ , NO _x , SO ₂ , CO, PM _{2.5} , PM ₁₀ (Pb, As, Cd, Ni and BaP in PM ₁₀)
Gradina	Rural background	NO, NO ₂ , NO _x , SO ₂ , O ₃ , CH ₄ , THC i Hg
Bijelo Polje	Urban background	NO, NO ₂ , NO _x , CO, PM _{2.5} , PM ₁₀ , (Pb, As, Cd, Ni and BaP in PM ₁₀)
Podgorica 2	Urban background	SO ₂ , PM _{2.5} , PM ₁₀ , (Pb, As, Cd, Ni and BaP in PM ₁₀)
Podgorica 3	Urban traffic	NO, NO ₂ , NO _x , CO, C ₆ H ₆ , PM ₁₀ , (Pb, As, Cd, Ni and BaP in PM ₁₀)
Podgorica 4-Gornje Mrke	Rural background	NO, NO ₂ , NO _x , O ₃ , CH ₄ and THC
Nikšić 2	Urban background	NO, NO ₂ , NO _x , CO, O ₃ , SO ₂ , PM _{2.5} , PM ₁₀ (Pb, As, Cd, Ni and BaP in PM ₁₀)
Bar 3	Urban background	NO, NO ₂ , NO _x , PM _{2.5} , PM ₁₀ (Pb, As, Cd, Ni and BaP in PM ₁₀)
Kotor	Urban traffic	NO, NO ₂ , NO _x , CO, SO ₂ , C ₆ H ₆ , PM ₁₀ , (Pb, As, Cd, Ni and BaP in PM ₁₀)
Velimlje	EMEP, transboundary emissions	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , O ₃ , CO

Note: BaP: benzo[α]pyrene.

6.3 Air quality in Montenegro

Overview

Air quality monitoring data show air quality standard exceedances in the air quality of the Northern zone during winter months, as it is the heating season. Despite the slight improvement in air quality in the Pljevlja basin in terms of SO₂ and PM_{2.5} in 2021 compared to the previous years, air quality data still indicate significant pollution of the ground layer of the atmosphere for a period of almost seven months (January–April / October–December). Air quality is similar in other parts of the Northern zone. The worst air quality level was recorded in the period of January–March and the end of October–December, which overlaps with the period when individual and collective fireplaces are most actively used, that is, with the period of the heating season.

In 2021 compared to 2020, the air quality of the Central zone was better. However, this improvement was not sufficient, because the number of days with exceedances of the average daily concentration of PM₁₀ in the air was still significantly higher than the air quality standard (at the measuring station Podgorica, Zabjelo roundabout, the number of days with exceedances is 2 times higher than the threshold). In 2021, measured concentrations of SO₂, PM₁₀ and PM_{2.5} in the air quality of Southern zone were below annual limit values. The air quality in the southern zone is within the established standards because of favourable meteorological conditions in the coastal area and limited sources of pollution.

SO₂

SO₂ concentrations exceeded the standards only in Pljevlja. The hourly limit value was breached on 48 occasions in 2020, twice what is allowed, and the daily limit value was breached 14 times compared to the 3 times that are allowed. The only other monitoring station that registered breaches of the limit values, although not more than allowed, was at the nearby station in Gradina which is also influenced by the pollution in Pljevlja coal-fired TPP and other sources.

NO_x

NO_x concentrations were the highest at one of the stations in Podgorica, although the hourly value was exceeded only three times, which is within the established standards. The annual values were not breached at any of the monitoring stations.

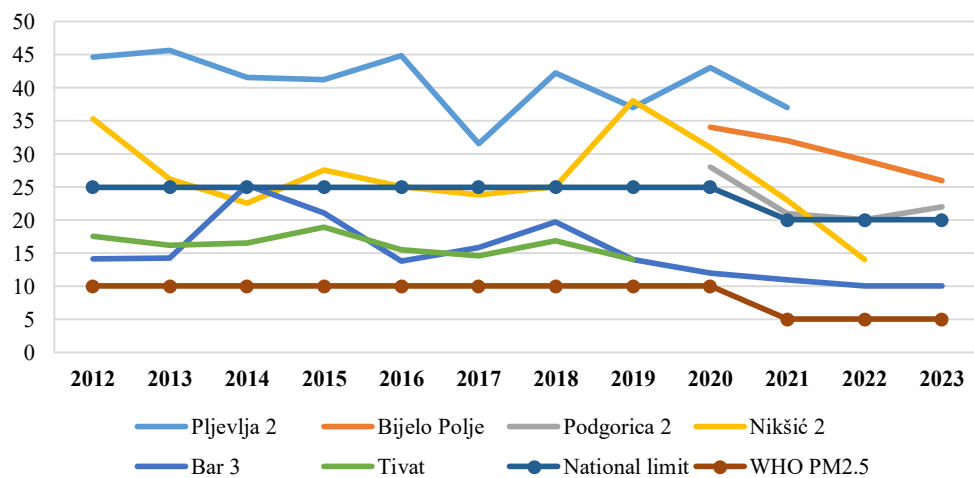
PM₁₀

PM₁₀ standards were exceeded at five of the seven monitoring stations that measured this pollutant. The most breaches of the daily limit value were observed at the station in Bijelo Polje – 112 days. According to the Task force on techno-economic issue (TFTEI), Pljevlja had the highest annual average concentration with 58 µg/m³.¹⁵⁸

PM_{2.5}

During the period 2012–2023, PM_{2.5} concentrations were measured at six monitoring stations. The active stations have changed slightly over the years. The measured levels have been highest at the northern region, while the coastal region has generally lower levels. Majority of the stations have measured annual averages over the currently applicable national limit value of 20 µg/m³, as of 2020, 25 µg/m³ prior to that. During the period, the highest annual averages have been measured at the municipality of Pljevlja up to 46 µg/m³ in 2013 and the levels have been only slightly lower after that. The measured annual averages are shown in Figure 6.1.

Figure 6.1: PM_{2.5} annual averages, 2012–2023, µg/m³



Source: Environmental Protection Agency, 2024.

While the legislation does not provide limit value for benzo[*a*]pyrene, measurements have been conducted based on the target value (1 ng/m³). For example, in the municipality of Nikšić, the annual average in 2016 was 7.4 ng/m³ and all other years the annual average has been well above the target value indicating the effects of poor combustion of the individual space heaters during the heating season.

Real-time and historical air quality data are available on the website of the EPA. The Agency regularly publishes monthly reports on the state of air quality and annual reports of the state of the environment which include an analysis of the air quality data.

As for the SDG target 11.6 (By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management) and related indicator 11.6.2 (Annual mean levels of fine particulate matter (e.g. PM_{2.5} and PM₁₀) in cities (population weighted)), there has been only moderate reduction of the annual mean levels during the period of 2013–2019 (see Figure 6.2).

6.4 Emission levels

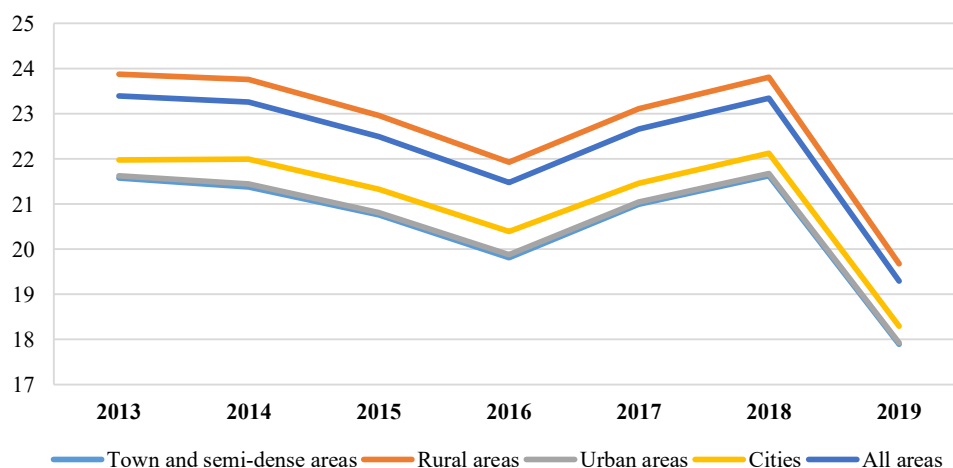
SO₂

The total SO₂ emissions for the period 2010–2022 have been illustrated in Figure 6.3. During that period, the main source of emissions has been the Pljevlja coal-fired TPP. Other emission sources, most notably residential

¹⁵⁸ TFTEI (2023).

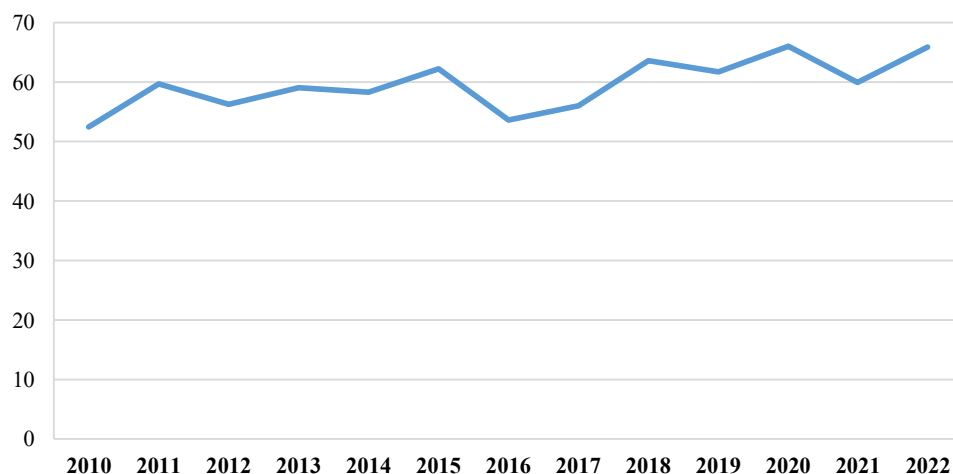
use of coal for heating and small heating boilers without SO₂ abatement, are insignificant. However, they have a major impact on local air quality, especially in the municipality of Pljevlja.

Figure 6.2: Annual mean levels of fine particulate matter (population-weighted), by location, 2013–2019, $\mu\text{g}/\text{m}^3$



Source: WHO, 2024.

Figure 6.3: SO_x (as SO₂) emissions, 2010–2022, kt



Source: Annual Emission Inventory submission (2024).

Particulates

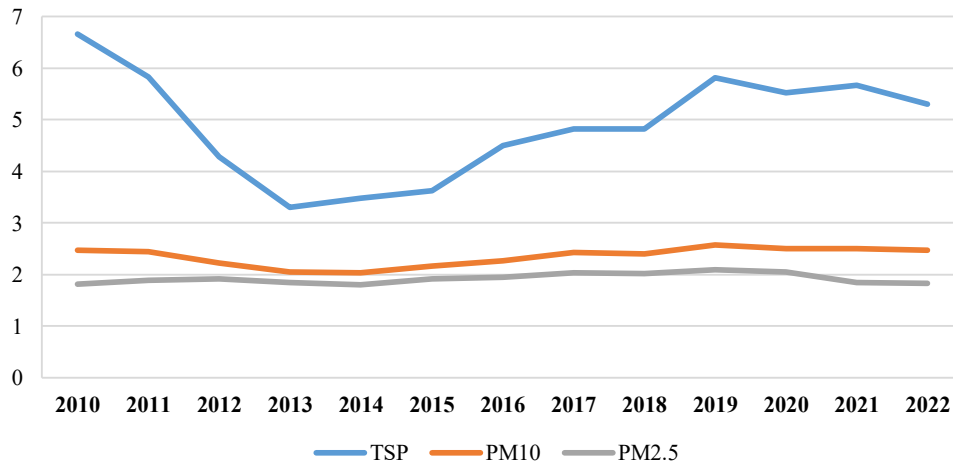
The total particulate emissions (TSP, PM₁₀ and PM_{2.5}) for the period 2010–2022 have been illustrated in the Figure 6.4. The dominant category of particulate emissions is residential heating, which is the main reason for high measured particulate concentrations in ambient air. Other sources are less significant in quantity. However, other sources, such as road transport in heavily trafficked areas, have significant impact on local air quality. Emissions of road transport have been steadily rising. Also, there seems to be major inconsistencies in the reported emissions of TSP.

NO_x

The total NO_x emissions for the period 2010–2022 have been illustrated in Figure 6.5. The most notable source of NO_x emissions is road transport and the emissions in this category have been steadily rising, which is the main

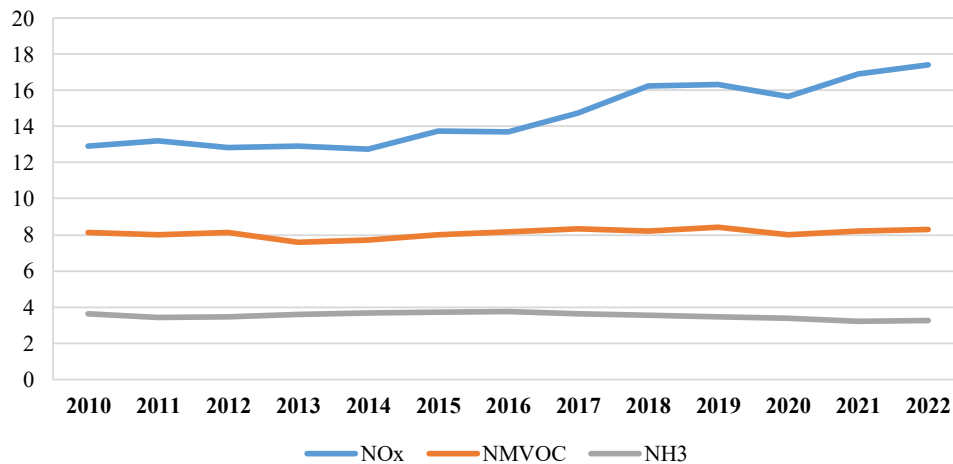
reason for the increasing trend of emissions. The Pljevlja coal-fired TPP is another major source of NO_x emissions with approximated one third share of the total emissions. Other emissions are much smaller as compared to these two sources.

Figure 6.4: Particulate emissions, 2010–2022, kt



Source: Annual Emission Inventory submission (2024).

Figure 6.5: NO_x, NMVOC and NH₃ emissions 2010–2022, kt



Source: Annual Emission Inventory submission (2024)

Ammonia

The total ammonia emissions for the period 2010–2022 have been illustrated in Figure 7.5. The most notable sector of ammonia emission is agriculture and other sources are minor. The emissions of the agriculture sector depend mainly on the level of activity and emissions have a stable level.

VOCs

The total VOC emissions for the period 2010–2022 have been illustrated in Figure 7.5. According to emission inventory, approximatively 40 per cent of the emissions originate from the residential heating sector, while road transport and coal mining are other major sources. Lesser contribution to the emission come from solvent use, agriculture and industrial sources.

POPs and heavy metals

Montenegro has also reported the sources of POPs or heavy metals. However, uncontrolled emission sources, most notably residential heating and also landfill fires or forest/wildfires can release significant emissions of POPs and this has been demonstrated in measurements of benzo[α]pyrene in urban areas.

Emission inventories

Air pollutant emission inventories in Montenegro were developed and submitted for the period 2010–2013 with the help of Italian Ministry of Environment. For seven years, no national emission inventory was developed, until the year 2020, when emission inventories were developed and submitted with the support of the Austrian Environment Agency.¹⁵⁹ No major inventory developments have been conducted after the project, nevertheless, Montenegro has submitted annual emission inventories for all the following years, the latest in March 2024 covering the years up to 2022. Improved emission inventories would be essential to demonstrate the results of emission reduction measures and set Emission Reduction Commitments in line with the EU legislation and international agreements (original/amended Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol)).

6.5 Pressures on air quality

Energy

The energy sector is the dominant source of main pollutants due to the Pljevlja coal-fired TPP and the residential heating sector. The coal-fired TPP is currently in the renovation process, where a flue gas desulfurization unit and a non-catalytic reduction NO_x system are being installed, and a particulate filter is being upgraded. Renovation process is expected to be finalised during 2025. As a part of the project, a district heating connection is established to the city of Pljevlja, which will allow decommissioning of several smaller unabated coal-fired heating boilers, which would make positive air quality improvements in the city of Pljevlja. The renovation will result in a reduction of national SO₂ emissions and to certain extent also NO_x and particulate emissions.

Housing

The most significant pressure to air quality in Montenegro is emissions of pollutants from residential heating. Majority of households (60–70 per cent) use solid fuels (mostly firewood, but also coal) for heating purposes. Based on the available information, Montenegro has had several programmes and projects in order to improve the energy efficiency of the housing and reduce the emission of space heaters, including subsidies and loans. However, the scale and uptake of these activities has not been sufficient, and the emissions of solid fuel fired individual space heaters remain a major pressure for air quality during the heating season. Coal is still used to some extent, even if has been declining, as a fuel for residential space heaters.

Industry

Currently, in the end of the evaluation period, the contribution of industry to air pollution is relatively small for all pollutants due to the application of integrated permits and seizure of industrial activities during the period of 2010–2023. Previously, the metal industries resulted in high environmental pressures in both the municipalities of Podgorica and Nikšić, but the continuation of these activities is unknown.

Transport

The transport sector is a key source of emissions in particular in urban areas. The emission trends of the transport sector are increasing due to increased activity. The new vehicles imported into Montenegro should comply with the minimum standard EURO 6 and EURO VI and meet relevant requirements in relation to the limit values of exhaust emissions. Second-hand vehicles that are imported into Montenegro should comply with the minimum of EURO 4 and EURO IV standard and meet relevant requirements in relation to the limit values of exhaust

¹⁵⁹ TFTEI (2023).

emissions.¹⁶⁰ Based on information received during the interviews, the import of second-hand vehicles of EURO 4 and EURO IV standards will be banned as of June 2024.

Diverse sources

Based on the available information, the forest wildfires contribute to the emissions. Additionally fires at illegal landfill sites have been a major source of pollution locally. As an example, in Nikšić Municipality, an illegal landfill site burned for 45 days consecutively in 2020 and the situation was similar in 2021.¹⁶¹ Such episodes deteriorate the local air quality not only due to particulates, but also toxic substances. There could be up to 300 illegal landfill sites (see Chapter 9) in Montenegro and fires from these activities contribute to poor air quality throughout the country. Also, illegal burning of used tyres was mentioned as a source of local air pollution.

6.6 Legal, policy and institutional framework

During the period of 2010–2023, Montenegro has made efforts to update the legislation on air pollution and air quality. Most of the legislation is transposing relevant EU legislation and the gaps remain only in few areas. Most notably Montenegro has not transposed the National Emission Ceilings Directive.

Air quality legislation

Montenegro has transposed the currently valid EU legislation concerning Air Quality Directive through the 2010 Law on Air Protection and through accompanying secondary legislation 2012–2018 and rulebooks established in 2012–2016. The legislation is based on the EU Directives 2008/50/EC on ambient air quality and cleaner air for Europe and 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. The law on air quality also establishes the measures to alert the public in case there are exceedances of the SO₂ alert threshold. The EPA is responsible for informing the public and in practice this is done by uploading public announcements on the Agency's website and informing via all electronic and print media.¹⁶² The EU legislation on air quality has been revised during 2022–2024, pending publication in the EU official journal and then Montenegro would need to transpose the revised EU legislation on air quality, most notably including lower particulate limit values and binding limit values of benzo[*a*]pyrene.

Air emission legislation

As for the emissions, Montenegro has transposed the Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) in 2019 in the Law on Industrial Emissions. As part of the law, minimum requirements for large combustion plants (only one in Montenegro) and activities using solvents were also adopted in regulations, as well as requirements for integrated permits for industrial activities and emission limit values based on the best available techniques. Under the Law on Industrial Emissions and its predecessor, several rulebooks have also been provided between the years 2013–2021. Similarly to the Air Quality legislation, the EU has also revised the Industrial Emission Directive, pending publication in the official journal of the EU. The requirements of the large combustion plants have also been made binding under the Energy Community treaty for Montenegro in the decision of the Ministerial Council of the Energy Community No. 2016/19 / MC-ENC, under which is required that the coal-fired TPP would need to cease activity by the end of 2023 or alternatively apply the emission limit values of the new coal-fired TPPs after this deadline.

Montenegro has also transposed the Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants in the Law on Industrial Emissions. Yet, there are only a handful of medium combustion plants in Montenegro, as the country does not have district heating plants and industrial boilers are limited in number. As for the individual space heating appliances Montenegro has transposed EU regulation on Ecodesign requirements for space heaters in 2019. The approach for these regulations remains voluntary and is not enforced.

¹⁶⁰ TFTEI (2023).

¹⁶¹ BalkanInsight (2022).

¹⁶² EPA (2017).

The regulation on limit values of the content of polluting substances in liquid fuels of petroleum origin from 2017 prescribes a reduced sulfur content in diesel fuel, fuel oil and marine fuels. The regulation on technical conditions for air protection from emissions of volatile organic compounds resulting from the storage, transfer and distribution of petrol prescribes technical environmental protection standards for gasoline storage and transfer devices at terminals and gas stations, as well as for tankers used to transport gasoline from one terminal to another or from a terminal to a gas station, and the deadlines for achieving them. These regulations transpose the current EU legislation on fuel quality and oil product distribution lifecycle.

International agreements

The Convention on Long-range Transboundary Air Pollution was taken over by Montenegro by means of succession with the date of effect of 23 October 2006. Montenegro acceded to the EMEP Protocol on 23 October 2006, to the original Protocol on Heavy Metals on 30 December 2011 and to the original Protocol on Persistent Organic Pollutants on 9 February 2012. In 2011, Montenegro established a Law on the approval of the original Gothenburg Protocol of 1999, however, emission reduction commitments were not established within it and the issue has been pending ever since.¹⁶³ There has not been progress in ratifying the amended Gothenburg Protocol on Heavy Metals or the amended Protocol on Persistent Organic Pollutants. As for the barriers for ratification, the main issue seems to be issues with emission inventory data and lack of political will to commit to ambitious emission reduction targets under the amended Gothenburg Protocol.

Policy framework

The Law on Air Protection foresees the preparation of a National Strategy for Air Quality Management, as well as air quality plans and short-term action plans for the municipalities that have recorded exceedances of the limit values. The first National Strategy for Air Quality Management with Action Plan was adopted in 2013 and was valid until 2016. It focused more on the necessary legislative changes, increasing the capacities of the EPA and following the implementation of other sectoral strategies that have an impact on air quality. The only major planned investment was the reconstruction of the Pljevlja coal-fired TPP, which did not happen at that time. This Strategy was followed by an Action Plan for its further implementation for the period from 2017 to 2020.

Air quality plans were prepared for Pljevlja in 2013, Nikšić in 2014 and Podgorica in 2015. Most of the content of these plans is at general level and in 2024, the content of the plans is partly outdated. The municipality of Pljevlja has also prepared a short-term action plan for SO₂ emission reductions during episodes, which contain more detailed actions to be taken to reduce the emission levels and timelines for the actions. Other municipalities where exceedance of limit values have happened, have not prepared action plans. The update of the existing municipal plans is pending adoption of the draft National Strategy for Air Quality Management for 2021–2029. Municipalities together with the ministry responsible for environment can only start updating the plans after the new national strategy is adopted, so currently the implementation of further actions has been on hold for more than five years.

The draft National Strategy for Air Quality Management for 2021–2029 has been prepared already in 2019. It again contains the reconstruction of the Pljevlja coal-fired TPP as the major investment (which is currently ongoing, to be finalised by 2025), as well as some other measures aimed at household heating and traffic. The draft strategy does not contain clear implementing and financing mechanisms to bring significant improvements to the air quality in Montenegro.¹⁶⁴ As of 2024, the draft strategy still waits to be adopted and has become partly outdated during the years. The main reason for the delay has been the lack of political will. Content wise it is expected that the strategy builds on the National Energy and Climate Plan and waits for it to be adopted.

Institutional framework

The institutional framework presented here is the one in place at the time of the review mission at the end of April 2024. With a new ministerial reshuffle in July 2024, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development was split into the Ministry of Ecology, Sustainable

¹⁶³ TFTEI (2023).

¹⁶⁴ CEE Bankwatch Network (2022).

Development and Northern Region Development, and the Ministry of Tourism. Also, the Ministry of Energy and Mining was split into the Ministry of Energy and the Ministry of Mines, Oil and Gas.

As at June 2024, air pollution legislation were under the responsibility of the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development). The development of the key emission trends depends also on the decisions made by the then Ministry of Energy and Mining (now Ministry of Energy), the Ministry of Agriculture, Forestry and Water Management and the Ministry of Transport and Maritime Affairs. The Ministry of the Interior, Department for Emergency, is responsible for measures to prevent and tackle the forest and wildfires.

As at June 2024, under the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development, there were two agencies responsible for the air pollution matters: the EPA and the Institute of Hydrometeorology and Seismology. The inspection at the national level is the responsibility of a separate Administration for Inspection Affairs under the Ministry of Public Administration, with a separate unit for environmental inspections (see Chapter 2). Out of the state level authorities, the EPA has been assigned the most responsibilities including permitting of the industrial installations, national air quality monitoring and development of the emission inventories. In practice, the national air quality monitoring is operated via public tenders of the annual monitoring programme and CETI, which has the necessary analytical capacity to perform the duties, has been carrying out the monitoring during the past years.

The Administration of Inspection Affairs has in total eight staff for the environmental inspections, covering all sectors and activities at the national level. As there are a limited number of industrial and energy installations causing air pollution in Montenegro, the number of inspectors seems sufficient, when analysed solely from the air pollution viewpoint. Inspection activities are carried out based on the inspection plan. As an example, an inspector visits the Pljevlja coal-fired TPP monthly. The inspection authority is not involved in the permitting process, so it is unclear how knowledge gained via inspections is used in permitting. Furthermore, the Institute for Public Health is in charge of providing health advice to citizens during episodes of high level of pollutants in the ambient air.

The municipal level is also a local authority for air quality related matters. Air quality related issues are being dealt together with other environment issues at the municipal level and there are resource concerns. As for the residential heating, the municipal authority would in principle have a possibility to ban the use of most polluting fuels in heating, but there is no information on the use of such measure. Also, there seems to be certain areas where the division of responsibilities is unclear between the state and municipal level authorities, such as in the case of the illegal dump site of Nikšić.¹⁶⁵

Regulatory, economic, fiscal and information measures

As for fiscal measures, Montenegro has had air pollution charges in place for a long-time. The level of charges remains low and the charges do not efficiently encourage reduction of pollution. There has been proposals to increase the level of charges, but so far this has not happened. The pollution charges are analysed in more detail in Chapter 3.

As of information measures, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development) had produced information material on good combustion practices in residential heating, but this had not been actively disseminated.

6.7 Assessment, conclusions and recommendations

Assessment

The air quality monitoring network of Montenegro has been updated over the years and is currently meeting the requirements of the EU standards. However, the EU is currently revising the EU legislation and these changes

¹⁶⁵ BalkanInsight (2022).

would eventually need to be considered. Although the most important pollution source is the residential heating, the existing network is not extended to some urban areas currently not in the annual monitoring programme. Also, the use of resources and monitoring data is not optimized due to limited cooperation between two institutions, the EPA and the Institute of Hydrometeorology and Seismology, responsible for monitoring.

Based on the results of the air quality monitoring, the major challenges to be tackled in the future are the very high levels of PM₁₀, PM_{2.5} and other substances including benzo[α]pyrene released from residential heating during the heating season. Also, in the northern region, very high levels of SO₂ have been measured. Looking at the PM_{2.5}, the measured levels exceed the current limit value of 20 $\mu\text{g}/\text{m}^3$ as annual average at stations of the central and northern region. All stations exceed considerably the 2021 WHO Air Quality Guidelines (5 $\mu\text{g}/\text{m}^3$ as annual average) and also the annual average values of the revised EU air quality limit values (10 $\mu\text{g}/\text{m}^3$ as annual average applicable from 2030), nevertheless, Montenegro did not take any steps to reach these levels. The same applies, to a certain extent, to other measured pollutants, but distance to guideline levels is highest for the PM_{2.5}.

As for the pollution sources, the renovation of the Pljevlja coal-fired TPP is expected to eventually lead to a significant reduction of pollutants at a national level. The transport sector has currently a rising emission trend for most pollutants but applying more stringent standards for new and existing vehicles will probably eventually turn down the trend. The requirements for the imported new and existing vehicles are not stringent and the uptake of electric vehicles in the future is also limited. Industrial sources and other sources in the energy sector are limited in Montenegro and are covered by the permits based on best available techniques. However, the national legislation is not complemented with requirements concerning minimum stack heights and flow gas velocity requirements in order to minimise the air quality impacts, as based on the available information, some local pollution sources have low stacks and adequate flue gas velocities.

Finally, the main pollution source to cause high levels of air pollution, residential heating, is currently lacking effective measures to reduce pollution. Further uptake of the relevant EU legislation, such as the National Emission Ceilings Directive, does not provide efficient tools to tackle the emissions of this sector at a local level, as it only provides national ceilings for emissions. Therefore, measures to reduce the pollution from this sector are not adopted in national and local air quality strategies/plans.

Over the years, Montenegro has adopted an extensive legislation on air pollution, based largely on EU legislation. However, the major problem is the lack on implementation and enforcement of the air pollution legislation. On the policy side there has been major delay in adopting the draft National Strategy for Air Quality Management for 2021–2029. This delay has caused subsequent delay in municipal air quality plans. Thus, there has not been any development on the policy side for more than five years and many parts of the old plans are outdated.

Conclusions and recommendations

Strengthening the air quality monitoring system

Since 2009, air quality in Montenegro has been monitored following EU standards and the numbers of automatic air quality monitoring stations and parameters monitored have been gradually increased. The national monitoring network comprises nine monitoring stations. However, the monitoring stations suffer occasionally from malfunctions, and they do not monitor all pollutants. The calibration of the instruments is done outside of Montenegro, which further adds to the downtime of the monitoring network. Two institutions are responsible for air monitoring: the EPA and the Institute of Hydrometeorology and Seismology. Moreover, the laboratory of the Institute of Hydrometeorology and Seismology is not accredited for EMEP measurements.

Recommendation 6.1:

The Government should:

- (a) *Continue improving the state air quality monitoring network to reduce the downtime of the measurement stations and consider expanding the network in urban areas;*
- (b) *Invest in replacement analysers to be used during the malfunction of analysers and the periods when analysers are being calibrated;*
- (c) *Consider the use of air quality modelling to complement the national air quality measurement network, if additional measurements are not feasible.*

Strengthening air quality management

Based on the analysis presented above, poor air quality remains a major challenge in Montenegro to be tackled during the coming decades to meet the health-based guideline values published by the WHO in 2021. The priority sector for further action is residential heating.

Recommendation 6.2:

The Government, in cooperation with relevant agencies and municipalities, should adopt an ambitious national strategy for air quality without further delay, including updated municipal air quality plans.

Air emissions management and inventories

Air pollutant emission inventories in Montenegro were developed and submitted for the period 2010–2013. For the following seven years, no national emission inventory was developed. The 2020 emission inventories were developed and submitted with the support of the Austrian Environment Agency. No major inventory developments have been conducted after that project. Nevertheless, Montenegro has submitted annual emission inventories for all the following years, with the latest in March 2024 covering the years up to 2022. Improved emission inventories would be essential to demonstrate the results of emission reduction measures and set Emission Reduction Commitments in line with the EU legislation and international agreements.

Recommendation 6.3:

The Government, in cooperation with relevant agencies and municipalities, should:

- (a) *Invest in in-house capacity building in emission inventories in order to improve air quality, develop future projections of emissions, and eventually recalculate the entire time series of historical emissions;*
- (b) *Ensure that all anthropogenic air emission sources are adequately covered by the legislation and implementation measures, and have a clearly defined competent authority;*
- (c) *Increase the resources of state and municipal level environmental authorities dealing with emission inventories;*
- (d) *Ensure implementation of best available techniques for all new and existing installations.*

Recommendation 6.4:

The Ministry of Ecology, Sustainable Development and Northern Region Development should complete the national transposition of the National Emission Ceilings Directive, including making ambitious emission reduction commitments.

Long-term strategy for zero pollution in residential heating sector with particular focus on urban areas

Residential heating is the main source of high levels of air pollution, but currently there is a lack of effective measures to reduce pollution. Measures to reduce the pollution from this sector are not in place in national and local air quality strategies or plans.

Recommendation 6.5:

The Government together with municipalities should:

- (a) *Promote, via economic instruments where relevant, zero emission alternatives for residential heating, such as heat pumps, district heating and electric radiators;*
- (b) *Consider setting a zero emission requirement for new buildings in spatial planning;*
- (c) *Promote, via economic instruments where relevant, energy efficiency measures in residential housing to reduce the demand for heating;*
- (d) *Consider establishing a ban on coal and waste fuels for residential heating, starting with public buildings, and support it with effective implementation;*
- (e) *Establish a national quality standard for wood fuels and pellets in order to ensure that only high-quality fuels are used in residential heating and actively promote the quality criteria;*
- (f) *Promote installation of new space heaters that meet the applicable eco-design requirements.*

Chapter 7

Water management

7.1 Water resources

Regarding precipitation, Montenegro can be divided into two distinct zones. The Mediterranean zone experiences maximum precipitation in November and December, with a very dry season in July and August. In contrast, the temperate-continental zone sees more frequent rainfall in the second half of the summer, especially during October. Annual precipitation ranges from 800 mm in the north to up to 5,000 mm in the southwest, making Montenegro a country rich in precipitation. However, due to the extensive karst region in western Montenegro, the country also faces seasonal water shortages, particularly during periods of minimal rainfall and high consumption in the warmer months.

The apparent climate change is leading to shifts in precipitation patterns, with a noticeable increase in the intensity of daily rainfall in the northern and central regions of Montenegro. Additionally, there is a rising trend in low water levels in surface waters.

Groundwater

Although Montenegro experiences a significant amount of precipitation, the karstic region in the south and western parts of Montenegro can lead to water scarcity. The Dinaric karst, a widespread geological system covering parts of Albania, Bosnia and Herzegovina, Croatia, Montenegro and Slovenia, with its sinkholes and scarps, creates a resource paradox in Montenegro. This paradox is characterized by high precipitation throughout the year but minimal surface runoff as water quickly infiltrates underground. Some water resurfaces in karst springs, which are utilized for public water supply, while the majority flows towards the Adriatic Sea. The utilization of karstic springs poses a vulnerability to the water supply, as prolonged periods of drought can rapidly deplete spring water.

Additionally, the 2017 Water Management Strategy¹⁶⁶ mentions that prolonged droughts have disturbed the equilibrium between saltwater and freshwater in the past, resulting in the salinization of freshwater springs. This phenomenon is observed in karst springs such as Škurda, integrated into the water supply system of Kotor; Spilje, integrated into the water supply system of Risan; and Plavda, integrated into the water supply system of Tivat.

On the other hand, over 60 per cent of Montenegro's area consists of carbonate rocks, forming the basis for significant underground water reserves of good quality. In recent years, a surface and groundwater monitoring programme has been implemented to protect the Montenegrin water sources. This monitoring includes assessing the chemical and ecological status of surface waters and monitoring the chemical and quantitative status of groundwater.

Surface water

Montenegro is divided into the Danube and the Adriatic basins, each covering nearly half of the country's total area, at approximately 52.5 per cent and 47.5 per cent, respectively. In the Danube basin, rivers such as Čehotina, Ibar, Lim, Piva and Tara rivers flow towards the Black Sea. Conversely, the most significant rivers in the Adriatic basin include Cijevna, Morača and Zeta rivers, which converge into Lake Skadar before flowing into the Adriatic Sea via the Bojana River. Due to the continental karst in the central-western part of Montenegro, there are no major rivers present in either basin.

Lake Skadar is the largest lake in the Balkans. Approximately three-fifths of Lake Skadar belong to Montenegro, with the remaining portion situated in Albania.

¹⁶⁶ Ministry of Agriculture and Rural Development (2013).

With regard to SDG indicator 6.6.1 (Change in the extent of water-related ecosystems over time) of SDG target 6.6 (By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes), according to the Global Surface Water Explorer extraction conducted for UNEP, from 2013 to 2022, the lakes and rivers permanent water area increased from 7.69 per cent to 8.70 per cent, the lakes and rivers seasonal water area from 13.69 per cent to 24.23 per cent, the reservoir minimum water area from 11.82 per cent to 12.72 per cent.

Ambient water quality

In line with the target 6.3 (By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally), the Institute of Hydrometeorology and Seismology indicates that the proportion of bodies of water with good ambient water quality decreased from 94.12 per cent in 2017 to 88.10 in 2020 (SDG indicator 6.3.2). In the same period, the proportion of open water bodies with good ambient water quality decreased from 100 per cent to 90.91, the proportion of river water bodies with good ambient water quality decreased from 100 per cent to 86.67 per cent while the proportion of groundwater bodies with good ambient water quality reached 100 per cent in 2020.

7.2 Drinking water quality

To ensure an enduring safe drinking water quality in Montenegro as in many other countries, the springs and wells used to supply water for the population have to have sanitary protection zones. These protection zones are separated into three different types, (I) the immediate zone of strict protection regime, (II) the narrower protection zone of no limited protection regime, and (III) the wider protection and surveillance zone. Though the different zones for protections are defined in the Law on Water, according to data from the year 2017, just about 40 per cent of the water suppliers have appropriate sanitary protection zones for all of their sources. Recent estimates indicate that about 40–60 per cent of water sources in Montenegro have sanitary protection zones, though verification of these numbers has not been possible. The Institute of Public Health reports that many sanitary protection zones are missing but that most water intakes have established immediate protection zones (Zone I).

Drinking water quality is monitored through basic and periodic tests. Basic monitoring collects data on sensory, physical, chemical and microbiological parameters of water compliance, and the effectiveness of water treatment measures (e.g. disinfection). Periodic monitoring gathers comprehensive data on all compliance parameters and additional parameters important for assessing the impact of internal water networks on water healthiness at compliance points, as well as within risk assessment frameworks to protect human health.

The Institute for Public Health conducts the Programme for Monitoring the Healthiness of Water for Human Use across Montenegro, including urban and rural areas. In 2022, 23,016 samples of drinking water from city waterworks and other public water supply facilities were tested. Of these, 11,712 were microbiologically tested, and 11,304 were tested for physical and physico-chemical properties. The analysis was carried out by the Institute of Public Health and the DZ Bar laboratories.

Microbiological test results showed that 3.72 per cent of the chlorinated water samples did not meet hygiene standards, often due to increased total bacteria counts and the presence of coliform bacteria. In physical and chemical tests, 7.56 per cent of chlorinated water samples did not comply with current regulations, primarily due to insufficient or absent residual chlorine and increased turbidity during heavy rainfall periods. Elevated nitrate and nitrite concentrations were found only in the Ulcinj water supply network.

According to the 2023 report of the Institute of Public Health, drinking water reservoirs in several cities are inadequately protected, and the distribution systems of most city water supplies are quite old, leading to frequent breakdowns and significant losses. The report also criticizes the fact that water disinfection is not consistently performed across all city water supply systems, likely because automatic dosing and residual chlorine level registration have not been established, except in a few large city waterworks.

According to the official statistics, there are only data from 2019 available for Montenegro concerning the mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene. It was estimated that there were

1.8 deaths per 100,000 out of the data, which is lower than Germany (3.2) and France (3.4) in the same year of 2019, therefore it has to be seen quite critically.

The Recommendation 5.2 of the third EPR suggesting the Government to ensure that adequate funding is made available for implementation of the country's commitments on MDG7 is partly implemented.

7.3 Performance and gaps in water monitoring networks

Monitoring and assessment of surface water status are regulated by the Law on Water. The responsibility for monitoring lies with the Institute of Hydrometeorology and Seismology, which also conducts some analyses internally. Results of the annual monitoring, conducted separately for each river basin district, are publicly disclosed on the Institute's website. However, the monitoring of surface and groundwater is not financially supported. The Institute lacks adequate workforce and suitable equipment to conduct regular monitoring. Biological reference values are not established.

Groundwater

Monitoring of groundwater from three wells in the Zetska Ravnica area revealed an increase in nitrate and phosphate content, indicating pollution from agricultural sources. The main challenge in most underground water bodies is untreated wastewater and solid waste with diffuse sources of pollution, particularly during dry periods.

Chemical analysis conducted over the past two years monitored pollutants in groundwater at 48 sites in 2022 and 32 sites in 2023. The analysis focused on pesticides, As, Pb, Cd and Hg. Traces of As and Pb were found, but concentrations did not exceed permissible limits. Concentrations of pesticides, Cd and Hg were below quantification limits. Therefore, it can be concluded that the quality and quantity of groundwater are not in a problematic state, although continuous monitoring and risk analysis remain necessary.

Surface water

Monitoring encompasses parameters such as volume and flow rate, ecological and chemical status, and ecological potential.

The monitoring aims to identify water bodies at risk and establish a baseline for future changes. Bodies such as large lakes, reservoirs, major rivers, and those anticipated to have significant pollution loads undergo monitoring. While there has been a slight improvement in basic physical and chemical parameters, chemical status assessments have only been conducted for the past two years, with no values exceeding regulatory limits. Biological assessments have been ongoing for the past four years, although the lack of Montenegrin reference values hampers the analysis of trends.

Simultaneously, an increasing trend is observed wherein extended periods of low water result in larger rivers experiencing dry stretches along their beds. The annual report on water quality and quantity changes is submitted to relevant ministries, competent authorities, and public health, environmental and geological agencies in the first quarter of each year.

7.4 River basin management

From 2014 to 2020, Montenegro was part of a European Commission intervention for Strengthening the Capacities for Implementation of the Water Framework Directive (WFD). The specific objective of the intervention was to prepare the River Basin Management Plans for the Adriatic Sea and Black Sea Basins. At the same time, the action benefited Montenegro by contributing to the development of technical capacities for the sound implementation of EU Water Framework Directive. The Recommendation 7.1 of the third EPR of Montenegro mentioned the development of a water master plan, a river basin management plan for the Adriatic and the Black Sea River Basin districts and national information system for water planning and use. The Recommendation has not been completely implemented. No new water master plan and river basin management plan were developed. Moreover, the national water information system is currently in its primary stage.

The territory of Montenegro is divided into two water areas, taking into account the hydrographic characteristics of the water regime. The water area of the Danube basin encompasses the basins of the Ibar, Lim, Ćehotina, Tara and Piva rivers, along with all associated groundwater. Similarly, the water area of the Adriatic basin includes the basins of Lake Skadar, and the Zeta, Morača, Bojana and Trebišnjica rivers, as well as the watercourses of the Montenegrin littoral that flow directly into the Adriatic Sea, along with corresponding groundwater.

SDG indicator 6.5.1 of the target 6.5 (By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate tracks the degree of integrated water resources management (IWRM) implementation, by assessing the four key components of IWRM. According to the Water Administration, from 2017 to 2020, the degree of integrated water resources management implementation increased from 34 per cent in 2017 to 35 per cent in 2020, which is assessed in the same period by the degree of enabling environment from 50 per cent to 54 per cent, the degree of financing from 20 to 23 per cent, the degree of institutions and participation from 28 per cent to 25 per cent, while the degree of management instruments decreased from 40 per cent to 38 per cent.

7.5 Management of water use and developments in infrastructure

To oversee potential sources of pollution and risks to water quality, the Water Administration operates a Water Cadastre, serving as a comprehensive database for water management. It consolidates essential data on water usage, pollution protection and mitigation efforts.

Within the Cadastre, information on the water estate, industrial facilities (such as dairy or meat production plants) near riverbanks, landfills, wastewater discharge points, water users, endangered areas, and other potential risks to groundwater and surface water are documented.

To supervise the application of the Law on Water and the Law on Municipal Wastewater Management, there is the Water Inspection, which consists of nine people who do inspections at relevant sites in Montenegro (see chapter 2). In the year 2022, 712 inspections were carried out and 157 irregularities were found. Most of the irregularities were due to the quality of discharged water, exploitation of river sediments without prescribed consent, control of fulfillment of conditions from water acts, depositing of materials on water land, control of the quality of water for bathing and discharge of wastewater directly into the sewer system without the necessary pretreatment. The total amount of fines due to the misdemeanours was €8,510 in 2022.

Since December 2023, a water information system has been established, serving as a centralized platform for collecting, processing and disseminating all necessary information related to water management and public information. Initially, a geodatabase model was developed to store data related to River Basin Management Plans, serving as the foundation of the Water Information System.

Overall, the Water Information System aims to provide information on water quality status, categories and classes of surface and groundwater bodies, water documentation, legislative measures, organizational structures and planning efforts in the field of water management. Currently, the system is in its initial phase of development.

Water abstraction and losses

In Montenegro, REGAGEN oversees the licensing and supervision of water supply and wastewater utilities. Since 2016, REGAGEN has been collecting data in the field of water and wastewater. The latest data from 2023 indicated that only about 25 per cent of public water suppliers measure the abstracted water, while 75 per cent do not measure or only partially measure the amount of water taken from their sources. There is no information on why flow meters are absent within the infrastructure. Consequently, it is challenging to make assertions about the overall water abstraction in Montenegro. However, it is known that only two water utilities in Montenegro partially abstract water from surface sources, while all others obtain water from underground sources. According to the Statistical Office, water abstraction increased from 110 million m³ in 2011 to 151 million m³ in 2023 (see Table 7.1).

Regarding water losses in Montenegro, data from municipalities like Herceg Novi, Podgorica and Tivat, show that a high percentage of abstracted water is never invoiced. In 2022, in Podgorica, only about 50 per cent of the abstracted water was invoiced, indicating approximately 50 per cent water losses in the distribution system for

drinking water (see Table 7.2). This is confirmed at the national level where water losses fluctuated from 54 per cent to 62 per cent.

For example, in Budva, data show significant water losses. In 2023, of the 8,769,932 m³ of abstracted water, about 3,610,220 m³ (46 per cent) were delivered, while in 2022, of 8,328,932 m³, only 3,610,227 m³ (43 per cent) were delivered to users, indicating a water loss of around 55 per cent over the past few years.

Table 7.1: Water use and wastewater in localities, 2005–2017, thousand m³

	2005	2008	2011	2014	2017	2020	2023
Water abstracted	101 866	106 579	109 449	110 301	119 048	121 319	151 141
Underground and spring waters	90 877	93 980	88 490	88 950	93 140	97 341	130 254
Surface waters	2 909	2 459	2 577	1 950	2 000	1 854	1 780
Other waterworks	8 080	10 140	18 382	19 401	23 908	22 124	19 083
Water consumed	53 671	49 829	49 677	45 462	47 690	46 797	62 410
Households	33 460	34 614	34 993	31 186	33 974		
Enterprises	13 165	10 327	9 591	3 394	3 692		
Other consumers	7 046	4 888	5 093	10 882	10 024		
Total water losses	48 195	56 754	59 772	64 839	71 358	74 523	88 730
Wastewater	..	..	30 501	31 029	20 417	26 235	28 837
Purified wastewater	..	..	8 862	9 482	11 564	20 669	12 551

Source: Statistical Office, 2024.

Table 7.2: Water losses, 2015–2023, percentage of non-revenue water

	2015	2016	2017	2018	2019	2020	2021	2022	2023
Herceg Novi	80	79	80	77	77	79	76	74	73
Podgorica	48	48	49	49	49	49	50	51	58
Tivat	53	55	53	53	49	47	40	36	34

Source: Energy and Water Regulatory Agency, 2024.

Despite the lack of comprehensive data, water losses are a significant problem in Montenegro. Issues such as the absence of measuring water abstraction and reducing water losses, as well as the low level of controlling and reconstructing drinking water supply infrastructure hamper the efficient use of this vital resource.

According to FAO, in Montenegro, water use efficiency increased from 17.76 \$/m³ in 2013 to 21.27 \$/m³ in 2021, which represents an increase of 21.13 per cent for industries, a decrease of 7 per cent for agriculture sector and an increase of 15 per cent for services, in the same period (SDG indicator 6.4.1). This contributed to the achievement of the target 6.4 (By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity). However, Montenegro does not report on the level of water stress: freshwater withdrawal as a proportion of available freshwater resources (SDG Indicator 6.4.2).

Industry

Water consumption in industry has undergone a significant decrease in Montenegro over the past decade, primarily due to the closure of steel and aluminium plants. Presently, the main industrial consumers in the Danube River basin are the Pljevlja TPP and its associated coal mines, along with nearby lead and zinc mines.

According to the Statistical Office, the mining, manufacturing (of basic metals and fabricated metal products, except machinery and equipment), manufacturing of food products, beverages and tobacco, and other manufacturing industries utilized approximately 4,156 million m³ of water in 2022 (see Table 7.3).

Table 7.3: Water use and wastewater in industry, 2018–2022, thousand m³

	2018	2019	2020	2021	2022
Used water quantities	3 658 698	2 496 377	2 220 003	2 963 909	4 156 462
From public water supply system	923	932	803	641	341
From own water supply system	3 657 775	2 495 445	2 219 200	2 963 268	4 156 121
From underground and spring waters	2 744	2 748	2 536	2 500	1 391
From surface waters	3 655 031	2 492 697	2 216 664	2 960 768	4 154 730

Consumed water quantities	3 658 482	2 496 179	2 219 870	2 963 783	4 156 463
For production (without HE PS)	3 728	3 547	3 182	2 988	1 859
For sanitary purposes	605	617	549	468	219
Wastewater quantities *)	4 494	4 261	3 720	3 350	2 590
From production	3 889	3 644	3 171	2 882	2 371
Sanitary waste waters	605	617	549	468	219
Purified water quantities	2 292	2 179	2 056	2 056	1 345

Source: Statistical Office, 2024.

Note: Running water, from hydropower stations (HE PS), are excluded.

The vast majority (99.9 per cent) of this amount in 2021 was used by the electricity, gas, steam-supply and air-conditioning (EGSA) sectors, leaving only about 0.1 per cent (equivalent to 3,560,000 m³ per annum) for the mining and manufacturing industries. While the EGSA industries require water for their technological processes (99.98 per cent), around 87 per cent of water in the mining and manufacturing industries is allocated for technological processes, with the remainder used for sanitary purposes (13 per cent).

The majority of overall water consumption is sourced from surface waters (99.9 per cent) and distributed through private water supply systems (99.8 per cent). However, in terms of total industrial wastewater, the manufacturing sector accounts for 76.6 per cent, while the EGSA sector contributes approximately 21.5 per cent of industrial wastewater. This discrepancy arises because wastewater does not include atmospheric or running waters utilized by hydroelectric power stations.

Regulations stipulate the quality and sanitary-technical conditions for wastewater discharge, testing procedures for wastewater quality, and reporting requirements for determined wastewater quality. Industrial wastewater discharged into public sewer systems must undergo pretreatment, designed, constructed, reconstructed, and maintained in accordance with the best available techniques.

There is no information available regarding the treatment of industrial wastewater in separate industrial treatment plants, which directly discharge the treated water into surface waters.

Irrigation

According to the Statistical Office, 7,334,000 m³ of water were used for irrigation in 2022 (see Table 7.4). Of this amount, the majority (6,706,000 m³) was abstracted directly from groundwater, and 28,000 m³ were taken from surface water. This ratio between groundwater and surface water use is likely accurate since there are simply much more opportunities to abstract water from the ground, whereas using surface water requires an adequate nearby river and infrastructure, such as a pipe system, to transport the water to the crops. However, the source of the remaining 600,000 m³ of water is unclear. There are no data in Montenegro about the use of rainwater or the existence of reservoirs to store rainwater. However, according to experts in the field, it is very likely that some reservoirs exist, especially in the karstic regions of the country.

Table 8.4: Water used in irrigation, 2018–2022, thousand m³

	2018	2019	2020	2021	2022
Total	6 815	6 821	7 353	8 171	7 334
Underground	6 758	6 750	7 344	8 163	6 706
Surface water	57	71	9	8	28

Source: Statistical Office, 2024.

About 2,482 ha were irrigated, with vineyards accounting for approximately 85 per cent (2,100 ha), followed by orchards (9 per cent) and arable fields and gardens (4 per cent). No further explanation could be found for the remaining 2 per cent. The data from the Statistical Office further indicate that most of the irrigation (2,151 ha) is done using drip irrigation, a very water-saving and modern method for watering crops. The other two methods mentioned, “artificial rain” (323 ha) and surface irrigation or flooding (8 ha), are far less efficient.

Comparing the data from 2022 with the years 2018, 2019, 2020 and 2021, the water quantity used, and the total area irrigated have basically remained the same. Nevertheless, due to data gaps and the differing amounts mentioned in the 2017 Water Management Strategy by the Ministry of Agriculture and Rural Development, therefore the situation could be different at June 2024.

Pursuant to the Law on Water and the Law on Concessions, any use of water that exceeds general use represents a special use, for which it is necessary to acquire a water right unless otherwise determined by law. Water rights are acquired through a water permit or a concession contract. However, at present, there is not a single water concession or permit for irrigation in Montenegro.

Energy, including hydropower plants

In the last 10 years, no new hydropower plants have been built in Montenegro. This is because the existing ones are well-maintained and continue to operate without problems. EPCG, the national energy company of Montenegro, is 100 per cent state-owned and operates nine hydropower plants in the country. The two largest are Perućica with a capacity of 307 MW and Piva with 342 MW. These hydropower plants produce about 55 per cent of Montenegro's energy needs. The remaining 45 per cent are produced by the coal-fired Pljevlja thermal power plant, which is currently in the renovation process. According to EPCG, they would prefer to replace the large TPP with new hydropower plants.

However, one of the currently planned new hydropower plants, with a capacity of 172 MW, would have a very negative impact on the Komarnica River, its canyon, and the Piva River. According to the CEE Bankwatch Network, the planned 171 m dam would create a 17.6 km long reservoir, destroying a candidate Emerald Site, and affecting three potential Natura 2000 sites and a potential UNESCO site. The affected parts of the Komarnica River include the river itself, nearby wild canyons, and caves, which would allegedly be flooded, massively damaging the ecological integrity of the local ecosystem.

The planning process for the hydropower plant on the Komarnica River is currently undergoing a permission process. According to EPCG, the necessary documents for the permit are already with the EPA, but no decision has been made yet. Additionally, EPCG has stated that plans exist to build at least four new hydropower plants by 2050, including the one on the Komarnica River.

Currently, the existing hydropower plants have no fish lifts, ladders or passes, thus lacking any biological connectivity for aquatic animals.

Households

Based on estimates by the Ministry of Ecology, Sustainable Development and Development of the Northern Region, over 85 per cent of the population in Montenegro in 2024 is connected to the water supply network managed by water utilities. It remains unclear if the remaining 15 per cent rely on private wells or other sources to meet their water demand. According to REGAGEN, at the end of 2022, there were approximately 302,393 users of public water supply services in Montenegro, with 25,160 being legal entities, leaving around 277,233 private users connected. REGAGEN reports an overall consumption of drinking water of about 330 litres per day per inhabitant, calculated based on regular inhabitants excluding tourists during the season.

However, some settlements, such as those located in the hinterland of Budva, remain unconnected to the water supply network. Examples include Čelobrdo, Novoselje, Žukovica, Tudorovići, Paštrovska gora, Kuljače, Podbabac, Krapina, Podostrog, Pobori, Stanišići, Brajići and Lapčići.

Overall, Montenegro has shown a steady increase in major indicators related to the availability and sustainable management of water and sanitation. According to the 2023 WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), the proportion of population using safely managed drinking water services in all areas slightly increased from 84.53 per cent in 2013 to 85.12 per cent in 2020, and in urban areas from 87.15 per cent to 87.32 per cent in the same period (SDG indicator 6.1.1), contributing to the achievement of the target 6.1 (By 2030, achieve universal and equitable access to safe and affordable drinking water for all). This increase is largely attributed to improved availability of safe water in rural areas, as evidenced by the comparison with numbers from urban areas. Regarding the SDG target 1.4 (By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance), the proportion of population using basic drinking water services increased from 96.90 per cent in 2013 to 98.86 per cent in 2022. This includes

growing from 95.48 per cent in 2013 to 98.16 per cent in 2022 in rural areas, and from 97.66 per cent to 99.19 per cent in the same period for urban areas (SDG indicator 1.4.1 on the proportion of population living in households with access to basic services). As it concerns the SDG target 6.2 (By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations), the proportion of population with basic handwashing facilities on premises was stable since 2013 at 99.24 per cent for all areas: 99.28 per cent in rural areas and 99.23 per cent in urban areas (SDG indicator 6.2.1 (b)).

However, these positive results in drinking water access are not reflected in wastewater management. Despite significant improvements, there is still much work to be done to mitigate the environmental damage caused by the discharge of untreated wastewater, which affects rivers, groundwater and the sea.

Landfills

No comprehensive study on the impact of landfills to water resources was carried out. However, twice a year, a sample of the discharge is taken and analysed the landfill Možura in Bar. The landfill is set on massive rocks and has a bentonite-sealed ground. The precipitation water (estimated amount approximately 13,000 m³ in 2023) that percolates through is collected at the bottom of the landfill and undergoes a five-stage treatment process, which includes sedimentation, aeration and biological treatment. According to the analysis results from the laboratory of the CETI carried out in 2023, the water is still highly contaminated when it leaves the treatment, but since it recirculates to moisturize the deposited waste, better treatment is preferable but currently not necessary. The resulting gases from the landfill are constantly burned; therefore, a chance is missed to use the gas for energy production of approximately 1 MW.

Tourism

In 2023, 2.45 million foreign tourists arrived in Montenegro and stayed around six days in the country according to the Statistical Office (see Table 11.1). There are no data available about the amount of water a tourist needs per day and how much wastewater is caused due to tourism.

Nevertheless, during summer and tourist season, the public water suppliers in the coastal region have to receive, in addition to their regional water sources, water from the Regional Waterworks of the Montenegrin Coast (RVCP). In 2022, a total of 8,430,311 m³ was needed in Bar, Budva, Kotor, Tivat and Ulcinj. According to the water amount needed in 2020 of 7,795,220, the consumption increased slightly to 8,448,775. Looking at the ratio between the amount provided by the RVCP and the local sources, there is a huge variety within the different municipalities. In 2022, while Herceg Novi did not request water from RVCP, 60 per cent of the total consumption in Tivat was provided by RVCP.

7.6 Wastewater management

According to REGAGEN, in 2021, only about 53 per cent of the Montenegrin population was connected to a sewer system, a slight decrease from 2020, when approximately 53.71 per cent were reportedly connected. REGAGEN collects data directly from municipalities and acknowledges that the data should be viewed critically, as most of it are estimated by utilities in the wastewater sector. Different data can be found in the Wastewater Management Plan 2020–2035,¹⁶⁷ which states that about 47 per cent of the total population is connected to wastewater collection services, and within the agglomerations of Montenegro, about 58 per cent are connected. A connection rate of around 50 per cent is likely accurate, as within the different municipalities, the connection rate varies from 0 per cent to 96 per cent. The municipality of Pluzine has the highest rate of connections to a public sewer system with 96 per cent of the 451 users which are connected to the public water supply.

According to the WHO Global Health Observatory (GHO), the mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene from diarrhoea, intestinal nematode infections, malnutrition and acute respiratory infections was 1.83 deaths per 100,000 population in 2019 (SDG indicator 3.9.2 of target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination).

¹⁶⁷ Ministry of Spatial Planning, Urban Planning and State Property (2010).

About SDG indicator 6.3.1 of the target 6.3 (By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally), according to WHO, the proportion of safely treated domestic wastewater flows increased from 45.07 per cent in 2020 to 55.28 per cent in 2022. Montenegro does not report on the total wastewater generated per industries. However, UN Habitat estimated that in 2022, an amount of 4.2 million m³ of wastewater were generated by industries, of which 2.4 million m³ were treated.

Within the existing sewer systems, the Ministry of Ecology, Sustainable Development and Development of the Northern Region estimates that about 80 per cent consist of two separate pipes, one for rainwater and one for wastewater. This high number could not be verified, but according to the technical staff at three wastewater treatment plants (WWTPs), this number seems possible, as all three stated they are connected to a separate sewer system.

However, the responsible personnel at every WWTP visited mentioned serious problems during rainfall, as precipitation water enters the wastewater pipes, likely due to incorrect connections and faulty installations, causing significant issues in the wastewater treatment process. The infiltration of rainwater into wastewater sewers is a common problem worldwide, but it appears to be more severe in Montenegro. This is likely due to the recent construction of wastewater treatment plants that are designed exclusively for wastewater and therefore lack additional capacity for rainwater. Additionally, the volume of incoming rainwater seems much higher than expected from a few incorrect connections and system malfunctions. The exact reason for the large amount of precipitation water entering the wastewater pipes cannot be clarified without further inspections and controls within the sewer systems. It is possible that wrongdoing of connected households, which could release precipitation water into the wastewater pipes, is also part of the problem. This precipitation water negatively impacts wastewater treatment and can cause the loss and washout of sludge from the treatment plant, where it is needed. Conversely, washed-out sludge becomes a serious pollutant in the receiving waters. At the same time, it is very likely that also revers-wrong-connection, thus wastewater pipes which are connected to the rainwater sewer system, exist and hence untreated wastewater can be discharged into rivers and the sea.

As at June 2024, the authorities did not start identifying the incorrect connections and the sources of incoming rainwater due to the limited resources, i.e. staff and funding. Moreover, the division of responsibilities in some municipalities can hinder or complicate the process of searching for leaks and incorrect sewer connections. For example, in some cases, while the sewer systems are managed by the municipalities, the wastewater treatment plants, which receive the extra rainwater, are autonomous companies. Although communication between these entities is described as very good, the motivation to address the issue is clearly stronger on the side of the WWTPs.

Wastewater treatment plants

According to the Regulation on quality and sanitary-technical conditions for wastewater discharge, manner and procedure of testing wastewater quality and content of the report on determined wastewater quality (OG 56/19), the public sewage system should be designed, built and maintained in accordance with best available techniques. This includes considering the quantities and composition of municipal wastewater, preventing water leakage from the wastewater collection and disposal system, and restricting pollution of the recipient in accordance with its acceptance capabilities. Thus, wastewater treatment plants are designed, built, and maintained to ensure smooth operation and treatment of the projected amounts of wastewater under all normal local climatic conditions.

Every wastewater treatment plant needs to have a water permit for the discharge of the treated wastewater. However, in April 2024, just two WWTPs had a valid permit. These two WWTPs stated that they needed up to two years to organize all the necessary documents and then get the required permit, which is valid for 10 years.

It has to be stated that high standards for water permissions are preferable. But still, if only the two best organized WWTPs are able to receive a permit which covers a relatively short time compared to mileage of infrastructure and to hydropower plant which can get a permission up to 30 years, a review of the permit process is lacking.

In April 2024, authorities in Montenegro stated that 16 WWTPs were built and theoretically ready to operate (see Table 7.6 and box 7.1). In total, about four, allegedly smaller ones, are wetlands, the WWTP in Virpazar uses a

system called Oxyvor, one trickling filter was installed in Zabljak, five are sequence batch reactors (SBRs), and five have a conventional biological system. However, the wastewater master plan indicates that the WWTPs in Jaz, Virpazar and Rijeka Crnojevića are out of operation, which seems quite likely, as some listed plants do not report any treated wastewater volume or sludge production.

Box 7.1: Wastewater treatment plants in Podgorica, Budva, Herceg Novi and Tivat/Kotor

As at June 2024, the WWTP in Podgorica is in a very poor state. The plant has a capacity of 55,000 PE, while about 150,000 PE are connected to the sewer system. Nearly half of the wastewater volume is separated before reaching the WWTP and is treated only mechanically before being discharged into the Morača River. The WWTP has an average inflow load of about 75,000 PE, and in 2023, about 5,700,000 m³ were treated. Analysis results of the effluent in 2023 show an annual average of 111 mg/L COD, 65.24 mg/L BOD₅, and 59 mg/L suspended solids. Plans for constructing a new WWTP exist, but work has not started yet due to various complications.

A far better situation was observed at the WWTPs in Budva and Tivat/Kotor. These relatively young plants were in good condition, thanks to qualified staff and constant maintenance. The WWTP in Budva consists of two separate lines, one of which is not operational during the winter, outside the tourist season. As seen in the picture from late April 2024, one line was still not working. The second line is usually put into use in June, reportedly without complications, due to the use of biological sludge from the first line. However, instead of a near-ground aeration system in the tank, a surface aeration system was installed, which is insufficient for the approximately 5-meter-deep tanks, especially during summer. The next costly installation will involve changing the aeration system.

At the WWTPs in Tivat/Kotor and Podgorica, wastewater from septic tanks is accepted, providing non-connected households a way to discharge their wastewater.

The report from the former director of the Water and Sewage Enterprise in Herceg Novi provides insight into its state. The agglomeration of Herceg Novi has about 30,000 PE, but during the summer, due to tourism, the load increases to about 85,000 PE. The WWTP, which began operation in spring 2017, is stated to be unfinished. The incomplete wastewater treatment process causes frequent equipment failures, such as issues with the main pumping and compressor stations. Additionally, the entrance grill and the SCADA control and management system are incomplete and unreliable, and the SBR tank release is partially out of control. These problems have not been resolved. An action plan, estimated to cost about €5 million, has been created to rehabilitate the WWTP in Herceg Novi.

The WWTPs have to report analysis results of the effluent leaving the WWTP regularly. The samples are normally taken and analysed by one of the certified laboratories in Montenegro.

According to the Wastewater Management Plan 2020–2035, it is planned to construct, rehabilitate or upgrade 29 WWTPs. There will be 3 of these which serve more than 50,000 population equivalents (PE), 8 between 10,000 and 50,000 PE, and 18 smaller than 10,000 PE. These new plants are expected to provide a total capacity of 617,000 PE. Also, seven municipalities received grants in 2021 to build WWTPs but as at June 2024, nothing was built.¹⁶⁸

Sludge Management

Sewage sludge is classified as waste residue generated within a WWTP, and its management plan is part of the National Wastewater Management Plan. The use of sewage sludge as fertilizer in agriculture is not considered in the Plan, nor, after drying, as a cover layer at regional landfills instead of soil. Additionally, sludge incineration is not employed for larger WWTPs. So far, the Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture has not been transposed.

The Wastewater Management Plan 2020–2035 envisions various sludge treatment facilities, including reed beds, numerous sludge solar drying plants, centralized sludge incineration in Podgorica and a sludge composting plant. However, to date, only the reed beds for the WWTPs in Mojkovac, a small plant for 5,200 PE, and for the WWTP in Zabljak have been realized. Meanwhile, all three visited WWTPs in Tivat/Kotor, Budva and Podgorica face serious sludge disposal issues. The former solution was to export sludge to Albania, but this procedure was recently halted by Albanian authorities, leaving wastewater utilities without a disposal option. Consequently, sludge is stored to maximum capacity at the WWTPs and, lacking alternatives, is even disposed of next to the

¹⁶⁸ Čađenović (2021).

sludge silos. This situation endangers the treatment process due to high sludge proportions in the biological tanks and, therefore, the sludge sometimes being swept into receiving waters or the sea, causing significant pollution.

A similar situation is reported at the WWTP in Herceg Novi. The sludge line is described as incomplete, untested and poorly constructed, preventing its operation. It is unknown how the sludge is currently managed.

The current sludge disposal situation is unacceptable, posing environmental and water resource risks. The sludge accumulates at the WWTPs, becoming a major issue for responsible authorities. Despite this, a national sludge strategy for final disposal is still lacking.

Wastewater discharges from vessels

Montenegro has two major ports: the Port of Bar and the Port of Kotor. Additionally, there are nine marinas, including those in Ulcinj and Herceg Novi. The Port of Bar is the most important for cargo traffic, while the Port of Kotor is the primary port for passengers. In 2023, the Port Authority in Budva reported that about 52 ships were controlled in the Montenegrin coastal area, which can be divided into the Bay of Kotor and the open sea.

There are no corroborated reports of wastewater discharges from vessels along the Montenegrin coasts, and no known problems with the ballast water of ships. Inland transport on rivers and lakes in Montenegro is nearly non-existent. There is some ship traffic on Lake Skadar and Lake Piva to meet the needs of the local population and tourism.

Table 7.6 Wastewater treatment plants

	WW treated (m ³ /a)	PE- (high season)	Treatment Process	Primary treatment	Tertiary treatment	Effluent Disinfection	Sludge treatment	Sludge produced (t/a)
Andrijevica			Constructed wetland	N	N	N		
Berane	1 009 888	12 297	SBR	N	Y	N	Aerobic stabilization + dewatering	1 212
Budva	2 885 026	78 963	Conventional low-loaded	N	Y	N	Aerobic stabilization + dewatering + lime	4 447
H. Novi	1 923 109	49 673	SBR	N	Y	Y	-	0
Jaz	0		SBR	N	N	N	-	
Mojkovac	287 408	5 000	Conventional	N	N	N	Reed beds	230
Nikšić	3 113 259	37 909	Conventional low-loaded	Y	Y	Y	Anaerobic stabilization + dewatering	0
Pljevlja	1 894 415	23 067	SBR	N	Y	N	Anaerobic stabilization + dewatering	1 443
Podgorica	4 516 875	55 000	Conventional	Y	N	N	Dewatering + lime	4 866
Petnjica			Constructed wetland	N	N	N		
R.Crnjevića	0		Conventional	N	N	N	-	0
Šavnik	28 631	349	Constructed wetland	N	N	N	Constructed wetland	23
Tivat/Kotor	1 055 317	29 619	SBR	N	N	N	Aerobic stabilization + dewatering + lime	1 872
Virpazar	0		Oxyvor	N	N	N	-	0
Wranjina			Constructed wetland	N	N	N		
Žabljak	103 914	1 265	Trickling Filter	N	N	N	Reed beds	83
Total	16 817 842	291 642						14 176

Source: Directorate for Water Management

Notes: All WWTPs have secondary (biological) treatment. Volumes of WW treated are estimated.

The Recommendations 7.2 of the third EPR a) to find a sustainable solution for municipal and industrial wastewater treatment and sludge valorization, unfortunately, apart from some smaller steps, has not been implemented.

7.7 Flood management

Generally, flood defence is primarily required along the riverbanks of the Bojana, Čehotina, Ibar Lim, Morača, and Tara rivers, where major Montenegrin cities such as Podgorica are located.

Flood management in Montenegro is divided among various entities within the water management system. The Ministry of the Interior and its Protection and Rescue Directorate are responsible for protection and rescue operations during flooding events, while the Ministry of Agriculture, Forestry and Water Management oversees the implementation of the EU Directive on floods.

Every six years flood protection plans for state waters must be adopted by the Government. Similarly, local governments are responsible for adopting such plans for local waters after coordination with the Government. These operational plans, aimed at protecting against harmful water effects, are based on the provisions of the Law on Water and contain essential data and measures necessary for effective implementation of protection. This includes relevant water levels, criteria for declaring regular and extraordinary flood defences, and the designation of managers, staff, authorities, or companies responsible for implementing protection measures.

With the help of EU support funds, funds were provided for the IPA 2016 project “Support to the implementation and monitoring of water management in Montenegro” in order to implement the Flood Directive. A preliminary flood risk assessment was made for the water areas of the Danube and Adriatic basins, flood hazard maps and proposals for flood risk management plans, which will be submitted to the Government at the end of 2024 after a public hearing.

The Recommendations 7.2 (b) Design codes for water infrastructure in urban areas so that it is sensitive to flood risks, as well as measures for erosion mitigation, of the third EPR has not been implemented.

7.8 Legal and policy framework

Legal framework

The Law on Water governs all surface and ground water, mixed waters of river estuaries flowing into the sea, mineral and thermal waters, water wells, drinking water deposits in the territorial sea, and coastal waters affected by discharges. According to this law, water is a state-owned natural resource and must be used in a way that does not adversely affect the waters and coastal ecosystems or limit the equal rights of others.

The right to special use of a public water resource can be acquired through a concession contract, a water permit, or the consent of the appropriate authority. Article 8 of the Law divides waters in Montenegro based on their importance into “waters of importance for Montenegro” and “waters of local importance.” Waters of local importance are registered by local administrations, while waters of national importance are registered and maintained by the state administration body responsible for water management.

In addition to the Law on Water, numerous regulations have been adopted to address specific aspects such as the classification and categorization of surface and underground waters, the content of water management systems, the calculation and method of collecting water fees, and the determination of parameters.

The regulation concerning the discharge of municipal and industrial wastewater, passed in 2019, established several important standards. This regulation includes requirements for municipal wastewater, bathing water and various industrial sectors. The defined concentration limits for different parameters are generally aligned with European legislation.

The health suitability requirements for drinking water are defined within several legislative frameworks, including the Law on the Provision of Healthy Water for Human Use, the Rulebook on Compliance Parameters, Methods, Scope of Analysis and Implementation of Monitoring of the Healthiness of Water for Human Use (OG 101/21), and other relevant regulations. These include the Rulebook on the Determination and Maintenance of Zones and Belts of Sanitary Protection of Water Sources and Restrictions in Those Zones (OG 13/24), the Rulebook on Sanitary-Technical and Hygienic Conditions, as well as Conditions for the Healthiness of Water for Recreational Purposes and Other Waters of Public Health Interest (OG 112/20), the Law on Communal Activities, and the Law on Water.

According to the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water, in 2020, the procedures in law or policy for participation by service users/communities in planning programme (1) in rural drinking-water supply, by level of definition in procedures and (2) in water resources planning and management, by level of definition in procedures are clearly defined. However, the levels of participation of users/communities participating in planning programmes (1) in rural drinking-water supply and (2) in water resources planning and management are moderate (SDG indicator 6.b.1 of target 6.b: Support and strengthen the participation of local communities in improving water and sanitation management).

Institutional framework

The responsibility for water management in Montenegro is multifaceted and dispersed across various institutions.

The Ministry of Agriculture, Forestry and Water Management, through the Directorate for Water Management, is the primary body responsible for water management. It develops policies for water management, system solutions for water provision and use, and oversees water land and springs for water supply and pollution protection.

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development) was responsible for the overall state of the environment, including marine and coastal ecosystems, surface water, freshwater, and terrestrial ecosystems. Within the Ministry, the Directorate for Ecology proposed, monitored and directed policies related to water and wastewater management. This includes developing strategies, programmes and projects for water resource management and wastewater treatment and overseeing the implementation of water and wastewater projects funded by the EU and other sources.

The Ministry of Health, through the Institute for Public Health, performs physio-chemical and microbiological analyses of drinking water, and is responsible for controlling and monitoring drinking water safety. The Ministry of Energy and Mining oversees hydropower purposes, and the Ministry of Transport and Maritime Affairs is responsible for the safety of maritime and inland navigation, as well as for preventing and responding to sea pollution from vessels.

The Institute of Hydrometeorology and Seismology performs both quality and quantity testing of surface and groundwater in Montenegro. The Institute operates its own certified laboratories where parts of the analysis are conducted. For comprehensive testing, the Institute collaborates with two other certified laboratories in Montenegro: CETI and the Institute of Public Health. These institutions together ensure thorough monitoring and analysis of water quality and quantity across the country.

The Water Administration is a state administration body tasked with a variety of responsibilities related to the regulation of water resources and the protection of water from pollution. Among its many duties, the Water Administration is responsible for calculating water charges, establishing and managing the water information system, maintaining the water cadastre, and keeping the register of waters of importance for Montenegro.

The Directorate for Water Management consists of only six people, the Water Administration 10 staff members. Despite their crucial roles and extensive responsibilities in the water sector, both of these authorities face some challenges due to a lack of staff, and financial and technical capacities. This shortage of resources hampers their ability to effectively manage and protect the country's water resources.

Local governments are responsible for creating and implementing general and operational plans for the protection of waters of local importance. Within this category of waters, they make decisions regarding the general use and conditions for building, using, and maintaining systems for water supply.

The responsibility for water supply and the collection, treatment and discharge of wastewater falls under local utility services. These services also handle the billing for drinking water and wastewater. The fee structure includes a fixed monthly fee for all customers and an additional charge calculated per cubic meter of consumed water. Until 2024, the prices for households and legal entities differ, with legal entities paying a higher rate compared to households. However, starting from 2025, the prices for all customers will be unified, ensuring the same rate for households and legal entities alike.

7.9 Assessment, conclusions and recommendations

Assessment

Since 2013, Montenegro achieved major developments within the water management sector. People working in this sector are highly motivated and doing their very best to bring the water management in Montenegro ahead.

Within the field of the protection and ensuring the quality of drinking water, a lot has happened, though some tasks are still to be fulfilled. They were not yet completed due to a lack of staff, equipment and financial possibilities. Special tasks, such as the carrying out the water-related monitoring, are not executed although they are essential to identify undergoing changes within the biological and chemical status of surface waters.

On the other hand, moreover, there is still a lot to enhance in the wastewater sector. As at June 2024, the country did not take actions to minimize the impact of limited wastewater management. The treatment of wastewater is completely relegated to the few existing WWTPs, which lack adequate maintenance and investments. WWTPs received a very limited attention from decision-makers. One of the major problems currently facing WWTPs is the lack of a sewage sludge strategy, which causes serious problems on the WWTPs, and is also criticized by the general public. The same applies for the problems during rainfall, when rainwater affects the treatment process and complicates a proper operational management. There is a great need for environmental education to show the importance of a proper wastewater treatment for the general public and thus increase the pressure for the decision-makers to take action concerning new investments, proper sewage sludge legislation and the construction of several missing wastewater treatment plants in parts of the country.

The separation of the water management between different authorities, agencies, ministries and institutions has been seen as an additional challenge. Although there is a clear desire to maintain good communication, it sometimes seems that even people working in the water sector are not sure about who is responsible for the multifaceted tasks. The number of staff to ensure the correct implementation of the work related to water management is insufficient.

The recommendations 7.1 and 7.2 of the third EPR of Montenegro remain valid.

Conclusions and recommendations

Ensuring drinking water safety and reduce water losses

Recent estimates indicate that about 40–60 per cent of water sources in the country have sanitary protection zones, though verification of these numbers has not been possible. The Institute of Public Health reports that many sanitary protection zones are missing but that most water intakes have an immediate protection zone. Water disinfection is not consistently performed across all city water supply systems, likely because automatic dosing and residual chlorine level registration have not been established, except in a few large city waterworks. According to data from municipalities, a high percentage of abstracted water is never invoiced. For example, in 2022, in Podgorica, only about 50 per cent of the abstracted water was invoiced, indicating approximately 50 per cent water losses in the distribution system for drinking water.

Recommendation 7.1:

The Government should ensure:

- (a) *The establishment of legally prescribed sanitary zones for all wells and sources needed within the public water supply;*
- (b) *The regular treatment of water by disinfection in all water supply systems, preferably by an automatic dosing system;*
- (c) *The measurement of abstracted water from all wells and sources to determinate the non-revenue water and therefore identify the water losses in the system;*
- (d) *The reconstruction or rehabilitation of water supply systems, as necessary.*

Improvement of wastewater treatment

The Government does not pay sufficient attention to the management of wastewater treatment. One of the major problems that WWTPs are currently facing is the lack of a national sewage sludge strategy, which causes serious problems for the WWTPs, and is also criticized by the public. A water permit is needed for the discharge of treated wastewater. As at June 2024, two WWTPs have a permit, which is valid for 10 years. However, this is a relatively short time compared to the lifetime of infrastructure and to hydropower plants, which can get a permit for up to 30 years.

Recommendation 7.2:

The Government should:

- (a) *Review the duration of the water permits for wastewater treatment plants, considering a period longer than 10 years;*
- (b) *Prepare and implement a national sewage sludge strategy;*
- (c) *Modify the responsibilities for the regulation of sewer systems, so that the authority responsible for the wastewater treatment plant is also responsible for the sewer systems bringing the wastewater;*
- (d) *Prepare and implement an action plan with deadlines for the planned municipal wastewater treatment infrastructure;*
- (e) *Carry out regular campaigns to sensitize the population to the importance of water protection, water saving and wastewater treatment, and to change personal behaviour to protect water resources.*

Restructuring of the water management system

As at June 2024, water management is under the responsibility of different ministries, agencies, institutions and authorities.

Recommendation 7.3:

The Government should:

- (a) *Review and reorganize the main tasks of water management, as necessary;*
- (b) *Ensure adequate staffing and increase equipment resources in water management.*

Chapter 8

Waste and chemicals management

8.1 Practices and trends in waste management

The total waste generation in Montenegro between 2013 and 2022 has a moderately increasing trend. From 1.117 million tons it increased to 1.411 million tons resulting in a 26.31 per cent rise (see Table 8.1). From the three biggest waste generating sectors, construction almost quadrupled and households increased by 20.62 per cent, while the waste generation of manufacturing peaked in 2020 (at a 12.90 per cent rise) and then decreased below its 2013 level. Landfilling of waste has decreased from 70.52 per cent to 68.29 per cent between 2013–2022 while the processing of waste has increased almost by a factor of eight in the same period (see Table 8.2). This positive trend was almost exclusively due to the robust increase of the recycling rate of the total generated waste which increased from 1.60 per cent to 10.77 per cent.

Table 8.1: Generated and processed amounts of waste, 2013, 2015, 2020–2022, thousand tons

	2013	2015	2020	2021	2022
Agriculture	10.38	12.86	12.66	11.92	13.01
Manufacturing industry, mining and quarrying and other industries	676.05	717.76	763.27	682.77	638.63
Construction	102.88	85.42	187.89	427.15	375.03
Services	116.14	93.03	119.88	112.47	129.13
Households	212.14	239.08	230.68	243.56	255.88
Generated waste - total	1 117.59	1 148.15	1 314.39	1 477.87	1 411.67
from which: MSW	309.97	309.74	304.06	325.71	335.80
Treated waste and exports	1 041.43	1 089.60	1 131.10	1 265.16	1 174.75
Ratio of generated/treated waste	93.20	94.90	86.10	85.60	83.20

Source: Statistical Office, 2024.

Table 8.2: Quantity of treated waste by type of treatment, 2013, 2015, 2020–2022, thousand tons

	2013	2015	2020	2021	2022
Processing of waste	19.30	23.31	80.78	114.14	152.89
out of which: recycling of waste	17.91	23.25	79.17	112.54	152.09
Disposal of waste	944.13	1032.15	994.63	1049.28	935.54
out of which: incinerating (burning)	0.04	0.00	0.00	0.00	-
out of which: landfilling	665.81	700.31	654.89	733.13	645.72
Exports of waste	78.00	34.14	55.70	101.74	86.32
Total	1 041.43	1 089.60	1 131.10	1 265.16	1 174.75

Source: Statistical Office, 2024.

A waste producer that annually produces more than 200 kg of hazardous waste or more than 20 tons of non-hazardous waste is obliged to elaborate a waste management plan in accordance with the law. Consent to the hazardous waste management plan for amounts exceeding 200 kg per year and to the non-hazardous waste management plan for amounts exceeding 200 tons per year is given by the EPA.

Until 2018, waste data collection (surveys) was done in the cooperation of the Statistical Office and EPA. In July 2017, a recalculation of the series of data for the period 2011–2015 on the produced and processed quantities of municipal and non-municipal waste in Montenegro was carried out. Since 2018, Statistical Office has been conducting data collection independently. With the further development of waste statistics and the improvement of the quality of certain data sources in 2020, some data were additionally revised. Since then waste data collection methodology is completely aligned to EUROSTAT's methodology. The Recommendation 8.4 of the third EPR suggesting improving the collection and verification of waste data is implemented.

Municipal solid waste and similar waste

Municipal solid waste (MSW) generation in Montenegro has slightly increased by 8.33 per cent between 2013 and 2022, resulting in the increase of the generated waste per capita from 499 kg/year to 544.1 kg/year (see Tables 8.3, 8.4 and 8.5). The total collected MSW increased by 14.64 per cent, thus closing the gap between the generated and collected MSW. This is also reflected by the increase of the MSW collection rate from 79.1 per cent to 87.7 per cent. The remaining settlements which are not served by any waste management service can be found in the mountainous rural areas, mostly in the North and Western part of the country. Recycling of MSW remained low in the whole period and fluctuated between 0.30 per cent in 2022 and 4.01 per cent in 2016.

Table 8.3: MSW Generation, 2013, 2015, 2020–2022

	2013	2015	2020	2021	2022
Total generated (tons)	309 973	309 740	304 063	325 708	335 798
Total generated per capita (kg)	499	498	489	526	544
Total collected (tons)	280 118	286 873	287 316	308 904	321 140
Total collected per capita (kg)	451	461	462	499	520
Share of population served by waste collection services	79.1	81.7	87	87.6	87.7

Source: Statistical Office, 2024.

Table 8.4: MSW Composition, 2013, 2015, 2020–2022, tons

	2013	2015	2020	2021	2022
WEEE	37.6	67.9	143.6	254.3	97.5
Bulky waste (20 03 07)	26 468	24 507	34 825	36 997	40 523
Other communal waste	283 468	285 166	269 095	288 456	295 177
Total	309 973	309 740	304 063	325 708	335 798

Source: Statistical Office, 2024.

Table 8.5: MSW Treatment, 2013, 2015, 2022–2022, thousand tons

	2013	2015	2020	2021	2022
Processing of MSW	1.55	8.89	3.57	5.68	1.03
from which: recycling	1.41	8.88	3.56	5.67	1.02
Disposal of MSW	286.79	293.53	268.42	297.37	299.02
from which: landfilled	256.93	268.07	250.80	279.97	299.02
Export of MSW	8.56	10.03	14.72	16.33	13.11
Total	296.90	312.45	286.71	319.37	313.16
Recycling rate of MSW (%)	0.45	2.87	1.17	1.74	0.30
Total generated MSW	309.97	309.74	304.06	325.71	335.80

Source: Statistical Office, 2024.

There was a progress in relation to the fulfilment of SDG target 11.6 (by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management) and the SDG indicator 11.6.1 due to the growth of the MSW collection rate. According to World Bank, in 2018, the MSW collection coverage in Podgorica was 69.7 per cent (SDG indicator 11.6.1).

The country has continued to improve its recycling efforts. This is reflected in the achievement of the SDG target 12.5 (By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse) and its indicator 12.5.1 (National recycling rate, tons of material recycled): according to Eurostat, the estimated proportion of municipal waste recycled increased from 3.7 per cent in 2018 to 4.7 per cent in 2021. This progress is due to the increase of recycling rate related to the economic sectors which do not generate MSW type of waste, because the recycling of MSW remains low during the whole reporting period.

Separation and sorting

Despite the prescribed introduction of the separate collection system based on dry and wet fractions (“the system of 2 bins”) municipal solid waste in Montenegro is collected from the population almost exclusively without separation. Separate bins for dry and wet fractions were distributed in Podgorica (approximately 400 containers)

and other settlements, but since they are located at uncontrolled public areas, no one controls what is disposed of in them and the citizens actually use both type of bins as containers for mixed MSW without any sorting.

Sorting and separation of waste is done either in (regional) recycling centres by the employees of waste management companies or in recycling yards voluntarily by the population. Recycling centres receive mixed municipal waste from which they extract recyclable fractions based on the capacity and the equipment of their facility (i.e. which type of waste can they sort and process) or separately collected waste mostly on contractual basis received from companies, institutions or from other legal or physical persons. Recycling yards are serving residents to separately collect and store temporarily a wide range of waste types not only suitable for recycling, but which are hazardous waste (see box 8.1).

Box 8.1: Recycling yards and separate collection in Podgorica

The first recycling yard was established by Čistoća public communal company in Podgorica in 2011. Since then, five others have also been established in the capital. At recycling yards, there are containers of volumes from 1.1 up to 10 m³ depending on the type of waste they are storing. They serve for the disposal of certain types of hazardous and non-hazardous waste generated by citizens in their households, who can use them free of charge. In the period from 2011 to the end of first semester of 2022, a total of 928,401 kg of waste was collected in the recycling yards of Podgorica, mostly paper, cardboard and PET packaging. Čistoća also collects sorted cardboard from institutions and companies based on contracts, as a complimentary service and then sells the collected material to Deponija for further treatment.

Čistoća has one mobile “recycling yard” for the collection of glass, plastics, metal and cardboard which changes location from time to time in the densely populated residential areas. It also has seven “recyclomats” from which five collect PET and metal drink cans, and after five pieces of such a package are disposed of, they give back a small amount of dog food as a gift, and two are “smart recyclomats” which can also receive glass bottles. In addition, Čistoća has started to collect used clothes and textiles in 2024 in special containers which are located at few locations in Podgorica.

Most of the separately collected waste is collected from legal persons on contractual basis by public communal companies, either free of charge as in the case of Podgorica, or for payment. Separate collection of paper, cardboard and plastic is available in all municipalities where separate collection has been introduced fully or partially, that is in the following municipalities: Bar, Budva, Podgorica, Kolašin, Kotor, Mojkovac, Tivat and Herceg Novi. Glass is not collected separately due to its heavy weight resulting in higher logistics costs and because its price as a secondary raw material is not high enough to be profitable. In Podgorica, Deponija Ltd. has introduced a pilot project in the downtown of the capital for the separate glass collection from the commercial sectors, its biggest waste producer.

According to the 2018 update of the State Waste Management Plan (SWMP), a recycling centre is a material recovery facility, which shall have the following equipment and units:

- Line for secondary selection of useful components of mixed waste;
- Line for the production of alternative fuel;
- Press for compressing (baling) secondary raw materials;
- Temporary storage for separated and baled secondary raw materials;
- Part for temporary storage of imported and separated special types of waste;
- Compost plant for composting organic waste;
- Sanitary landfill for disposal of remaining municipal waste.

In practice, none of the recycling centres comply with this list, the most advanced recycling centre which operates in the framework of the sanitary landfill has no compost plant for organic waste and no production of refuse derived fuel.

As at April 2024, there were regional recycling centres in Podgorica, Herceg Novi, Kotor and Žabljak. Recycling yards are located in Podgorica (6 yards), Herceg Novi, Kotor, Budva and Mojkovac and one in Plav with a sorting station. There were transfer stations in Kotor, Herceg Novi, Mojkovac and Petnjica. The 2021 and 2022 EPA annual state of the environment reports mentioned five facilities for the treatment of end-of-life vehicles: one in Podgorica, one in Berane and three in Nikšić. However, the latter four are not part of the state or municipally owned waste management infrastructure, they are private companies which have permits for treating end-of-life

vehicles' waste. The reports also mentioned treatment facilities of waste from electrical and electronic equipment, which are private companies in Bar and in Nikšić.

As at April 2024, two more regional recycling centres were planned for Nikšić (the technical documentation is under preparation) and Bijelo Polje where the location was under selection. The 2018 update of the SWMP envisaged the establishment of four waste management centres which would be de facto equal to waste management regions as the plan listed the division of service areas of these centres:

- Podgorica centre would receive waste from the capital, Cetinje and Danilovgrad;
- Nikšić centre would serve the municipalities of Nikšić, Plužine and Šavnik;
- Bijelo Polje centre to serve Bijelo Polje, Mojkovac, Kolašin, Pljevlja, Žabljak, Berane, Rožaje, Plav, Andrijevica, Gusinje, Petnjica;
- Bar centre to serve Bar, Ulcinj, Herceg Novi, Kotor, Tivat, Budva.

The 2018 update of the SWMP also envisaged recycling yards in Cetinje (recycling yard with a sorting plant and a transfer station) and in the municipalities of Petnjica, Gusinje, Bar and Tivat, while according to the draft SWMP, recycling yards are also planned in Bar, Budva, Ulcinj and Tivat. As at April 2024, the establishment of these facilities has not been started.

The first compost plant was opened in the municipality of Kotor to solve the issue of green and biologic waste management in the municipalities of Kotor, Tivat, Budva and Herceg Novi, but due to the unexpected waste generation of this type, it receives and treats waste only from the municipality of Kotor.

Landfilling

Municipalities are obliged to make their local waste management plans for the same period as the SWMP. The local plans need to be harmonized with the state plan's objectives. They should designate the location(s) of landfills of temporary storage sites, as well as other relevant aspects of the MSW management in the municipality such as recycling, collection, other waste management facilities, and action plan for financing. Municipalities that do not have a sanitary landfill can either hand over MSW to a company or entrepreneur who has a permit for processing and/or waste treatment, or temporarily store MSW at a designated location by the local MSW plan before handing it over to a company or entrepreneur for treatment and/or disposal. A dumpsite is considered illegal when there is no local waste management plan for MSW and non-hazardous construction waste, thus it could not legally designate an area for "temporary" waste collection.

Waste can be temporarily stored for a period no longer than one year. If the storage is done for more than one year, the municipality pays a fee of €10 per ton (according to the old law, the new law does not specify the amount) of municipal waste for each year. Funds from these payments can only be used for construction of facilities for waste processing, procurement of equipment and vehicles for waste collection and transport and rehabilitation of dumpsites and non-landfills. According to the 2022 SWMP implementation report, Nikšić was the only municipality in Montenegro that had not adopted a local plan for the management of municipal waste, thus it disposed of its waste in a totally illegal way at the 'Mislov do' dumpsite.

There are two sanitary landfills in operation in Montenegro, both operate with IPPC permits which have to be renewed every five years.

The Livade landfill in the outskirts of Podgorica is operated by the Deponija Ltd. and as at April 2024, it was receiving MSW from the following municipalities: Podgorica, Tuzi, Zeta, Danilovgrad, Cetinje, Pluzine and Šavnik. According to plans from July 2024, it will start to receive waste from Mojkovac and Kolašin municipalities as well, while there are discussions about the possibility to extend its service to Nikšić municipality, too, which currently disposes of its MSW on a non-sanitary dumpsite. In Livade landfill, the capacities for disposing of non-hazardous waste are continuously expanding: the third sanitary cassette is already full and closed, while the fourth cassette which construction was started in late 2021 is already in operation. At the planning phase of the landfill, the projected lifetime of a cassette was 5–6 years, but by current waste generation trends one sanitary cassette is totally filled in approximately three years, so the construction of the fifth and sixth cassette is needed. The management of Livade landfill estimates that even after the construction of the fifth and sixth cassette, the landfill could receive MSW up to eight more years, so the municipality of

Podgorica and the Government should already start to search for a long-term solution for this landfill. The plant for the treatment of leachate was put into operation in mid-2018.

The Možura landfill is located nearby Bar and is serving the following coastal municipalities: Bar, Ulcinj, Budva, Kotor and Tivat. Možura landfill was filled with waste up to almost 70 per cent of its designed capacity in 2022 and it was estimated that it can receive waste for four or five more years. Thus, the founding municipalities and the government are already analysing the possible options and technical needs for extension. Feasibility studies for the construction of a system to obtain electricity from landfill gas and for leachate treatment are also done, but the construction of these projects has not started as of April 2024. Možura has a permit for the treatment of used tires and other bulk waste, and it is already performing the following: crushing used tires and selling it for further use and extracting the metal wires from tires and selling it as a secondary raw material.

The construction of another landfill with a regional recycling centre in the Northern mountainous region has been planned for more than a decade. At some point the location was already selected, a dumpsite at Vasove vode nearby Beranselo, in Berane, but due to the opposition of residents and civil society organizations, the location was not considered and since then there was no progress with the project. Once the Livade landfill starts to receive waste from Mojkovac and Kolašin, nine municipalities of the Western and Northern part of the country, including Nikšić, the biggest one in area, will still not have access to a sanitary landfill. Until then, they are disposing of their MSW in designated “temporary” dumpsites or in the case of Nikšić in a totally illegal dumpsite called “Mislov do”.

Industrial waste

Manufacturing waste generation has increased between 2013 and 2020 when it peaked a 12.90 per cent rise, before decreasing below its 2013 level by 2022. The share of hazardous waste within manufacturing waste fluctuated between 35.96 per cent (2013) and 47.47 per cent (2016) (see Table 9.6). Between 2018 and 2022, the share of the two largest waste generators in the country remained stable: the mining and the supply of electricity, gas steam and air conditioning sectors accounted for more than 95 per cent of the generated waste (see Table 8.7). While mining generated mostly hazardous waste, the sector of supply of electricity, gas steam and air conditioning predominantly generated non-hazardous waste. The biggest industrial waste generator companies were the Tosčelik Nikšić Steelworks, KAP and the Pljevlja Power Plant. The hazardous waste from the KAP and Nikšić Steelworks cannot be treated in Montenegro, all of that waste type has to be exported.

Table 8.6: Generated hazardous and non-hazardous waste by manufacturing industry, mining and other industries, 2013–2022, thousand tons

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Hazardous	243.09	266.33	290.27	323.59	298.20	336.75	326.00	317.14	292.50	266.64
Non-hazardous	432.95	412.89	427.50	358.02	366.01	421.44	427.24	446.13	390.28	371.99
Total	676.05	679.22	717.76	681.61	664.20	758.19	753.24	763.27	682.77	638.63

Source: Statistical Office, 2024.

In Montenegro, the biggest issues related to industrial waste are the former industrial hotspots formed on the locations of big factories in heavy industry sectors and built during the former Yugoslav state. The hotspots are either in operation, but privatized without solving the inherited waste problem, or are closed without the necessary remediation (see box 8.2).

Box 8.2: “Industrial waste management and cleaning” project

The project “Industrial waste management and cleaning” was implemented between 2015 and 2023 in Montenegro in cooperation with the World Bank, for the purpose of rehabilitating environmental industrial hotspots. The project focused on the following hotspots: the former Bijela shipyard, the Gradac flotation tailings, and the Maljevac ash and slag landfill nearby Pljevlja and connected to the thermal power plant’s activity. By April 2024, the works on the remediation of the Gradac flotation tailings and the Maljevac ash and slag landfill were completed. The importance of remediation is particularly highlighted in view of control and prevention of further pollution of the municipality of Pljevlja.

The project also had a component on the rehabilitation of the red mud pools and the solid waste landfill located at the Podgorica Aluminium Plant site. The project provided funds for the preparation of technical documentation for remediation

which has been prepared and approved, but the financing for remediation works from the project were cancelled, so the remediation of the site has not been accomplished.

Thanks to the implementation of the project and the cleanup of three of the four priority industrial hotspots containing hazardous waste, there was progress on the achievement of the hazardous waste related SDG target 6.3 (by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally).

Waste from energy sector

The only waste generator for the energy sector in Montenegro is the Pljevlja Power Plant, which is the only coal-fired TPP in the country. Pljevlja TPP submits an annual report on waste and a report on emission measurements of pollutants from the combustion plant. The TPP's integrated permit has expired and the operator needs to obtain an integrated permit for this plant in accordance with the Law on Industrial Emissions, after the power plant reconstruction project is completed.

Construction and demolition waste

Construction was the sector that had the biggest rise in waste generation; it almost quadrupled between 2013–2022 (see Table 9.1). Non-hazardous construction waste is considered similar to MSW by the law, thus it is disposed of in sanitary landfills or 'temporary' storage sites.

Mining and quarrying waste

Separate data for mining waste is available since 2019. Mining waste had an unequivocally decreasing trend between 2019 and 2022 from 382,285 tons to 269,843 tons and almost all of the mining waste is classified as hazardous (see Table 8.7). The producers of mining waste are obliged to adopt a mining waste management plan and a plan to prevent a major accident in the management of mining waste. The treatment and disposal of mining waste can be carried out by a company or an entrepreneur if it has the appropriate equipment, facility for processing mining waste and the required number of employees, based on a permit for treatment or disposal of mining waste. The management of mining tailings is under the responsibility of the mining company that obtained the exploitation permit.

Table 8.7: Generated waste quantities by manufacturing, mining and other industries, 2019, 2020, 2022, thousand tons

	2019				2020				2022			
	Mining	Manuf.	Power	Water	Mining	Manuf.	Power	Water	Mining	Manuf.	Power	Water
Non-hazardous	57.55	31.25	334.26	4.17	49.62	30.99	361.29	4.24	3.62	23.43	336.66	8.28
Hazardous	324.73	0.64	0.51	0.13	315.92	0.57	0.56	0.09	266.23	0.03	0.30	0.09
Total	382.29	31.88	334.77	4.30	365.54	31.55	361.84	4.33	269.84	23.46	336.96	8.37

Source: Statistical Office, 2024

Notes: Power: Supply of electricity, gas, steam and air conditioning. Water: Water supply, wastewater management, control of waste removal processes and similar activities. Manuf. Manufacturing.

Agricultural waste

The generation of agricultural waste has been fluctuating between 10,000 and 15,500 tons in the period of 2013–2022, mainly due to the variations of the crop quantity. With such waste amounts, it is the smallest waste generating sector in the country.

Hazardous waste

Hazardous waste generation had a growing trend from 2013 until 2020 when it increased by 28.93 per cent from 247,530.4 tons to 343,893.5 tons, before decreasing to 294,466 tons (see Table 8.8). In 2022, the biggest hazardous waste generator sector is by far the mining which accounted for more than 99.84 per cent of the hazardous waste generation in each year. Small and medium size hazardous waste generators are not fully identified.

Table 8.8: Generated amounts of hazardous and non-hazardous waste 2013–2022, tons

	2013	2015	2020	2021	2022
Hazardous	247 530	295 877	343 894	304 488	294 466
Non-Hazardous	870 058	852 271	970 500	1 173 377	1 117 208
Total	1 117 589	1 148 149	1 314 394	1 477 866	1 411 674

Source: Statistical Office, 2024.

Montenegro has shown a slow progress in implementing the SDG target 12.4 (By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment). In relation to SDG indicator 12.4.2 ((a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment), Montenegro has data only on hazardous waste generation but not on treatment, because this type of waste cannot be treated or disposed of in the country. Hazardous waste is exported, but before it is stored in the premises of the waste generating factories until it can be exported. The amount of hazardous waste generated per capita increased steeply from 330.6 kg in 2012 to 546.7 kg in 2020.

Montenegro made progress in the last decade regarding the SDG target 3.9 (By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination) and the SDG indicator 3.9.3 (Mortality rate attributed to unintentional poisoning). According to SDG datasets, the mortality rate attributed to unintentional poisonings reduced from 0.9 deaths per 100,000 population in 2000 to 0.6 deaths per 100,000 population in 2019.

Medical waste

The collection, treatment and disposal of medical waste was contracted for 15 years in 2011 and since then it is carried out by the consortium OMP for the following types of medical waste:

- Sharp instruments (waste code: 18 01 01 except 18 01 03*);
- Medical waste subject to special requirements to prevent infection (waste code: 18 01 03*);
- Medical waste not subject to special requirements due to the prevention of infection (waste code: 18 01 04, e.g. bandages, plasters, bedding, disposable clothing and diapers);

The consortium collects and treats the following types of veterinary waste:

- Sharp instruments (waste code: 18 02 01, except 18 02 02*);
- 18 02 02* type of waste, which is subject to special requirements to prevent infection;
- Pathoanatomic waste, which is buried in designated areas of cemeteries because of the lack of incinerator.

The consortium is collecting and treating waste generated from all state established healthcare facilities as follows: 18 local health centres, 7 general hospitals, 3 special hospitals, Clinical Centre of Montenegro, Institute for Emergency Medical Assistance, Institute for Blood Transfusion, Institute for Public Health and pharmacy institutions “Montefarm”. Private healthcare companies are also obliged to contract the consortium for waste collection and disposal. Waste treatment is done in its two facilities in Podgorica and Berane. After treatment, the waste ash is considered as non-hazardous, and is transported and disposed of at the landfill in Podgorica.

In accordance with the regulations, healthcare institutions submit monthly reports on the amount of medical waste generated, as well as the annual report on waste generated by them on the prescribed forms of the Ministry of Health. In order to monitor the implementation of the SWMP, Ministry of Health, healthcare institutions founded by the state and the consortium signed a protocol on the administrative-technical implementation of the contract with public healthcare institutions. The person responsible for waste management in the healthcare institution hands over the generated and collected waste to the authorized person of the concessionaire and enters the data in the table of records of waste handed over to the waste processor. The collection of waste is carried out according to the mutually agreed time dynamics between the health institution and the concessionaire. The concessional

study for the management of medical waste estimated an annual amount of 654 tons which quantity has not been reached in any year, not even in the height of COVID-19 pandemics.

Table 8.9 shows the generation of medical waste in Montenegro from 2016 until 2022. Due to COVID-19 pandemics, increased waste generation was observed in 2020 and 2021, while the waste quantity in 2022 already decreased almost to the pre-pandemic's levels. Most of the medical waste is generated by public healthcare facilities, private facilities generate between 4–7 per cent of medical waste.

Table 8.9: Treated quantities of selected medical waste, 2016–2022, tons

	2016	2017	2018	2019	2020	2021	2022
Public	426.42	403.88	382.58	414.7	478.34	621.97	442.98
Private	n.d.	n.d.	18.3	20.7	35	n.d.	n.d.

Source: EPA annual state of the environment report, 2022.

Radioactive waste

In Montenegro, there are no production of radioisotopes, nor research reactors. The trade of nuclear materials is prohibited as well as the installations of radar level recorders and smoke detectors with radioactive gaseous state. The centralized storage facility in the CETI has been licensed and is operational since 2012 with the projected lifetime of 50 years. There is one unlicensed legacy facility with the remains of jet engines from the 1999 bombardment. It is under inspection, supervision and monitored against radioactivity, but the disposal of this radioactive waste needs to be solved on long term.

According to the database on detected illicit shipments of radioactive material, seven separate cases have been detected since 2010 in Montenegro, and they were either radioactive lightning rods or Ra226 instruments with radium colours. They are stored since in the centralized storage facility.

Persistent organic pollutants waste

According to the SWMP estimate, as at 2015, there were about 500 tons of equipment and devices, mostly transformers and capacitors, which contained PCBs or other oils with dangerous properties in Montenegro. There were also about 100 tons of transformer oils, pyralene, silicone and other oils that qualified as hazardous waste. However, the project “Comprehensive environmentally friendly management of waste containing PCBs in Montenegro”, implemented between 2017 and 2023, estimated that there are at least 700 tons of PCB contaminated equipment and waste and 200 tons of contaminated soil in Montenegro.

The following activities have been performed: a set of capacity building, training and awareness raising activities related to POPs management for experts and population; enhanced inspections related to perfluorooctanesulfonic acid containing products; enhanced monitoring related to POPs (extended to two perfluorooctanesulfonic acid and polychlorinated diphenyl ethers; completion of work on supplementing and completing the existing inventory of emissions of unintentionally produced POPs chemicals released into the environment; completion of work on supplementing the existing inventory of equipment containing PCBs bigger than 50 ppm and marking of identified PCB devices; the establishment and updating of an integrated database of waste containing polychlorinated diphenyl ethers, haemoglobin subunit beta and hexabromocyclododecane chemicals, as well as regular reporting on such waste types generated. The inventory of PCB equipment and waste is entrusted to an accredited laboratory of the CETI for PCB sampling and analysis and the inventory of power equipment was established with all identified partners.

In the framework of the project “Industrial waste management and cleaning”, the following POPs waste removal and disposal activities have been carried out: permanent disposal of PCB contaminated equipment and waste in accordance with domestic regulations and requirements of international conventions: 248 tons of such waste has been exported and disposed of in France by the end of 2019.

The detailed country-wide PCB equipment inventory was first done during the preparation of the National Implementation Plan of the Stockholm Convention for the period of 2014–2021 and it was published in the same document. It has been revised between 2016–2018 in the framework of the project for the revision and update of

the National Implementation Plan of the Stockholm Convention on POPs, thus the Recommendation 8.5 of the third EPR was fully implemented.

Specific streams

The Statistical Office does not collect and publish data on specific waste streams, but local communal companies do report on the collection of some types of separately collected and recyclable waste to the ministry responsible for the environment and to EPA. Data are published in the annual implementation reports of the SWMP. Although there are no continuous datasets prepared using the same methodology, the published data in the reports are rather ad hoc compilations from the submitted companies report.

For example, the 2020 SWMP implementation report reported the following amounts of separately collected recyclable waste together with some separately collected hazardous waste types: 21,766 tons of packaging waste, 442 tons of electrical and electronic waste, 35 tons of waste batteries and accumulators, 85 tons of waste vehicles, 1,120 tons of oily water from the oil/water separator, sludge from the separator, various motor oils for gearboxes and lubrication, 105 tons of waste edible oil. Both waste oil categories were mostly processed after collection by Hemosan Ltd. in Bar. The 2021 SWMP implementation report reported 4,732 tons of collected recyclable material, 23,400 tons of packaging waste collected from legal persons and 15,477 tons of 'green' waste and gave an even more detailed list of nine other separately collected hazardous waste types which were prepared for recycling or were exported. The 2022 SWMP implementation report published the following data on the collected and prepared materials for reuse and recycling: 4,479 tons of paper, plastic, metal and glass; 17,352 tons of bulky waste, 16,512 tons of 'green' waste, 66,000 tons of waste packaging (non-hazardous waste), 1,780 tons of waste packaging (hazardous waste), 590 tons of hazardous waste from electrical and electronic equipment, 2,100 tons of batteries and accumulators, 335,039 tons of waste from thermal processes, 3,355 tons of waste oil (hazardous) and 415 tons of waste edible oil. There is no solid methodology for the collection and processing of data related to separate collection of the recyclable waste stream which are generated in the biggest amounts.

8.2 Transboundary movement of waste

All transboundary waste movement is subject to permits issued by the EPA. Montenegro has no treatment and disposal site for hazardous waste; thus all such waste types should be exported abroad for final disposal. Before the identified and collected hazardous and radioactive waste is exported, it is stored in the country. Most part of the waste material which is sorted and prepared for recycling is also exported abroad due to the lack of sufficient domestic processing capacity and demand for secondary raw material.

Montenegro allows the imports of non-hazardous waste as secondary raw material, but imports for the purpose of disposal and use as fuel or in another way for energy production is prohibited. In 2021, EPA issued 67 permits for the imports of non-hazardous waste. Most of them (91.5 per cent) related to the imports of used machines exclusively for reuse, while the other 8.5 per cent of permits related to secondary raw materials (metal). For the transit of waste through Montenegro, 77 permits were issued and all of them related to the transit of non-hazardous waste.

The imports of hazardous waste into Montenegro are banned, only trans-shipments of such waste were authorized through the territory of the country. In accordance with the Law on Waste Management and the requirements of the Basel Convention on the Control of Transboundary Movement of Hazardous Waste and its Disposal, hazardous waste is exported from Montenegro. In 2021, 12 permits were issued that related to the exports of 72,900 tons of hazardous waste.

8.3 Practices and trends in chemicals management

The production of chemicals and chemical products in the overall structure of the industry in Montenegro had a share of only 0.1–0.2 per cent (2019), thus chemicals in the Montenegrin market are mostly imported. In 2017, according to data from the register of chemicals maintained by the EPA, chemicals were distributed on the Montenegrin market by 49 economic entities in quantities above 1 ton for a year, all by importers. According to data from the register of chemicals, the total amount of chemicals placed on the market in 2017 amounted to 3,322.18 tons, of which the largest quantitative share (1,324.72 tons) was oil obtained from petroleum and oil obtained from bituminous minerals.

EPA keeps the register of Seveso facilities made on the basis of the submitted notifications, according to the rulebook on quantities of dangerous substances by categories that determine the degree of risk. Based on the rulebook, 6 facilities were identified as having an amount of chemicals that are stored representing a higher risk.

8.4 Environmental pressures from waste and chemicals

The 2022 marine waste monitoring programme of EPA included the monitoring of the condition on the beaches as well as of floating waste for the autumn and winter seasons in three transects of Boka Kotorska. Waste monitoring was carried out on three beaches according to the Mediterranean Pollution Assessment and Control Programme: one in Boka Kotorska (Blatna beach in Herceg Novi municipality), and two in the open sea (Jaz beach in municipality Budva and Velika Plaža in Ulcinj municipality, in the immediate vicinity of the Bojana River). Based on the results of waste monitoring on the beaches, plastic waste is the most represented category of waste (at least 74 per cent). According to the weight of the collected waste on the beaches, different categories were dominant: plastic, rubber and processed wood. Regarding the floating waste, the most represented waste group on the two transects where plastic waste being at least 80 per cent of found waste (82.35 per cent for Transect 1 and 87.5 per cent for Transect 2), while plastic bags were the most represented sub-category.

From the aspect of waste management, non-sanitary landfills and illegal dumpsites represent the biggest threat for the environment. They are a potential and actual source of pollution for air, water and soil, and to some extent to nearby flora and fauna. In Montenegro, the periodical burning of such waste dumping locations is the biggest issue and, in some settlements, it is almost a constant nuisance and healthcare threat for the population. There are frequent cases of fire in the two biggest unregulated de facto municipal dumpsites near Nikšić and Rožaje ('Mostine' dumpsite), and demonstrations are frequent by the local population requesting action from local and governmental level officials (see box 8.3).

Box 8.3: Mobile application against illegal waste and dumpsites

In Podgorica, the public communal company Čistoća has launched the option for the citizens of online reporting of illegal dumpsites and waste disposal via a mobile application called KASPER. The use of the application is very simple: with the mobile phone, the users can make pictures and add the exact location of the waste. Once the reported illegal waste quantities are cleaned up, the employees of the company document it with pictures of the situation after they cleaned it, so the users can see the results and easily follow up the reported issues.

The annual SWPM reports contain in their annex the list of unregulated landfills with location data, waste description and quantity estimates. The list is compiled based on the municipalities' reports and the similar total number suggest that it is not updated annually by municipality. There were 336 illegal dumpsites according to the 2020 SWPM annual implementation report, 347 in the 2021 report, and 346 in the 2022 report. During the last years, the following large non-sanitary waste disposal sites were rehabilitated:

- "Čarkovo polje", in the municipality of Žabljak (2017);
- "Vrtijeljka", in the municipality of Cetinje (2018);
- "Vasove vode", in the municipality of Berane (2018);
- "Zauglina", in the municipality of Šavnik (2018),
- "Komorača", near the municipality of Plav (2019).

The technical project documentation has been completed for the rehabilitation of the temporary municipal waste disposal site at location "Zakršnica" in municipality of Mojkovac, but the groundwork has not started as of April 2024. Besides 'Zakršnica', the four biggest non-sanitary waste disposal sites awaiting closing and/or rehabilitation are 'Ćafe' in Bar, 'Mislov do' in Nikšić and the ones in Kolašin and Tivat.

8.5 Chemicals emergency preparedness, response and follow-up

In emergency situations, a set of protection and rescue measures and actions are applied with the aim of detecting and preventing the emergence of danger, as well as mitigating and removing the consequences of technical-technological accidents, radiation, chemical and biological contamination that can threaten or endanger the

population, material goods and the environment. Plans, management and coordination in the protection and rescue system, as well as other elements necessary for the functioning of this system, including rights and obligations of participants in protection and rescue, measures, financing and supervision, are regulated by the Law on the Protection and Rescue. The primary institution in charge of this area is the Ministry of the Interior and its Directorate for Protection and Rescue, which manages the entire range of preventive, operational and remedial measures and protection and rescue activities.

Regarding emergency situation, the Disaster Risk Reduction Strategy was adopted with an action plan for the period of 2018–2023. The strategy's goals are in line with the Sendai Framework for Disaster Risk Reduction. The Strategy foresees the establishment of a National Training Centre for Protection and Rescue to organize training for the improvement of capacity and skills of members of operational protection and rescue units. The National Training Centre for Protection and Rescue was opened in November 2022. A new Disaster Risk Reduction Strategy for 2025–2030 is currently being developed as at April 2024.

However, no inventory of any residual chemicals was carried out.

8.6 Legal, policy and institutional framework

Legal framework

The Law on Waste Management repealed the former Law on Waste Management. The adoption of the new Law on Waste Management was planned for 2021, but after a few years of delay due to the political situation in the country, the new Law was adopted and entered into force in 2024. The reason for adopting a new law is to further harmonize the Montenegrin waste legislation with the EU legislation. Thus, it strengthens the extended producers' responsibility which was already prescribed by the previous law, and it will provide a set of by-laws for its implementation related to the following product types: electrical and electronic equipment, vehicles, batteries, tires, packaging, single-use plastic products and fishing gear containing plastic. A manufacturer or Montenegrin distributor of such products is required to establish an extended producer responsibility programme for the waste generated by these products. The new law prohibits the use of light plastic carrier bags with a thickness of 15 to 50 microns, while the use of light plastic carrier bags with a thickness of up to 15 microns is permitted at the place of packaging of goods or products. The sellers of lightweight plastic carrier bags with a wall thickness of more than 50 microns will be subject to payment of fee. Altogether, the adoption of 43 by-laws (35 rulebooks and 8 decrees) are planned to complete the waste legislation and to facilitate the implementation of the law. Some of these by-laws are expected to regulate waste from mercury and POPs.

The Law on Chemicals introduced the Register of Chemicals based on the model prescribed by the provisions on the Regulation on the registration, evaluation, authorisation and restriction of chemicals of the EU. By the adoption of the law, the legislation in the field of chemicals management has been harmonized to a significant extent with the relevant EU regulations, especially related to the following areas: substances for which prohibitions and restrictions have been established, harmonized classification and labelling, the obligation to implement the prior notification procedure during imports/exports, substances that are not entered in the register, as well as testing methods. The Law does not relate to biocides and plant protection chemicals, which are regulated in separate laws.

Policy framework

The State Waste Management Plan for the period of 2015–2020 consisted of a strategy and an action plan. The Strategy contained detailed estimations by municipalities related to waste generation until 2036 and it listed a set of objectives and programmes with detailed targets or references of targets from the Law on Waste Management to be achieved. Most of the targets were unrealistic and were not met. The action plan defined detailed activities and objectives divided into legislative-legal, institutional and technical-technological types. The latter activities were related to infrastructural needs and there were three options elaborated with a detailed list of planned investments, although it remained unclear which of the options should have been implemented. The options differed in the proposed regional division of waste management: 1) listed two central regions, a Northern region and two coastal regions, 2) a Northern, a central and a coastal region, while 3) offered no regional division. Most of the investments with higher estimated costs (e.g. building of sanitary landfill in Bijelo Polje and/or Nikšić) or the planned solar wastewater sludge dryers by each wastewater plant were not implemented.

The SWMP was updated in 2018 with few points related to the actual situation in medical and veterinary waste, industrial waste in Tošćelik steelworks in Nikšić and it clarified the characteristics of each type of MSW facilities and proposed exact locations for them based on the three options of regional division option and related investment list in the original SWMP.

The SWMP's validity has been prolonged until the new Law on Waste Management is adopted to incorporate the new regulations introduced by the law. In accordance with this, the annual reports on its implementation were continued to be prepared and adopted after 2020, respectively for years 2021 and 2022, but for 2023 there was no report prepared as at April 2024. Some local waste management plans are on hold due to the delay in the adoption of the new SWMP, with which the local plans must be harmonized. Because of this, the Ministry refused to give consent for the local plans of Plav and Šavnik and communicated to Gusinje, Tivat and Kotor to wait with the preparation of their own local plans until the adoption of the new SWMP.

The draft national waste management plan for Montenegro for the period 2023–2028 has been published in July 2023, together with its report on the strategic environmental impact assessment as the start of the official phase of public consultations. As at April 2024, the draft plan was still in preparatory phase, it had not been submitted neither to the Government nor to the parliament.

The 2023 Strategy on Chemicals Management for 2024–2026 followed the two previous strategies - for 2019–2022 and 2015–2018

Institutional framework on waste and chemicals management

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development), including its legal predecessors, were responsible for strategic and policy level waste and chemicals management in the Montenegrin governmental structure. Within this ministry, the following departments were dealing directly with waste and chemicals management: Department for Ionizing and Non-ionizing Radiation, Nuclear and Radiation Safety, Department of Pollution Control and Chemicals Management, Department of Waste Management. The Department of Waste Management is the unit responsible for checking local waste management plans whether they comply with the SWMP and giving consent to those which are compliant.

The Ministry of Health is responsible for the policy level of the management of medical waste, and as such to supervise the implementation of the long-term contract for the management of this waste type.

The EPA has a wide range of tasks related to waste and chemicals management:

- Monitoring of the environment for harmful materials deriving from waste and chemicals;
- Issuing the IPPC permits;
- Issuing permits for cross-border movement, processing and/or disposal of waste;
- Issuing permits for: carrying out maintenance and/or repair activities, as well as exclusion from use of products containing substances that damage the ozone layer and/or alternative substances; imports and exports substances that damage the ozone layer, alternative substances, products containing them; imports, exports and transit of chemicals that are on the list of classified substances, imports and exports of detergents, for carrying out the activities of trading dangerous chemicals, import, export and transit of biocidal products;
- Implementing the strategic impact assessment procedure and the project environmental impact assessment procedure;
- Issuing consent to waste management plans;
- Giving opinions in the process of issuing permits, keeping records on production and waste management;
- Conducting the prior notification procedure related to Basel Convention and Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.

Inspection on waste management is the responsibility of the Administration for Inspection Affairs and its Department of Environment and Spatial Planning, which includes environmental inspection and is in charge of inspection supervision on waste management. As at April 2024, there were only seven job positions of environmental inspectors covering the whole country and they were neither distributed by regions, nor by

specializations for certain areas within waste management. The lack of human resources and the entailing organizational deficiencies of the activities are seriously hindering the effectiveness of the work of waste related inspections (see chapter 2). Besides this body, there are communal inspectors authorized for performing a few local level inspection types, including the control of local public utility facilities such as locally designated 'temporary' waste disposal sites.

CETI serves as a referent laboratory for several waste and chemicals related procedures as follows:

- Management of the only radioactive waste storage in Montenegro;
- Different types of radioecological measurements;
- Ecotoxicological testing of all segments of the environment;
- Testing of ionizing radiation;
- Analyses in accidental situations;
- Classification of waste category;
- Determination and categorization of the type of hazardous waste;
- Programme for testing toxic and dangerous substances in the soil;
- Monitoring programme for pesticide residues and other toxic substances in foodstuffs and products of plant origin;
- Toxicological analysis of human material upon request, on the causes of poisoning, analysis of alcohol in blood, analysis of heavy metals in blood, urine, and other substances, analysis of gases in blood, analysis of PCBs, phenols, fluoride, in blood and urine;
- Analyses of POPs substances, polyaromatic hydrocarbons, mineral oils, pesticides, volatile organic compounds, in water bodies and soil.

Procon is a state-owned company founded by the Government. The company manages projects on communal services and environmental protection. In 2023, Procon started preparing and/or managing four smaller scale infrastructure projects related to waste management:

- Construction and equipment of a recycling yard, with a transfer station and a sorting plant in Cetinje;
- Construction of a regional centre for solid waste management in Bijelo Polje and in Nikšić (two separate projects);
- Extinguishing the fire at the unorganized landfill Mislov do.

The Environmental Protection Fund (Eco-fund) is a state-owned company founded by the Government for supporting institutions, companies and citizens with financing the preparation, implementation and development of programmes, projects and similar activities on conservation, sustainable use, protection and improvement of the environment, energy efficiency and the use of renewable sources and energy at the state and local level.

Coordination between institutions at national, regional and local levels on matters related to waste and chemicals management

There is no specific coordinating body or expert group related to waste or chemicals management in Montenegro, these sectors are part of the overall environmental coordination in the country.

Regulatory, economic, fiscal and information measures

Financial incentives, such as subsidies for investing in waste management infrastructure or adopting cleaner production technologies, are conducted by the Eco-fund. Eco-fund started its work in 2023 and since then has launched three calls for applications (see Table 8.10).

In December 2023, Eco-fund launched a call for applications for supporting waste management projects for the removal of waste dumped into the environment with a total budget of €192,344.46 and €34,000/applicant, with 80 per cent co-financing rate.

In 2024, Eco-fund launched a call for applications with a total budget of €500,000 for supporting waste management projects for the removal of waste dumped into the environment up to €30,000/project and the

following seven municipalities (or their public communal companies) were awarded: Nikšić, Tuzi, Bijelo Polje, Rožaje, Gusinje, Mojkovac, and Plav.

Table 8.10: Waste related funding provided by Eco-fund through public call for applications and other projects, 2022–2024, €

	Objectives	Total budget of the call	Maximum co-financing per project
2022	Removal of illegal dumpsites	170 000	34 000
2023	Removal of illegal dumpsites	300 000	34 000
2023	Supporting waste management infrastructure	300 000	34 000
2023	Removal of illegal dumpsites	192 363	34 000
2024	Supporting waste management infrastructure (vehicles)	648 000	64 800
2024	Supporting waste management infrastructure (non-mobile equipment)	500 000	50 000
2024 (planned)	Removal of illegal dumpsites	500 000	n.d.
2024 (planned)	Waste from electrical and electronic equipment collection from households	100 000	100/household

Source: Eco-fund website

At the end of April 2024, the public call for the allocation of grants for supporting communal infrastructure in the municipalities (the procurement of communal equipment and devices for waste management to local self-government units/companies registered for the provision of communal services) was published with a total budget of €648,000 for moving equipment (vehicles) and €500,000 for non-moving equipment.

Also, according to the Eco-fund's own annual plan for financing, a project supporting the collection of waste from electrical and electronic equipment from households with a total budget of €100,000 will be financed in 2024.

The increasing budget of subsidies disbursed by Eco-fund for waste management projects is expected to improve the situation of the municipalities preparedness for waste infrastructure and also in the rehabilitation of smaller and medium sized illegal dumpsites and temporary municipal waste disposal sites, but if the available funds for such assistance would not increase significantly, the funds will be not enough to support the rehabilitation of bigger dumpsites used for decades by municipalities, such as Mislov do. Based on the actual and planned funding objectives from the Eco-fund's first two years (2023–2024), the assistance for separate collection, sorting and recycling infrastructure or subsidies for these activities are lacking, leaving recycling without any financial stimulation in Montenegro, thus hindering the country's targets in reaching waste management.

Since 2021, the Government has made three calls for applications for civil society organizations in supporting their targeted projects and campaigns on specific environmental issues. In 2021, there was a call for supporting educational campaigns for the safe management of POPs: seven projects were supported with a total budget of €50,000. In 2022, a call for applications for waste management with three sub-topics and a total budget of €120,000 (€40,000 for each topic) was made on the following topics: dumping waste in illegal places, in connection with unburdening the landfills: reducing the amount of organic waste disposed of and in connection with achieving the goals for recycling on reducing the amount of organic waste disposed of and in connection with achieving the goals for recycling on the way to the EU: 21 projects were awarded. In 2023, seven projects of non-governmental organizations' educational campaigns on the dangers of exposure to mercury and mercury compounds were financed with a total budget of €50,000.

8.7 Assessment, conclusions and recommendations

Assessment

Waste management in Montenegro has made moderate progress in several areas. Excepting the increase of MSW collection rate and the implementation of a large hazardous industrial waste project, the other activities resulted in limited achievements. Due to the lack of clear organizational vision and the application of regional or inter-municipal approach, waste management infrastructures developed very little: the planned sanitary landfill to serve

the Northern part of the country is still missing, the equipment and services of the regional recycling centres are very diverse. Only the establishment and extension of recycling yards can be seen as a success.

Governmental efforts for promoting the separate collection of MSW based on the two fractions (dry and wet) failed, mostly due to lack of enforcement (control), adequate planning and gradual phasing-in and the poor level of awareness raising for the citizens. Low level and inadequate separate collection of MSW, resulting in low supply of recyclable materials in terms of quality and quantity, are one of the main reasons for low recycling rates in Montenegro. The other reason is that companies working in separate collection and recycling do not receive any financial incentives, but they are fully exposed to fluctuating market prices. A solid methodology for the calculation and data collection related to recycling is also missing.

The improvement in legislation due to harmonization efforts with the EU legislation is satisfactory, but after the adoption of the Law on Waste Management, a lot of work remains for the adoption of the necessary by-laws for its implementation and establishing the framework for enforcement.

In relation to chemicals, the legislative framework is established and regularly updated due to the harmonization efforts with EU legislation. The organizational framework is also well established and because of the very low level of chemicals production and moderate level of use, the risk of chemicals accidents is also moderate. However, no solution was found for the final disposal of some legacy waste and on how to finish the rehabilitation of the remaining hazardous waste hotspot. Moreover, the country lacks a full inventory of small and medium size hazardous waste generators.

Overall, Montenegro has progressed in the fulfilment of the SDGs related to this chapter. Due to the growth of the MSW collection rate, a step forward in the implementation of SDG target 11.6 (by 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management) and its indicator 11.6.1 was achieved. The country has also improved recycling that is reflected in the achievement of the SDG indicator 12.5.1 (National recycling rate, tons of material recycled). This is due to the increase of the recycling rate of economic sectors which do not generate the MSW because the recycling of MSW remains low during the whole reporting period. Regarding the SDG indicator 12.4.2 ((a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment), Montenegro has data only on hazardous waste generation as this type of waste is not treated in the country but exported. The amount of hazardous waste generated per capita significantly increased during the review period. However, thanks to the implementation of a large rehabilitation project of three priority industrial hotspots containing hazardous waste, there was a progress towards the achievement of the SDG target 6.3 (by 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally). Moreover, the mortality rate attributed to unintentional poisoning (SDG indicator 3.9.3) reduced from 0.9 deaths per 100,000 population in 2000 to 0.6 deaths per 100,000 population in 2019, showing a progress on that.

The third EPR of Montenegro provided recommendations to improve the country's waste management. The recommendation 8.1 asked the former Ministry of Sustainable Development and Tourism, in cooperation with the municipalities of the mountain region, to develop a new sanitary landfill in that region. This recommendation was not implemented and remains valid. The third EPR also recommended that the Government should elaborate schemes for stimulating market-based mechanisms for recycling and reusing of waste (Recommendation 8.2). Although recycled waste has an increasing trend due to the economic sectors recycling performance, waste recycling is done solely on market-based mechanisms by public and private companies and as such, it is exposed to price changes of raw materials on international markets. Thus, the Recommendation 8.2 was not implemented and is still valid. The Recommendation 8.3, that asked the Government, together with the local self-governments, to negotiate the creation of regional waste management companies and support inter-municipal cooperation in waste management, was not implemented either. This is due to the lack of incentives or prescriptive legislation. Since 2020, the waste data collection methodology is completely aligned to EUROSTAT's methodology, showing that the Recommendation 8.4 of the third EPR suggesting improving the collection and verification of waste data was implemented. The detailed country-wide PCB equipment inventory was first done during the preparation of the National Implementation Plan of the Stockholm Convention for the period 2014–2021 and was revised between 2016 and 2018 in the framework of the revision and update of the National Implementation Plan of the Stockholm Convention, confirming that Recommendation 8.5 of the third EPR was fully implemented.

Conclusions and recommendations

Landfill in the Northern mountainous region

Despite the preliminary site selection and the partial elaboration of the project documentation of a sanitary landfill that would serve the Northern municipalities of the country, the location was not considered and since then there has been no progress with the project. This landfill project has been at a standstill since 2014 and there is no final site selected for this purpose. As a result, the municipalities of the mountain region still use non-sanitary landfills and dumpsites for municipal waste disposal. The corresponding recommendation 8.1 from the third EPR was not implemented and remains valid.

Recommendation 8.1:

The Government, in cooperation with the municipalities of the Northern region, should develop a new sanitary landfill in that region.

Recycling and reusing of waste

Although the rate of recycling of waste has an increasing trend due to the recycling practices of economic sectors, it is happening without any financial or organizational support from the state. Waste recycling is done solely through market-based mechanisms by public and private companies and, as such, it is sometimes exposed to sharp price changes on international markets for specific raw materials that are extracted from waste. The unpredictability of prices jeopardizes the operation of companies dealing with waste recycling and also the connected separate waste collection activities done by themselves or by municipal public companies. There is no guaranteed income or other scheme for these companies that would alleviate the negative effects of sharp price fluctuations in the secondary raw material market. The corresponding Recommendation 8.2 of the third EPR was not implemented and remains valid. The Ministry of Ecology, Sustainable Development and Northern Region Development, in cooperation with the Ministry of Finance, is responsible for elaboration of schemes for stimulating market-based mechanisms for the recycling and reuse of waste.

Recommendation 8.2:

The Government should:

- (a) *Elaborate schemes for stimulating market-based mechanisms for the recycling and reuse of waste;*
- (b) *Introduce an extended producer responsibility scheme for specific products;*
- (c) *Introduce a network of municipal waste collection points and containers that are convenient for consumers to deliver pre-sorted waste at or close to their premises;*
- (d) *Enlarge and expand the system of waste sorting to all municipal solid generators on site, with attention to special materials groups like plastic and metal;*
- (e) *Implement a separate bio-waste collection system.*

Inter-municipal cooperation

In the absence of incentives or prescriptive state legislation, regional waste management enterprises have not been created since 2015. Due to the same reasons, inter-municipal cooperation in waste management has also remained on the same level since 2013. This is best demonstrated by the usage of existing landfills; no new municipalities chose to dispose their waste at existing sanitary landfills despite their capacity even where logistics (transfer distance) would make it a sound decision. Therefore, the corresponding Recommendation 8.3 of the previous EPR is still valid.

Recommendation 8.3:

The Government, together with the local self-governments, should:

- (a) *Negotiate the creation of regional waste management enterprises;*
- (b) *Support inter-municipal cooperation in waste management with a focus on increasing waste management and recycling effectiveness together with an improved service level for local people and enterprises.*

Remediation of legacy waste deposits

Despite the progress made in the country through the implementation of a big industrial cleanup project, no solution has been found to remediate remaining legacy waste deposits and to finish the rehabilitation of the solid waste landfill located at the Kombinat Aluminijuma Podgorica.

Recommendation 8.4:

The Government should seek funding and technical solutions for the remediation of legacy waste hotspots and dumpsites.

Recommendation 8.5:

To change citizens mindset towards considering waste as a valuable resource, the Government, together with municipalities and NGOs, should:

- (a) Encourage continuous action and sharing of success stories on waste management;*
- (b) Continue to carry out regular campaigns on cleaning areas around water sources, riverbanks and ponds.*

Chapter 9

Biodiversity and protected areas

9.1 Trends in species and ecosystems

Montenegro is characterized by diverse geological features, landscapes, soils, and climates, which can be broadly divided into two main bio-geographical regions: Mediterranean and Alpine. Within these regions, a variety of ecosystems are present, including alpine, forest, dry grasslands, freshwater, and marine ecosystems. Notably, habitats such as coastal areas, caves, canyons, and karst formations contribute to the country's ecological richness. Concerning marine ecosystems, the country's maritime zone extends up to 12 nautical miles from the shore, covering 2,504.8 km² and supporting diverse marine life, including extensive sea grass populations.

Forests cover a significant portion of Montenegro's land, accounting for approximately 60 per cent of the country's land area. The diversity of forest ecosystems in Montenegro offers a range of valuable ecosystem services, such as the recycling of nutrients, soil stabilization, the filtering of water, and the prevention and mitigation of the effects of climate change. Additionally, forestry is a key component of the Montenegrin economy.

Montenegro's biodiversity is outstanding, with over 1,200 species of freshwater algae, 300 species of marine algae, and thousands of other species spanning plants, fungi, insects, fish, reptiles, amphibians, birds, and mammals. This wealth of species places Montenegro among Europe's most biologically diverse countries and qualifies it as a global biodiversity hotspot.

The benefits and ecosystem services derived from Montenegro's biodiversity are extensive, ranging from the provision of wood and grazing land to maintaining soil fertility, regulating the climate, and supporting tourism. These services are particularly crucial for rural communities, whose livelihoods depend directly on them.

Despite the importance of the country's biodiversity, there is still limited awareness among the general public concerning biodiversity conservation efforts and the sustainable use of natural resources. Closing this knowledge gap is essential for ensuring the long-term preservation of Montenegro's biodiversity. However, efforts to increase public awareness such as educational campaigns, community engagement initiatives, and the promotion of ecotourism are mostly absent from the actions proposed by the government. Moving forward, such efforts are needed to ensure the Montenegrin population fosters a deeper appreciation for the value of biodiversity and the need for its conservation.

Additionally, this limited awareness amongst the public is partially linked to the absence of a proper mechanism for the monitoring of biodiversity and for reviewing implementation of biodiversity conservation actions in the country. Nevertheless, there have been recent positive improvements in the country, which could further stir the development of a proper monitoring mechanism for biodiversity. For instance, the Red Lists of Birds, Butterflies, Amphibians, and Reptiles of Montenegro have just been published in 2022. These represent the first Red Lists ever to be published in Montenegro, despite the development of Red Lists for biodiversity being a legal obligation in the country since 2008. The 2010 National Biodiversity Strategy with the Action Plan also imposes the development of Red Lists as a priority of work for state authorities. Currently, the Red Lists of Fish, Plants, and Dragonflies are under preparation.

Birds – first red list of species

Birds are one of the best indicators of the state of the environment. This is because birds sit at the top of the food pyramid, meaning that any changes at lower levels of the food pyramid are thus reflected at the top on the bird population. As such, the Red List of Birds of Montenegro can provide a good indication on the current state of biodiversity in Montenegro.

The Red List of Birds of Montenegro is the first of its kind made in Montenegro. The List will provide information on endangered species and the extent to which they are in danger. Out of 227 species of breeding birds in Montenegro, 222 species were evaluated by the Red List of Birds of Montenegro. According to the Red List, 38 per cent of breeding birds have unfavourable status. The Vulnerable (VU) category includes 48 species, the Endangered (EN) includes 7 and the Critically Endangered group counts 15 species. There are also nine Extinct breeding bird species. As such, the Red List recommends that urgent actions are taken to protect bird species and their habitats.

Many activities in Montenegro are having significant negative effects on the status of bird fauna. Such activities include hunting, poaching, land reclamation, infrastructure development, including the construction of energy generation facilities, fires that drastically change habitats from year to year, and legal and illegal deforestation.

Species

Species diversity

There is currently no proper monitoring mechanism for biodiversity in the country and so the current state of flora, fauna and habitats are largely unknown, while species diversity is impossible to assess.

For flora, the main exercise that has been undertaken so far is the “Material for Vascular Flora of Montenegro”.¹⁶⁹ Since then, nothing substantial on a large scale has been published, but there is a Red List of Plants of Montenegro currently being developed. However, for the draft Red List of Plants, half of the plant species listed to be evaluated cannot be assessed due to a lack of data.

For fauna, the only work that has been undertaken in the country is partial work through recent small-scale projects, including those led by NGOs, and monitoring carried out by the Public Enterprise for National Parks and other management bodies of Protected Areas. For mammals, Montenegro is one of the least studied countries in Europe. In 2020, the NGO Wildlife Montenegro attempted to record the number of mammal species that were present in the country, which was a total assumed number of 87 mammal species. For birds, the NGO CZIP (Centar za Zaštitu i Proučavanje Ptica) is currently monitoring a number of indicator bird species in specific spots (e.g. Ulcinj salina) of Montenegro and is managing collected information through a database dedicated to bird counts. This work would deserve to be extended beyond birds and throughout Montenegro, to enable the country to achieve a scientific overview of bird and mammal diversity. This could be considered as a first step towards putting in place a proper monitoring mechanism for biodiversity.

Threatened species

Activities dedicated to the protection of threatened species in Montenegro are primarily related to the assessment of the state, endangerment, and distribution of protected and Natura 2000 species. For instance, estimates of the distribution and status of species have been carried out through the project “Establishment of Natura 2000” in 2017 and 2018, and through research conducted between 2014 and 2018. Additionally, the EPA is implementing an annual monitoring programme focused on the state of biodiversity. However, due to a lack of data for the entire territory of Montenegro, as well as limited scope and programme concepts, it is still not possible to provide a comprehensive assessment on the status and endangerment of species. Therefore, there is only a database available for the distribution of species in Montenegro from Annex II of the Habitat Directive and appendices of the Birds Directive.

Endemic species

The most recent list of endemic species in Montenegro can be found in the List of Selected Endemic Terrestrial Plant and Animal Taxa of South-East Europe.¹⁷⁰ This list was provided by the Open Regional Fund for South-East Europe – Biodiversity during the project “Regional Network for Biodiversity Information Management and Reporting”, funded by the German Federal Ministry for Economic Cooperation and Development.

¹⁶⁹ Pulević (2005).

¹⁷⁰ Macedonian Ecological Society (2017).

Widespread species

At present, there is no inventory nor proper monitoring mechanism for widespread species in the country.

Invasive alien species

A full inventory of invasive alien species is not available in Montenegro. As a full inventory is not available, it is almost impossible to assess the extent to which invasive alien species are present in Montenegro. As a result, the country also has no strategy for managing invasive alien species and SDG target 15.8. is not met.

Ecosystems and their services

Benefits and ecosystem services derived from biodiversity in Montenegro are abundant and include the provision of wood for heating, timber, cattle pasture, maintenance of aquifer stability, soil fertility, protection against erosion, landslides and flooding, as well as benefits for tourism and climate regulation. Despite the huge social, environmental and economic value of these services, and the fact that most people are dependent on these ecosystem services for their daily lives, public understanding of biodiversity benefits is still low in Montenegro.

With special regard to SDG targets 6.4, 6.6, 15.1, 15.2 and 15.4, mountainous ecosystems, especially forest, dry grasslands and freshwater ecosystems are not enough preserved. Limited institutional capacities in the mapping and classifying of ecosystems and habitats, especially with regards to the assessment and threat status of unique ecosystems such as coastal areas, caves, canyons, and karst formations led to shortcomings in objectively reporting on ecosystem and habitat trends in Montenegro.

9.2 Performance and gaps in biodiversity monitoring networks

The state of biodiversity in Montenegro is being assessed through the National Environment Monitoring Programme. However, this programme does not provide sufficient information for estimating trends in the status of habitats and species, nor for making informed decisions on biodiversity. In 2019/2020, the Monitoring Programme for Biodiversity was stopped and a section on the state of Biodiversity was excluded from the (annual) State on Environment Report. Since then, there have been no official documents analysing the current state of flora, fauna or their habitats in the country. Additionally, there is no official inventory of biodiversity and habitats in Montenegro, though Inventories of Natura 2000 species and habitats have been produced before (2017–2019) by various projects, but for limited spatial extent. Since 2016, the EPA is providing annual contributions to Natura 2000 inventories of species and habitats.

9.3 Trends in development and management of ecological networks

There is no ecological network in Montenegro. Since 2011 Montenegro has mapped 32 candidate Emerald sites covering about 17 per cent of the countries surface. Since 2019, progress has been made to map habitats, species and birds, for Natura2000 which are listed in the respective annexes of the EU Habitat and bird directives as well as the Bern convention. To date about one third of the country has been mapped under the habitat directive and 33 candidate SPAs (special protected areas) have been identified covering 53.5 per cent of the countries surface. In addition, about 13per cent of the country has a national protection status.

The establishment and management of the ecological network for Montenegro is described in the Law on Nature Protection and a closing benchmark for chapter 27 on the Environment of the EU Acquis.¹⁷¹

9.4 Trends in development and management of protected areas

The national network of protected areas of Montenegro is comprised of 80 areas, covering 190,138.5 ha of land (13.22 per cent) and 4,567.3 ha of sea territory (1.79 per cent). The largest part (100,427 ha or 7.271 per cent) of the protected area network consists of five national parks, namely: Durmitor, Lake Skadar, Lovćen, Biogradska gora and Prokletije. The remaining part of the network consists of 75 protected areas, comprised of 3 strict nature reserves, 2 special nature reserves, 9 nature parks, 59 natural monuments and 2 areas of exceptional characteristics

¹⁷¹ COE (2022a).

(see Table 9.1). In relation to the SDG target 14.5 (By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information) and its SDG indicator 15.5.1 (Coverage of protected areas in relation to marine areas), the coverage area was 0.02 in 2021.

Table 9.1: Protected areas

	Number	Terrestrial area (ha)	Total sea area (ha)
National parks	5	100 427	
Nature parks	9	84 344.3	4 563.8
Special nature reserve	2	153.5	3.5
Area of outstanding features	2	196.1	
Monument of nature	59	4 597.6	
Strict nature reserve	3	420	
Total	80	190 138.5	4 567.3

In 2023, the association “Park Dinarides – network of the protected areas of Dinarides” undertook an Analysis of Deficiencies in Existing Policies and Practices Related to the Management of Protected Areas. This analysis provides an in-depth insight into the current situation concerning the management of Protected Areas in Montenegro (see Box 9.1).

Box 9.1: Analysis of deficiencies in existing policies and practices related to the management of protected areas

Based on the Analysis of Deficiencies in Existing Policies and Practices Related to the Management of Protected Areas, several key issues have been identified:

- Lack of management structures: A significant number of protected areas in the country do not have designated managers, and as a consequence, these areas are described as “protected areas on paper” only. Moreover, according to the platform of National Protected Areas, there are 13 Protected Areas with a management plan, but the vast majority (63) are without. However, this platform has not been updated recently. This study concluded that out of 80 protected areas, only 8 have a management plan, namely: Nature Park “Orjen”, Nature Park “Platamuni”, Nature Park “Katič”, Nature Park “Stari Ulcinj”, Nature Park “Komovi”, “Piva” Nature Park, Lipska Cave and the Great City Park of Tivat.
- Lack of capacity: Both in terms of the number of employees, as well as in terms of training and specific skills. Most of the protected areas in the country do not have expert services or employed experts in a sufficient number to effectively manage the protected areas. This lack of protection services is evident, or even in some cases where they do exist, these services are lacking an adequate number of security guards for effective protection. Managers, mostly due to a lack of financial resources, are unable to perform security services or hire the required number of security guards. In most cases, they are also not able to provide all the necessary and adequate equipment so that the security guards are able to effectively carry out their jobs.
- Insufficient information among local communities about protected areas. In addition, for the most part, the mechanisms for cooperation with local communities on protected areas are absent.
- Deficiencies in the existing legal framework and obsolescence of planning documents, as well as insufficient implementation of existing legal provisions, namely, insufficient control in the implementation of legal provisions.
- Major issues in forest areas: The Law on Forests recognizes special forests and stipulates that sanitary harvesting and conservation measures can be implemented within the framework of protected natural resources to ensure the protection, stability and natural regeneration of forests. However, in practice, this is not actually the case. For example, in the Piva and Komovi Regional Park areas, concessions were obtained without logging in economic units and without any regulations leading to illegal activities (i.e. without sanitary logging). Furthermore, managers often do not have information about forest management activities within protected areas due to a lack of reporting or sometimes, the presence of managers is not required during these activities. In addition, there are frequent cases of illegal logging, but due to limited capabilities, control efforts are insufficient.

9.5 Pressures on species and ecosystems from

Land uptake

In 2022, the percentage of the urban population in Montenegro was sitting at 68.16 per cent. Excessive urbanization is a significant pressure on biodiversity and is most notable in the central part of the country (the capital and suburbs), coastal areas, and in the country’s most attractive touristic locations. One of the most important results of the GEF 7 project is the spatial distribution of the most valuable biodiversity areas in

Montenegro. These data represent the sum of the many results of the previous projects, such as Natura 2000. Moreover, this spatial distribution is available online for the public and for the Government bodies. The former Ministry of Spatial Planning, Urbanism and State Property received these data to include it in the Draft of the Spatial Plan of Montenegro. Since such data are mainly missing in Montenegro, the country has experienced uncontrolled urbanization, which has led to habitat loss and fragmentation, displacement of native species and the disruption of critical ecological processes. As a result, Montenegro's unique flora and fauna has been heavily impacted by urbanization, as their habitats have been encroached upon and destroyed due to urban growth.

To mitigate the effects of urbanization on biodiversity, the Government envisages the following measures: the introduction of a mechanism to account for biodiversity within the permitting procedure of the construction sector; imperative application of the compensation principle for lost habitat; full integration of measures and guidelines on biodiversity protection into the spatial planning policy; and the obligation to draft a base study on biodiversity when developing planning documentation.

Development of energy installations and infrastructure

Transport infrastructure significantly affects biodiversity through fragmentation, destruction of habitats, and changes in ecological conditions. This is because, often, there is no consideration for protecting the pathways of wild species (natural corridors) when constructing new roads (e.g. through construction of passages, corridors). Ecosystems around such roads are highly threatened, not only because of noise pollution and other forms of disturbances, but also because of the high mortality rate among wild species that live close to roads. As it stands, guidelines on biodiversity protection in the planning of transport infrastructure projects are not available, which is particularly important bearing in mind that at the time of the drafting of the National Biodiversity Strategy with the Action Plan for the period 2016–2020, the beginning of the first section of the highway was about to start.

Montenegro's energy policy envisages the construction of new infrastructure for electricity generation. In compliance with the National Development Policy and international (primarily EU) trends and standards, the Montenegrin energy sector is oriented towards renewable energy, primarily through hydropower sources. As such, the country's energy plans envisage the construction of several major electric energy plants (cascade system of dams along the Morača River), as well as a range of small hydro power plants, especially in the northern part of the country. The construction of such hydro power plants impacts biodiversity through the modification of habitats, water quality, sedimentation processes and so on. However, considering these impacts, adequate measures and guidelines on biodiversity protection are not incorporated into all plans concerning the construction of energy plants and infrastructure in the Montenegrin context.

Habitat fragmentation and man-made barriers for migratory species

Since 2014, to move away from coal-fired production, the government introduced a system of subsidies for renewable energy via electricity bills paid by consumers, triggering a boom in privately-run hydropower plants. Since then, 85 small hydropower plants have received concession contracts, 42 are privately owned, of which 24 are already in use and 18 are under construction. These small hydropower plants built in Montenegro do not meet EU standards in terms of planning and construction, which is a claim supported by the European Parliament in November 2018,¹⁷² where they urged Montenegrin authorities to better protect the country's natural resources.¹⁷³ These small hydropower plants have fragmented many rivers in the country, preventing many species of fish to reproduce, which has had a dramatic impact on all aquatic animal populations like fish, insects, and leech.¹⁷⁴ In 2018 alone, the state paid out €7.3 million in subsidies for 15 small hydropower plants that provided 2.6 per cent of the electricity that year.

Logging, deforestation and forest fires

According to data from the 2013 National Inventory of Forests, 60 per cent of Montenegrin territory is covered by forests. The main pressures originating from the forestry sector are the following:

¹⁷² European Parliament (2018).

¹⁷³ CEE Bankwatch Network (2018).

¹⁷⁴ Pešić (2019).

- Forest fires: considering the climate, geographical and socio-economic circumstances in Montenegro, forest fires are a significant factor of forest loss and degradation. The percentage of forest area hit by fires reached 7 per cent in 2011, according to Annual Information on the Status of Environment of the then Agency for Nature and Environmental Protection. Human factors are the most significant cause of these fires.
- Illegal logging is a significant problem, and so the tackling of illegal and unplanned activities in forestry is not systematic. Certification of forests is marginal in Montenegro (see chapter 12). Such schemes are the starting point to prove legal origins of timber, thus contributing to reduction of illegal logging and trade in timber. Those certification schemes to make forest management compliant with international practice and standards are not introduced.
- Failing to fulfil concession obligations: state-owned forests can be conceded for use by virtue of a concession contract, for a period ranging from 5 to 30 years. The obligations of concessionaries are defined by the contract signed by the Directorate for Forests and the concessionaries. However, it is not a rare case that concessionaries do not fulfil their obligations, and a systematic monitoring and assessment of the impact of concession contracts on biodiversity is missing.

Pollution

Water pollution from agricultural, urban and industrial sources exerts significant pressure on biodiversity in Montenegro. For example, according to the National Biodiversity Strategy with the Action Plan for the period 2016–2020, less than one-fifth of collected wastewater is treated before being discharged into natural recipients, causing occurrences of eutrophication, especially in larger water bodies, such as Morača, Zeta and Lim rivers, and Lake Skadar, but also in Boka Kotorska Bay.

In addition, karst habitats are also exposed to pollution. Karst habitats are very common in the Montenegrin landscape, characterised by a high degree of endemism (in particular, reptiles and invertebrates). They also have an extensive system of ground aquifers, which is why these habitats are sensitive to pollution from wastewater.

In addition to wastewater, Montenegro is also facing the significant challenge of disposal of municipal waste, since a large percentage of this waste is disposed of inadequately (to illegal dumpsites). Municipal waste is a threat for biodiversity, mainly through pollution of ground and surface waters, and there is an urgent need for identification, removal and remediation of the consequences of inadequate disposal of municipal waste.

Acidification

The deposition of SO₂, NOX and NH₃ leads to changes in the chemical composition of soils, lakes, rivers and marine waters through a process known as acidification, which disrupts ecosystems and leads to biodiversity loss. As SO₂ emissions have fallen over recent decades, the relative contribution made by NH₃ and NOX to surface water and soil acidification has increased. In November 2022, the concentration of nitrates in Kotor Bay, at surface level, was 25.6 µmol/l.¹⁷⁵

Eutrophication

An analysis of physio-chemical parameters and phytoplankton components were carried out from October to December 2022 in Montenegro. Nine locations in the area of the Montenegrin coast (six locations in the bay area and three locations in the non-gulf area) were assessed. Of the areas analysed, the areas which presented the higher levels of eutrophication were Dobrota, Kotor, and Orahovac. With greater influx of nutrients as well as a weaker dynamic of water masses, eutrophication is predominant in the Gulf area compared to the non-Gulf area. The results of analysed pollutants in sediment, biota and seawater show that good chemical condition was not achieved in the sediment at 10 locations. Mostly, they are locations that are under more or less anthropogenic influence; - in biota, good chemical status was not achieved in three locations; - a good chemical condition was achieved in the seawater at all tested locations.

Desertification

Desertification is not a major threat to biodiversity in Montenegro.

¹⁷⁵ EPA (no date). EPA (no date a).

Intensified agriculture and use of GMOs

Intensive farming is practiced only in the vicinity of the capital Podgorica and close to the urban area of Nikšić. In almost all regions of Montenegro, most of the farming areas are used extensively and can be regarded as High Nature-Value farmland (FAO). Farmland birds (Red List) are therefore not highly impacted by farming practices.

Invasive alien species

A full inventory of invasive alien species is not available in Montenegro, nor is there a strategy for managing invasive alien species. However, a few case studies on invasive alien species can be listed, including two recent case studies (see box 9.2).

Box 9.2: Selected case studies on invasive alien species

The Atlantic blue crab (*Callinectes sapidus*) is a highly invasive species that poses a significant threat to Mediterranean ecosystems. In the last two decades, it has become established in several marine and estuarine areas of the eastern Adriatic Sea, resulting in a decline in commercial catches and damage to fishing gear in Montenegro.

In 2022, biodiversity research in Montenegro included an analysis of zooplankton components and invasive alien species. The trophic state of the Bay of Kotor and Risan is significantly richer compared to the open sea because of the inflow of fresh water via the Škurda, Gurdić and Ljuta rivers. As part of the monitoring of introduced species, sampling was carried out at the localities of marina Porto Montenegro (Tivat) and at the mariculture site (COGImar) in the Bay of Kotor. The presence of three introduced species, namely clam (*Pinctada radiata*), Bryozoa (*Bugula neritina*) and Ascidia (*Styela plicata*), was recorded at the Porto Montenegro marina site. All recorded species inhabited solid substrates. In this area of intense maritime traffic, it is considered that all introduced species arrived by either road fouling on the ship's hull, on the anchor or through ballast water in some of the development stages. In the locality where fish and shellfish farming take place, COGImar research is carried out in the section where cages for growing fish are located, as well as in the part where shellfish are grown. Identified introduced species at the given location are sea sponge (*Paraleucilla magna*), clam, Bryozoa and Ascidia.

Hunting and fishing

Protection of hunting grounds, specifically the safeguarding of wildlife from illegal hunting, is carried out through organized professional gamekeeping services, in cooperation with members of the Ministry of the Interior. The number of reports submitted by hunting ground users for illegal hunting on an annual basis is around 60 cases (criminal, misdemeanour, and disciplinary).

In 2021 and 2022 alone, many reports of illegal killing which occurred inside protected areas were recorded: For example, in April 2021, a roe deer was killed inside “Durmitor” National Park, a brown bear was illegally killed one month later in Nature Park “Dragišnica and Komarnica”. In November 2021, a deer was killed inside “Biogradska Gora” National Park. One chamois was illegally killed in December 2022. In “Durmitor” National Park. The problem of poaching in Montenegro is recurrent and has reached new levels as poachers more and more frequently act inside protected areas. The reactions of the competent authorities to those issues are weak or non-existent.

In September 2021, the Ministry of Agriculture, Forestry, and Water Management formed a task force to combat the use of explosive devices and other illegal tools and equipment for fishing. The Task Force includes representatives from all relevant state and scientific institutions, as well as representatives from the NGO sector. Positive developments have recently been reported. In an operation carried out in 2023 in cooperation with the Police Administration, 30 kg of explosives were found and taken for further processing. Moreover, on Skadar Lake, 37 vessels, 34 outboard motors, 1,081 nets, 17 electric converters, and 45 batteries were temporarily confiscated.

Collection of non-wood forest products

Impacts on biodiversity from the collection of non-wood forest products is difficult to assess but does not appear to be a major issue in Montenegro, especially when compared with other pressures on biodiversity. The only case

reported on this issue is the case of burn morels (*morchella sextelata*) which grow on forest sites after there has been a fire. Cases have been reported where intentional and uncontrolled fires were set up with a view to burn forest and collect the morels that will grow there following fires. Nevertheless, there may also be more unreported cases.

Tourism and leisure

Tourism is the main economic activity in Montenegro and contributes almost 25 per cent of the total GDP. With travel & tourism, GDP set to grow by 23.3 per cent, reaching 9.2 per cent of the global economy in 2023.¹⁷⁶

Over 90 per cent of total tourism turnover is recorded on the coastal part of Montenegro. Through many research works, Boka Kotorska Bay has been recognized as a natural habitat for marine mammals, including dolphins. Research works and field research on this topic have gained momentum only recently. The Montenegro Dolphin Project ran the first dedicated annual survey effort within the coastal and offshore waters of Montenegro between 2016 and 2017. The results presented contribute to fill the gaps in knowledge and provide baseline information on the cetaceans of Montenegro as well as advise on sustainable tourism development. The analysis and recommendations show the high value of biodiversity for tourism in Montenegro. Biodiversity is a vital component of the environmental quality and attraction of destinations for tourists, and the needs to be protected for the long-term success of tourism.¹⁷⁷

Climate change

Despite not yet being well-assessed, climate change is known to have impacts on Montenegro's biodiversity, affecting vegetation zones, species distributions, and freshwater and marine ecosystems. Rising temperatures and changing precipitation patterns are leading to habitat fragmentation, disruptions in ecosystem functioning and loss of species. One of the key impacts of climate change on Montenegro's biodiversity is the shift in vegetation zones. As temperatures rise, plant species are expected to migrate to higher elevations in search of suitable habitats, resulting in vegetation shifts. This could lead to changes in ecosystem composition and the loss of plant species that are unable to adapt to new conditions.

Freshwater ecosystems in Montenegro are particularly at risk from climate change. Changes in precipitation patterns alter river flow and water availability, impacting aquatic habitats and the species that rely on them. Furthermore, rising temperatures have increased water temperatures, reduced oxygen levels and affected the survival of freshwater species.

Additionally, amphibians that live in the surface waters of the karst area are already suffering some major changes in living conditions and habitats, due to reduced flow or complete absence of water. Although the reduction in freshwater volumes and moisture will continue to cause changes throughout the entire country, differences will be the most obvious and drastic in the karst area. Dry periods are followed by periods with strong and extreme rainfall, which is causing destruction and reduction of populations of land and freshwater species in the higher mountainous regions. Populations of amphibians and reptiles are expected to decline and become threatened in the karst areas of Old Montenegro and Kuči-Žijovo, as well as in the coastal mountains of Rumija, Lovćen and Orjen. Temperature increases in the continental part of Montenegro is expected to eventually lead to the acceleration of the eutrophication of mountain lakes and then their withdrawal or complete disappearance.

Montenegro's marine biodiversity is also vulnerable to climate change. Rising sea temperatures are leading to the expansion of thermophilic species, which thrive in warmer waters. This may result in the displacement or decline of native species and disrupts the delicate balance of the marine ecosystem.

9.6 Legal, policy and institutional framework

¹⁷⁶ World Travel & Tourism Council (2023).

¹⁷⁷ BioTourS (2022).

Legal framework and its implementation

There are three main laws governing biodiversity and protected areas in Montenegro. These are the Law on Nature Protection, the Law on National Parks and Law on the Protection of the Marine Environment, as well as their subsidiary laws. In addition, there are also several sectoral laws which regulate the use of the country's vast natural resources (e.g. hunting, fishing, agriculture, construction).

The Law on Nature Protection regulates the conditions and methods of nature protection and preservation, the objectives of nature protection, and defines the subjects of nature protection and their obligations. The Law also defines nature protection documents, their content, and the procedure for adoption and reporting on nature protection. In addition to the Law on Nature Protection, the following regulations are also relevant for the management of the country's protected area network.

The Law on National Parks governs the management of national parks in Montenegro. This Law determines the boundaries of national parks, the degree of protection, restrictions on construction, permitted use of resources, and how national parks should be managed. The Law also defines prohibited actions to prevent the destruction, damage or pollution of national parks and of flora and fauna. Also, it defines the issue of forest management in national parks.

The Law on Maritime Property (OG 51/08, 21/09, 73/10, 40 /11) regulates the management of the coastal area of Montenegro, its use and protection.

The Law on the Environment introduces an integral approach to environmental management and defines the goals and principles of environmental protection. Also, the Law provides the basis for strategic documents and prescribes the basic competences of institutions in the field of environmental protection. The Law also prescribes responsibility for damage caused to the environment, financing of environmental protection, and necessary national plans and strategies in accordance with certain multilateral agreements on the environment.

The Law on Spatial Planning and Construction of Structures centralizes the process of spatial planning in such a way that it foresees the preparation of only two planning documents, namely: the Spatial Plan of Montenegro and the General Regulation Plan of Montenegro.

The Law on Game and Hunting regulates game management and hunting. The Government, on the proposal of the relevant ministry, establishes hunting grounds with a special purpose. Hunting grounds are established to preserve game population and its environment in the most preserved and most emblematic natural areas of Montenegro and are managed by the Forestry Administration. Hunting grounds are allocated for use by legal entities that meet the requirements of the Law, for a period of up to 10 years based on a public tender. According to this Law, local communities do not have a specifically defined role in the management of hunting grounds.

The Law on Forests regulates the cultivation, protection, preservation and improvement of forests; planning, methods and conditions of forest use; construction and maintenance of forest roads; and forest monitoring, among other issues of importance for forests, forest land and forestry. The Law defines that in forests, within protected natural resources, sanitary felling and measures necessary for care can be taken to ensure the protection, stability and natural regeneration of forests, in accordance with the Law. Forests within the NATURA 2000 ecological network are managed in a sustainable manner with the aim of protecting and preserving habitat types and ecologically protected localities, in accordance with the Law.

The Law on Alien and Invasive Alien Species of Plants, Animals and Fungi prevents the introduction and spread of alien and invasive alien species of plants, animals and fungi, to mitigate and minimize adverse effects that can occur to biodiversity, ecosystem and human health in general. The content and provisions of the EU Regulation No. 1143/2014 on the prevention and management of the introduction and spread of invasive alien species are transposed into the law.

Policy framework

The 2016 NSSD represents the translation of the 2030 Agenda for Sustainable Development until it reaches the national level. The Strategy assesses the state of all resources (including natural), identifies key unsustainable

development trends and sustainable development needs until 2030, and defines strategic goals and measures for managing national resources (including the country's natural resources). Additionally, this strategy clearly defines ecosystem services as well as several direct measures for protecting the country's rich biodiversity, including: improvement in the system of protected areas, such as through an increase in the area under protection contributing to SDG targets 14.4 and 15.6, the establishment of new and strengthening of existing management structures, and the establishment of networks and corridors; improvement of data on biodiversity, such as by enlarging the knowledge base and making biodiversity data available to all interested parties; and reduction in the pressures on biodiversity, including those from economic sectors, but also climate change and invasive alien species. The target outcomes of the foreseen measures are to stop the loss of biodiversity at all levels, to integrate biodiversity issues into sectoral policies, and to improve strategic assessment and environmental impact assessment mechanisms, as well as to mobilize funds for environmental protection through the inclusion of new economic instruments.

The 2015 National Strategy for the Integrated Management of the Coastal Area is a national strategic framework that contributes to the implementation of the EU's Strategy for the Adriatic and Ionian Region. It includes nature protection measures in the coastal region, including the protection of nature through the application of instruments for the protection of natural assets, and ecologically valuable habitats and ecosystems.

By adopting national biodiversity strategies with the action plan for periods 2010–2015 and 2016–2020, Montenegro has defined its long-term commitment to the conservation and sustainable use of the country's natural resources. The National Biodiversity Strategy with the Action Plan for the period 2016–2020 period is expected to be revised in the coming period in accordance with the new biodiversity protection goals agreed at the Conference of Parties to the Convention on Biodiversity. However, while there is a financing plan for the preparation of the National Biodiversity Strategy with the Action Plan, there is no plan nor financing for its implementation.

The Spatial Plan of Montenegro ran until 2020, and the Special Purpose Spatial Plan for the Coastal Area was adopted in 2018. The former plan will be replaced by the new Spatial Plan of Montenegro, which is currently being drafted. Through the EU-funded project, the CIN has conducted research that points to many important and relevant questions, indicating that Montenegro still faces challenges in aligning spatial planning with the needs of its population and sustainable development. There is an urgent need to restrict construction on the coast.¹⁷⁸

Institutional framework on biodiversity and protected areas

The EPA operates under the administrative supervision of the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now the Ministry of Ecology, Sustainable Development and Northern Region Development). The impetus behind this strengthening of environmental policy and legislation stems from Montenegro's accession process to the EU and the initiation of accession negotiations. As at June 2024, biodiversity management and protection fell under the jurisdiction of the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development, although certain aspects of natural resources, such as water and forests, were under the purview of the Ministry of Agriculture and Rural Development. This division of competencies and responsibilities challenges Montenegro's ability to plan and implement its biodiversity programmes efficiently. Despite significant progress towards aligning with EU environmental policies, several challenges and obligations in Montenegro remain. One such challenge is the establishment of a structured system for collecting and managing biodiversity data to fulfil EU requirements and enhance international reporting obligations.

An overview of the division of responsibilities between individual departments, administrative bodies, institutions and local self-governments relevant to the management of biodiversity and protected areas is provided below.

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development and Northern Region Development) was responsible for adopting policies related to nature protection, adopting legislation, and harmonizing legislation with EU policies and legal acquis related to nature protection. The Ministry performed administrative supervision over the work of several public institutions, including:

¹⁷⁸ European External Action Service (2023).

- Environmental Protection Agency;
- Public Enterprise for Coastal Zone Management;
- Public Enterprise for National Parks.

The EPA has a number of responsibilities related to nature protection and protected areas, such as: monitoring the state of biodiversity (habitats and species); preparation of protection studies in the process of establishing protected areas, permits for actions and activities in protected areas; scientific research aimed at the protection of nature and biodiversity; preparation and maintenance of databases related to the environment (including on biodiversity); implementation of impact assessment procedures and strategic impact assessments; permits for the collection, cultivation, keeping and trade of wild animal and plant species and mushrooms; protection and permits for scientific research and educational activities in protected natural resources, as well as for speleological activities; definition of habitat and species protection measures; implementation of acceptability assessment procedures; determination of prevailing public interest and compensatory measures; educational activities; and provision of free access to information in the field of nature protection. The Agency also provides an opinion in the process of adopting the management plan for protected areas.

The Public Enterprise for National Parks is responsible for the management of national parks in accordance with the Law on Nature Protection and the Law on National Parks, in addition to the management of protected areas in Montenegro. The company undertakes measures and activities to implement the established policy in the management, use, protection, development and improvement of national parks; takes care of the implementation of the management plan and adopts the annual management program; implements protection measures in accordance with the protection regime; and performs other tasks established by Law and the founding Act.

The Ministry of Agriculture, Forestry and Water Management is responsible for the adoption of policies, legislation, and the harmonization with EU policies and legal acquis, related to the following issues: the management and protection of forests, fisheries, hunting, agrobiodiversity, the Cartagena Protocol, biosafety, GMOs, pesticides, and the management and protection of water resources. The Ministry also has a supervisory role over the work of several state administration institutions, namely: the Water Administration, the Forestry Administration and the Administration for Food Safety, Veterinary and Phytosanitary Affairs.

The Forestry Administration performs tasks related to the following: securing and improving the condition of forests; forest management; management of hunting grounds with special purpose; measures and actions on care, restoration, raising and improvement of forests (biological reproduction); separation of seed objects; health inspection and control of the production of reproductive material of forest trees; provision of seeds and planting material; measures and actions to preserve the natural and man-made values of forests, forest management planning, programmes and plans for forest reforestation; surveying and stamping of wood and issuance of certificate of origin forest assortments; providing state-owned forests for use through contracts, in accordance with the law; and monitoring of implemented forest management measures.

Regulatory, economic, fiscal and information measures

The annual state budget allocated for biodiversity preservation activities and the management of protected areas in Montenegro differs each year. For the period studied, it ranged from €750,000 to €1,400,000 for the management of National Parks. In 2023, the budget for the Directorate for Nature Protection was €1.26 million, which includes the subvention of €750,000 for National Parks.

Additional sources of funding come from international cooperation on biodiversity management and the management of protected areas. This includes mainly GEF 7, and since 2018–2022, GEF 6 “Promoting Protected Areas Management through Integrated Marine and Coastal Ecosystems”, which enabled to proclaim three new Marine Protected Areas in Platamuni, Katič and Stari Ulcinj.

Globally, with GIZ having stopped direct financing for biodiversity (which now only exists through climate change programmes), sources of funding from international cooperation for biodiversity have diminished, and at the national level, NGOs are small in number and staff.

9.7 Assessment, conclusions and recommendations

Assessment

With a plan to access the EU, Montenegro is working hard to fully transpose the Habitats and Birds Directives, which are to be the main legal tools to halt biodiversity loss. Montenegro has managed to increase the surface of protected areas and is developing a plan to designate sites under the Natura 2000 network, that will contribute to the CBD and EU target 30 per cent. Currently, 13.22 per cent of terrestrial and 1.79 per cent of marine area is under the protected area system.

Despite these positive trends, biodiversity in Montenegro is threatened by uncontrolled urbanization, rapid development of energy installations and infrastructure, overexploitation of natural resources, unsustainable forest management, including illegal logging, and the impacts of climate change. Moreover, financing for biodiversity conservation remains at a low level, at about 0.02 per cent of total government environmental expenditures.

Many of the actions on biodiversity in Montenegro currently lack a vision as well as the proper means for implementation. As of June 2024, the country is updating its strategic framework regarding biodiversity. The National Biodiversity Strategy with the Action Plan for the period 2016–2020 expired in 2020. The country decides how to implement the new Kunming-Montreal Global Biodiversity Framework.

The human and technical resources of NGOs and government entities that are directly involved in biodiversity data management are often inadequate.

Conclusions and recommendations

Measuring impacts on biodiversity

The state of biodiversity in the country is being assessed through the National Environment Monitoring Programme. However, this programme, as it stands, does not provide sufficient information for estimating trends in the status of habitats and species or for making informed decisions on biodiversity. There is a lack of data for all species. This task is substantial, but there are nevertheless recent positive improvements that could prompt the development of a proper monitoring mechanism for biodiversity in the country. Red Lists of Birds, Butterflies, Amphibians and Reptiles of Montenegro have just been published. Moreover, Red Lists of Fish, Plants and Dragonflies are currently under preparation. Lastly, for some species (mammals and birds), if financially and institutionally supported, local NGOs have sufficient capacity to lead on this task in Montenegro.

Recommendation 9.1:

The Government should develop a mechanism for monitoring and reviewing the implementation of biodiversity conservation actions.

Improving protected areas management

The cornerstone of the protection and management of biodiversity in Montenegro is the effective management of protected areas. However, the country is clearly lacking the necessary management structures and capacity for effective management of the protected area network. Many protected areas do not have designated managers and, as a consequence, these areas are described as “protected areas on paper only”. There is also a lack of human and financial capacity and a lack of protection services with not enough security guards. As such, there is a rising number of illegal activities taking place within protected areas, with many going unnoticed and unrecorded. There is also a lack of involvement of local communities in protected area management.

Recommendation 9.2:

The Government should:

- (a) *Review the institutional set up for the management of protected areas, and simplify and clarify roles and responsibilities, as needed;*
- (b) *Change the perception that protected areas are just like any other area and raise awareness of their importance;*

- (c) *Develop training resources for those involved in protected area management and make them available through training courses.*

Economic value of biodiversity

The economic assets that biodiversity and wildlife provide to Montenegro are unknown and, therefore, often ignored. With travel and tourism GDP set to grow by 23.3 per cent, reaching 9.2 per cent of the global economy in 2023, a qualitative assessment of the links between biodiversity and tourism would be helpful, exploring to what extent nature attracts tourists to Montenegro. Moreover, the use of wildlife, both plants and animals (marine and terrestrial), is not evaluated although it is an economic asset that can also be aligned with conservation objectives and deliver sustainable growth and economic development. The societal benefits of biodiversity are also not understood by the population.

Recommendation 9.3:

The Government should initiate work on indicators quantifying economic and social values of biodiversity and incorporate them in policies.

Part III: Mainstreaming environmental issues into selected sectors

Chapter 10

Tourism and the environment

10.1 Current situation

Montenegro has become an increasingly popular tourist destination since 2013, with a rise in tourist arrivals by 75.2 per cent. In 2023, there were 2,613,306 arrivals and 16,389,279 overnights, of which 96.3 per cent were by foreign tourists. The proportion of tourists staying in seaside resorts was 94.3 per cent in 2023, contrary to Government aspiration of diversification across the country. In addition, the less-developed tourism sector in neighbouring Albania is expanding rapidly. International tourist expenditure in Montenegro has dropped from \$702 per stay and \$110 per night in 2013, to \$509 per stay and \$92 per night in 2019, before recovering slightly in 2022 to \$545 and \$94, respectively (influenced still by the pandemic).

Tourism is the largest sector of GDP in Montenegro, up from 14.1 per cent of GDP in 2013 to 24.5 per cent in 2023. It is so dominant as to represent a possible systemic risk, as illustrated by the collapse during the COVID-19 pandemic, when international and domestic tourism receipts plunged by 86 per cent in 2020. Following a steep recovery after the pandemic, tourism and travel contributed €1.3 billion to GDP in 2023 and, in 2022, 50,000 jobs, or 22.7 per cent of total employment. There were 21,600 jobs in direct employment in accommodation and food services in 2022, expected to rise to 26,000 jobs in 2026, according to the World Tourism and Travel Council. Tourism is a driver of other sectors, especially construction and transport, but also agriculture and banking, among others.

The continuing seasonal nature of the tourism sector often means that it fails to provide secure all-year employment and does not prevent the migration of young Montenegrins to neighbouring countries and the EU in search of full-time work. The need to diversify the economy has been discussed but that has not been translated into action, let alone reality. The seasonality of tourism persists with 67.1 per cent of overnight stays in the peak season June–September 2023 and 83.2 per cent in May–October 2023. Further data on the evolution of tourism numbers of guests and overnights, expenditures, facilities and jobs in the period 2013–2023 are presented in table 10.1.

The tourism sector has been built on “sun, sand and sea” leisure tourism – representing about 95 per cent of tourism receipts – but there are also efforts to develop other segments and benefit from the country’s many natural, cultural and social assets. Nonetheless, the entire tourist attractiveness of the country is built upon Montenegro’s biological and landscape diversity and its rich culture. Nature-based and adventure tourism is based on the five national parks, numerous lakes and rivers, mountains, canyons and hiking and biking trails. The nature-based tourism overlaps with sports tourism – hiking, biking, climbing, skiing, golfing, sailing and canyoning – which in turn overlaps with the new focus on health and well-being tourism. There is also cultural tourism, with many historic towns and ports, including Kotor, a UNESCO World Heritage site, and Cetinje (the old capital), as well as palaces, monasteries and places of worship. Finally, Montenegro boasts good food and wine, including natural (sometimes organic) products.

However, though an aim of tourism development has been to diversify the destination of tourists, in 2023 94.3 per cent of overnights were in seaside resorts, 2.0 per cent in mountain resorts, 2.4 per cent in the capital and 1.4 per cent in other tourist resorts.

The grey economy is strongly present in the tourism sector with a large proportion of private accommodation being unregistered. The operators of unregistered accommodation do not pay the tourist tax and do not generally declare the rental income for income tax, thus impacting revenue collection and the possibility to improve infrastructure such as roads, sewerage, waste management facilities and (renewable) energy sources. As is the norm for the grey economy, the undeclared proportion of the tourism sector is not known with precision, but estimates vary. Based on an analysis of the national accounts, the ministry responsible for tourism has estimated 20.1 to 20.3 per cent of tourism is within the grey economy, whereas the National Tourism Organization (NTO)

estimates 30 per cent and municipal and tourism authorities in Žabljak estimate that at least one third of accommodation in the municipality is undeclared.

Table 10.1: Tourism numbers of guests and overnights, expenditures, facilities and jobs, 2013–2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
International tourism, thousands											
Overnight visitors	1 324	1 350	1 560	1 662	1 877	2 077	2 510	351	1 554	2 036	2 447
Of which, arrivals from	1 282	1 302	1 496	1 592	1 774	1 940	2 332	339	1 493	1 918	2 185
Europe (per cent of total)	(96.8)	(96.4)	(95.9)	(95.8)	(94.5)	(93.4)	(92.9)	(96.6)	(96.1)	(94.2)	(89.3)
Overnights	8 414	8 597	10 307	10 528	11 470	12 444	13 934	2 227	9 424	11 868	15 779
Guests in hotels (and similar establishments)	604	587	629	699	844	959	1 168	180	630	1 026	..
Overnights in hotels	2 921	2 627	2 764	3 029	3 459	3 764	4 201	602	2 573	3 787	..
Domestic tourism, thousands											
Guests	168	167	153	152	123	128	136	93	117	148	166
Overnights	998	957	748	722	483	487	522	361	449	561	610
Guests in hotels	69	63	76	77	112	118	125	89	101	140	..
Overnights in hotels	241	205	229	230	431	445	480	343	376	528	..
Expenditure by inbound tourists, \$ millions											
Travel	880	908	903	933	1 067	1 171	1 225	166	895	1 080	..
Passenger transport	49	51	44	45	43	53	52	14	8	30	..
Expenditure by outbound tourists, \$ millions											
Travel	48	47	45	66	67	68	58	30	42	59	..
Passenger transport	33	32	24	25	24	5	14	8	15	20	..
Accommodation for visitors in hotels and similar establishments											
Number of establishments	293	287	287	314	336	345	360	..	..	..	..
Number of rooms	15 548	15 137	15 137	16 234	16 717	16 939	18 111	..	..	..	..
Number of bed-places	34 935	34 560	34 560	37 293	39 183	39 697	41 091	..	..	..	..
Occupancy rate / bed-places (per cent)	17.21	16.43	16.43	18.47	24.19	26.07	26.25	..	..	..	..
Number of employees, thousands											
In tourism industries	14.0	14.0	14.4	14.7	15.0	16.0	18.4	13.3	15.2	21.6	..

Sources: United Nations World Tourism Organization (UNWTO) and Statistical Office.

Note: Statistical Office data are different in terms of the definition of collective accommodation capacities. UNWTO “bed places” includes all Statistical Office collective accommodation beds except those in campsites, ethno-villages, hostels and “other”. The draft spatial plan “capacity” is the same as UNWTO but including ethno-villages too.

New national and municipal spatial plans are being elaborated by the Ministry of Spatial Planning, Urbanism and State Property, as at April 2024. Spatial planning is particularly important in the tourism sector because there are so many failings in the tourism construction subsector, with widespread illegal construction of accommodation and facilities and poor planning decisions that result in the loss of the very natural assets that attract tourists, thus threatening that “tourism kills tourism”.

10.2 Existing and potential tourist assets

Development in tourism activities, including infrastructure

Montenegro boasts numerous tourism assets (see table 10.2) and is continuing to develop the tourism offer through more five-star hotels, but also eco-villages, rural homestays and outdoor activities. Budva Local Tourism Organization (LTO), for example, seeks a balance between mass tourism and quality tourism, and to cater to young and old, offering both calm and excitement.

In the period from 2013 to 2022, the number of collective accommodations has increased from 333 to 438 establishments, with almost all the increase being in the number of hotels. Over the same period, the categories of such establishments have undergone a remarkable change, with only the proportion of three-star establishments largely unchanged; one- and two-star establishments have dropped from 31.6 per cent of the total to just 7.2 per cent, while the number of four- and five-star establishments has gone from 30.0 per cent of the total to 55.0 per cent. The number of five-star properties quintupled from 6 to 30. In the sense of promoting more up-market tourism, the shift to higher category accommodation can be considered a success.

Though the number of overnights in hotels has grown by 43.8 per cent in the period 2013 to 2019, the total number of overnights grew by 65.6 per cent; most of the growth is in private accommodation.

Table 10.2. Key tourism assets (selected)

Type	Name	Description
National parks	Durmitor	390 km ² , UNESCO World Natural Heritage Site, inscribed 1980. Includes the Tara River Canyon
	Lovćen	64 km ²
	Biogradska Gora	54 km ² , includes primary forest
	Lake Skadar	400 km ² , Ramsar wetland site, Ornithological Reserve, Scientific Reserve
	Prokletije	166 km ²
Other Ramsar wetland sites	Tivat Saline	Special Flora and Fauna Reserve, Emerald Network, Important Bird Area, Strict Nature Reserve
UNESCO World Cultural Heritage Sites	Ulcinj Salina	
	Kotor	Natural and Culturo-Historical Region of Kotor, inscribed 1979
	Žabljak	Stećci Medieval Tombstone Graveyards: Grčko groblje and Bare Žugića, inscribed 2016
	Kotor	Venetian Works of Defence between the 16 th and 17 th Centuries “Stato da Terra – Western Stato da Mar”: Fortified city of Kotor, inscribed 2017
Beaches		293 km of coastline, with 73 km of beaches
Ports		There are ports at Bar, Kotor, Risan and Zelenika. Bar Marina was awarded a Blue Flag.
Golf course	Luštica Bay	18-hole golf course
Hiking and biking trails		See box 10.1 for an example
Ski resorts		11 ski resorts, with 61 km of slopes and 26 ski lifts, the largest being Kolašin 1450/Kolašin 1600 (45 km of slopes, 7 lifts, from 1,420 m up to 2,072 m). Mergers with three other resorts are planned, which would create the largest ski resort in South-East Europe with up to 250 km of slopes. Highest altitude skiing is 2,212 m at Savin Kuk, Žabljak (4.7 km of slopes, 6 lift, from 1,515 m).
		The Institute Igalo, Herceg Novi, was founded in 1949 and has thermal springs, mud baths and salt springs. It has 1450 beds and is now part of the University of Montenegro. Many up-market hotels also now boast modern spas. Eight thermal-mineral springs have been registered across the country, See box 10.2 for an example
Spas		
Ethno-/Eco-villages		

Among major new tourist resorts is Porto Montenegro, at the site of a former military shipyard in Tivat and now including a five-star hotel and a marina, with expansion continuing. Similarly, the former military barracks in Kumbor have become the luxury Resort of Portonovi in the Herceg Novi part of the Bay of Kotor. Luštica Peninsula has become the Luštica Bay complex that will eventually include seven hotels, two marinas, a conference centre and the existing 18-hole golf course. Within the complex, The Chedi Hotel and associated marina is already operating and has made significant efforts to boost its sustainability (see box 10.3).

Some other tourist developments have failed to live up to expectations, such as the 130-room, three-star Planinka Hotel in Žablja, which was bought in 2007 with a commitment to invest within three years, was finally closed for redevelopment as a four-star hotel in 2017 and remains shut. When operating at full capacity, the hotel used to employ up to 400 staff.

Some recent tourism establishments have drawn critical attention, including the privatisation and conversion into a hotel of Marmula (Lastavica) Island off the Luštica Peninsula. The construction in 2016–2017 of the “temporary” (concrete and stone) Veriga 65 restaurant in the Verige Strait, between Tivat and Kotor Bays, has led to warnings by UNESCO regarding the status of Kotor as a UNESCO site, and is contrary to the wishes of Kotor Municipality. A UNESCO mission in 2018 observed that the building has “all the functional characteristics of permanence” and that it harms the Outstanding Universal Value of the Kotor UNESCO site.

Illustrative of the reaction from NGOs to less sensitive tourism development is the statement by the president of the Martin Šnajder-Jakobi Society, supported by many local people, regarding one development: “In the shadow of accelerated tourist development, which increasingly focuses on quantity instead of quality, the Ulcinj olive grove and Valdano Bay are becoming victims of inadequate spatial planning, politicization and insufficient understanding and responsibility towards cultural heritage. The pressure on these areas is the result of political

decisions that are often formed based on the narrow interests of investors, instead of being guided by concern for the preservation of unique cultural values”.

Box 10.1: Budva Trails

Budva Trails gives walkers and hikers information about short walks and longer trails in and around Budva city. Available as a mobile application, and on a website, Budva Trails was developed for the LTO Budva. It is intended to promote the natural wealth and cultural heritage of Budva. It includes maps, GPS tracking and a photo gallery to help guide tourists and others around the network of hiking trails, which has expanded from 25 km in 2013 to 125 km in 2023.

Source: <https://budva-trails.me/> and LTO Budva.

Photo 10.1: Budva Trails App

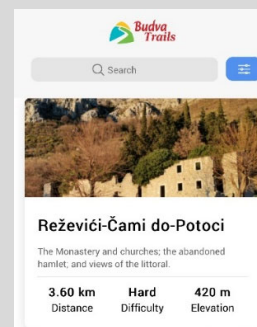


Photo credit: EPR Team

Box 10.2: Eco-village “Nevidio”

The eco-friendly village was first opened about 15 years ago and then reopened in 2012. It has grown to accommodate about 50 guests and expects to start opening year-round. It gained an EU Ecolabel in 2018, with support from a UNDP-GEF project. The website links to <https://calculateco2.me> for a GHG calculator and to buy offsets, as well as to a multilingual bus ticket website, <https://busticket4.me/>.

The village has 50 solar panels and benefits from a feed-in tariff. The expectation is that the panels will pay for themselves within five years, as well as allowing the village to open all year (until now closing for four and a half months each winter). Wastewater is collected in a septic tank. The main water supply is a local pond. There is no single-use plastic and waste is separated. The village uses eco-friendly cleaning and hygiene products.

The property offers physical activities – including cycling and e-biking, climbing, horse-riding, yoga, hiking and canyoning – and relaxation, with locally-sourced food products. In 2023, one third of all guests in Šavnik Municipality stayed in the village.

The village was “legalized” in about 2022. A key challenge is to find local workers, which is a requirement of the EU Ecolabel, despite paying a reasonable wage year-round. The various taxes paid as a legal business are considered high.

Source: management of the village, and <https://ecovillagenevidio.com/>.

Photo 10.2: Eco-village “Nevidio”



Photo credit: EPR Team

Road infrastructure has been strengthened in recent years. The ongoing reconstruction of the country’s busiest section of road, a 16-km stretch between Budva, Tivat Airport and Kotor, is branded as a project under the Chinese Belt and Road Initiative, though it is financed by EBRD (€53.9 million); it will also double the capacity of a water main under the road. This work is closely tied to the tourist sector. Earlier, in 2022, a 41-km stretch of new motorway was opened between Mateševac and Smokovac, as part of a planned 163-km link between Serbia and the port of Bar. That first section – a civil engineering challenge – controversially cost about \$1 billion, funded by a loan from the Export-Import Bank of China and under the same Chinese initiative as the Tivat road.

Public transport is, in general, poorly developed, though progress is now being made. Overall, and not limited to tourism, there has been a growth from 699,000 to 1,607,000 passengers in local transport over the period 2013–2023. The number of passengers in railway transport has dropped from 922,000 to 853,000 over the same period. The introduction of a panoramic train for tourism is now being considered. Only two bus lines serve Kotor, there is little public transport to the beaches along the coast and there is no bus service between Podgorica and the

national airport. At Tivat, a bus service connects the airport to Budva, but most tourists choose to take a taxi. In Žabljak, the only public transport is to the ski lifts in winter, and for school children. On the other hand, the management of Lake Skadar observed that, though many tourists arrive independently, most arrive by coach. In Žabljak town, the central parking lot will revert to a public square in 2024 and parking fees will be introduced year-round, with reductions for locals. In contrast, parking fees are the same for locals and visitors in Podgorica. Electric vehicle charging infrastructure is still developing across the country, with 55 charging stations on 5 May 2024. The Environmental Protection Fund (Eco Fund) is providing subsidies for charging stations and the purchase of electric vehicles.

Box 10.3: The Chedi Luštica Bay

This five-star establishment comprises 111 accommodation units. The marina has a capacity of 115 berths. The hotel holds the following sustainability certificates: UNESCO Sustainable Travel Pledge, Green Key, Earth Check Silver Certified 2023, Sustainability Leader by the Leading Hotels of The World, Zero Waste Business Certification and Sustainable Future Award 2023 by the Great Hotels of The World. In addition, it encourages guests when booking to offset their carbon footprint through <https://www.trees4travel.com>. In December 2023, the hotel joined the United Nations Global Compact, the world's largest corporate sustainability initiative.

At the design stage, the developers foresaw good insulation and low-energy standards, including through the ventilation systems that include heat recovery. Heating employs heat pumps and is claimed to be carbon neutral.

The management seeks continuous improvement in the environmental footprint of the hotel. In terms of water, pressure reducers are used to control consumption and the wastewater is pumped up the hill behind the hotel to the resort's wastewater treatment plant; the sludge is dried as briquettes that are exported to Albania for use as fuel. Besides using only eco-labelled cleaning products, the hotel encourages guests to skip a day's cleaning and change of bedding by offering a one-hour activity in exchange.

A sophisticated energy-management system is used to limit electricity consumption throughout the hotel, for example, by dimming lights in areas when they are likely not being used. All equipment purchased has to meet energy-efficiency standards. The hotel offers five free charging stations for electric vehicles. However, the hardest challenge for the hotel is to switch to renewable energy, as the hotel purchases electricity from the resort, not the local energy utility, and is therefore not eligible for subsidies of solar panels and cannot benefit from feed-in tariffs.

In terms of waste management, there are no recycling centres along the coast and the hotel pays a fixed charge for waste management based on the area of the establishment, not the waste produced (as throughout the country). The recycling of glass has proven most challenging. The hotel bottles its own still and sparkling water onsite and has a bottle-washing machine to avoid single-use glass bottles. In addition, the hotel works with an NGO that also serves 150 restaurants in Podgorica for the export of glass to Croatia. The NGO Zero Waste has also connected the hotel with vineyards seeking used glass bottles for re-use. Food waste is minimized at source by offering a buffet option to hotel guests only when reaching 80 per cent capacity; the rest of the time the menu is à la carte. A local farm collects waste daily for feeding pigs, a business that the farmer has expanded to include other hotels. Waste separation starts also in hotel rooms, with four streams of waste. The management re-used the canvases when changing paintings in the corridors.

Sources: management of hotel, The Chedi (2023) and My Guide Montenegro (no date).

Table 10.3 shows the 60.7 per cent growth in air passenger traffic to Montenegro in the period 2013 to 2023, with air traffic not having fully recovered post-pandemic; the 2019 traffic was 70.9 per cent up on 2013. Increasing the duration of the stay in Montenegro would reduce GHG emissions per \$ spent in country, but the trend has been one of decline from 6.4 nights per visitor in 2013 to 5.8 nights in 2022, and even 5.6 nights in 2019. This trend hides two opposite trends: the nights spent in hotels have dropped from 4.8 in 2013 to 3.7 in 2022, whereas the nights spent in individual accommodation have grown from 7.6 to 8.0 over the same period. There are no data to suggest whether those staying in hotels are more likely to arrive by plane or by car.

Table 10.3: Airport arrivals, traffic, thousands

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Passengers	1 559	1 612	1 644	1 856	2 185	2 455	2 665	522	1 309	1 920	2 506
Podgorica					1 054	1 209	1 297	343	653	1 267	1 658
Tivat					1 130	1 246	1 367	190	671	653	848
Aircraft											
Podgorica					6 725	7 296	7 484	3 097	4 588		
Tivat					6 324	6 815	7 050	2 316	4 904		

Source: NTO, Statistical Office and Civil Aviation Agency, 2024.

The Ministry of the Interior collects data on border crossings by car and the NTO reports that 4,284,233 motor vehicles crossed the national borders in 2021. For other years, more limited information is available to the public with, for example, only the percentage decline in numbers of crossings being available for 2020.

Besides road and air transport, tourists arrive by boat. Over the period since 2013, the number of people arriving by pleasure boat has grown from just 3,786 to 27,685 in 2018 (latest data by the Statistical Office for nautical tourism), with over half now being motor yachts. There is a plan to open a ferry connection from Dubrovnik, Croatia to Budva, but, with little space in Budva Port, it is not certain to come to fruition.

On a larger scale, cruise ships call in at Bar and especially Kotor. In 2023, 472 cruise ships and 571,124 passengers visited Montenegro, still down from 527 ships in 2019, pre-pandemic. In Kotor Bay, up to four cruise ships moor, typically for about 12 hours; five are expected on one day in 2024, among the total of 490. Up to 10,000 cruise ship passengers descend on the city (population: 13,500) and spend about €65 per day, compared with over \$90 per night for tourists staying overnight in Montenegro. Some passengers also take coach trips to other destinations. The ships are getting larger with, in Kotor, 821 visitors per ship in 2013 rising to (forecasted figures) 1,252 per ship in 2019, an increase of over 50 per cent. On shore, the number of souvenir shops in the city grew from 40 in 2012 to 105 in 2016. Data on the socioeconomic impact of the cruise ships on Kotor are patchy. With mooring points scattered across the bay, the provision of shore power, so that ships can switch off their engines, is not realistic.

In the north of the country, there are several ski resorts (see table 10.4), though all but Kolašin are small at under 5 km of ski runs, and all are low altitude. Even Kolašin, which has three-quarters of the country's length of ski runs, reaches only 2072 m. Large five-star hotels are being constructed in the Kolašin area, new ski slopes being established, and cable cars installed. In Žabljak, skiing is at an altitude of 1600 to 2100 metres, which the local authorities think is promising for the ski industry as the slopes are in the shade and a reservoir has been constructed to stock water for snow cannons; they want the ski industry to keep the local population there year-round. However, the ski infrastructure is 30 years old, investment of €15 million is needed and local people do not see the need for a ski industry. The ski season at Žabljak lasts at best 20 days and, at the start of 2024, there was no ski season in Montenegro due to the lack of snow. Tens of millions of euros of ski resort infrastructure are unused as a result, though there are suggestions that the infrastructure can be used to transport summer visitors too. Climate models suggest that average winter temperatures in Montenegro's mountain area will continue to rise. The European Environment Agency has suggested, in the Mediterranean subregion, a reduction of summer tourism and possible growth during other seasons due to climate change.

Table 10.4: Ski resorts

Name	Minimum–maximum altitude (m)	Length of ski runs (km)	Ski lifts (number)
Kolašin 1450/Kolašin 1600	1 420–2 072	45	7
Savin Kuk – Žabljak	1 515–2 212	4.7	6
Čmiljača – Bjelasica	1 570–1 907	3.0	1
Lokve	1 316–1 560	3.0	3
Vučje	1 370–1 530	1.2	3
Hajla – Rožaje	1 158–1 385	1.2	1
Durmitor	1 485–1 953	1.6	2

Source: Skiresort.info, accessed 14.5.24

The national network of walking trails is 6,000 km in length, of which one half comprises mountain trails and the other half, bicycle trails. Since 2013, the Mountaineering Association of Montenegro has cleared, marked and signposted 1,400 km of mountain trails within the network and, in 2023, it cleared and marked 525 km. The Cycling Association of Montenegro is similarly involved in maintaining the cycle trails. The national park authorities are responsible for maintenance within park boundaries. The network has to be maintained continuously. An EU Interreg project in 2020–2022 purchased e-bikes and developed a bike trail at Skadar Lake. At Durmitor, there are cycle trails inside and outside the park and a snowshoeing trail inside the park. The national parks raise revenue through the hiring of bicycles and providing guides, though there are also private companies offering these services.

In Lake Skadar National Park, prior to the pandemic, boat owners established a green boats association, with conditions relating to boat paints, noise and use of plastic; they also considered the possibility to introduce solar-powered boats, though there were safety concerns. Though the association ceased to exist due to the pandemic, it did lead to the proper registration of boats and the addition of safety equipment, for example.

Walking tours remain the most popular activity in the national parks. Other activities include camping, kayaking, rafting, boat trips and birdwatching. In Lake Skadar there is bird watching and tours for ornithologists; it is the largest lake in the Balkans with about 280 bird species. There is no organized bird watching in other parks. Kayaks owned by the park authorities are available, for example, on Lake Skadar and on Lake Black in Durmitor National Park. Durmitor receives revenue from rafting on the Tara River, with about 30 rafts a day in the peak season and no noticeable adverse impact. All parks receive income from campsites. Camping is permitted in the outer two of the three zones within Durmitor National Park, but not the inner, restricted protection zone; some construction is allowed in the outer, licenced use zone. There are two campsites outside the boundaries of Lake Skadar National Park. Revenues are also generated through the licencing of companies providing tourism services in the parks.

Finally, Government welcomed “digital nomads” in 2022, with the introduction of a special visa regime for the period until 2025. The Montenegro Digital Nomad Visa is valid for up to two years, though limited to six months in any one year. The visitor still pays the regular tourist tax. It has been argued that a digital nomad staying for six months brings the same economic benefit as 25 tourists staying for a week, namely, they are largely equivalent in terms of benefit to the host country but possibly result in fewer emissions from travel.

Pressures from tourism

The Tourism Development Strategy for 2022–2025 with Action Plan includes a SWOT analysis that identifies many weaknesses and threats of an environmental nature. Explicitly environmental weaknesses include: the destructive use of space and illegal construction, wastewater treatment and illegal landfill, and noise. Environmental threats include: a lack of information about the possibilities of “green tourism”, increasing environmental pollution, pandemics and possible crises, and climate change. Key weaknesses in Montenegrin tourism more broadly are defined as: seasonality, regional unevenness and concentration in the coastal region, inadequate quality of service (staff, capacities), the grey economy, insufficient diversification of the tourist product, depopulation of rural areas and the devastation of space (e.g. unplanned construction, inadequate treatment of wastewater and illegal landfills). Further, the National Strategy for Sustainable Development lists certain adverse pressures in the tourism sector: (i) the concentration of tourist activities and infrastructure in the coastal part of the country; (ii) the violation of natural values and the loss of natural capital by the development of tourism infrastructure and concentration of visits to sensitive sites; and (iii) the development of tourism in a way that does not bring significant benefits to local communities.

A series of carrying capacity studies were carried out for Kotor, Podgorica and Žabljak in 2022, under an Interreg Mediterranean programme, to identify specific challenges. For Kotor, these were mobility (with very limited public transport), a same-day (mass) tourism-based economy and excessive real estate development. For Podgorica, there is a lack of data, high tourism flows, noise and a poor mobility offer, though with action being taken on the last of these challenges. The longest list of challenges was for Žabljak: the lack of a tourism strategy, governance problems at Durmitor National Park, a lack of workers, a lack of investment in tourism services and inadequate waste management. The authorities at Lake Skadar National Park are seeking support for a similar study.

In most instances, impacts of tourism on aspects examined below result in degradation of the environment that attracts visitors: land take and degradation of landscapes, loss of biodiversity and damage to ecosystems, discharge of wastewater and disposal of waste, for example. There are few data to indicate the actual impacts of tourism as distinct from the economy as a whole.

Air

More broadly, in-country GHG emissions from the tourism sector were estimated to represent 3.9 per cent of total domestic emissions in 2018. However, 86 per cent of total tourism emissions were from international travel and not included in domestic reporting. Other estimates suggest that international air travel would alone represent 6.2

per cent of emissions if counted in total domestic emissions.¹⁷⁹ Table 11.1 shows that 92.9 per cent of international tourists in 2019 were from Europe; there was a dip to 89.3 per cent in 2023, but it remains to be seen whether this is a trend. Nonetheless, recent attempts to bring in more tourists from China and North America may result in higher emissions and the proportion of non-Europeans has been steadily rising, despite a COVID-19 “bump”, from 3.2 per cent in 2013 to 5.8 per cent in 2022. About half of all air passenger arrivals are in the third quarter of each year (48 per cent in 2019). NTO observes that the few long-haul visitors tend to tour other countries in the region and that Chinese visitors, in particular, come for the luxury end of the market and nature-based tourism.

Within Montenegro, air pollution in the tourism sector arises mainly from private vehicle emissions. No separate monitoring is undertaken, and routine air quality monitoring cannot be used. However, road traffic data show the importance of the tourist season with only 15 per cent of passenger-km in the first quarter of 2019 and 42 per cent in the third quarter; data for 2022 (the latest complete year), confirm that tourism is still perturbed, with 12 and 34 per cent of the annual total traffic in the first and third quarters, respectively. Air emissions from cruise ships in harbour are controlled, being subject to regulations requiring a switch to low sulfur fuel before approaching the port of call. The effectiveness of this regulation has been tested in the field with the installation of air quality monitoring equipment in Kotor Municipality, downwind of the port; increasingly high concentrations of sulfur oxides were observed in the second half of May and first half of June 2024.

Water

Water consumption by tourists in the coastal region¹⁸⁰ during the summer is a particular concern. The year COVID-19 struck the country, in 2020, there was a 34 per cent drop in water supply and a 28 per cent drop in treated wastewater in Budva Municipality, for example. Tourism thus contributes to difficulties faced by municipalities in supplying water, treating wastewater and, notably in Budva, disposing of the sludge from wastewater treatment.

The State of the Environment Report of 2022 presents results of sampling of sea water at 110 public bathing sites along the coast, for two microbiological parameters (*Escherichia coli* and intestinal Enterococci): 57.3 per cent were of excellent quality; good, 34.5 per cent; satisfactory, 1.8 per cent; and poor, 6.4 per cent. The quality of coastal waters is dependent on discharges from land-based sources, notably industrial and municipal wastewater, the latter being impacted heavily by tourism.

Inland, wastewater treatment is also a challenge. In Žabljak, the population of about 3,000 is vastly outnumbered by the 300,000 visitors (officially, likely 50 per cent more in reality) each year. The wastewater treatment plant is old and undersized though “it doesn’t smell”.

SDG 6 is to ensure the availability and sustainable management of water and sanitation for all, with SDG target 6.4 being, by 2030, to substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity. For indicator 6.4.1 (Change in water-use efficiency over time), data are available for 2013–2020, disaggregated by some economic sectors, but not tourism. The total economy value grew gradually every year from 17.76 \$/m³ in 2013 until it reached 22.27 \$/m³ in 2019, before falling back to 18.98 \$/m³ in 2020, due to the pandemic, and then recovering to 21.27 \$/m³ in 2021, the last year with data in the SDG Indicator Database (compared with 13.08 \$/m³ in Albania and 47.38 \$/m³ in Croatia in 2021). If instead services (excluding construction) are considered, the water-use efficiency in 2021 was 30.67 \$/m³ for Montenegro (31.27 \$/m³ for Albania and 85.52 \$/m³ for Croatia). There are no data available for indicator 6.4.2 (Level of water stress: freshwater withdrawal as a proportion of available freshwater resources). The calculations above regarding the pandemic period provide an indication of the contribution of tourism to overall water stress. The Statistical Office has data on water quantities captured for public water supply system according to type of water supply,

¹⁷⁹ Calculated using Our World in Data greenhouse gas emissions and OECD air transport CO₂ emissions.

¹⁸⁰ The north region comprises Andrijevica, Berane, Bijelo Polje, Gusinje, Mojkovac, Kolašin, Plav, Petnjica, Pljevlja, Plužine, Rožaje, Šavnik and Žabljak municipalities, the central region has Cetinje, Danilovgrad, Nikšić, Podgorica, Tuzi and Zeta (established on 23 August 2022) municipalities and the coastal region includes Bar, Budva, Herceg Novi, Kotor, Tivat and Ulcinj municipalities. Regions are not formal administrative areas but are used for statistical purposes, for example, and are defined by the Law on Regional Development (OG 20/11, 26/11, 20/15, 47/19).

and delivered water quantities from water supply system, both most recently for 2014 and 2017, and water used in industry and wastewater, both annually 2013–2017.

Land, soil and landscape

No data are available on land take for the tourism sector, and the impact on landscapes due to it, but the pressure on land is evident, from the construction of large hotels along the coast near Budva, to the numerous small constructions close to Durmitor National Park, to new winter sport hotels near Kolašin. The ministry responsible for spatial planning can agree to construction in wood and stone in the outer, licenced use zone of a national park, but approval is rare. The pressure in the coastal region is most acute due to the large and growing number of visitors.

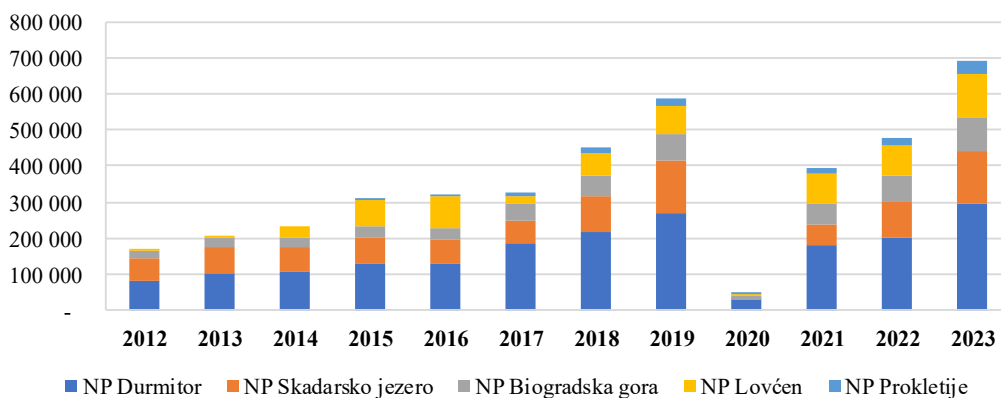
However, tourism is not the only pressure on land in the coastal area, with infrastructure for both dual tourism/other use (for example, widening the Budva–Kotor Road) and for broader economic purposes (such as the new 35 kV electricity export substation in Kotor Municipality). These developments impact the land but also tourism by degrading landscapes. For municipal authorities, this type of planning demonstrates a lack of sensitivity to local priorities. At a more local level, the park authorities at Durmitor are trying to limit bicycles because of the damage they cause to the trails in the park.

Biodiversity and ecosystems

Impacts on biodiversity and ecosystems from tourism across the country include wastewater discharges, waste disposal and resultant pollution, disturbance by vessels in protected areas and by scuba and torch diving, damage from illegal anchoring in protected areas and dragged anchors, both legal and illegal hunting, fishing and collecting, noise on land and at sea and particularly land-take. The intensification of tourist development, together with forest exploitation, is blamed for the disappearance of several bird species, such as the Bearded vulture (*Gypaetus barbatus*), according to the State of the Environment Report of 2022.

One measure of pressure is in the number of visitors to the country's national parks, though their behaviour is also important. Regarding numbers, figure 10.1 shows the rapid increase in numbers of visitors in the period since 2013 from 202,202 to 688,555 per annum. Based on data from 2016, 95.2 per cent of visits are in the main tourist season of May–October, and 70.3 per cent in the peak season of July–September; all parks show this seasonal pattern. The fee for entrance remains modest at €5 at Durmitor and Lake Skadar, €4 at Biogradska Gora, and €3 at Lovćen and Prokletije, or €13.50 for an annual pass to all parks, suggesting that fees could be increased at individual parks, while maintaining the annual fee for all parks that is attractive to domestic visitors. About €2 million of revenue was collected at Durmitor in 2024, but the pressure is on the authorities to raise income further.

Figure 10.1: Visitors per national park, 2013–2023, number



Source: Public Enterprise “National Parks of Montenegro”

In terms of behaviour, problems encountered at Durmitor, besides the large number of visitors, include illegal use of quad bikes and skidoos within the park boundaries and noise including from legal concerts, for example. The

park authorities have now banned concerts and will be putting up more signposts about the ban on quad bikes. Both tourists and local residents are sources of waste in national parks. To reduce littering in national parks, and resulting impacts on wildlife, the National Parks Enterprise launched a brochure “Leave No Trace” in 2024, listing seven key principles. The Lake Skadar management emphasises education and awareness raising of visitors. Visitors are excluded from certain areas in national parks during the breeding season.

To reduce pressure on the park from private vehicles, two tourist (diesel-powered, on-road) trains were bought by a UNDP-GEF project to ferry visitors from car parks to the Biogradska Gora National Park, while also improving access for those living with handicaps. The train ticket was included in the park entrance. However, there were fears about the safety of the train given the steep slope on the return journey and the two trains have now been moved to Lovćen and Durmitor parks and are used for promotional purposes.

At Durmitor, tourism promotion continues but the strategy on visitor management is to limit the number of visitors in line with a UNESCO recommendation, while also trying to move people away from Lake Black. In contrast, at Lake Skadar there is a wish to accommodate more visitors with, for example, a new camping area planned for development in 2024. Nonetheless, the current management plans of national parks make clear that the goal is the development of sustainable tourism rather than increasing the numbers of visitors per se. Still, there remains ambiguity with the Public Enterprise “National Parks of Montenegro” highlighting that national parks are a key touristic offer and an economic resource and that tourist activities generate funds for the sustainable development of parks.

The inner bay at Kotor (Kotor and Risan Bays), which is the subject of frequent visits by large cruise ships, has a residence time of 100 years, which is highly conducive to the accumulation of pollution. The bay’s ecosystem, including clams and seagrasses, is exposed to air emissions, water pollution and noise.

Noise

No data are available on noise resulting from the tourism sector. Sources include music from bars, nightclubs and private accommodation, road traffic noise and ship noise (especially regarding its impact on marine ecosystems). In Budva, most complaints by the public are about noise. Measurement of noise is a responsibility of municipal police. In Durmitor National Park, there used to be music concerts, but these have now been banned and requests by the LTO are now refused. However, key noise sources are skidoos, quad bikes and drones.

Development and wellbeing of local communities

A particular concern in communities engaged in tourism is the seasonality of employment, with two adverse impacts: (i) people are unable to find year-round employment and therefore leave the area; and (ii) tourism enterprises therefore find it difficult to hire staff. The second challenge is being addressed through, for example, procedures such as those for “permanent seasonal workers” to get faster licensing for immigrant workers. This may boost the tourism sector, but without necessarily benefitting local communities directly. The 2011 census recorded a population of approximately 3,500 in Žabljak, but it is now about 3,000 and only around 2,000 year-round: the municipal authorities estimate that 90 per cent of the (working age) population is engaged in tourism. One positive effect of the COVID-19 pandemic was that some people returned to the countryside from working abroad when they lost their jobs, stayed in their villages and contributed to the establishment of 300 “rural households” or to sourcing local products for the tourism sector.

The State of the Environment Report of 2022 notes that, in the coastal area, “During the peak season, the monthly number of visitors exceeds 450,000 (three times more than the number of inhabitants of coastal municipalities). It should be noted that the economic effects of tourism have remained at approximately the same level over the years, while the pressure on the resources of the coastal area and the quality of life of the local population (due to large crowds and the short duration of the season) have increased significantly.”

SDG 8 is to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, with SDG target 8.9 being, by 2030, to devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products. The data for the corresponding indicator 8.9.1 (Tourism direct GDP as a proportion of total GDP and in growth rate) are available nationally – as reported above – but not made available on the United Nations SDG Indicators Database, except for a value of 10 per cent in

2009. Tourism Satellite Accounts are expected to be the source of data for this indicator, but only a pilot project “Developing Tourism Satellite Account – TSA” implemented by the Statistical Office, in cooperation with other institutions, on use of these accounts was undertaken in 2011. The Statistical Office believes that its current survey could be upgraded to provide a Tourism Satellite Account, in line with the United Nations framework for such accounts. OECD publishes statistics for different areas of tourism employment.

SDG 14 is to conserve and sustainably use the oceans, seas and marine resources for sustainable development, with SDG target 14.7 being, by 2030, to increase the economic benefits to Small Island Developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism. Following a value of zero per cent in 2013, there have been no new data available for indicator 14.7.1 (Sustainable fisheries as a proportion of GDP in small island developing States, least developed countries and all countries) in the SDG Indicator Database. This indicator is anyway of limited direct relevance to tourism, other than the demand for fish to eat by tourists likely increasing pressures on Montenegro’s fisheries.

The authorities at Lake Skadar National Park are seeking to improve access for people living with disabilities.

Energy and resources use in tourism, and energy efficiency and conservation

There are no data on the use of energy and resources in the tourism sector. The Ministry of Energy and Mining, in cooperation with the ministry responsible for tourism and environment and the Eco Fund, is preparing a programme for the improvement of energy efficiency in tourism, which might cover up to 30 small hotels, in the amount of approximately €3.5 million. The programme will be funded from the EU’s energy direct budget support package for the country. It aims to encourage hotels to improve energy efficiency to reduce costs. At the same time, the terminal evaluation of an earlier UNDP-GEF project in the tourism sector noted that retrofitting tourism accommodation for better energy efficiency is often not cost effective, because accommodations are often modern and reasonably efficient and because they have low occupancy rates outside the short tourist season, which expands the payback period; the project nonetheless undertook some measures to this end.

Use of natural resources

Natural resources are used and GHG emissions result from the construction of tourist infrastructure. This implies maximizing the use of such infrastructure to maximize the benefit derived from the consumption of resources. Looking at the number of visitors staying in hotels and the number of beds in hotels reveals a steady increase in annual occupancy rates from 22.9 per cent in 2013 to 28.0 per cent in 2019, the latest year for which data are available. However, this still represents a low level of occupancy year-round.

Waste generation

Public utility services at the municipal level are responsible for water supply, wastewater management, public lighting, public transportation and municipal waste management. There are no data on waste generation by tourists, but similar patterns may be anticipated as for water supply and wastewater treatment mentioned above for Budva. In Lake Skadar National Park, the separation of waste streams has begun, despite a lack of waste containers from the utility company; waste plastic is ultimately being reused to make products such as benches and waste bins.

In Žabljak, there is no separation of waste and no waste management infrastructure as at April 2024. However, with the support of a €1 million grant by Slovenia, a new local waste separation site is to be set up, with organic waste, for example, being converted into fertiliser. Still, Žabljak and two neighbouring municipalities are unable to agree on the location of a landfill.

SDG target 14.1 is, by 2025, to prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution. The indicator 14.1.1 has two parts: (a) index of coastal eutrophication; and (b) plastic debris density.

Regarding coastal eutrophication, two series are recorded: Chlorophyll-a anomaly and deviations, both measured as percentages using remote sensing. Chlorophyll-a anomaly has been recorded from 2018 to 2022 according to

three frequencies: medium, high and extreme. All three frequencies showed a pandemic dip in 2020, a high in 2021 (perhaps as economic activities recovered) and a slight reduction in 2022. Chlorophyll-a deviations are erratic with high values in 2013 (10.4 per cent), 2018 (9.8 per cent) and 2021 (7.3 per cent), with far lower values in other years (a maximum of 2.6 per cent in 2014) and no clear trend. High values are indicative of wastewater discharges, but also of nutrients running off agricultural land. It is therefore difficult to ascribe variations to tourism specifically.

Regarding plastic debris density, the focus of the indicator is on beach litter. Most values are generated by mathematical models, giving also the expected origin of the litter (mostly not Montenegro). Only one direct measurement is recorded for Montenegro, with 1.3 million items/km² in 2019 (with Albania also recording 1.3 million items/km² in 2018, but Croatia recording 45 million in 2015, 0.43 million in 2016, just 0.055 million in 2019 and 111 million in 2021). The proportion of beach litter originating from national land-based sources that ends in the beach was steady in the period 2017–2021, at between 58 and 63 per cent. However, exported beach litter originating from national land-based sources grew steadily every year in the same period from 2,742 to 3,181 tons, whereas that which ends in the ocean remained steady at about 1,140 tons, and thus a gently declining percentage of the total. The richest data set is of the quantity (tons) of beach litter originating from regional land-based sources that ends in the beach. This has grown every year from 2017 to 2021, from 1,599 tons to 1,965 tons, by 22.9 per cent in just four years. According to the model, 84.3 per cent of this litter has come from just three countries: Egypt (32.6 per cent), Italy (26.2 per cent) and Libya (25.5 per cent). Less than one per cent is domestic in origin.

SDG 12 is to ensure sustainable consumption and production patterns, with SDG target 12.b being to develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products. SDG indicator 12.b.1 (Implementation of standard accounting tools to monitor the economic and environmental aspects of tourism sustainability) comprises three series, for the numbers of tables, System of Environmental-Economic Accounting tables and Tourism Satellite Account tables. For all three series, the value is 0 for 2013–2021, with no data for 2022 and 2023, according to the SDG Indicator Database. Experimental data were obtained for 2009 through the pilot project on Tourism Satellite Accounts in 2011. Podgorica LTO tested the European Tourism Indicator System in the period 2014–2016. Staff benefitted greatly from the training provided but the indicator database needed maintenance and there was a lack of technical support. The new Statistical Framework for Measuring the Sustainability of Tourism was endorsed by the United Nations Statistical Commission in early 2024, thus after the period under review. It is intended to support the production and organization of data on the impacts and dependencies of tourism on the economy, society and the environment.

10.3 Legal, policy and institutional framework

Legal framework and its implementation

Law on Tourism and Hospitality

The legal framework for the tourism sector is enshrined primarily in the Law on Tourism and Hospitality. This law replaced the Law on Tourism (OG 61/10, 31/14), with the aim of harmonizing tourism law with EU laws and standards, as well as upgrading the tourism offer.

The tourism law sets out obligations of business entities, other legal entities, entrepreneurs and natural persons, while performing tourism activities, to “provide tourism services in accordance with the principles and practices of the sustainable development of tourism, while preserving the natural and cultural heritage and minimizing the negative effects of tourism activities on the environment”. It provides a definition of “sustainable development of tourism” and lists as the second of eight principles: “Sustainable development of tourism based on the compatibility of the interests of economic development and the need to protect the environment and its resources, with adjustment to climate change by the continuous mitigation of the negative consequences of climate change”. It also defines ecotourism but is otherwise silent on such.

Oddly, the tourism law includes many provisions on noise that would normally be included in separate legislation, as they were prior to this law.

The law established the Central Tourist Register,¹⁸¹ the concept of a “mystery guest” (an anonymous representative of the ministry responsible for tourism who checks the quality of the offer) and provisions for tourist resorts, the operation of foreign entities, an incentives programme and tourism development zones. Tourism and hospitality businesses must have a construction permit and ensure that the physical facility (for example, accommodation) is legal or begin the legalization procedure if it is not, else lose the business licence. One practical challenge faced by accommodation providers is that they may not have a construction permit because the building pre-dates construction permitting or because the accommodation is within a larger property, such as a block of flats. However, the Register does not function as at 7 June 2024.

One of the key elements intended to tackle the grey economy was the introduction of the requirement that only licenced properties and businesses, or those listed in the Central Tourism Register, may be advertised or promoted. For example, in terms of penalties, a fine of €200–€2,000 may be imposed on a natural person who provides hospitality facilities in rooms, tourist apartments, or houses and flats, without being entered into the Central Tourist Register; a six-month ban can be imposed on the offending natural person for a repeat offence. The law explicitly refers to three digital platforms: Booking.com, Airbnb and TripAdvisor. Žabljak LTO, for example, has asked Booking.com to cease advertising of unlicensed properties but, as the platform has no presence in Montenegro, it has not been possible to stop the platform; previously the platform had required proof that an establishment had the required permit, but no longer. Nonetheless, local authorities, such as those in Budva and Žabljak, search Booking.com and Airbnb websites and compare the properties on offer against their list of licenced properties; Žabljak found that about 30 per cent of local properties on Booking.com were not registered in Montenegro. The law requires that those offering accommodation record visitors and submit data on overnight stays to the municipality or LTO and to the Statistical Office, within a prescribed period.

Tourism inspectors are limited to inspecting licenced properties and cannot enter what is otherwise a private home. In Budva, an inspector was invited into a property by the owner having expressed an interest in renting and was then able to pursue the owner through the courts.

LTOs also try to encourage registration. For example, the Budva LTO has a programme encouraging owners to register and tries to simplify the procedures. In addition, if a tourist comes to a tourist office to ask for information, they are asked for the address of their accommodation and to show that they have paid the tourism tax.

The Law on Tourism and Hospitality is implemented through numerous rules and regulations, notably the Regulations on the Detailed Content and Manner of Keeping the Central Tourist Register (OG 56/18); Regulations on Detailed Conditions regarding Furnishing and Equipment, Types and Conditions of Using Bathing Waters (OG 23/19, 76/19, 57/20); Regulations on Noise Limit Values, Method of Noise Measurement Inside and Outside Hospitality Facilities and Method of Use and Conditions to be Fulfilled by the Volume Limiter (OG 20/19, 42/19); Rules on Minimum Technical Requirements, Requirements for the Category and Method of Categorization of Facilities in which Hospitality Services are Provided in Rural Households (OG 41/19); Rules on Types, Minimum Technical Conditions and Categorization of Hospitality Facilities (OG 036/18); and Regulation on Minimum Technical Requirements and Methods of Providing Certain Tourist Services including Sports-Recreation and Adventure Activities (OG 38/19).

The Government has published conditions for the issuance of licences and permits for tourism businesses, covering travel agencies, tourist guides, rafting services, activities on a ski resort and hospitality activities in different types of establishments: hotel, motel, boarding house, tourist settlement, tourist apartment block, ethno-village, national restaurant (i.e. serving traditional food), rural household, camp, campground and wilderness camp.

A new law on tourism and hospitality has been drafted, with the expectation that it will be submitted to Parliament by the end of 2024. The law will include provisions that will be triggered when Montenegro accedes to the EU to ensure that legislation on the single market for services come into force immediately. In addition, the law will lead to some decentralization so that more inspections will be possible at the municipal level. It is also expected to lead to tougher sanctions for certain offences.

Law on Tourist Organizations

¹⁸¹ Montenegro (Central Tourist Register).

The legal framework for tourism is also provided by the Law on Tourist Organizations and regulations such as Rules on Detailed Criteria for Categorization of Tourist Places (OG 12/17) and Decision on Categorization of Tourist Places (OG 47/17).

Law on Tourist Tax

The Law on Tourist (or Residence) Tax was updated in 2015 (OG 048/15). Every tourist is obliged to pay a tourist tax. The fine for an accommodation provider ranges from €500 to €10,000 if the provider fails to charge a tourist tax when charging for the accommodation service, does not pass on the tax or fails to report on residents, for example. A private homeowner renting out rooms can be fined between €250 and €1,500 for similar misdemeanours. If the accommodation is not registered and the tourist fails to pay the tax directly, the tourist too can be fined. In addition, the Criminal Code includes the offence of Evasion of Taxes and Contributions for which the sanctions are a prison sentence and a fine. Tourism membership fees and tourism or residential taxes are gathered by NTO through LTOs, with Budva Municipality claiming to generate 40 per cent of the total income. NTO keeps 20 per cent of the total and shares the remaining 80 per cent among LTOs. Then, 10 per cent of tourist taxes must be invested in improving the tourist stay by, for example, installing e-charging stations. The tourist tax is limited to €1 per night for adults and €0.50 for children aged 12–18; there is no tax for under 12s. After many years of lobbying, an increase in the maximum rate has been announced for 2025.

Tourism activity laws

There are specific laws for different tourism activities: rafting, skiing and mountain trails. The Law on Rafting has been updated and supplemented by 15 rules and regulations since 2013. The Law on Ski Resorts has also been amended in recent years and new regulations added: Rules on Detailed Conditions for Classification, Marking and Safety of Ski Tracks (OG 52/19); and Regulation on the Manner and Detailed Criteria for Determining Fee for Established Servicing Rights on Real Estate in the Ski Area (OG 47/14). The Law on Mountain Paths has not been revised in the period since 2013, but there have been two updates to the regulatory framework: Rules on the Termination of the Validity of the Rules on the Training Programme, Method of Passing the Professional Examination, Content, Appearance and Method of Issuing the License for a Mountain Guide (OG 18/13); and amendments to the 2010 Regulations on the Conditions, Way and Procedure of Election of Hosts for the Maintenance of Mountain Trails (OG 117/21, 016/23). Regulatory instruments associated with the laws have been developed in the period since 2013 and do not have an environmental dimension.

Law on Spatial Planning and Construction of Structures

Outside the tourism sector, the key law is the Law on Spatial Planning and Construction of Structures, which defines preparation by the ministry responsible for spatial planning of the Spatial Plan of Montenegro for a period of 20 years (at scales of 1:100,000 to 1:5,000) and the General Regulation Plan of Montenegro for 10 years (at scales 1:50,000 to 1:1000). Local self-governments can develop urban development designs to support implementation of the General Regulation Plan. The law allows for campsites and rural tourism buildings outside the zone for construction. It also specifies that buildings of 3,000 m² or less, except for four- and five-star hotels and tourist resorts, are within the competence of municipal authorities and that the initial concept of the hotels and resorts may be entrusted by the central authorities.

The law also sets out provisions for the legalization of illegally constructed buildings shown on “ortho-imagery” of late 2017 to early 2018. Municipalities struggle to apply the legalization process and hope that an expected revision of the law will lead to its simplification. As a measure of the extent of illegal construction, at the end of December 2023, about 58,500 applications had been submitted for legalization of buildings and parts of illegal buildings across the country. In principle it is possible to demolish – or make the owner demolish – a building for which legislation is refused, but this is very rarely enforced. Pending a decision, the owner can continue to offer tourist accommodation, for example.

In the touristic municipality of Budva, 4,704 requests for the legalization of illegal buildings were made in the period from 2017 to 20 April 2024, with 106 resolutions on legalization of buildings (2.3 per cent), 3,025 rejections of requests, 1,186 awaiting adoption of the General Regulation Plan and the remainder being suspended or ongoing as at end of April 2024. Almost all the decisions to terminate pending adoption of the General

Regulation Plan are because the constructed objects do not comply with the basic urban parameters of the valid detailed development plan or because they were built on locations that are outside the scope of the valid plans.

Law on Environmental Impact Assessment

The 2005 Law on Environmental Impact Assessment was replaced by a new law of the same name in 2018 (OG 075/18), though without any special considerations for tourism. Tourism and recreation projects are included in the list of projects for which an EIA may be required.¹⁸² These projects are classified (in each case including accompanying facilities) as: ski slopes, ski lifts and cable cars; marinas; weekend resorts, tourist resorts and hotel complexes outside urban areas; permanent camping sites and caravans; and dedicated parks (amusement, sports, recreation, golf courses, etc.). The municipal authorities are responsible for the EIA procedure for projects for which they issue the permits, while larger projects are handled by the EPA. Municipal authorities contacted were unable to provide the numbers of tourism sector EIAs processed each year. The EPA published annual lists of EIAs from 2009 to 2020, but not more recently. The 2019 (pre-pandemic) list includes 123 development activities at different stages, of which 5 are hotels or resorts and about 4 others are related to tourism facilities.

Laws on entry into Montenegro

Key legislation for foreign visitors to Montenegro includes the Law on Foreign Nationals (OG 2/18) and the Law on State Border Surveillance (OG 72/05). The Law on Foreign Nationals includes provisions on visas and registration of foreign nationals but also penalties for a failure to register. The visitor is responsible for registration unless using an accommodation provider. The law is silent on whether the accommodation provider must be registered but the provider is guilty of a misdemeanour if it fails to register the visitor: a legal entity faces a fine of €500–€3,000 and a natural person, €150–€500. The Law on State Border Surveillance includes provisions on data gathering on visitors. The border police are also able to check whether a person registered their stay. In practice, visitors staying in unregistered accommodation often choose to register themselves at the LTO.

Policy framework and its implementation

Tourism development

The key policy document for the tourism sector is the comprehensive Tourism Development Strategy for 2022–2025 with Action Plan. The current strategy replaced the 2008 Tourism Development Strategy until 2020. The current strategy includes a mission statement: “Montenegro manages the destination in a sustainable way, creating an innovative, green and inclusive tourism product, influencing the increase in tourism spending, reducing seasonality and regional imbalance, with the aim of raising living standards of local population and tourist satisfaction”.

The main goals of the current strategy include improving the regulatory framework in tourism with the formalisation of tourism turnover; supporting the development of tourism infrastructure; expanding the quality and quantity of accommodation capacities; diversifying the tourism product while retaining quality; enhancing human resources, knowledge and skills in tourism; and developing digital, innovative solutions and new technologies in tourism. Most of these goals are compatible with sustainable development, especially in strengthening the regulatory framework, eroding the grey economy, diversification away from sun, sand and sea, and skills development. However, possibly infrastructure development and certainly expanding the quantity of accommodation are likely incompatible with the intent to protect the environment.

The expectation is that each year’s action plan is evaluated and reported upon in the following year, as has been the case for the first year, 2022. The report, issued in June 2023, states that 69.6 per cent of planned funds for the implementation of the 2022 action plan were secured. In addition, both the quantity (an increase of 4.9 per cent in the total accommodation capacity of hotels and similar facilities) and quality (continuing the shift to higher category hotels) were reported.

¹⁸² Regulation on Projects for which an Environmental Impact Assessment is Performed (OG 020/07, 047/13, 053/14, 037/18).

The primary directions are diversification of products, extension of the tourist season, more balanced spatial development, increased employment, increased attractiveness and the satisfaction of tourists, and better recognition of Montenegro as a tourist destination. Diversification means better use of the whole country's natural, social, cultural, historical and ethnic characteristics, with an accent on the development of the northern part of the country. Diversification means a shift from sun, sand and sea to rural and agrotourism; cycling and hiking; cultural and religious tourism; health tourism; nautical tourism ("blue growth"); sports, recreational and adventure tourism; MICE (Meetings, Incentives, Conferences and Exhibitions) tourism (i.e. events, festivals, congresses); tourism in national parks and other protected areas; and gastronomy tourism. A new strategy is to be developed for the period 2025–2030.

The main tourism strategy is complemented by policy documents for health, rural and cultural tourism. The 2023–2025 Rural Tourism Development Programme was adopted in 2023, together with an action plan, as follow up to the previous programme for 2019–2021. The Health Tourism Development Programme 2021–2023 also includes an action plan and covers both wellness and medical tourism; it recognizes the interlinkages between wellness tourism and nature. The National Cultural Development Programme for the period from 2023 to 2027, published in July 2023, has limited reference to the environment but does mention connecting cultural and ecological elements in tourist flows. An earlier Cultural Tourism Development Programme with Action Plan covered the period 2019–2021, and the gap between the two programmes was covered by a Transitional Action Plan for 2022 for Implementation of the Cultural Tourism Development Programme. The World Heritage Centre has encouraged Montenegro to develop also a sustainable tourism management strategy for Durmitor National Park.

Because other policies impact tourism or are impacted by it, the ministry responsible for tourism provides inputs to policy documents on, for example, regional development, circular economy, transport, industry and forestry. Similarly, implementation of the tourism policies requires cooperation with other ministries.

Economic reform

Beyond the tourism sector, the most important policy is the economic reform. Already in 2013, the Reform Agenda in the Field of Tourism insisted on diversification of the tourist offer and on the role of small and medium-sized enterprises. The current Economic Reform Programme 2024–2026, published by the Government in January 2024, includes the structural reform of "Improving the Business Environment and Formalisation of the Informal Economy", which is expected to have a positive environmental impact through the digitalisation, the creation of green jobs in the tourism and other sectors and more inspection controls, again including in tourism. In terms of sustainable green tourism, the programme highlights the development of "green" types of accommodation facilities and diversification of the tourist product. One reform measure reported upon from 2023 was dedicated to sustainable green tourism, with ongoing work of the committees awarding eco-labels to hospitality establishments, the implementation of programme of incentives in tourism, the adoption of the new rural tourism programme and the continuing implementation of the activities for developing cultural, health and event tourism. The document explains that these measures help promote Montenegro as a green destination, with hospitality establishments applying eco-standards seeing higher occupancy, which in turn creates jobs, reduces poverty and, as women are the majority in the tourism workforce, promotes gender equality.

Spatial planning

The second most important document is the spatial plan to 2040, replacing the previous plan that is about 15 years old, under development as at May 2024, with public consultations having concluded. A draft SEA report was prepared earlier. It is expected that the plan will be adopted by Parliament in 2024. The plan's overall goal in relation to tourism is the controlled and sustainable development of the tourism industry, with its general principles being: area protection as the basis of tourism development, rational determination of tourist zones, meaningful development of complete zones and tourist centres, ensuring the general infrastructure as a basic prerequisite for the realization of tourism projects, respecting the specificity of the regions and areas of Montenegro in tourism planning, introduction of a modern system of measurement and monitoring of accommodation capacity, a high degree of non-competitive and seasonal accommodation capacity overall, a system of development of a competitive accommodation structure, investing in the quantity and quality of beaches and development and improvement of the accessibility of the destination. The draft plan is linked with the tourism strategy.

The aim is to have 236,650 tourist beds in 2030, up from 206,874 in 2019, according to the measure used. The plan foresees a growth in accommodation in the coastal zone of about 7,000 new beds in four- and five-star establishments, while reducing lower category units across the country to just 500 in two-star hotels and no one-star ones; the annual average growth rate in hotel beds until 2030 would be 2.5 per cent, while private accommodation would grow more slowly at a rate of 0.7 per cent, to end up with about three-quarters of beds being in private accommodation. The plan also aims to promote provision of tourist and hospitality services on farms and connecting farmers with tourism for traditional farm products. The draft spatial plan identifies Budva, Tivat (Porto Montenegro), Bar marina and Porto Novi as ports for nautical tourism and a series of eight tourist road routes. It also identifies 8 tourist clusters (for example, the Bar Riveria and Skadar Lake is one) and 10 tourist zones (such as Kotor Bay). The ministry responsible for spatial planning recognizes that climate change brings uncertainty to the tourism sector, with risks including (forest) fire, floods, wet weather and a shorter ski season.

Spatial planning is a top-down process with municipal plans following the national plan, though in practice some municipal plans are being developed in parallel. Žabljak Municipality is now engaged in the revision of its outdated municipal plan (Spatial urban plan of the municipality of Žabljak (OG 22/11)) to ensure all areas are zoned; the Durmitor national park authorities and UNESCO are consulted. Budva Municipality notes that its municipal plan dates from 2007.

Budva Municipality disagrees with the spatial planning by the central government regarding, for example, the development of wind turbines and major roads in villages with cultural heritage and feels that local people are better able to judge – through public debates and submission of comments – the needs for sustainable development. The municipality believes that it is excluded from decision-making and that the justification for rejecting its comments is inadequate. Though NGOs receive some funding from the municipality, they do not engage much in commenting on spatial plans, except for wind turbines, to which the public also object.

Sustainable development

The National Strategy for Sustainable Development by 2030, published in 2016, recognizes that the tourism sector needs to have a more positive impact on local communities and be more diversified and less seasonal and concentrated along the coastline. Tourism contributes to uneven development across the country, while also generating waste and pollution and putting pressure on infrastructure. The Strategy recognizes also the poorly regulated spatial planning and weak environmental protection. It therefore proposes numerous measures, including to:

- Promote cultural, rural, nature-based, adventure, educational, gastronomical, religious and nature-based tourism, and integrate traditional handicrafts, gastronomy and agricultural products;
- Limit further urbanization of the narrow coastal belt and preserve the few remaining natural beaches;
- Discourage further development of secondary accommodation capacities, such as apartments;
- Protect sensitive ecosystems from the impacts of touristic development and encourage preservation of destination attractiveness;
- Improve market regulations to internalize the costs of environmental externalities;
- Reduce waste from the tourism sector and improve waste management;
- Support green investments into hotel and catering capacities;
- Introduce green public procurement to stimulate green innovation.

Implementation of the Strategy is managed by the Office for Sustainable Development, placed in the General Secretariat of the Government (see Chapter 1).

Circular and low-carbon economy

The National Strategy for Circular Transition until 2030 with the 2023–2024 Action Plan (2022 or later) identifies a set of measures: cooperation with suppliers who supply circular products (e.g., eliminating single-use items and acquiring perishable circular supplies such as food, toiletries, textiles, cleaning products, or more durable second-hand or refurbished furniture, equipment and appliances); life-time extension of used products and materials for reuse and renewal programme; tourism sector and sustainable food value chain; sustainable tourism certification programme; and motivating a sustainable attitude among tourists. The following goals are set for 2023–2024:

introduction of “green” forms of accommodation; improved development of green services; development of special forms of tourist services and innovations and of new practices in rural tourism; and an improved framework for transport-infrastructure sustainability in the tourism sector.

In addition to the circular economy strategy, a low-carbon strategy is being developed with the support of the World Bank and further to the draft law on the protection from the negative effects of climate change and protection of the ozone layer. The strategy is not expected to focus on tourism directly but on sectors on which it depends, such as energy, transport, construction, central heating and cooling, waste and land use.

Other policy areas

The National Strategy for Integrated Coastal Zone Management was published in 2015 with the support of the United Nations Environment Programme Mediterranean Action Plan and others. It includes priority actions for the period to 2020. In terms of tourism, the main measures proposed relate to preserving the attractiveness of the coastal zone resources for sustainable tourism development; restoring and preserving valuable rural areas; and supporting sustainable utilization and preservation of marine resources. A Coastal Management Plan for Boka Kotorska Bay is being prepared under the UNEP/GEF MedProgramme.

At the municipal level, the Strategic Development Plan of the Capital City of Podgorica 2020–2025 lists three goals: (i) to further develop and improve infrastructure and activities, (ii) to strengthen the competitiveness of the economy and (iii) further improve the business environment and to promote tourism development and environmental protection. Mostly, tourism is integrated into general policies in the capital city and the green of the city is aimed at both attracting tourists and improving the life of the local population. The Strategic Development Plan of the Municipality of Žabljak 2017–2021 places a heavy emphasis on tourism and mentions environmental issues but does not directly link the two aspects of development. The Draft Strategic Plan of the Municipality of Žabljak for the period 2022–2027 was published for public discussion on 9 May 2024. The new plan aims to increase the number of tourists in collective accommodation from 30,938 in 2022 to 56,000 in 2026, twice the number in 2019, while also providing more linkages between tourism and the environment.

At the level of national parks, each has a management plan for the period 2022–2025 and then an annual programme. Nature-based and sustainable tourism feature prominently in these documents.

Institutional framework on tourism management

The institutional framework presented here is the one in place at the time of the review mission at the end of April 2024.

Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development

The Ministry of Sustainable Development and Tourism was formed in 2011. Responsibility for tourism moved to the Ministry of Economic Development in December 2020, renamed the Ministry of Economic Development and Tourism in April 2022 and since November 2023 has been the Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development. This ministry was in charge of performing administrative tasks related to the preparation and monitoring of regulations and strategic planning of systems in the field of tourism, ecology, sustainable development and development of the north. A new institutional restructuring occurred in July 2024 and the responsibilities related to the tourism sector were separated from the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development, that was split into the Ministry of Ecology, Sustainable Development and Northern Region Development and the Ministry of Tourism.

Within the Ministry, tourism was handled by the Directorate for Development of Tourism and Tourism Legislation (led by the head of the Directorate), which was divided into two departments: the Department for Preparation of Legislation in the Area of Tourism and Administrative Procedures (with nine posts in total) and the Department for Investments, Development and Enhancement of Competitiveness in Tourism Industry (led by the head of Department). The latter department had three divisions: the Division for Investments in Tourism (seven posts), the Division for Diversification of the Touristic Industry (six posts) and the Division for Strategic Planning (nine posts). The Directorate therefore had 33 posts in total.

The Department for Preparation of Legislation in the Area of Tourism and Administrative Procedures, for example, normally had seven lawyers but, as at April 2024, three of the nine posts were vacant. They issued permits for hotels and categorized them (the number of stars), for instance, and issued licences for guides and agencies. There were no environmental criteria applied. The Department received 30 to 40 hotel permit requests each year, among about 900 administrative procedures handled by the staff, half of which related to permits and licences. The processing time was three to four working days. Permitting for rural households was to be transferred to municipalities. The Department registered these various permits online and the businesses were meant to do at the same time, though they rarely do.

The Directorate was still in a state of transition following the separation from the ministry responsible for economic development and the loss of some staff at that time. The limited budget and the need for approval of recruitment by the cabinet of the Minister means that recruitment is slow but human resource problems are expected to be resolved soon.

Under the same ministry, the EPA undertakes monitoring of air quality, soil contamination, coastal seas and the state of biodiversity, which are pertinent to tourism, as well as implementation of EIA and SEA procedures.

The Ministry worked with the Public Enterprises “National Parks of Montenegro” and “Mosrko Dobro”, among others.

Administration for Inspection Affairs

The Administration for Inspection Affairs, under the Ministry of Public Administration, was established in 2012 and among the many areas in which it carries out inspection is the tourism sector. It also has inspection responsibilities in many related areas, such as labour and occupational health and safety, games of chance, sanitary affairs, ecology, forestry, hunting and protection of plants in forests, water management, energy efficiency, sports, and the protection of cultural assets and cultural heritage. As at May 2024, the Government is proposing a reform of the inspection regime that would see inspectors reassigned to sectoral ministries (see Chapter 2). Staff of the Administration for Inspection Affairs are concerned that this will break the synergies between sectors. During the tourist season, joint inspections of tourism, labour, health, sanitary and market inspectors allow for detection of the grey economy. They had also anticipated the addition of five new tourism inspectors but that is now in doubt.

Opinions are strongly divided regarding the possible return of tourism inspectors to the ministry responsible for tourism. It is unlikely that the tourism and environment inspectors would be together in a single unit, irrespective of whether the ministry is divided. The ministry complains about the quality of cases developed by inspectors and the frequency of successful appeals, but the ministry also wishes to impose its own priorities on the work of inspectors.

For now, the Administration for Inspection Affairs issues regular reports on its activities, with the report on 2023 having been published in March 2024. In 2023, the Tourist Inspection carried out 7,899 inspections (compared with 8,818 in 2013) and found 3,195 irregularities, of which 2,768 related to hospitality and 427 to tourism. Citations were issued in 829 cases and 124 follow-up actions were decided upon by the inspectors, compared with 2,719 and 990, respectively, in 2013. The total amount of fines was €1,059,670, compared with €609,679 in 2013 and €1,101,030 in 2019, the maximum recorded. The average fine for a misdemeanour has almost doubled from €244 to €474, over the period 2013–2023.

Nonetheless, inspectors only visit registered properties, and the selective application of fines is reported. Properties that provide accommodation and are not registered are private properties that inspectors cannot visit, and a court order is needed to enter. In addition, inspectors avoid conflict situations as unregistered establishment owners can be aggressive. Indeed, in Žabljak Municipality it was observed that it would be preferable not to have local people serving as inspectors as they would be subject to social pressure to not pursue non-compliance.

The Administration has 36 posts for tourist inspectors, of which 23 were filled in 2023. The inspectors are located in different localities across the country with, for example, six currently in the Podgorica area, three in Budva, one in Kotor and none in Žabljak. In Budva Municipality, it was observed that there is one national inspector and two local ones.

The tourism inspectors supervise the application of the laws on Tourism and Hospitality, Ski Areas, Rafting, Restricting the Use of Tobacco Products, Consumer Protection, Copyright and Related Rights, Application of Regulations Governing the Protection of Intellectual Property Rights, Prohibition of Discrimination and Movement of Persons with Disabilities with the Help of an Assistance Dog. In addition, they check the application of many by-laws adopted further to these laws. Noise issues are covered by the Law on Tourism and Hospitality, so if someone complains about noise then they need a tourism inspection. However, Budva LTO notes that measurement of noise is a responsibility of municipal police.

Statistical Office

One statistician is responsible for tourism statistics in the Statistical Office. The Office applies the NACE rev.2 categorization of tourism and hospitality and gathers information on tourist arrivals and overnight stays in accordance with the Law on Official Statistics and Official Statistical System (OG 18/12) and the Office's annual plans. The Office considers collective accommodation (hotels and similar accommodation; holiday and other short-stay accommodation; and camping grounds, recreational vehicle parks and trailers parks) and individual accommodation (households owned by natural persons and with up to 15 beds). At present, the Office receives information on collective accommodation from individual accommodation providers, whereas information on individual accommodation comes from the databases of LTOs, the Ministry of the Interior, the ministry responsible for tourism, NTO and municipalities, plus statistical sources. The Office observed that the Central Tourist Register does not work; it was not functioning when tested in April and June 2024. In addition, administrative sources are of inadequate quality and collection methods are outdated, according to the Office.

The Office undertook a pilot survey of tourism activity in 2017–2019, shared with Eurostat; the intention is to restart that process in 2025 after a pause caused by the pandemic. A working group comprising representatives of nine institutions is being set up to work on the better availability and integration of administrative data regarding tourism. The Office's aim would be to be able to receive microdata from the Ministry of the Interior (i.e. on individuals crossing the border), which could be matched with information from accommodation providers (register of residence registration, Database RB90) and on licences and permits from the ministry responsible for spatial planning. This would allow a more accurate determination of the grey economy and allow others to take legal action. The Administration for Inspection Affairs is not permitted to share data with the Office. The occasional survey on tourist expenditure requires dedicated financial and human resources, not currently available.

National Tourism Council

The National Tourism Council is to become the advisory body for tourism for Government, with a longer-term perspective. Its establishment was foreseen in the current tourism strategy as a mechanism to strengthen the tourism sector and raise standards, while also integrating tourism better into other economic sectors. It is also to coordinate and monitor the implementation of strategic projects and policies. Though established in 2023, the body did not meet and, as at April 2024, a new decision was before Government that would update the existing Decision on the Formation of the National Tourism Council (OG 015/23), given the change of ministries in the intervening period. The new Council replaced a Tourism Council established in 2013 (Decision on the Establishment of the Tourism Council (OG 53/13, 21/17)). The Council is to be chaired by the Prime Minister and its members include the Deputy Prime Minister for Economic Policy and Financial System; many ministers; the State Secretary for the Tourism Directorate (to serve also as Secretary of the Council); the general directors within the Tourism Directorate; the Directors of the NTO and Administration for Inspection Affairs; the President of the Parliamentary Committee for Tourism, Agriculture, Ecology and Spatial Planning; the President of the Board of Association for Tourism and Hospitality of the Chamber of Economy; the Director of the Statistical Office; and the Secretary General of the Union of Municipalities. The Council is expected to establish working groups to undertake specific tasks.

National Tourism Organization

The NTO is headquartered in Podgorica with 34 employees engaged in marketing and administration. NTO guides and supports LTOs, which are part of local municipal authorities.

NTO does not promote the summer season or sea, sun and sand holidays. Instead, the focus is on niche areas such as hiking, biking, rafting, cultural and health holidays, with priority markets being the immediate region and the EU. NTO is engaged in the EU “Crisis Management and Governance in Tourism” project and is a member of the European Travel Commission and of its “Chapter Earth”, the Commission’s climate action working group. Domestically, NTO provided input to laws on tourism and taxes but observes difficulty in influencing policymakers.

Municipalities

Municipalities are competent in tourism and several related areas such as spatial planning, protected areas, sustainable development and climate change. In Budva, for example, the Secretariat for Urban Planning and Sustainable Development is handling the legalization procedures for illegal buildings built on the territory of the municipality. The municipal authorities observe that local tourism inspectors have few powers, though they may be strengthened by a proposed new law on tourism. The authorities are ready to hire five inspectors in total for restaurants and private accommodation in Budva. In Podgorica, different departments handle EIAs (typically 15–30 each year) and permitting; SEAs of local plans are also carried out.

In terms of cooperation, in Žabljak, the municipal authorities communicate with the Durmitor park management and with UNESCO regarding planning. Relations between the Municipality of Budva and Morsko Dobro could be improved, especially as much of Budva is managed by the latter, and to the dissatisfaction of the former.

The Union of Municipalities is a voluntary association of municipal authorities that represents and aims to protect the jointly determined interests of its members. Its initiatives largely follow legislative developments and, as at 18 June 2024, none related directly to tourism.

Local tourism organizations

Each LTO is part of the corresponding municipal authority, which are competent in matters related to tourism. LTOs comply with both municipal regulations and policy and with guidelines from NTO, while also cooperating with the ministry responsible for tourism (see box 10.4). LTOs cooperate with NTO in organizing promotional events, including in key markets such as the United States of America. A series of carrying capacity studies were carried out for Kotor, Podgorica and Žabljak LTOs in 2022.

Box 10.4: Selected LTOs

Podgorica LTO has 15–20 staff. With visitors either being in transit or on business, LTO is focussing on MICE (Meetings, Incentives, Conferences and Exhibitions) tourism. Further, there not being a distinct tourism season, the pressures from tourism in Podgorica are less evident. LTO is working with the municipality on providing electric scooters and sees space for an airport shuttle service. It produces quarterly reports on its activities. LTOs encourage tourism businesses to join the formal economy with, for example, LTO working with the city’s Secretariat for Entrepreneurship and Investments to encourage people doing one-night rentals to register, though there were complaints about the complexity of registration; an app was produced to simplify registration.

In Žabljak, LTO is expecting to move into a new green building. There is close cooperation with the other municipal services, a local tourism association, the management of Durmitor National Park, NTO and the ministry responsible for tourism. The local tourism association gives a voice to the managers of hotels, restaurants and the approximately 600 legal private accommodation providers, agencies and other companies offering tourism services; the association does not address environmental issues. LTO acts as national coordinator for Danube Day, so the staff encourage all schools in the country to organize events on water protection. Within the municipality, LTO organizes events on environmental protection, such as a “wild beauty” art exhibition for one month and roundtable discussions on collecting waste and planting trees, for example. LTO organized a registration campaign in 2023 but observes the difficulty of convincing businesses of the benefit of registration, which brings with it taxes and inspection, whereas the penalties for non-compliance are relatively light. Still, LTO underlines the promotional services it can offer. In addition, tourists entering the LTO office are asked where they are staying and, if staying in unlicensed accommodation, they are told that their accommodation will not be able to register them as required by law.

Public Enterprise “National Parks of Montenegro”

The Public Enterprise “National Parks of Montenegro” is responsible for the management and development of the national parks – Durmitor, Biogradska Gora, Lake Skadar, Lovćen and Prokletija. The staff of the Public Enterprise are spread across its headquarters in Podgorica and offices at each of the five national parks. The revenue from the national parks is collected by headquarters and redistributed. The perception outside the capital is that little of the revenue is returned for the management of the parks, human resources are concentrated in Podgorica, the views of institutions close to the parks are disregarded and there is too great a focus on meeting tourist needs and not education and research.

Morsko Dobro

Morsko Dobro, the Public Enterprise for the Coastal Zone of Montenegro, was set up in 1992, to protect the coastline of Montenegro. It manages an area of the sea of around 2,500 km² and an area on land of 60 km², representing 18 per cent of the country’s territory. Morsko Dobro’s goal is not to maximize profits and declares an increased focus recently on environmental protection.

Chamber of Economy

The Chamber of Economy represents the interests of its members, which are companies, banks and other financial organizations, insurance organizations and entrepreneurs registered in the Central Register of Business Entities, that is, the entire economy of the country. It encourages balanced economic development. The Chamber has a Tourism and Hospitality Association Committee, served by a Secretary. It is active in the certification of tourism services.

Coordination between institutions at national, regional and local levels on matters related to tourism management

The National Tourism Council and NTO both have a coordination role for the tourism sector. In addition, a tourism coordination body meets several times each year, and particularly in the lead up to the main tourism season. The body has a group of 27 people in an instant messaging app to facilitate rapid communications. Members include representatives of the ministry responsible for tourism and all other relevant ministries, mayors, airport operators, water utilities, Morsko Dobro and the national parks. The ministry responsible for tourism also attends municipal planning meetings on the tourist season.

The ministry is also planning a week on “ecological tourism”, from 20 to 27 September 2024, between the anniversary of the declaration of Montenegro as an “Ecological State” and World Tourism Day. Besides the usual range of actors, the cooperation of the Prime Minister’s Office will also be required to ensure free entry to museums.

Regulatory, economic, fiscal and information measures, including measures towards the greening of tourism sector

The Government places a particular emphasis on attracting investment in the tourism sector and issues a brochure periodically on the investment potential, highlighting favourable conditions (e.g. tax regime) and specific locations and establishments, including opportunities for public-private partnerships. Of particular interest in the context of sustainability is the focus on existing establishments requiring redevelopment, as four- or five-star hotels, especially in the north of the country. Descriptions set out likely costs, number of accommodation units and expected employment levels. The environmental implications of such developments are not raised.

Several fiscal incentives have been established, including to encourage owners to upgrade lower-rated hotels. According to the 2024 brochure on investments in tourism, amendments to the Law on Real Estate Tax foresee a reduction in the annual real estate tax by up to 30 per cent for four-star hotels and up to 70 per cent for five-star hotels located in priority tourism zones. Amendments to the Law on Value Added Tax have already abolished import VAT for the construction of five-star hotels.

Tourism incentive stimulus measures are adopted each year, with the programme for 2024 including measures “to enrich and improve the quality of the tourist offer while improving marketing activities in order to attract tourists from new emissive markets, in the direction of generating higher revenues in tourism, extending the

tourist season, increasing the level of occupancy of accommodation capacities, consumption and employment”, that is, without any consideration of sustainability.

The Eco Fund began operating in March 2020, with the objective of providing funds for the implementation of projects aimed at preserving all components of the environment and the rational use of natural resources as basic conditions for sustainable development. In 2024, there were no Eco Fund subsidies directed at the tourism sector, but rather supporting the uptake of photovoltaic systems and of electric and hybrid vehicles, for example.

Education is an important lever for greening tourism in Montenegro. There are 16 vocational high schools dealing with tourism and, in 2021, all introduced education for sustainable development as an optional module. All universities offer some subjects related to sustainable development or environmental protection within their tourism courses, though the prominence varies. The Faculty of Tourism (Montenegro Tourism School) operates within the Mediterranean University and moved to Podgorica from Bar in 2015. Among the key areas that are studied at the faculty is sustainable development. The Vatel International Hospitality Management School opened at the University of Donja Gorica, in Podgorica, in 2016 and offers bachelor’s and master’s degrees in international hotel management, without specifying a sustainability element. Further, at the Faculty of Business and Tourism at Budva, the Bachelor in Tourism and Hospitality Management does not include a module, even elective, in sustainable development or environmental protection. In contrast, the Master of Science degree in Budva includes a mandatory module on sustainable tourism management.

Certification of tourism services

Despite the pressures on the water environment, the country maintains its high Blue Flag score, with 38 beaches and 1 marina (in Bar) receiving the award in 2022 and 40 beaches and 1 marina in 2023. Tivat achieved Green Destinations Award Bronze in 2022, with several businesses there receiving the associated Good Travel Seal. NTO staff expect to follow the training programme for Green Destinations.

The Economic Reform Programme 2024–2026 reports that, in 2023, there were 15 hospitality establishments and services applying “green practices”. Three establishments have been awarded Green Key certification, though different actors in the country provided different information on who they are. The Chedi Luštica Bay has earned other certificates, with the Earth Check one being the hardest to obtain (see box 11.3).

Zero Waste NGO is working with the Chamber of Economy to support certification in line with the Zero Waste Europe methodology, with a focus on waste and circular economy and seeking compliance with EU standards, such as the EU Ecolabel. The methodology requires external auditing and the setting of challenging goals. The NGO has been approached by two five-star hotels, Iberostar Slavija in Budva and The Chedi Luštica Bay. Iberostar aims for zero waste to landfill by 2030, is tackling food waste and is looking to go beyond the waste challenge. The NGO also engages in the Chamber of Economy’s Circular Economy Hub. According to the Food Waste Index Report 2021 /WESR, 79173 tons of food waste were generated in 2019 (SDG indicator 12.3.1), in line with the implementation of the SDG target 12.3 (By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses).

The ministry responsible for tourism regrets that it is unable to provide financial support for Zero Waste certification due to the lack of funds. The UNDP-GEF project “Moving Towards Carbon Neutral Tourism in Montenegro” supported certification of 31 accommodation establishments against three different standards. The project considered the EU Ecolabel the most appropriate type of eco-certification for smaller accommodation establishments in Montenegro. The Chedi was helped with Green Key, 11 other larger hotels with Travelife and 19 establishments with the EU Ecolabel. Prior to the project, in 2014, there were only four certified establishments. For EU Ecolabel, audits typically cost €300 per hotel (paid by the project) and the first year of membership was €200 (paid by NTO or Budva LTO). The project also examined the possible eco-certification of Tivat Airport.

The company Monteorganica is an accredited certification body for control and certification in organic agriculture that supports the provision of organic and local products to the tourism sector, as well as to the general public.

Another UNEP-GEF project “Promoting the management of protected areas through integrated protection of marine and coastal ecosystems in the coastal area of Montenegro” initiated audit studies of most beaches on the

Montenegrin coast with the status of natural monuments, including 20 beaches in the Municipality of Budva, through the ministry responsible for tourism and ecology. The project also led to the proclamation in 2021 of three marine protected areas.

Participation in international agreements and processes

The ministry responsible for tourism became a member of the Global Sustainable Tourism Council in 2022, with the aim of developing destination management and addressing socioeconomic, cultural and ecological aspects of tourism based on sustainable development criteria. An emphasis was placed on the impact of climate change on tourist trends. In September 2023, the Port of Kotor, Kotor Municipality, Cruise Lines International Association (a cruise-line trade body) and the Global Sustainable Tourism Council announced plans for a sustainability assessment of Kotor to raise standards and enhance preservation of the city.

Montenegro did not adhere to the 2021 Glasgow Declaration (A Commitment to a Decade of Tourism Climate Action), nor to the UNEP/UNWTO Global Tourism Plastics Initiative.

10.4 Assessment, conclusions and recommendations

Assessment

The number of tourists has increased by three quarters between 2013 and 2023 and the Government's aim is to attract even more. Government has been unsuccessful in diverting visitors away from the coast, attracting them outside the summer months or encouraging more spending per person per night. As volumes have increased, the economy has become increasingly dependent on tourism, representing about a quarter of GDP, while failing to provide secure employment for Montenegrins. Government policy remains the expansion of the tourism sector in terms of the number of visitors, as well as providing more up-market destinations – with a successful transformation of one- and two-star hotels into four- and five-star ones – and a diversification in the tourism offer, particularly in favour of health and well-being.

The country's tourism attractiveness is built on its natural environment, which the sector is damaging. The large "grey" part of the tourism sector does not generate taxes to pay for better infrastructure and services, including environmental protection measures, such as waste and wastewater management and the development of renewable energy sources. Still, some infrastructure development is proceeding, such as roads and charging stations for electric vehicles. New tourism developments have included more successful conversions of ex-military sites into resorts, but also more controversial ones. Investment in ski resorts continues despite the shortening ski season due to climate change.

Inbound flights increased by over 70 per cent between 2013 and 2019, while general visitor stay length reduced. Cruise ships have increased in number and especially in size, with little understanding of the benefits for local populations or of the risks for the environment. The number of visitors to national parks increased by 240 per cent over the period 2013–2023, while the entrance fee remains modest. The country's landscape and biodiversity have continued to be degraded by poorly controlled development. More positively, Montenegro has an extensive network of trails maintained by mountaineering and cycling associations and, pre-pandemic, boat owners in Lake Skadar were exploring the greening of their business.

Generally, a lack of monitoring, and especially monitoring related to tourism, means that the pressures from tourism on the environment and society are little understood. There are, nonetheless, indicators of pressures such as the number of visitors arriving by car and the reduction in water consumption during the pandemic. Air quality monitoring at Kotor may be indicating high levels of sulfur dioxide due to cruise ships, despite the requirement to switch to low sulfur fuel in port. The impacts on ecosystems and biodiversity are diverse but not quantified.

Policy documents are unclear, promoting both sustainable tourism and an increase in visitor numbers, and generally addressing tourism and the environment separately. There are nonetheless exceptions, such as plans to improve energy efficiency in tourism, through works at small hotels.

Electronic tools such as the Central Tourist Register, registration apps and indicators databases receive insufficient investment to ensure their operation. These and other technical measures, such as the combination of

administrative data on visitors from different sources, including booking platforms, could help squeeze the grey economy, raise revenue collection and increase efficiency.

The tourism-related laws offer tools that are not used – such as the restriction on advertising to registered properties, and the requirement that accommodation providers, whether or not registered, declare visitors – and gaps, such as the inability of inspectors to visit unregistered accommodation. At the same time, the tourism-related laws lack an environmental dimension, with the notable and odd inclusion of noise in the Law on Tourism and Hospitality.

The country has a well-developed Tourism Development Strategy for 2022–2025 with Action Plan, with a good environmental dimension. However, the foreseen infrastructure development and growth in the quantity of accommodation are likely incompatible with the intent to protect the environment. Implementation of the Action Plan is monitored and largely financed. It is complemented by plans for key tourism sectors. The economic reform plans are supportive of a green transition in tourism. The spatial plan now being developed foresees a growth in accommodation and in visitor numbers, in line with the tourism strategy.

The National Strategy for Circular Transition until 2030 anticipates a sustainable tourism certification programme, as well as circularity in the tourism sector. The private sector has made some progress in certification of the sector, with support from institutions.

Inspections are widely viewed as ineffective and selective, but also under-resourced and hamstrung by their limited powers. Only one staff member in the Statistical Office is responsible for environmental statistics, and he has access to very limited resources, despite tourism representing a quarter of GDP and there being opportunities to use tourism information to tackle the grey economy and better inform policymakers. The National Tourism Council has yet to become active.

The NTO does not promote coastal holidays in the summer. It and the LTOs operate based on a low tourist tax. Some LTOs have benefitted from carrying-capacity studies; the contexts of different LTOs differ greatly across the country, but so do their activities. Cooperation between Morsko Dobro and, at least, the Municipality of Budva is poor. The tourism coordination body appears inclusive, responsive and innovative.

Measures to promote tourism do not include environmental criteria and encourage the construction of new four- and five-star hotels without imposing environmental conditions, but they do also encourage the redevelopment of existing establishments. The Eco Fund is not directed at the tourism sector at present. Educational establishments offering tourism degrees are still developing their sustainability curriculums.

Though successful in obtaining Blue Flag awards, the country is still at an early stage of certification of tourism services. Nonetheless, there are many examples of innovation and experimentation and an increase in the uptake of certification by hotels in particular. There remain very many opportunities for the expansion of certification, but the authorities have limited resources to accompany businesses. The ministry responsible for tourism is a member of the Global Sustainable Tourism Council, but the country has not joined other international initiatives such as the 2021 Glasgow Declaration (A Commitment to a Decade of Tourism Climate Action) and the UNEP/UNWTO Global Tourism Plastics Initiative.

Conclusions and recommendations

Improve data base for decision-making

The basis for any environmental policy is sound data. There is a lack of environmentally relevant tourism data in Montenegro, for example, on the use of energy and resources in the tourism sector. There are few data to indicate the actual impacts of tourism as distinct from the economy as a whole, for example, in understanding waste and wastewater flows, let alone more sophisticated measures. Montenegro has already undertaken valuable work on a Tourism Satellite Account.

Recommendation 10.1:

The Government should develop and regularly update a publicly available database with environmentally relevant tourism data, considering international good practices such as the UN Statistical Framework for Measuring the Sustainability of Tourism.

Tourism facilities

As an ecological state, there are limits to the development of the tourism sector. Tourism's continued growth creates economic risk, while destroying the natural environment on which it depends. The further expansion of the tourism sector is taking more land and generating more pollution. In its Tbilisi Declaration, Actions for a Sustainable Recovery of Tourism of 2020, UNWTO commits to shifting to a more resource-efficient and carbon-neutral tourism sector in line with SDGs, in particular SDG 12. In the framework of the country's implementation of the Barcelona Convention, addressing overbuilding in the coastal zone requires particular attention.

Recommendation 10.2:

The Government should, based on the National Strategy on Sustainable Development:

- (a) *Develop a policy to limit greenfield tourism construction in coastal areas;*
- (b) *Encourage energy and material efficient and low-emission construction and renovation of accommodation establishments;*
- (c) *Address overbuilding in the coastal zones.*

Reduce environmental impact from tourism-related transport

A major part of tourism-related pressures on air, climate, land use and noise is due to transport. In terms of GHG emissions, air transport in particular is dominant, since 86 per cent of total tourism emissions are from international travel and are not included in domestic reporting. There is a need to limit the growth of GHG-emissions from air travel. In terms of land transport, limited public transport options are available and should be extended. In 2023, 472 cruise ships and 571,124 passengers visited Montenegro, creating a burden for marine areas. The provision of land-based electricity, so that ships can switch off their engines, is not appropriately developed in the country. The Administration for Maritime Safety and Port Management, through the Port State Control, does not have adequate capacity to ensure the control of tourism-related maritime transport, and therefore, reduce its negative effects.

Recommendation 10.3:

The Government should:

- (a) *Increase environmentally friendly forms of tourism-related transport;*
- (b) *Reduce the impact of tourism-related maritime transport by strengthening port authorities' control and the provision of land-based electricity.*

Control of accommodation

The large number of unregistered accommodation establishments has numerous negative impacts on the rule of law; the collection of revenue, including for the development of infrastructure; and the creation of a level playing field with legal businesses. The laws and information are available to track where tourists stay and to identify unregistered properties offering accommodation, but the information is not adequately shared, information platforms are not reliably functional, and misdemeanours and crimes not consistently pursued.

Recommendation 10.4:

The Government should:

- (a) *Review the requirements for registration of tourism accommodation to encourage the owners of unregistered accommodation to register;*
- (b) *Require the permanent operation of the Central Tourism Register and its availability to a unit tracking tourist stays in the Statistical Office;*
- (c) *Amend the legislation as necessary and require relevant agencies to share administrative data on visitors with the Statistical Office so that all visitors can be tracked to their place of stay.*

Increase revenue and prevent overtourism

Montenegro aims to at least maintain the revenue from tourism, but this can be done by means other than an increased number of tourists. These means include the raising of the tourism offer through improved services, as identified by the Government, but also the raising of charges for services where the demand is high: tourism taxes and entrance tickets to national parks, for example. The annual fee for access to all national parks can be maintained so as not to disadvantage the local population. Certification is increasingly popular and is effective in reducing the impact of tourism on the environment, while also improving the quality of the service. Increased tourism taxes could help local tourism organizations to support local businesses in the process of certification.

Recommendation 10.5:

The Government should:

- (a) *Raise the upper limit on international tourist taxes and use them, inter alia, to promote environmentally-friendly practices;*
- (b) *Raise the prices of single-entry tickets to national parks for international tourists;*
- (c) *Introduce entrance fees for international tourists entering touristic hot spots based on international good practices and assess their impact;*
- (d) *Further promote and support environmental certification of tourism facilities taking into account international good practices.*

Integrate policies

With some notable exceptions, climate change, biodiversity loss and pollution are poorly integrated into and across policy documents. This leads to poor planning decisions, such as the permitting of new hotels for skiing where the ski season is shortening rapidly, and silo thinking, where circular economy and low-carbon principles are omitted from tourism policy and sustainable mobility, for example, is not considered. Eco-tourism is defined in the Law on Tourism and Hospitality but is not actively promoted and does not include a strategy on visitor management to limit the number of visitors in line with UNESCO recommendations.

Recommendation 10.6:

The Government should:

- (a) *Integrate environmental considerations in tourism legislation and policy;*
- (b) *Develop a policy for eco-tourism and promote and incentivize decentralized and diversified eco-tourism.*

Chapter 11

Forestry and the environment

11.1 Current situation

Forest area

Montenegro's land area is characterized by a high forest coverage with 61.49 per cent (826,782 ha) and, in addition, 137,480 ha of what is classified by FAO as "other wooded land" constituting another 10.5 per cent of the national territory, making a combined total of 69.4 per cent (964,262 ha) of Montenegro's land area, one of the highest (the third or fourth) percentages in Europe. As the 2014 National Forests Strategy stated: "Forests of Montenegro cover 60 per cent of the country's territory and are natural structures, with less than 1 per cent of Montenegro's forests being 'artificial'/planted although about half of these forests were created in the last half of last century via the 'overgrowth' of abandoned agricultural land." Because the percentage of land area with forest cover was so high to begin with, plus that the 2008 National Forests Policy states that the forest area should not be "intentionally increased", the increase over time sought by SDG indicator 15.1.1 (Forest area as a proportion of total land area) is not really applicable but Montenegro's maintenance of its high percentage of forest cover is definitely in the spirit of this SDG indicator and is *de facto* on track and contributing to its achievement and that of the SDG target 15.1 (By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements). Since 2010, the forest area as a proportion of total land area is stable, with a slight increase from 59.5 to 61.5 per cent (SDG indicator 15.1.1).

Distribution

The highest and densest forests are mainly located in the northern and north-eastern regions of the country where the dominating species are beech, spruce, fir, and pine. As can be seen from Figure 4.1 "Map of forest and forestland in Montenegro" of the 2013 First National Forestry Inventory (NFI) of Montenegro,¹⁸³ the forests in the northern regions comprise the majority of the total forested area.

Montenegro's mountain forests are located at elevations between 800 and 1,800 metres, often with substantial very steep and rocky slopes - in fact 11.9 per cent of the forest area and 8.4 per cent of the other wooded land area have not been accessible for tree measurement. The estimate for the wood volume in the total forest of Montenegro is 122 million m³ with an annual increment of 2.8 million m³, based on the assumption that the inaccessible forests show relative volumes per ha that are one third below the level of accessible forest. Natural regeneration (including coppice) is dominant, with only 0.8 per cent of forest stands being artificial/planted. Planting is only used for enrichment of natural young growth and to assist former coppice to be gradually transformed to high forest. More than 50 per cent of the regeneration is of good to medium quality.

Type of forest management including ownership

Forest management in Montenegro is underpinned by forest management plans, each individually crafted for every forest management unit, with a standard duration of 10 years. All public/state-owned forests in the 'economic estate' have management plans. The state - through its Forest Administration (AMFHG)- should also ensure the provision of forest management plans for private forest owners with 5 ha and over of forests, but due to budget restrictions, only a few such plans under private ownership have been elaborated. The first NFI's data (published in 2013, actually valid for 2010) showed that the forest ownership structure was: state-owned 50.9 per cent, private 49.1 per cent. However, it is the current consensus of experts and observers that in the absence of a follow-up NFI, due to issues with cadastre accuracy, and ongoing ownership restitution processes, it is likely that the current percentage ratio has shifted towards a small majority of forests being under private ownership.

¹⁸³ Ministry of Agriculture and Rural Development (2013).

Considering the presumed current ownership situation, four different forest management categories cover the following percentages of forest cover in Montenegro:

Table 11.1: Forest management in Montenegro

	percentage
State/public forests outside National Parks by the AMFHG	ca 47
Private forests outside National Parks by private forest owners supported by the AMFHG	ca 48
Public forests inside National Parks by the National Park Administration	ca 4
Private forests inside National Parks by private forest owners supported by the National Park Administration	ca 1

Source: Adapted by author from the 2013 NFI.

The prevailing forest management system can be described as being based on ‘permanent tree cover’ via selective thinning, natural regeneration and individual or group selection felling within a traditional ‘Close to Nature’ forest management concept. The selective thinning felling is typically based on 10-year cycles. Every tree must be officially ‘marked’ for felling (by a AMFHG official, a forestry engineer in high forests and a forestry technician in low/coppice originated forests) before the felling can be conducted. This system is, in theory, very strict. The implementation of the felling in practice is assessed as being generally good, although problematic cases exist. These are usually due to a lack of adequately educated and equipped operatives employed by non-responsible forest contractors (i.e. the buyers of standing wood from state forests) and some private forest owners. These breaches result in harvesting operations which cause temporary disruption and damage to the surrounding forest stands, natural habitat and soil structures, which elements of the media, civil society and the public can get emotive about, with adverse reactions to direct observations and/or photographs of operational disturbances. However normally the harvested stands ecologically and aesthetically recover after a few years, with only a few indications (e.g. gaps caused by skidding/tractor trails and stumps) remaining visible.

With regard to SDG target 15.2 (By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally) and its indicator 15.2.1 (Progress towards sustainable forest management), because there has been no (second) national forest inventory in/during the review period, the official/published figures for progress towards sustainable forest management have not changed. This is reflected in the duplicated data/reported figures in FAO’s Forest Resource Assessment data for Montenegro. The “proportion of forest area with a long-term management plan” was 36.75 per cent, and the “proportion of forest area within legally established protected areas” was 10.15 per cent and in 2020 the “above-ground biomass in forest” was 96.87 tonnes per hectare. However, based on forest harvesting statistical records, forest growth and carbon stocks have probably increased over the review period, as only about a third of the annual volume increment is cut, meaning that another two thirds have annually accumulated. There continues to be zero “forest area certified under an independently verified certification scheme” although there have been initial moves made to do so. In the meantime, the official national-level criteria and indicators of sustainable forest management, based on accepted ‘pan-European’ ones, have however been endorsed as a by-law at governmental level, and this acts as a standard for every-day forest management. Despite this, the official tree-marking regime and there being, on paper, a very strict control system tracking the whole chain from tree stump to the buyer or user of the wood, the amount of illegal harvesting is high. By comparing statistics regarding total harvested wood volumes with the official data on registered permitted felling volumes, it is possible to conclude that more than a half of all harvesting was illegal. The underlying corruption and bribery which allowed this to happen has been exposed and changes have been made. The increasing number of privately owned forests being illegally logged will probably show up in future figures.

Biodiversity and ecosystems in forest areas

Montenegro is known for its rich biodiversity and diverse ecosystems, particularly within its forest areas (see Table 11.2). Those forests which have been determined to contain relatively important and/or unique biodiversity species or ecosystems, such as the Biogradska Gora Reserve, one of the last remaining, big primeval forests in Europe (1,600 ha with surrounding old-growth forests, comprising together 3,650 ha), are under additional conservation measure via being designated as protected areas (e.g. National Parks, EU Natura protected areas, Emerald zones and Nature Parks). These designated areas serve as sanctuaries for many species and are crucial for conservation efforts. According to the 2013 NFI, 5.2 per cent of Montenegro’s forests are located in national parks and 14.6 per cent of the forests are located in Emerald zone areas. Forests that are either located in a

designated protected area or located in inaccessible areas comprise, in total, 23.5 per cent of the forest area of Montenegro.

Montenegro has implemented various policies and laws to protect its forests-related biodiversity, as outlined in its National Strategy for Sustainable Development and forest laws. Efforts include sustainable forest management practices, habitat restoration, and measures to combat illegal logging and habitat destruction. Biodiversity issues featured in the 2014 Forestry Strategy, where it was noted that forestry operations can have a significant impact on biodiversity, especially in forest complexes where activities such as regeneration logging and selective cutting, may have a negative impact on biodiversity, especially in the short term. However, generally after the return of forest structure, natural biodiversity is restored. With regard to the monitoring of biodiversity in forests in Montenegro, the Law on Forests applies.

Table 11.2: Biodiversity components and ecosystems found in Montenegro's forests

Unique forest types and ecosystems	
Deciduous Forests:	European Beech Forests (<i>Fagus sylvatica</i>): These are among the most widespread forests in Montenegro, particularly in mountainous areas. They form dense canopies that support a variety of understory vegetation and wildlife. Oak Forests (<i>Quercus spp.</i>): Oak species, such as sessile oak (<i>Quercus petraea</i>) and common oak (<i>Quercus robur</i>), dominate these forests. They are typically found at lower altitudes and support a rich array of flora and fauna.
Coniferous Forests:	Norway Spruce (<i>Picea abies</i>) and Silver Fir (<i>Abies alba</i>) forests: These forests are prevalent in higher altitudes, contributing significantly to Montenegro's timber resources and providing habitats for various species. Scots Pine (<i>Pinus sylvestris</i>) Forests: These are found in both lower and higher altitudes, often mixed with other conifers and deciduous trees.
Mixed Forests:	Combinations of beech, fir, and spruce often occur, especially in montane regions. These mixed forests are ecologically valuable, providing diverse habitats for wildlife.
Biodiversity and Species	
Flora	Montenegro's forests are home to a variety of plant species, including numerous endemic and rare plants. The undergrowth of beech and oak forests often includes shrubs like hazel (<i>Corylus avellana</i>) and holly (<i>Ilex aquifolium</i>), as well as a rich ground flora of herbs and grasses.
Fauna	Mammals: The forests support large mammals such as brown bears (<i>Ursus arctos</i>), wolves (<i>Canis lupus</i>), and lynxes (<i>Lynx lynx</i>). Deer, wild boar, and smaller mammals like foxes and hares are also common.
Birds:	A diverse bird population, including species like the golden eagle (<i>Aquila chrysaetos</i>), peregrine falcon (<i>Falco peregrinus</i>), and various woodpeckers, thrives in these forests.
Invertebrates:	The rich plant diversity supports numerous invertebrates, including many species of butterflies, beetles, and other insects, which play crucial roles in forest ecosystems.

Source: NFI 2013.

The following tree species are protected by the IUCN Red List: Yew, Bosnian and Macedonian pine, Pedunculate oak, Mountain maple, Greek maple (and other two rare maple species) and Bird cherry. The protected areas with forests (and the territories under 'Close to Nature' forest management approaches) assist Montenegro to contribute to and/or to keep on track regarding several biodiversity-related SDG indicators.

The SDG indicator 2.5.1 (Number of (a) plant and (b) animal genetic resources for food and agriculture secured in either medium- or long-term conservation facilities) of target 2.5 (By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed), Montenegro reports only on the number of plant genetic resources, which has increased from 356 in 2010 to 388 in 2021.

In relation to the SDG indicator 6.6.1: Change in the extent of water-related ecosystems over time (of the SDG target 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes), the permanent water area of lakes and rivers as a percentage of total land area has been stable between 2010 and 2022.

Concerning the SDG target 15.1 (By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements) and its indicator 15.1.2 (Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type), the average proportion of freshwater Key Biodiversity Areas (KBAs) covered by protected areas has remained the same from 2010 and 2022.

The SDG target 15.4 is, by 2020, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development. The coverage by protected areas of important sites for mountain biodiversity (SDG indicator 15.4.1) has grown by 4.2 per cent in the period of 2010–2022. In relation to the SDG indicator 15.4.2 (a), the mountain area has not changed from 2010–2018 (12,088.77 km²). The SDG indicator 15.4.2 (b) indicates that the proportion of degraded mountain land has increased from 0.81 per cent in 2015 to 1.29 per cent in 2018.

However, the delayed follow-up second National Forest Inventory (now to be undertaken in the next few years) plus the situation that biodiversity and other types of monitoring in Montenegro are behind schedule, means that data to determine if there have been increases is not available.

Soil in forest areas

Based on the data and cartographic representations from the 2013 NFI, Montenegro has been found to have approximately 30 types and subtypes of soil. The dominant soil types include brown soils in the north-eastern region, and rendzinas in the central and western parts of the state territory. In the areas of watercourses and lake basins, alluvial and alluvial-diluvial soils are located. In the coastal region of the country, there is a more pronounced variation in soil types where, in addition to the aforementioned soils, there are also: diluvial soils, black soils, red soils, cambisols, mineral-swampy gley soils, and others.

Forests in Montenegro have several important effects regarding soil health and quality, which include:

- **Soil Conservation and erosion Control:** Forests play a crucial role in preventing soil erosion. The root systems of trees and other vegetation stabilize the soil, reducing the risk of landslides and soil loss due to water runoff. This is particularly important in Montenegro's mountainous regions, where the risk of erosion is higher.
- **Nutrient Cycling:** Forests contribute to the cycling of nutrients within the ecosystem. Leaf litter and other organic matter decompose, adding essential nutrients back into the soil. This process enhances soil fertility, which is beneficial for both forest growth and agricultural activities in adjacent areas.
- **Improving Soil Structure:** The presence of forest vegetation improves soil structure by increasing the amount of organic matter and enhancing soil porosity. This improved structure allows for better water infiltration and retention, which is crucial for maintaining soil health and supporting plant growth.
- **Carbon Sequestration:** Soils in forest areas act as significant carbon sinks, storing carbon that would otherwise contribute to atmospheric CO₂ levels. This function is vital for mitigating climate change impacts and maintaining the carbon balance in the ecosystem.
- **Biodiversity Support:** Forest soils in Montenegro support a diverse array of microorganisms, fungi, and invertebrates. These organisms are essential for the breakdown of organic material and the maintenance of healthy soil ecosystems, which in turn supports the overall biodiversity of the forest.
- **Water Regulation:** Forests influence the hydrological cycle by regulating groundwater recharge and maintaining stream flow in Montenegro. Healthy forest soils can absorb and hold water, reducing the likelihood of flooding and ensuring a steady supply of water during dry periods.

These positive and beneficial effects underscore the importance that the government places on ensuring that forest conservation and sustainable (Close to Nature) forest management practices in Montenegro maintain soil health and enable soils to support broader environmental and ecological functions and that short term disruption of soils in forests during forestry operations, does not have a negative long-term impact on the soils.

Non-wood forest products and services

The Law on Forests and its associated regulations provide conditions of collection, use, and trade of non-wood forest products derived from unprotected wild species of animals, plants, and fungi used for commercial purposes.

These products include flowers, seeds, fruits, resins, needles, leaves of forest trees and shrubs, grasses, mosses, ferns, brushwood, peat, humus, medicinal, aromatic, and edible plants, forest fruits, and non-protected species of mushrooms.

Hunting for wild game, another non-wood forest products (NWFP), is regulated by the Law on Game and Hunting which provides conditions for maintenance and enhancement of wildlife populations, as well as implementation of hunting in a sustainable way, based on 10-year hunting management plans. The rights for the use of the hunting areas, except for specific purpose hunting grounds, are granted to local hunting associations, through a system of concessions. The special hunting grounds, covering much larger areas than the standard ones, are managed by the AMFHG. In the past five years (2019–2023), a total of 27 companies have been granted the right to commercially utilize non-wood forest products in forests and forest land owned by the state by the Forest and Hunting Management Authority of Montenegro.

Wild honey is Montenegro's largest NWFP by value (€3.3 million), mushrooms the largest by quantity with game meat (including wild boar, rabbit, partridge and pheasant) and skins (mainly fox and wolf) the other main NWFPs.¹⁸⁴

Landscapes

The National Forestry Strategy's revision aims to improve forest conditions, better utilize resources, and enhance the ecological characteristics of forests and forest landscapes. In general, a 'Close to Nature' forest management (CNFM) is favourable with regard to landscape maintenance and conservation. Montenegro is known as the greenest and the most stunningly landscaped country in the region. Degraded or devastated forests, except for burned forest areas, are very rarely to be seen when travelling through the country. The extent of forest fires has sometimes been locally significant, however (nationally 5,526 ha or 0.67 per cent of the total forest area per year, according to Statistics Official for the period 2013–2022).

Some instances of degrading or destructive forest activities have occurred, mainly when illegal, and they have had a direct impact on the landscape function of forests. Also, some regular, legal forestry activities, such as skidding, forest road and skidding trail construction, including their non-maintenance, has had a direct impact on the landscape function of forests. Their long-term consequences – due to favourable climate conditions with relatively high rainfalls – are quite quickly naturally mitigated and these areas get 'green' again relatively quickly. In comparison to areas destroyed by fire, the size of these forest areas recently harvested, degraded or devastated by pests (for which the data does not exist), has been estimated to be in the order of several hundred times less.

It was also the view of respondents, backed by policy statements, that during the review period Montenegro increasingly recognised the importance of implementing sustainable forestry practices that contribute to the preservation of the landscape values of forests. However, there was also some concerns that changing the long-term concession system to annual contracts may adversely impact the environmental and the landscape-level quality of forest utilisation.

Fires

Montenegro has adopted a forest management system over many years that is conducive to nature. Through selective cutting, the forests are naturally regenerated and mixed, significantly reducing the risk of catastrophic forest fires. This traditional forest management method demonstrates a commitment to preserving natural ecosystems and mitigating the potential impact of large fires on valuable forest resources. The general spatially fragmented nature of forests and forest lands in Montenegro forms a good defensive line against forest fires. However, fires continue to be a threat to Montenegro's forests.

The majority of the fires in forests occurred in the Karst Region, but the northern and the eastern regions show high damages by fire as well. The most common causes of wildfires are reported to be (arranged in order of relative magnitude) as follows:

¹⁸⁴ FAO (2020c).

- Intentional burning of meadows located on the periphery or within forest complexes during the clearing of meadows and pastures,
- Burning of meadows with ground vegetation, shrubs, and individual trees;
- Illegal land use;
- Deliberate burning of patches of forest by mushroom collectors to improve the following year's growth/yield;
- Visitors at inadequately secured recreational sites within forest complexes.

From the average number of wildfires per year from 2010–2015 being 91 (with an average burned area of approximately 500 ha annually) it is acknowledged that climate change has induced an increased risk of fires in forest areas, indicated by an increased number of forest fires in 2017 (154) and 2020 (220).

Harvesting

Harvesting in Montenegro is determined by the municipal forest management plans previously described and as set out in tenders for annual timber contracts. As of July 2024, 36.75 per cent of the forests in Montenegro have long-term management plans. Clear-cutting is prohibited, and only selective logging practices prescribed by the forest management plans (based on stand characteristics such as density, understory, composition, structure, timber quality, and terrain) are applied. The most common cutting methods utilized in Montenegro's forests are: individual and group selection cuts, regeneration cuts with long sapling growth periods, thinning cuts, and tending cuts. The machinery used in harvesting operations in Montenegro is, compared to other European countries, basic, namely predominantly chainsaws and tractors ('skidders'). Also, some animals for carrying and hauling of wood from forests still exist, but the number is unfortunately further declining.

The NFI recorded 68 species, of which 57 deciduous and 11 coniferous species. Only some 10 species from the 68 available are used for processing purposes. These are beech, spruce, fir, two species of pine, two species of oaks, hornbeam, ash and wild cherry. In the total harvested volume, beech dominates with 43 per cent, followed by spruce with 20 per cent, for 12.5 per cent, pines with 7.5 per cent, oaks 7.3 per cent hornbeam with 2.0 per cent.

There is 675,000 ha or 81.7 per cent of forests available for wood supply. To give a sense of the (relatively conservative) scale of harvesting operations, the Statistical Office provides the figures expressed in gross m³ (see table 11.3).

Table 11.3: Harvesting in gross cubic meters, 2015–2022, m³

	2015	2016	2017	2018	2019	2020	2021	2022
Total	1 462 291	1 346 645	1 355 792	1 145 883	1 092 786	1 112 569	1 004 595	1 094 460

Source: Statistical Office, 2024.

Note: Illegal harvesting also included based on a statistical estimate of fuelwood use by households and other users (according to FAO Woodfuel Integrated Supply/Demand Overview Mapping method) from 2013. The share of non-registered / illegal logging amounts to over 50 per cent according to that source.

About two thirds of the above volumes were used for timber, while the remaining one third was used for fuel wood/energy. This has highlighted the importance of sustainable forest management and the strategic use of forest resources to meet the country's energy needs. The National Renewable Energy Action Plan (NREAP) 2020 to 2030 underscores the importance of increasing the use of national resources for energy generation. This plan advocates for the expansion of renewable energy sources, including the enhanced utilization of wood for fuel. By continuing to promote the use of wood pellets and suggesting the potential of wood chips, the NREAP aims to harness the country's abundant forest resources in a sustainable manner.

Illegal logging

Following on from previous text regarding illegal logging, any harvesting that does not comply with a forest management plan is considered illegal logging in Montenegro. In the year 2023, a total of 236 criminal complaints were filed for illegal logging in state-owned forests, with an estimated 3,350 m³ illegally felled, of which 330 m³ were confiscated. In private forests, 33 misdemeanour reports were registered for illegal logging, involving approximately 1,250 m³ of timber volume. The share of properly marked trees (i.e. with the obligatory two markings: one to facilitate harvesting and the second one for the registration of completion of the harvesting) in

public forest is higher compared to private forests and in general it is perceived as a growing, potentially serious, problem in the privately owned sector.

Deforestation

Forests are legally protected as far as forest clearing is concerned, so according to the Law on Forests clearing of forests, i.e. changing of it to other land use is prohibited. There are no instances of clearing in state-owned forests. However, there are isolated (and reportedly an increasing number of) cases of clearings of private forests being conducted illegally.

Forest damage and degradation

Degraded forest means forest which has substantially lost its quality, vitality and ability for producing increment and natural regeneration. According to the data the government obtains directly from the field within the project monitoring forest health status through bio-indication points, it is considered that the condition of Montenegrin forests is at a satisfactory level. The general factors that most affect forest degradation are wildfires, insects, phytopathogenic fungi, the afore-mentioned illegal harvesting as well as other anthropogenic influence, for example via the wide-spreading of invasive species and the dumping of plastics and other waste in forest areas. Specific threats to forest ecosystems in Montenegro include:

- Weakening of the vitality of trees of certain tree species, manifesting in relatively high defoliation;
- Reduced productivity and bioecological stability;
- Increased trend in drying of forests, especially conifers: spruce - due to bark beetle as consequence of climate change, but also fir (and larch on Lovćen),
- The appearance of pathogenic fungal epiphytes and/or gradation of harmful insects.

A major recent threat to forest health is the bark (borer) beetle (*Dendroctonus micans*). Montenegro has been experiencing increasing Norway spruce mortality due to bark beetles since 2020, particularly in protected areas such as the Prokletije National Park. The primary mitigation measure is “sanitary felling”, which means cutting and removing the damaged, diseased and dry trees with the aim of preventing the further spreading of the beetle and its harmful impacts. However, with active forest management (which includes tree-cutting) normally being prohibited in protected areas, other management strategies are attempted by the EPA. This is important because if the beetle is not controlled nor dealt with in protected areas it means that preventing damage in non-protected area forests becomes more challenging.

Development and wellbeing of local communities

It is recognized in the National Forestry Strategy and Policy that forestry, wood and non-wood products should be an integral part of rural economy and rural development. In addition to, and often in combination with, agriculture and rural tourism, they constitute one of the main opportunities for socio-economic activity in and improvement of rural areas. However, compared to other countries with a similar high percentage of forest cover, the extent to which there is a local ‘forest culture’ and the level that forest-related benefits are integrated into local economies are low. Forests also represent a very important resource for municipalities, especially in northern Montenegro where the most valuable (from an economic standpoint) forests are located. Since 2013, a process by which 70 per cent of the revenue from state forest utilization in a municipality’s territory goes into that municipality’s general budget was introduced. The municipalities however do not have an obligation to invest the income back to the forests. That is why state forest management, and the sector as a whole, which is financed through the state budget, is under increasing pressures.

Human rights

Because the forest and forest products sector in Montenegro plays a significant role in the country's economy and environmental sustainability, it is essential that this sector addresses human rights issues. In addition to providing opportunities for relatively poor rural populations and individuals, there is awareness in government that actions are required which can empower and employ women, include vulnerable groups and accommodate people with disabilities. However, of 340 employees in the AMFHG, 62 are women, which is relatively good in comparison to other countries. Although forestry is historically male-dominated, more efforts are needed to enhance gender

equality within the sector, such as initiatives to reduce barriers to women being participants in stipend/student support and leadership training programmes.

Notable current examples are senior female forestry officials in the headquarters and in the regional AMFHG units, and a female timber haulage driver who regularly attends public events to promote ‘women working in forestry’.

Climate Change

Montenegro's forests have been and will be affected by climate change, which is exacerbating existing vulnerabilities and creating new challenges. Rising temperatures and altered precipitation patterns are major concerns. Increased temperatures can extend the growing season but also increase evapotranspiration, potentially leading to drier soil conditions. Reduced summer precipitation can exacerbate drought conditions, stressing forest ecosystems and resulting in more (and more intense) fires and increased pest damage. In addition, the ‘carbon sink’/ sequestering function that forests in Montenegro are performing is both a benefit from GHG emissions reduction perspective but is also something that can be compromised by climate change, with conifers more at risk (than broadleaves) from rising temperatures. Forest management plans have a big role to play with regard to both adaptation and mitigation efforts, via promoting adaptive forest management practices, including more of an emphasis on mixed-species forests, and increasing forest resilience through providing conditions for improving natural regeneration. From a governance point of view, Montenegro is integrating climate change considerations into its forest management policies, including improving monitoring and early warning systems for forest fires, and enhancing pest and disease management.

As far as reporting to UNFCCC is concerned, Montenegro has not included GHG emissions/removals from LULUCF in their NDC submission, reporting that it has not been possible “due to the limited information available on the future development of the LULUCF sector, which is planned to be solved for the next NDC revision.....” LULUCF: No measures with a realistic chance of being implemented in the coming years have been identified. Therefore, only a BaU scenario has been developed, following the past trend in land use and land use changes, as well as a continuation of the levels of harvesting and forest fires.” However, for the next NDC revision cycle, including the LULUCF sector in their target is one of the improvements Montenegro has pledged to UNFCCC. It is noted by UNFCCC that for Montenegro, “the LULUCF sector carries high potential as a carbon sink” and that in particular, with regard to forestry “activities, such as the strengthening of the forestry infrastructure and the monitoring of logging, are also contributing to an increase in carbon sinks”.

11.2 Legal, policy and institutional framework

Legal framework for forests and forestry

The Constitution of Montenegro has defined the development of Montenegro as an ‘ecological state’, which constitutes the fundamental principle in terms of managing forest resources based on sustainability principles and strict criteria for nature and environmental preservation. The sectoral laws that define the legal framework for forests and forestry are:

- Law on Forests governs the management, protection, and use of forests in Montenegro. It aims to ensure sustainable forest management, biodiversity conservation, and the improvement of forest ecosystems.
- Law on Reproductive Material.
- Law on National Parks regulates the protection, management, and sustainable use of national parks, many of which contain significant forested areas. It aims to balance ecological protection with tourism and recreational activities.
- Law on Nature Protection establishes the legal basis for the protection of biodiversity, ecosystems, and natural habitats, including forests. It mandates the creation and management of protected areas and ensures that forest management activities are conducted in an environmentally sustainable manner.
- Law on Environmental Impact Assessment requires that any major forestry projects undergo an environmental impact assessment to evaluate their potential effects on the environment and biodiversity. This process helps mitigate negative impacts and promotes sustainable forestry practices.

- Law on Fire Protection is crucial for the prevention and management of forest fires given the risk of forest fires in Montenegro. It includes measures for fire prevention, the establishment of fire protection plans, and the responsibilities of various entities in case of a fire.
- Law on Game and Hunting governs hunting activities within forested areas, ensuring that hunting practices do not negatively impact forest ecosystems and biodiversity.

In addition to these ‘sectoral’ laws, there are other laws that influence forests and forestry, such as laws in the field of nature and environmental protection, economic laws (such as property law, Law on Concessions), plant protection law, and local self-government/‘municipalities’ law. Regarding Climate Change Legislation, Montenegro has various climate-related policies that indirectly affect forest management. These include commitments to reduce greenhouse gas emissions and enhance carbon sequestration through improved forest management practices.

Policy framework

The 2008 National Forest and Forest Land Management Policy sets five general objectives:

- Ensure and improve the long-term resilience and productivity of forest and other ecosystems, as well as the maintenance of plant and animal species.
- Forest and forest resource management ensures the sustainable fulfilment of social, economic, and ecological functions of forests.
- Forests contribute to sustainable social and economic development of rural areas.
- Ensure long-term development and competitiveness of the wood industry.
- Long-term development of forestry profession and forestry activities.

After the First NFI was conducted in 2010 and published in 2013, Montenegro obtained official data on the state of forests for the first time. This data assisted the formulation of the current National Forestry Strategy (2014–2023), which was developed and adopted after consultation in 2014. The Strategy focused on operationalizing two goals: improving forests and sustainability of management by increasing the timber stock in forests available for use from 104 to 115 million m³ of gross timber volume, and increasing the GDP of the forestry sector, wood industry, and other activities dependent on forests from 2 per cent to 4 per cent of the total GDP.

These goals were rendered into five implementation areas: forest improvement through sustainable management, development of the wood industry, the role of forestry in rural development, biodiversity protection, and other ecosystem services provided by forests, and fire protection (see box 11.1).

Box 11.1: Five implementation areas of the National Forest and Forest Land Management Policy

1. Forest Improvement through Sustainable Management:
 - Strengthening the productivity, stability, and resilience of forests and landscapes.
 - Arrangement and management of private forests, adapting the stumpage (revenue) system.
 - Ensuring high-quality indigenous seeds and forest seedlings.
 - Construction of forest roads to enable sustainable logging.
2. Development of the Wood Industry:
 - Increasing demand for biomass by introducing heating of public buildings with wood chips and cogeneration.
 - Incorporating wood products into “green public procurement.”
 - Establishing an export cluster for selected final products.
 - Development of a more flexible wood sales system in Montenegro.
 - Introducing a chain of responsibility and control of timber traffic.
 - Investments in the wood industry.
3. Role of Forestry in Rural Development:
 - Strengthening the role and participation of local communities in joint rural development programmes with the support of the Forest Administration.
 - Improving infrastructure in rural areas.
 - Diversification of economic activities in rural areas through the promotion of the role of forests and forestry.
 - Investments in small forestry and wood industry enterprises in rural areas.
 - Investments in forests-related tourism.
 - Sustainable management and use of non-timber forest products.

4. Biodiversity Protection and Other Ecosystem Services of Forests:
 - Stable and high-quality forest ecosystems: integrating Nature 2000 requirements into forest management plans to protect habitats and species throughout the forest area.
 - Ecosystem-based approach to forest management and nature protection.
 - Demarcation of pastures and forests, registration, and regulation of land use rights.
 - Improvement of forest management in protected areas/national parks.
5. Fire Protection:
 - Maintenance of open areas between forests and support for meadow mowing.
 - Improving the organization of institutions for combating forest fires.
 - Investments in equipment and preventive measures for firefighting.
 - Involvement of the population in fire prevention and fighting.
 - Development and testing of methods for rehabilitating burned areas.
 - Exchange of experiences and collaboration with institutions from the region.

A 2018 assessment of to what extent the Strategy was being implemented (2018 Government Conclusion OG 07-195) stated that the achievement of the goals was within modest bounds, with the observation that *“out of the planned 75 activities: 25 (33 per cent) have been implemented; 6 (8 per cent) have been partially implemented; 41 (55 per cent) have not been implemented, and there is no feedback for 3 activities; a large number of unrealized activities, the National Forest Strategy itself, as well as the Action Plan for its implementation for the period 2014–2016, were unrealistically planned, considering the limited access to financial resources and the lack of human resources; and that the key problem lies in the identified weaknesses in the forest concession system and the consequent lack of a defined medium-term concept for the development of the wood industry.”*

This 2018 assessment triggered a revision of the National Forestry Strategy. One of the key Policy objectives resulting from this being the aim to abolish the (multiple year) forest concession system and to shift to open-call tender annual timber sales. This fundamental transition in the forest sector was accelerated by the bankrupting of the biggest, 30-years concession holder and expiration of the 15-years concessions in 2022. There are no more concessions active in Montenegro since 2023. The revised National Forestry Strategy facilitated the establishment of new commercial entities in the forest resource-use sector and set out to improve the business environment so that small companies would have easier access to raw materials.

Since Montenegro has performed this switch from forest concessions to annual tenders, the revenue from forestry activities has increased significantly. Namely, according to the official reports of the AMFHG, the income from timber sales on the stump in 2023 amounted to €9.4 million or €42.6 /m³ (for 220,000 m³) while in 2019 the comparable income included €5.2 million or €23.9 / m³ (for 219,000 m³). Accordingly, there was an 83 per cent increase in the total income from timber sales based on 78 per cent of increase in the timber price. However, the volume of timber sold remained the same, i.e. at a very low level in comparison to the available annual cut (based on Forest Management Plans), which could be up 640,000 m³. This means that the realisation of the allowable annual cut in the last few years only reached 35 per cent. However, the commercial efficiency is now much higher, particularly compared to the former concession system.

This shift reflects the successful implementation of the relevant aspects of the original (2014) Strategy, but it is mainly pre-existing forest sector business entities, who have won most of the open call tenders to date.

In addition to the National Forest and Forest Land Management Policy, the 2016 NSSD for the period up to 2030 contains objectives related to forestry, emphasizing the importance of forests in climate change mitigation, biodiversity conservation, and sustainable rural development. Selected forest-related aspects of the NSSD are:

- Conservation of Natural Capital: The strategy emphasizes the conservation and sustainable use of biodiversity, water, soil, and air, recognizing forests as crucial components of Montenegro’s natural capital. Measures are directed at stopping the degradation of renewable energy sources, improving the efficiency of natural resource management, and mitigating the impacts of natural and anthropogenic hazards.
- Sustainable Forest Management: The NSSD 2030 aims to ensure sustainable forest management by implementing practices that balance ecological, economic, and social functions of forests. This includes maintaining forest health, enhancing forest biodiversity, and supporting sustainable timber production.

- **Climate Change Mitigation and Adaptation:** Forests play a critical role in Montenegro's climate change strategy. The NSSD includes measures to reduce greenhouse gas emissions by promoting afforestation, reforestation, and sustainable forest management practices that enhance carbon sequestration. Additionally, the strategy focuses on adapting forest management to the anticipated impacts of climate change.
- **Economic Aspects and Green Economy:** The strategy promotes the development of a green economy, integrating sustainable forest management into broader economic policies. This involves supporting eco-friendly tourism, sustainable wood industries, and other forest-related economic activities that contribute to the national economy while ensuring environmental sustainability.

In toto, these measures reflect Montenegro's aspiration to integrating environmental sustainability with socio-economic development, highlighting the importance of forests in achieving these broader sustainable development goals by 2030.

Other relevant implementation and action plans are:

- The National Renewable Energy Action Plan 2020 to 2030, which includes plans to gradually reduce energy import dependence by (i) reducing the specific consumption of final energy, (ii) increasing the energy production (primary and secondary) by use of own resources.
- The 2009 National Action Plan to combat illegal activities in forestry.
- The 2014 National Action Plan of Utilisation of Wood Biomass.

Institutional framework

The Ministry of Agriculture, Forestry, and Water Management holds the lead role in managing forest resources and crafting economic and sectoral policies. It proposes these policies to the Government and implements them via its Forestry, Hunting and Wood Industry Directorate. This Directorate is the administrative body entrusted with the management of forestry affairs. It is responsible for the development and implementation of forestry laws, and regulations as well as policies and systems regarding:

1. Forest Planning;
2. Forest Cultivation and Protection;
3. Forest Utilization and Non-Timber Forest Products;
4. Nature Conservation and Management of Special Purpose Hunting Grounds;
5. Forestry Information System.

‘Sitting under’ this Directorate, the AMFHG is an (relatively independent) ministerial body responsible for administration and management of the state forests and ensures the (prescribed) services to private forest owners. It also oversees the forest management practices. It administers and manages the state forests and ensures the obligatory services to private forest owners. It also oversees the forest management practices, ensures compliance with national and international standards, and promotes sustainable forest use. The AMFHG is particularly tasked with:

- Forest management planning
- Managing state forests and ensuring sustainable forest management practices;
- Monitoring forest health;
- Development of forest road programmes;
- Measurement, surveying, marking of trees for felling and stamping of wood, as well as issuing certificates of origin for forest product assortments/shipments;
- Allocation of state-owned forests for use through contracts, based on previously announced tenders, maintenance of records and databases for forestry (information system);
- Controlling of the forest operations and executing the forest use contracts;
- Provision of advice on forest protection and forest utilisation to private forest owners.

In addition to managing state owned forests, the AMFHG of Montenegro performs professional tasks related to forest management in private ownership (until now particularly the ones under above point (e)). Organizationally, it is divided into 17 ‘regional’ municipality-based units staffed with forest engineers, forestry technicians and forest guards and has a Central Administration HQ in Pljevlja.

The forestry supervision is carried out by the Inspectorate for Forestry and hunting, which is a *de facto* independent body. These inspectors (currently 19) are tasked with overseeing the enforcement of forestry laws, regulations, and sustainable management practices. They have been operating in/from a single, centralized, multi-sector Administration for inspections affairs, as body within the Government (not the ministry). However the Forestry Inspectorate will soon be returned to be hosted by the Ministry of Agriculture, Forestry and Water Management.

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development, and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development) was responsible for nature conservation, including the establishment of the Natura 2000 network, environmental protection, as well as tourism development in Montenegro. A 'Public Enterprise', National Parks of Montenegro, is responsible for the management and protection of Montenegro's national parks, many of which include significant forest areas. The Enterprise focuses on conservation, biodiversity protection, and the promotion of eco-tourism within these protected areas. The Agency for the Protection of the Environment (EPA) is involved in the overall conservation of forest areas. This includes implementing policies and measures to protect forest biodiversity and ensure sustainable forest use. The agency operates the CGIS Bioportal, a comprehensive online platform providing up-to-date information on Montenegro's protected areas. The EPA ensures compliance with national and international environmental regulations. It reports to bodies such as the European Environment Agency and the Secretariat of the Convention on Biological Diversity. The agency is responsible for maintaining and updating the Registry of Protected Natural Resources as per the national Law on Nature Protection.

The Institute of Forestry is part of the Biotechnical Faculty at the University of Montenegro. It plays a role in forestry research and education. Its activities include conducting scientific research on forest ecosystems, promoting sustainable forest management practices, and providing expert advice on forest policy and management. The Institute also engages in the development of forestry techniques and technologies, the conservation of biodiversity, and the study of climate change impacts on forests. It collaborates with national and international organizations to enhance forestry practices and policies.

The Institute for Nature Protection provides scientific and technical support for the conservation of natural resources, including forests. It conducts research, monitors biodiversity, and advises on best practices for forest conservation.

Local municipalities are not specifically assigned responsibilities in the field of forests and forestry by the Law on Local Self-Government. However, municipalities are generally responsible for environmental protection, communal services, and spatial planning. Additionally, certain tasks of state administration can be transferred to local self-government units for more efficient and economical performance. According to the Law on Local Self-Government, municipalities receive 70 per cent of the fees for forest use within their territory. These funds are considered as a share in the benefits from natural resources in their territory and are notionally for supporting the construction and maintenance of local infrastructure in forest areas. Municipalities can also take the lead with regard to participatory/community forest management initiatives, usually in combination with regulating small-scale forest uses. In addition, several Nature Parks with forests have been established at the municipal level to assist with preserving the country's biodiversity and promote sustainable development.

There are national NGOs that are active with regard to forests in Montenegro, advocating for sustainable forest management, conservation, and environmental protection. These include CNVP Montenegro (Connection of Natural Values and People), Green Home, Envpro and others. They often collaborate with governmental institutions, participate in policy-making processes, and engage in media and public awareness campaigns. There is also a Wood Industries Cluster NGO, as well as Union of Private Forest Owners of Montenegro which is currently passive, but which still acts as representative entity for private forest owners.

The implementation of forest work and processing of forest products is left to the private sector and the market. There are approximately 480 wood processing companies – some of them doing both logging and sawmilling.

Other national institutions in Montenegro that are associated with forests and forestry include the Faculty of Mechanical Engineering (study course Mechanical wood processing – programme implemented in Pljevlja), and the Secondary Forestry School in Berane. The institution where currently most of Montenegro's professional-

level forest engineers graduate from is in Serbia, the University of Belgrade's Faculty of Forestry. In order to reduce the shortage of qualified forest engineers in Montenegro, a student support/stipend programme was initiated in 2019. There are currently 10 students on this programme, who have signed contracts committing them to return from Serbia to work for 10 years in Montenegro when they graduate.

Collaboration with international entities and organizations

During the review period, Montenegro has collaborated with the International Fund for Agricultural Development, German Corporation for International Cooperation, Austrian Development Cooperation, Netherlands Development Organisation, Organization for Security and Co-operation in Europe, the Food and Agriculture Organization, the EU, and the World Bank to enhance its forest management and law enforcement practices. These partnerships often involve technical assistance, funding for sustainable forest projects, and the implementation of international forest management standards.

There has also been engagement and dialogue with international certification bodies, the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). Following exploratory dialogue with both, there has been a strong presumption that having forest management and forest product certification will be a beneficial development. There has been an equally strong presumption on the part of government officials that FSC should be the certification programme that will be selected and deployed in Montenegro. There is no reason that both certification schemes could not be introduced in Montenegro. As state officials are strongly inclined to FSC (seemingly because they perceive it as having more stringent environmental and social standards) FSC could be the scheme for state forests. This would help address concerns raised by how forest operations following annual open-call timber sales are being conducted. However, the resulting reduced timeframes creates/increases some risks, including less investment in operator health and safety, training and equipment and less attention paid to biodiversity conservation obligations. Although the AMFHG will be active with regard to monitoring and stopping this, FSC certification with profit motive and increased market access incentives, will also do this and in addition take pressure off the public officials, enabling them to spend more time on advising on and monitoring privately owned forests.

One of the most positive features regarding forest management in Montenegro is the continuing (from the Yugoslavia era) ban on clear cutting. However there is a reported (at a meeting with senior forest officials) increase in the number of legal actions/court cases being brought by private forest owners against the State, often with a view to being able "to do what they want with their trees/forests on their land", with an assumption that some of these have been sought with forest clearance in mind, with the low fines levied being treated as a foreseen, worthwhile cost. These are typically relatively small plots (less than 10 ha), but still potentially significant if a large number occur. Introducing forest certification creates a market/financial incentive for a private owner to retain forests and get a management plan. In addition to the illegal clear-cutting, privately-owned forests have no forest management plans in place. This reflects that efforts to ensure sustainable use of privately owned forest resources solely via the supportive advisory and monitoring activities of the AMFHG of Montenegro through various initiatives and support programmes are not producing sufficient results. However, for private forest owners, the Programme for the Endorsement of Forest Certification (PEFC) scheme may be the best, and quicker way forward than FSC. PEFC certification provides several significant benefits for private forest owners in Montenegro. These include relatively lower initial costs and the ability to aggregate numerous small plots under different ownership but with the same forest management regime to create 'group certification'. In addition, there is a nascent "Regional PEFC scheme for the Balkans" (which "aims to make certification more accessible, particularly for small and family forest owners across several Balkan countries").

Coordination between institutions at national, regional and local levels on matters related to forestry management

Coordination and communication amongst the concerned public sector entities is conducted through various channels including correspondence, emails, direct communication, meetings, site visits. Good relationships are the norm but there is often tension between the AMFHG and the Public Enterprise National Parks, and also, in particular, with the EPA due to issues (such as bark beetle control) that their different forest conservation and management regimes create and the tardiness of providing compensation to private owners who are in 'zero forest use' zones. These tensions are exacerbated by the small number (now 3) of forestry engineers on the staff of Public Enterprise National Parks, and only one forestry professional in the EPA.

There are also tensions between the forestry sector (the Directorate and the AMFHG) and municipalities due to the increasingly large fund transfers, especially when little or even none of the 70 per cent share of forest revenue received by municipalities is spent on/invested in forest-related activities/infrastructure.

It was also mentioned that tourism entities feel that there could be more communication/coordination with regard to the timing of forestry operations in locations popular with visitors/tourists.

Partly due to the delay in implementing the second NFI, there is a dearth of up-to-date data. In addition, many of the official online resources have either no data at all or have not been updated for several years.

Regulatory, economic, fiscal and information measures

Based on data from experts and from the Directorate, there has been a noticeable increase in revenue from forestry. At the end of 2021 and the beginning of 2022, there was a change in the scoring system for the sale of standing timber through tenders, resulting in revenue of around €12 million for that year. The following year, the revenue increased to a record €16.5 million. The average revenue for several years prior to the increase in the price of standing timber was between €5-€6 million annually.

The Directorate is engaged in the process of drafting and development of a new forestry law, as well as a new national forestry strategy for the period 2024–2030, aiming to establish a state-owned commercial enterprise to both manage and utilize forests. The ultimate goals of these changes are to increase revenue from forests and to be in better alignment with European /EU norms/requirements (e.g. EU Timber Regulation and EU Deforestation Regulation) by 2030.

Some revenue-related issues are:

- The maximum fines that can be levied on private forest owners for illegal logging and clear cutting (in the range of €300 to €5,000) are too low and are increasingly being seen as acceptable ‘costs of doing business’ and not working as a deterrent.
- The AMFHG is now receiving an annual budget of €6 million when it is estimated that in order to perform all their roles/functions they require at least €10 million (at the same time that revenues from forests have increased to more than €15 million and most of the > €9 million that municipalities have been receiving is being spent by them on non-forest-related general budget items).
- The realized full costs incurred to Montenegro by past forest fires are not being used as a trigger/rationale to invest in forest-fire preventative or fighting/mitigating measures (e.g. strategically located water reservoirs).
- Despite Montenegro’s national (and in particular the northern regions’) rich forestry resources there is no/little evidence of ‘forest economy’ thinking and practice that exists in other countries with similar quantity and quality of forest resources. As such there is scope for nationally and locally adding value to existing circular and green economy thinking and practices by combining them with those of what is called a ‘forest economy’.

11.3 Assessment, conclusions and recommendations

Assessment

During the past 10 years, the narrative of Montenegro’s stewardship of their valuable and impressive forest resources is one of intermittent progress and evolution with some business as usual ‘speedbumps’, some self-created problems, some opportunistic successes and some scope to optimise and do more about identified priorities.

In general, the lack of a thriving ‘forest culture’ in rural areas, combined with the lack of national and local ‘forest economy’ thinking and practice means that the ambition to be an ecological state is being ‘self-restricted’. Introducing more incentives, for example in the form of increased market access for forest products via FSC and PEFC forest certification and optimizing benefits from one of the most successful recent forest sector innovations – the production, trading and local domestic use of high-quality biomass pellets (and wood chips) produced from waste materials from both forest management operations and wood processing – will help to start to achieve this.

Especially if combined with a suite of market-based incentives and disincentives that can create a circular forest bioeconomy with multiple co-benefits, via enhancing existing initiatives with regard to increasing: the use of forest products for housing construction and heating; forest-related-tourism; alternative eco-packaging; gastronomy based on Non-Wood Forest Products; green public procurement; rural infrastructure and rural job creation looked at through the lens of proactively developing a forest culture and forest economy.

For example, there are human resource/personnel challenges in the forest sector in Montenegro which could be mitigated or alleviated with a suite of interconnected actions/initiatives which could also lead to enhancing/creating more of a 'local forest culture' and make working in forests/forestry more attractive and commonplace. These include ensuring that there are more opportunities for:

- Women to study and work in the forest sector;
- More 'community forestry' employment and income generating activities for poor rural individuals and/or communities (especially in north and north-east regions);
- Integrating/combining, or sequencing, tourism and forestry work;
- Attending bespoke short courses in the forestry school which address skills shortages (such as marking);
- Flexible working hours and fair 'piecework'/payment-by-results forest work programmes;
- Chainsaw and tractor/skidder driver training;
- Pushing/prodding universities and NGOs to research and promote rural forest-based livelihoods.

Finally, also raising the national and international political profile of Montenegro's forests within the Government's climate change related aspirations. Making it a priority to get the second NFI completed as quickly as possible, not least to enable Montenegro's NDC reporting to UNFCCC to include forest sector/LULUCF GHG figures, partly to highlight what an important valuable carbon sink it is – and will continue to be if proactive and adaptive management of forests is supported and forest fire prevention measures are put in place.

Conclusions and Recommendations

International forest certification

There is room for improvement in the management of both State and private forests in Montenegro. The introduction of international forest certification has the potential to play a role in providing incentives to both State forest timber contractors and private forest owners, while at the same time reducing operational pressures on State (Forest Administration) support and monitoring services. However, while Forest Stewardship Council certification is well suited to the State forests situation, PEFC certification is a better fit for private forest owners.

Recommendation 11.1:

The Government should increase and accelerate efforts to have international forest certification schemes operational.

Biomass pellets (and wood chips)

The production and promotion of biomass pellets in Montenegro has led to numerous benefits for both the environment and the economy and these can be increased. Sustainable forest management practices can be enhanced, local economies can be revitalized through job creation and new business opportunities, and the country can move towards greater energy independence and environmental sustainability. There is scope and rationale for Montenegro to continue to increase a robust biomass pellet (and also wood chips) industry.

Recommendation 11.2:

The Government should create and support a platform open to all relevant stakeholders and sectors to get behind the increased production, use and trade of biomass pellets and wood chips in order to continually optimize the multiple benefits already being achieved.

"Forest economy"

There are many environmental, social and economic benefits to be gained from integrating international "forest economy" policies and practices with existing Montenegro "ecological state" and circular and green economy

policies and practices. However, the country lacks a process and multistakeholder working group, composed of key ministry officials, institutes, universities and NGOs, to integrate such policies and practices into the national policy context.

Recommendation 11.3:

The Government should establish a time-limited process and multistakeholder working group to research, identify and propose elements of international “forest economy” best practice most applicable or adaptable to Montenegro.

Forest culture

Recognizing and implementing actions to promote the kind of forest culture that exists in forest-rich environments in other countries could foster a more positive attitude to working in forests and, in general, encourage increased engagement by (and benefits for) under-represented groups and vulnerable or poor rural individuals and communities living adjacent to forests.

Recommendation 11.4:

The Government should support officials and citizens to co-design and undertake a programme of forest culture exchange visits and training.

Climate change and forests NDC reporting

More positive national and international perceptions of the value of Montenegro’s forests could be encouraged by including forest sector GHG emissions figures in NDC reporting to UNFCCC.

Recommendation 11.5:

The Government should establish a high-level working group that is tasked with ensuring that all actions required to ensure that Montenegro reports on LULUCF emissions in the next update to its Nationally Determined Contributions are effectively implemented in a timely fashion.

Chapter 12

Industry and the environment

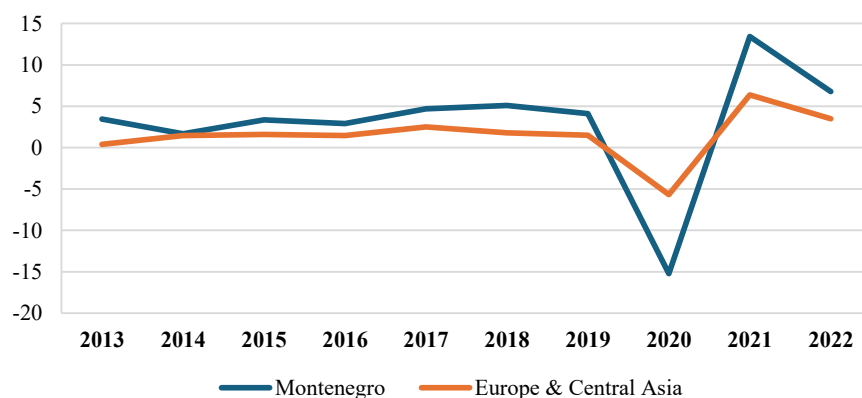
12.1 Trends in industry development

Since 2013, the annual GDP growth rate per capita of Montenegro (SDG indicator 8.1.1) has kept above the Europe and Central Asia average GDP per capita growth (see Figure 12.1), showing a progress on achieving the SDG target 8.1 (Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries). However, due to the COVID 19 crisis in 2020, there was a significant drop in these values, that reached -15.2 per cent, but increased rapidly to 13.4 per cent in 2021 and down to 6.75 per cent in 2022.¹⁸⁵ The share of industrial value added in GDP rose from 15.45 per cent in 2013 to 17.29 per cent in 2020, and then declined to 12.96 per cent in 2022¹⁸⁶ (see Figure 12.2), keeping below the Europe and Central Asia average. Similarly, the annual growth rate of real GDP per employed person (SDG indicator 8.2.1) had shown an increase from 2.77 per cent in 2013 to 7.72 per cent in 2021, then decreased to 3.14 per cent in 2022.¹⁸⁷ This has contributed to achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors (SDG target 8.2).

According to the 2011 Classification of Activities (OG 18/11), the industry comprises activities of the following sectors: Mining and quarrying, Manufacturing, and Electricity, gas, steam and air conditioning supply. The country's industrial production indices were variable in the period 2013–2022, showing a significant growth in 2013, 2015, 2018 and 2021, and a notable decrease in 2014, 2016, 2017, 2019, 2020 and 2022 (see Table 12.1). This suggest that the COVID-19 crisis did not severely affect the industrial sector of Montenegro.

In 2022, the industrial production of Montenegro declined by 8.2 points compared to 2021, according to the Statistical Office. The output of the mining sector significantly rose by 33.3 points, while the manufacturing industry contracted by 8.8 points in 2022.

Figure 12.1: GDP growth rate per capita, 2013–2022, percentage

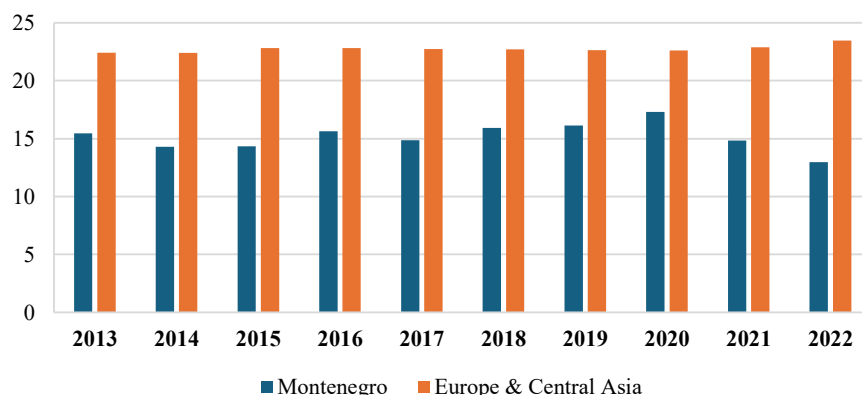


Source: World Bank (DataBank World Development Indicators), 2023.

¹⁸⁵ United Nations Department of Economic and Social Affairs, Statistics Division (SDG Indicator Database). World Bank (DataBank World Development Indicators), 2023.

¹⁸⁶ World Bank (DataBank World Development Indicators), 2023.

¹⁸⁷ ILO (Modelled Estimates). SDG Montenegro.

Figure 12.2: Industry value added, 2013–2022, percentage of GDP

Source: World Bank (DataBank World Development Indicators), 2023.

Note: Industry value added also includes construction.

Table 12.1: Indices of industrial production, 2013–2022, previous year=100

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total	110.6	88.6	107.9	95.6	95.8	122.4	93.7	99.1	104.9	96.7
Mining and quarrying	98.6	114.4	91.9	81.9	213.9	78.7	120.8	107.2	75.6	108.9
Manufacturing	95.0	93.3	119.9	92.2	97.0	112.1	90.0	99.5	109.1	100.3

Source: Statistical Office, 2023.

In 2022, small and medium-size enterprises¹⁸⁸ represented 83 per cent of the total gross output and 80 per cent of the total gross value added.¹⁸⁹ According to the Statistical Office, in the first five months of 2023, the total number of employees in the industry sector was 19,269, which represents 8.2 per cent of the total registered employment. In 2013, employment in industry was 17.8 per cent of total employment.

The number of large polluting installations in Montenegro is limited. According to the EPA, industrial installations under the IPPC include Fab Live and Uniprom, both in Podgorica. Besides, there are the Pljevlja TPP and two landfills.

As at April 2024, there were 132 notifications of industrial SEVESO facilities submitted to the EPA in compliance with the Law on the Environment, from which six facilities are considered as of upper-tier degree of risk.

Developments by the manufacturing sector

Since the last EPR, the manufacturing value added (constant 2015 \$) as a proportion of GDP (SDG indicator 9.2.1) declined from 4.15 per cent in 2013 to 3.9 per cent in 2022.¹⁹⁰ The negative trend recorded in the manufacturing sector is due to the decrease in production of basic metals, fabricated metal products, beverages, chemical and chemical products, and machinery and equipment. Although the efforts Montenegro has done to achieve the SDG target 9.2 (Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries), progress is at a slow pace.

The drop in production in the metal industry is mainly a consequence of the reduction in aluminium production. The KAP, which entered bankruptcy proceedings in 2013, was sold by the Government to Uniprom in 2014. In 2015, Uniprom opened a new industrial site in Podgorica to produce aluminium alloys in the form of small ingots. The project involved investments of more than €10 million and the opening of dozens of new jobs.¹⁹¹ In December

¹⁸⁸ According to the country classification: small enterprises (less than 49 employees); medium enterprises (49–249 employees) and large enterprises (more than 250 employees)

¹⁸⁹ Statistical Office, 2022.

¹⁹⁰ UNIDO (National Accounts Database).

¹⁹¹ Montenegro(2024b).

2021, most of the electrolysis cells were shut down due to a disagreement with the state-owned energy company EPCG about the electricity prices.¹⁹² In May 2023, Uniprom shut down the remaining electrolysis cells of the aluminium smelter at its KAP industrial site, discontinuing aluminium production at the plant after 52 years.¹⁹³ This affected the national export structure, since aluminium had a large share in the export of goods. The facility to produce aluminium alloys remained in operation.

Decline in metal production is also due to long-lasting problems faced by the steel company in Niksic (Tosčelik Niksic A.D). In the period January–May 2023, the export of iron and steel decreased by 89.3 per cent, while the exports of iron and steel products decreased by 5.3 per cent. At the beginning of 2023, the EPCG took over the steel company, establishing a new state-owned company called EPCG-Zeljezara Niksic. The new company plans to produce metal structures for solar panels and support projects in the field of renewable energy sources. As of April 2024, the site had not started production yet.

In the same period of January–May 2023, a decrease of 40.2 per cent was recorded in the manufacture of chemicals, and chemical products.

As a result of the changes in the manufacturing sector, a decline on the manufacturing employment as a proportion of total employment (SDG indicator 9.2.2 of target 9.2) was noticed since 2013, passing from 7.2 per cent in 2013 to 6.2 per cent in 2022.¹⁹⁴ The SDG indicator 8.8.1 (Fatal and non-fatal occupational injuries per 100,000 workers, by sex and migrant status) of target 8.8 (Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment) is not reported by the country.

Developments by the mining sector

Montenegro is rich in mineral resources, with about 28 types of mineral resources found in its territory. The country's metallic mineral resources include red bauxite, lead, zinc, copper and mercury, as well as occurrences of manganese, iron, titanium, chromium and rare earth elements in bauxite. Energy mineral resources found are coal, oil and gas. Non-metallic mineral resources include travertine, sand, gravel, brick clay, cement lime, white bauxite, dolomite, barite, bentonite, quartz sand, chert and sea salt. As of April 2024, the Ministry of Energy and Mining had granted 52 concessions for geological research/exploration and exploitation. However, the country has no national strategy for the development of the mining sector.

The most important deposits of metallic minerals are those of red bauxite, which occur in the central and southern parts of Montenegro. There are about 30 deposits and 150 occurrences of red bauxite. The most important red bauxite reserves are located in Niksic, where the largest karst red bauxite deposits were discovered: Liverovidi I and II, Zagrad, Kutsko brdo, Djurakov Do, Biocki Stan and Stitovo I and II. Whereas red bauxite exploitation is carried out in open pits in some mines (Zagrad, Djurakov Do and Stitovo II), underground mining is performed only in the Biocki Stan mine.

Lead and zinc deposits and occurrences are located in the northeastern part of Montenegro: Ljubisnja (Šuplja Stijena mine) and Bjelasica (Brskovo mine). The Šuplja Stijena lead-zinc mine consists of four deposits: Šuplja Stijena, Djurdjeve Vode, Paljevine and Ribnik. The mining region of Bjelasica mountain holds the Brskovo mine, from which lead and silver were exploited in the second half of the XIII century. The Brskovo mine was opened in 1976 and closed in 1991. Underground and surface methods were employed to extract 2.851 million tons of ore, producing 32,588 tons of lead concentrate, 89,263 tons of zinc concentrate and 133,910 tons of pyrite concentrate¹⁹⁵.

Non-metallic mineral resources are exploited in open pits (i.e. Maljat, Krute, Visocica, Radujev Krš, Živsko Razdolje, Brankov Krš, Tospude, Dolovi) in two main regions: Bjelopavlici region and costal region.

¹⁹² Jajcanin D. (2023).

¹⁹³ Ibid.

¹⁹⁴ SDG Montenegro.

¹⁹⁵ Geological Survey of Montenegro.

Regarding energy resources, economic coal deposits occur in the Pljevlja and Berane coal basins. Coal is mined in open pits at the Pljevlja mine, with total reserves of 54.9 Mt and resources of 178 Mt. The Pljevlja basin includes the following deposits: Potrica, Kalusici, Komini, Radosavac, Grevo and Rabitlje, and Cementara (part of Potrica). The coal mine delivers more than 90 per cent of its production to the Pljevlja TPP.

The Berane coal basin is composed of several deposits: Budimlja, Petnjik, Zagorje, Berane and Police. The coal of Berane is of higher quality than the coal of Pljevlja. Coal exploitation started at the deposit of Budimlja in 1959 and was ended in 1980. About 1,626,000 tons of coal were extracted by underground mining method. Also, about 920,000 t of coal were extracted from Petnjik deposit in the period from 1981 to 1997. The Berane coal mine, owned by the Serbia-registered mining and steel company Metalfer, suspended production in March 2020 due to the outbreak of the coronavirus pandemic. Furthermore, the mine has been left without electricity since November 2022 due to a power substation breakdown. As of January 2023, the ministry in charge of energy said it aims to resume production at the mine, pledging to conduct an economic analysis soon in order to decide on the optimal option for achieving this goal. Restarting production at the Berane coal mine requires new investments and strategic partners.

From the perspective of all mineral resources, mining production records a growth of 0.39 per cent in 2022. Compared to the previous year, coal production in 2022 records a growth of 11.23 per cent, red bauxite production records a decline of 16.81 per cent and lead and zinc ore production increased by 4.55 per cent.¹⁹⁶

In 2022, the production of mineral commodities, notably aluminium, bauxite, lead and zinc, and construction materials (such as marble, travertine, crushed stones, sand, and gravel), represented only a minor part of the economy of Montenegro (see Table 12.2).

Table 12.2. Production of mineral commodities, 2013–2022, tons

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Aluminium ores and concentrates	61 154	82 162	50 369	667 300	927 847	468 164	774 725	897 057	542 049	442 067
Lead and zinc ores and concentrates	..	..	..	24 414	20 397	25 762	24 007	21 174	18 713	18 075
Marble and travertine	1 309	3 368	2 386	2 427	3 095	3 186	3 828	2 570	2 230	4 711
Construction sands	..	..	..	..	..	103 917	126 515	319 090	181 042	134 536
Gravel and pebbles	133 126	289 469	258 120	178 906	173 670	55 611	30 097	61 886	29 834	..
Crushed stones	21 391	26 108	19 240	102 544	147 620	158 697	143 219	163 573	136 293	225 946

Source: Statistical Office, 2023; USGS Minerals Yearbook (2019)

In Montenegro, the potential of oil and gas is still at the research and perspective evaluation phase. Exploration on land started in 1949 and in the offshore in 1970. Until now, 17 exploratory boreholes whose length varies from 900 m to 5,309 m were performed on land, and four deep exploration wells whose length varies from 3,700 m up to 4,750 m were done underwater. This research revealed occurrence of bitumen, oil and gas. In addition to exploration drilling, about 11,000 km of 2D seismic and 300 km of 3D seismic profiles were done. The results of research on land and offshore showed that there is a potential for hydrocarbon deposits.

Modernization and technological development

The economic relevance of the basic metals and associated industries (i.e. mining, railways and harbour) has declined, mainly owing to deteriorating competitiveness. The level of industrial production has been affected by electricity prices as many industries are energy-intensive industries. For example, the production of aluminium was suspended due to an increase in electricity prices. Moreover, industrial competitiveness is low as production is marked by the use of outdated technology and equipment in large companies, production of raw materials or with a low level of processing. The production of small and medium enterprises has constantly increased, but these firms remain focused on the domestic market.

¹⁹⁶ Ibid.

Since 2013, the Government has made some efforts to modernize the industrial and mining sectors through the development of several dedicated policies, programmes and strategies. Technical improvements have contributed to reduce industrial and mining air pollution. Some modernization investment efforts are worth mentioning, such as the repair of the electric filter system in the Pljevlja coal-fired TPP and a new electric arc furnace with a dedusting system in the Nikšić steel mill, as well as the transition to less polluting fuels (e.g. use of natural gas in KAP).

However, the development of a competitive industrial production on the basis of innovative and green technologies is not yet well developed in the country and further investments to ensure full alignment of the existing industrial plants with best available techniques (BAT) are still lacking. Although the interaction between the industry sectors and scientific research institutions is rather weak, the situation has been improving in recent years due to the implementation of related governmental measures.

12.2 Pressures from industry

Air

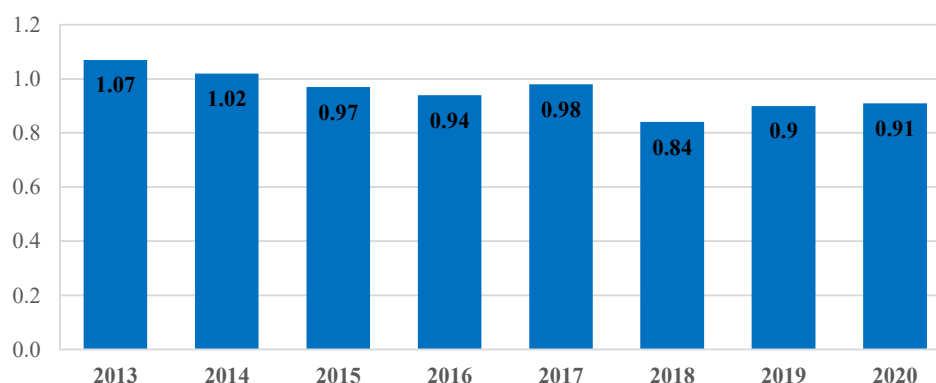
Since 2013, air pollution from industrial sources has declined for all pollutants, mainly due to the closure of large industrial facilities (e.g. aluminium and steel production plants) but also to the introduction of integrated permits.

Industrial emissions in Podgorica were dominated by KAP, that was fully shut down in 2023. Emissions sources were mostly anode production and foundry, from which suspended particles concentration exceeded limits by many times. The industrial unit producing silica-aluminium alloys, which was opened in 2015, is also a source of PM₁₀ emissions. The red mud basins of KAP were not rehabilitated and therefore, remain major sources of dust emissions, especially during the dry season and because they are located in the city.

In Pljevlja, besides the air emissions (SO₂ and NO_x) from the Pljevlja TPP, which is under renovation, other major sources of air pollution are the open pit coal mines, coal transport system and ash disposal landfills. The most important emissions during exploitation are suspended particles (PM₁₀ and PM_{2.5}) and NO_x, whereas during transport and disposal, emissions of suspended particles (PM₁₀ and PM_{2.5}) dominate. The mines and facilities are located close to the city. This pollution is aggravated during the dry season; automatic sprinkles are lacking. The efforts made to renovate the TPP is in line with the SDG target 9.4: By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities.

Overall, CO₂ emissions per unit of manufacturing value added (SDG indicator 9.4.1) have slightly declined since 2013, from 1.07 kilogrammes of CO₂ per constant 2015 \$ in 2013 to 0.91 kilogrammes of CO₂ per constant 2015 \$ in 2020 (see Figure 13.3).¹⁹⁷

Figure 13.3: CO₂ emissions per unit of manufacturing value added, 2013–2020, kilogrammes of CO₂ per constant 2015 \$



¹⁹⁷ IEA (Data and statistics).

Source: IEA (Data and statistics), 2022.

Water

Overall, mining and manufacturing industries are huge consumers of freshwater. Annual freshwater withdrawals by industry have been rather stable between 2013 and 2020 at around 39 per cent of total freshwater withdrawal¹⁹⁸. With the recent closure of KAP operations and steel production plant in Niksic, water use by industry has significantly decreased. The main water consumers are the manufacturing industries of basic metals and metal products, food products, beverages and other manufacturing products. Among the mining industries, the main water consumers are the coal mines and TPP and the lead and zinc mines located in the Pljevlja region.

The SDG indicator 6.4.2 (Level of water stress: freshwater withdrawal as a proportion of available freshwater resources) of the SDG target 6.4 (By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity) was not available. According to the FAO, since 2013, water use efficiency by the industrial sector has grown from 5.4 \$/m³ in 2013 to 7.1 \$/m³ in 2020 (SDG indicator 6.4.1). This shows that water-use efficiency in industry has been improved. However, issues remain, as for example, the lack of investments in BATs and reparation of leakages, which would result in more sustainable industrial production systems.

Industrial wastewater is usually discharged into public sewer systems for adequate treatment. Information regarding the treatment of industrial wastewater in individual industrial treatment plants was not available. Industrial wastewater that is not adequately treated contribute to water pollution in the country (see chapter 8). Moreover, industrial waste disposal sites that do not have adequate management in place are additional sources of surface water and groundwater pollution. For example, KAP and its red mud basins are located in the area of the Lake Skadar, which is a national park and a Ramsar site under the Convention on Wetlands of International Importance, the most important watershed in Montenegro and the largest (and transboundary) lake in the Balkans. With the intensification of heavy rains and flood due to climate change, surface water and groundwater contamination may occur, if not well monitored. Additionally, mining tailings and ash disposal sites from the Pljevlja TPP are major sources of soil and groundwater pollution by heavy metals and other hazardous substances through seepage.

Waste

In 2013, of the total 424,147.09 tonnes of waste generated by industry, the mining sector accounted for 0.04 per cent, whereas the manufacturing sector was responsible for 9.22 per cent.¹⁹⁹ Since then, there has been a significant increase in the waste generation from manufacturing, mining and quarrying and other industries (excluding construction), that reached 682,777.3 tons of waste in 2021. In 2022, this amount decreased by 6.5 per cent to 638,630.3 tons, from which 294,466.0 tons were of hazardous waste (20.9 per cent). As at July 2024, major industrial waste generators include the Daido Metal (Kotor), MB Team and Trebjesa Brewery (Nikšić), container terminal (Bar), and the Pljevlja TPP. Mining tailings from bauxite, coal and lead-zinc mines are also major sources of environmental pollution in the country.

Industrial waste is mostly internally treated and disposed as there are no landfills for industrial waste in the country. It is also delivered to other companies, temporarily stored or exported. This type of waste is a main source of soil, surface water and groundwater pollution, if not well managed. There is a risk of seepage and surface drainage formation, mobilizing heavy metals and other hazardous substances.

Mining wastes are mostly deposited in tailings facilities in the premises of the mining company. According to the 2024 Law on Waste, if the object and/or plant for mining waste of category A is a dam in which cyanide is present, the operator is obliged to, using the best available technologies, ensure that the concentration of soluble cyanides in the dam does not exceed 10 mg/l.

¹⁹⁸ World Bank (DataBank World Development Indicators), 2023.

¹⁹⁹ Statistical Office, 2023.

No nation-wide comprehensive inventory of small and medium sized (hazardous) waste generators has been undertaken, however, Montenegro has an inventory of industrial and hazardous waste sites. Within this inventory, the Government had originally identified five sites to be considered of highest priority for remediation because of their large size and either proximity to valuable natural resources or association with heavy industries, which make it necessary to bring the historic and ongoing waste management in line with Montenegrin legislation. Five priority sites were selected: (i) lead-zinc mining tailings in Gradac; (ii) coal ash disposal facility in Pljevlja; (iii) Bijela shipyard; (iv) industrial waste site (mainly from the steel works factory) in Niksic; and (v) solid waste disposal area and red-mud basins on the KAP site in Podgorica.

Under the World Bank project Industrial Waste Management and Clean up (2014–2020)²⁰⁰, the detailed design, construction, and supervision of remediation of four industrial waste sites was financed: the mining tailings in Gradac, the coal ash disposal facility in Maljevac, the Bijela shipyard and the solid waste disposal area and red-mud basins from alumina production of KAP. The feasibility study with site investigations, environmental and social impact assessment and basic designs were completed for all four sites in the framework of the project. Remediation measures included: slope and dam stabilization, coverage, containment cells, in-site encapsulation, re-shaping, re-vegetation, drainage and other water management investments, including groundwater management measures, and removal (including export) of hazardous and non-hazardous waste. All selected sites were rehabilitated, excepting the waste and red mud basins of KAP. Total remediation costs were €44.7 million. The project was implemented by the EPA and the ministry in charge of environment.

As at July 2024, there are three ash disposal facilities of the Pljevlja TPP: the first one is active, the second one is inactive but not rehabilitated, and the third one was rehabilitated (Maljevac). Main environmental risks include the contamination of surface water and groundwater through seepage, soil pollution and dust emissions. The risks are aggravated by the location of the site near the city of Pljevlja. Moreover, the rehabilitated ash disposal site (about 18 ha) is still a source of surface water pollution (Vezesnica River) due to the rainfall and drainage water flowing from the facility, which has a high pH (above 11) and sulphates exceeding the limit.

The accumulated red mud deposits that resulted of the activities of the former KAP (see Box 12.1), due to their high alkalinity, cause high mobility of some heavy metals and also cyanide, fluoride and hydrocarbons, which are found in soil and groundwater nearby and may also reach the transboundary Lake Skadar basin. Pollution risks are amplified since these are in zones of seismic risk. Additionally, there are dust emissions from the red mud basins that can heavily affect Podgorica during dry seasons and impact human health. The World Bank project's proposed remediation consisted of draining basin water after treatment, reshaping, covering and stabilizing the impoundment slopes. In time, without adding fresh red mud, the pH gradually decreases to more neutral levels, reducing environmental risks.

Box 12.1: Red mud basins: remediation or revalorization?

The former KAP site is located about 10 km south of Podgorica, between the Morača River and the highway connecting Podgorica with the coastline. The area is part of the Zeta valley, the major plain of Montenegro and a large natural drinking water reservoir. The Morača River flows into Lake Skadar.

Red mud is a by-product from the processing of bauxite in the alumina production, the main input material for the electro-chemical production of aluminium. During production of alumina at the KAP's site, three different mud disposal techniques were used: conventional wet disposal, thickened slurry disposal and disposal as a filter cake. The conventional wet disposal has many inherent draw backs, such as the risk of groundwater pollution due to seepage and potential excessive ingress of rainwater in the basin that can adversely affect the overall water balance and cause instability of the dam walls.

Even after repeated washes, the red mud is still strongly alkaline; the pH of red mud varies from 10 to 13.5. The basic composition of red mud mainly consists of metal oxides (iron, aluminium, sodium, titanium, potassium, magnesium, scandium, niobium, vanadium, and gallium). In addition, a wide range of other metal oxides are present in traces (arsenic, beryllium, beryllium, chromium, copper, lead, mercury, thorium, and uranium).

There are two large red mud basins at the former KAP's site that were not rehabilitated and, therefore, require constant maintenance to prevent deterioration and breaching, which would have severe consequences for the environment and population living nearby. The first basin was not properly protected from seepage, allowing a continuous infiltration of the liquid phase containing hazardous substances into groundwater and soil. The capacity of the first basin was reached before the construction of the second basin was completed, resulting in overflows. Several spills occurred at that time, polluting

²⁰⁰ World Bank (2023a).

soils and groundwater, which became court cases. The second basin had no geomembrane at all to avoid leakages. The dried surfaces of the basins are also source of dust emissions, mainly during the dry season. To remediate this problem, a system of water sprayers was installed, but not properly maintained, thus air pollution with suspended particles remains an issue.

Several scientific studies of this red mud material were performed and data analysed. Among the latest and most comprehensive, is the research conducted within the project “REEBAUX-Prospect of REE Recovery from Bauxite and Bauxite Residue in the Eastern and South-Eastern European Region”. * Some remediation options were proposed. The most common method proposed was the reclamation and remediation process. This procedure is carried out after the stabilization of the basin and the neutralization of the red mud is completed. There is also the possibility of reutilization/exploitation of the red mud because it contains significant amounts of valuable metals, including rare earth elements (CRMs) that have been declared materials of special interest for EU due to increasing demand and declining supply. Since 2011, the red mud basins are privately owned, limiting the Government's action on this issue.

Source: ECE (2021).

Note: * The Project “REEBAUX-Prospect of REE Recovery from Bauxite and Bauxite Residue and the ESEE Region” is financed by the European Institute of Innovation and Technology, the Horizon 2020 EU Framework Programme for research and innovation (2020).

Furthermore, at the former KAP site, there is a solid waste disposal site of 11 ha contains both hazardous and non-hazardous waste. This disposal site has been a substantial source of soil pollution, although disposal practices in recent years have somewhat improved because now waste categories are sorted and stored separately, with hazardous materials stored on concrete surfaces, but still in the open air and exposed to weather conditions. Remediation is costly due to the special nature of the waste, which contains toxic materials that require tailored techniques for containment and the fact that all materials need to be removed, sorted and put in special cells for final disposal.

Soil

Industrial and mining waste is important sources of soil pollution, as this sector generates large volumes of waste, including hazardous waste. Accidental soil pollution due to spills of hazardous chemicals and other substances also poses a risk to the environment and human health. As of April 2024, there is no soil protection law in Montenegro.

Ecosystems and biodiversity

There is no available information about the impact of industrial activities on the biodiversity and ecosystems in Montenegro, although the proximity of several industrial facilities and mines from national parks. Recently, the Brskovo mine project, located in the National Park Biogradska Gora, has caused polemic in Montenegro (see Box.12.2).

Box 12.2: The Brskovo mine project in Mojkovac

Mojkovac is located about 80 km from Podgorica, in the banks of the Tara River and in the area of the National Park Biogradska Gora. Mojkovac has a long history of mining since the 13th century. Lead and zinc mining was restarted in 1976 and terminated in 1991. During the mineral extraction, the environment and local population were severely impacted with the pollution generated by this activity. As a heritage of this period, 20 ha of mine tailings containing heavy metals and hazardous substances were deposited in the centre of the city. Environmental problems arose as the tailings facility was not properly rehabilitated until 2010. Nowadays, it is rehabilitated and serves as a recreational site for the inhabitants.

A SEA was carried out for a new zinc mine project in Mojkovac, the Brskovo mine (Tara Resources). The Brskovo mine would be one of the largest zinc mines in Europe and produce an important raw material for the global energy transition. It would consist of two open pits, a processing plant to produce zinc, lead, and copper concentrates, and a tailings management facility. The results of the SEA occasioned a strong public opposition to the project due to the important environmental impacts that would be generated. Moreover, a ski resort project, located only 5 km from the mine, is pointed out as the priority for the local population instead of the mine. During the EPR mission, discussions on these issues between the Government, the mining company and the public were underway. More recently, according to the Ministry of Energy and Mining, the process of termination of the concession contract with the mining company (Tara Resources) has been initiated.

Sources: Municipality of Mojkovac and www.tararesources.com.

Human health

Human health is impacted by industrial and mining activities which are sources of harmful air emissions, as well as soil and water pollution. As the air emissions from mining and manufacturing industries account for a significant part of particulate matter (PM_{2.5} and PM₁₀) and other harmful air emissions in the country, these activities constitute potential sources of health impacts. Recognized health impacts from these industries include breathing problems, chronic diseases, increased hospitalization and premature mortality. The largest industrial and mining sites are mainly located in Pljevlja, Niksic and Podgorica.

Professional services of health institutions in Pljevlja have been pointing out the effect of the pollution on human health for years, including the increase in the number of respiratory diseases particularly present among children.²⁰¹ In both children and adults, the obtrusive syndrome and asthma are particularly growing. According to the information from the Children's Ward of the Pljevlja General Hospital and the Children and School outpatient sector of the Pljevlja Community Health Centre, the structure of total morbidity is dominated by respiratory infections.

The assessment of direct impacts of such pollution on the population's health is hampered by the lack of adequate data (see Chapter 14).

12.3 Climate change and industry

Greenhouse gas emissions

The economic development of Montenegro until 1991 was characterized by intensive industrial production, so the share of GHG emissions from industry within the total emissions in the early 1990s was about 32.2 per cent. There was a continuous decline in industrial production after this period and in 2015 the share of emissions was 11.0 per cent, and only 10.4 per cent in 2019.²⁰² The mining and metals industry used to be the main industrial branches in Montenegro, with the aluminium and steel production the most prominent branches in the metal industry sector. Other industries include the production of food, beverages, tobacco, textiles, lime, leather products, paper, medications, and rubber and plastic products. In all industrial subsectors, the level of GHG emissions strictly follows the level of production volume during the period 1990–2019, as well as technological improvements in the electrolysis plant of the KAP. The share of GHG emissions from aluminium production out of total emissions from industry has decreased, reaching 9.20 per cent in 2019.²⁰³ Since 2009, due to a significant reduction in the volume of aluminium output, but also due to technological improvements in the electrolysis plant, PFC emissions have dropped. The share of CO₂ emissions from aluminium production within total emissions from the industrial sector is dominant and ranges from 50 per cent to 97 per cent in the 1990–2019 period. Production of steel and lime and the food industry were responsible for the rest of the emissions.

In 2018, emissions of GHG for the IPPU sector was 380.19 Gg CO₂ equivalent²⁰⁴. There were no emissions from the subsectors Mineral products, Chemical industry and Production of halocarbons and SF₆. The estimated CH₄ emissions from the industrial subsectors for the observed period originate from the steel industry. There are no emissions of N₂O occurring from IPPU sector, but all PFC, HFC and SF₆ emissions are from this sector. The source of PFC emissions is the production of aluminium; for SF₆ emissions is electrical equipment and for HFCs is the use of alternative substances, more particularly refrigerators and air conditioners.

Montenegro is committed to decoupling GHG emissions from its economic growth and embark on a low-emission development pathway. The 2021 NDC target of 35 per cent reduction compared to 1990 is ambitious as it aims to secure significant reduction of its GHG emissions while satisfying the country's need for economic development. GHG emissions are expected to considerably reduce with the ongoing modernization of the Pljevlja TPP and the closure of the KAP.

Adaptation measures

²⁰¹ Ministry of Spatial Planning, Urban Planning and State Property (2013).

²⁰² Montenegro(2021c).

²⁰³ Ibid.

²⁰⁴ Ibid.

As at June 2024, in cooperation with UNDP, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development) had started the implementation of the project “Strengthening the capacity of Montenegro in the area of integrating the risks of climate change into planning” for the development of the National Plan for Adaptation to Climate Change, funded by the Green Climate Fund. The project has started in 2021 and covers four sectors: water, health, tourism and agriculture, as the most vulnerable sectors in terms of adaptation, which present intersectoral relations with the industry. The draft National Plan is being prepared.

12.4 Legal, policy and institutional framework

Legal framework

Law on Mining

The Law on Mining regulates all the conditions related to the exploitation of mineral raw materials in the country. Exploitation activities are carried out based on the State Plan, which consists of an exploitation plan from which the content is determined by a government regulation, after carrying out a SEA. Mining works are carried out in accordance with the technical documentation for the execution of mining works, which includes the mining project with solutions for infrastructure, operational safety and protection against dangerous gases, pit fires, explosive coal dust, aggressive mineral dust, ionizing radiation, water intrusion, collective and personal protection of workers, as well as environmental protection measures in accordance with the approved EIA report. In addition, the mining project must have an environmental monitoring plan, as well as a land reclamation plan. The concessionaire shall, during and after the completion of mineral resources exploitation, and no later than one year from the date of completion, rehabilitate the damaged land, according to the land reclamation plan.

Law on Exploration and Production of Hydrocarbons

The Law on Exploration and Production of Hydrocarbons establish provisions for the management of the sector, including measures for determining blocks for potential exploitation after research analysis and SEA are carried out. The concessionaire is obliged to draw up and submit a hydrocarbon development and production programme to the relevant administrative body. This programme should contain, among others, resource, economic, technical, safety and commercial aspects, environmental impacts, as well as methods of transport, de-installation and disposal of the plants after closure. Regarding the environmental protection, the concessionaire is required to implement environmental protection measures during operations with hydrocarbons as well as environmental monitoring to prevent or reduce harmful effects for the environment. Moreover, the concessionaire is responsible for damage compensation due to environmental pollution, such as damages caused on fishing, agriculture or forestry, water supply, as well as other damages incurred during the execution of the production contract.

Law on Innovation Activities

With the adoption of the Law on Innovation Activities (OG 82/20), a legislative framework was established for the introduction of a sustainable and efficient innovation ecosystem in Montenegro. This law regulates the conditions of financing and encouraging innovation activities. It also stipulates that innovative activity, if financed from the funds of state administration bodies, local self-government units or a fund that encourages innovative activity, is done through innovative programmes and projects, in accordance with the priorities set by the strategies and programmes governing this area. The Law is accompanied by three secondary legal acts, namely:

- Rulebook on the Register of Innovative Activities (OG 100/21);
- Rulebook on detailed conditions, procedure for approval and method of using funds for innovative programmes and projects (OG 100/21);
- Rulebook on the criteria for appointing independent experts and the procedure for evaluating innovative programmes and projects (OG 107/21).

Law on the Environment

The Law on the Environment is the legal basis for the transposition of the Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (SEVESO III). In 2016, the adoption of the Rulebook on quantities of hazardous substances per category that determine the degree of risk of Seveso installations (OG 63/16) and the Rulebook on detailed content of the prevention and contingency plan (OG 67/16), marked the full transposition of this Directive. The identification of Seveso installations is in progress. In accordance with the Law, the operators are obliged to submit a notification of the existing Seveso installations, within 1 year from the date of entry into force of this law. Moreover, the Law on the Environment establishes the basis for the introduction of IPPC, PRTR and Eco-Management and Audit Scheme, in the country. It also provides for the protection of natural resources and against the effects of climate change.

Law on Industrial Emissions

The Law on Industrial Emissions regulates measures for the prevention and control of emissions arising from industrial facilities, which may have negative impacts on human health, the environment or material goods and other issues of importance for the integrated prevention and control of environmental pollution. To support the implementation of this law, the then Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development (now Ministry of Ecology, Sustainable Development, and Northern Region Development) prepared 11 guidance documents on the use of BATs and reporting guidelines have been prepared and published on the Ministry's and EPA's website, providing additional support to operators in implementing the highest environmental protection standards.

Law on Pollutant Release and Transfer Register

The Law on Pollutant Release and Transfer Register (OG 27-1/17) is the legal basis for the establishment of a coherent and integrated PRTR system in Montenegro, which defines that the register of environmental pollutants should contain data on sources, type, amounts, method and place of discharge, transfer and disposal of polluting materials and waste into the environment. Montenegro also ratified the Protocol on the Pollutant Release and Transfer in 2017. Polluters are therefore obliged to submit data to the EPA. In addition, the Rulebook on the detailed content and manner of keeping the register of environmental polluters was adopted. The pollutant register has been started by the EPA, which is in charge of its management, but it is not yet fully established.

Law on the Protection against the Negative Effects of Climate Change

The Law on the Protection against the Negative Effects of Climate Change asks for the establishment of a national MRV system to coordinate efforts to mitigate and adapt to climate change. This law charges the ministry in charge of the environment for delivering the National Climate Change Adaptation Plan and coordinating activities on MRV to track mitigation action, including annual reporting on GHG emissions and the loss of removal and climate risks, vulnerabilities and impacts, and its progress towards addressing the gaps in adaptation and mitigation ambition, actions and support (including climate finance). This law also introduces the obligation to prepare a low-carbon development strategy with an action plan, which has not been developed yet.

Law on Chemicals

The Law on Chemicals provides measures related to chemicals safety, harmonized with EU regulations and practice.

Law on Waste Management

The Law on Waste Management regulates industrial and mining wastes in the country (see chapter 9). It has transposed the Directive 2006/21/EC on the management of waste from extractive industries, covering thus the management of waste produced from mining activities.

Law on the Protection and Rescue

The Law on the Protection and Rescue establishes measures to detect and prevent hazards and consequences of technical and technological accidents, chemical contamination, and other disasters that may endanger or threaten the population, material goods and the environment. It also defines the management and coordination of

protection and rescue. There are three levels of protection and rescue management and coordination: a Coordination Team for Protection and Rescue was established in the territory of Montenegro to manage and coordinate protection and rescue; Operational Headquarters for protection and rescue and Municipal Protection and Rescue Team. The Law obliges operators to prepare protection and rescue plans to be approved by the relevant authorities and submit data related to hazardous materials they use, according to the Rulebook on detailed content of the plan of prevention and contingency (OG 67/16).

Law on Efficient Use of Energy

Energy audit in Montenegro is defined by the Law on Efficient Use of Energy. The purpose of this procedure is to determine the state of the building's energy consumption, determine energy efficiency measures and assess the cost-effectiveness of their application. The energy audit of the facility includes the collection of data on the characteristics of the facility that affect energy consumption, as well as the determination of the final energy consumption. The report drawn up after the energy audit contains recommendations for energy management in order to improve energy efficiency.

Policy framework

Industrial Policies

The Industrial Policy for the period 2019–2023 was a strategic document for the development of the competitiveness of the Montenegrin economy with a focus on the industrial sector. It recognized that the real drivers of change and development are companies that, with adequate support, should maximize their potential for growth, development and competitiveness. The Policy acknowledged the circular economy as one of the important directions to strengthen global competitiveness, promote sustainable economic growth and create jobs. Key priorities and objectives included the growth and development of industry, especially in priority sectors, based on efficiency, productivity, innovation and the more efficient use of available resources. To achieve the set priorities, in the long term, industrial development should be oriented towards smart specialization (i.e., innovation-led development). According to the Policy, the main obstacles to the growth of competitiveness included the dominant role of traditional sectors in exports (e.g., basic metals), deindustrialization (small share of industry in GDP), low utilization of scientific research for innovation, different regional patterns of industrial development and insufficient investment in the development of small and medium-sized enterprises.

The Industrial Policy for the period 2024–2028 was adopted in August 2024. The strategic goals are:

- Improving the digital and green transition of the industry;
- Enhancing investments and financing models for long-term competitiveness of the industry;
- Encouraging innovation based on the principles of smart and sustainable industry development;
- Improving access to the EU single market and strengthening regional economic cooperation.

About €960 million are expected to be allocated in the five-year period for the total implementation of the Policy, including allocations from the national budget, public and private sectors, IPA and donor funds.

Innovation Programme 2023–2027

The Innovation Programme 2023–2027 is the continuation of the previous innovation programme for the period 2021–2024. This programme was established to present all relevant programme lines for innovation support in one place, with the intention of making it easier for the innovation community to recognize all available instruments for the entire innovation development cycle, from the idea itself to its commercialization and market entry. Several innovation related projects have been co-financed under the Programme's framework.

Smart Specialization Strategy 2019–2024

The Smart Specialization Strategy (S3) is the national innovation strategy that identifies development priorities for the country. Its main goal is to modernize and increase the competitiveness of the economy and concentrate available research, natural and economic resources on a limited number of priority areas to enable their

accelerated development. The Strategy also aims to build a competitive advantage by linking strengths in research and innovation with demands of the economy, while responding in a coherent manner to the growing opportunities and market development, thus avoiding policy overlapping and fragmentation. Main strategic priorities include energy and sustainable environment, sustainable agriculture and food value chain, sustainable and health tourism and ICT. Its implementation has been done through the Operational Programme for the Implementation of the Smart Specialization Strategy 2021–2024, which also strengthens the links between the S3 and the Industrial Policy.

National Development Strategy for the period up to 2030

The National Development Strategy for the period up to 2030 defines objectives that can be grouped into several priority areas. The main objectives linked to the industrial sector includes the better management of water resources and demand and the improved rational use of energy, increased use from renewable sources, and mitigation of adaptation to climate change.

National Strategy for Adaptation to Climate Change for the period up to 2030

This strategy is crucial for the implementation of the Paris Agreement, contributing to the reduction of GHG emissions from the IPPU sector.

Institutional framework

Ministry of Economic Development

The Ministry, through its Directorate to Improve Competitiveness of the Economy, is responsible for developing and implementing industry related policies, strategies and legislation related to micro, small and medium enterprises. Large enterprises are under the administration of respective sectoral ministries.

Ministry of Science and Technological Development

This ministry is in charge of developing and implementing policies related to technological development and innovation affairs, among others, in order to strengthen knowledge-based economic development. Within the Ministry, there is the Directorate for Smart Specialization that is an organizational unit for the implementation of the S3.

Ministry of Energy and Mining

As at June 2024, the then Ministry of Energy and Mining was responsible for the sectors of energy and mining, including the development of laws, regulations, policies, and project coordination. The Ministry was also involved in energy balance, trade in petroleum products, concession allocation, and oversight of mineral resource exploitation, geological research, and oil and gas production. In July 2024, due to a ministerial reshuffle, this ministry was split into two bodies: the Ministry of Energy and the Ministry of Mines, Oil and Gas.

Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development, and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development) was the main institution responsible for environmental policy, legislation and regulation. Within this ministry, some departments had responsibilities related to the industry and mining sectors. Under the Directorate for Ecology, the Department for Enhancement of the Environment had a division that dealt with pollution control and chemicals management, whereas the Department of Waste Management and Communal Works had a division in charge of waste management, including industrial waste. In addition, the Directorate for Climate Change and Nature Protection had a department dedicated to climate change.

Environmental Protection Agency

The EPA plays a key role on the implementation of environmental legislation related to industry and mining, including monitoring, establishment of reporting systems, issuing of permits and approvals, and keeping the registry of pollutants.

Ministry of the Interior

Through its Department of Emergency Situations and Civil Defence, the Ministry is responsible for organizing the response in case of industrial accidents, including those related to mining tailings. In addition, the Department manages the Operational Communication Centre that provides assistance in the event of an accident.

Innovation Fund

With the establishment of the Innovation Fund of Montenegro in 2021, the implementation framework for innovation and smart specialisation has been significantly strengthened through the provision of funds to encourage innovative activity. The Fund's main goals include to improve innovative entrepreneurship in the country, contribute to a more efficient implementation of the S3, as well as to improve capacity in attracting EU funds. During 2022, its role as an implementation body for programmes supporting the development of innovation entrepreneurship was clearly defined and its capacity was enhanced.

Council for Innovation and Smart Specialisation

The Council is a key advisory body of the Government, which manages innovation activities through the cooperation of state administration bodies, local self-government units, businesses and other entities.

Geological Survey

The Geological Survey main function is to implement geological research programmes and projects of national interest, funded from the state budget. It is organized in four departments: Department of Regional Geology, Mineral Resources and Mineral Resources Concessions; Department of Engineering Geology, Hydrogeology, Geotechnics and Water Concessions; Department of Mining Works and Research Drilling; and Department of Legal, Financial and Human Resources Affairs.

Measures towards greening the industry

Innovation

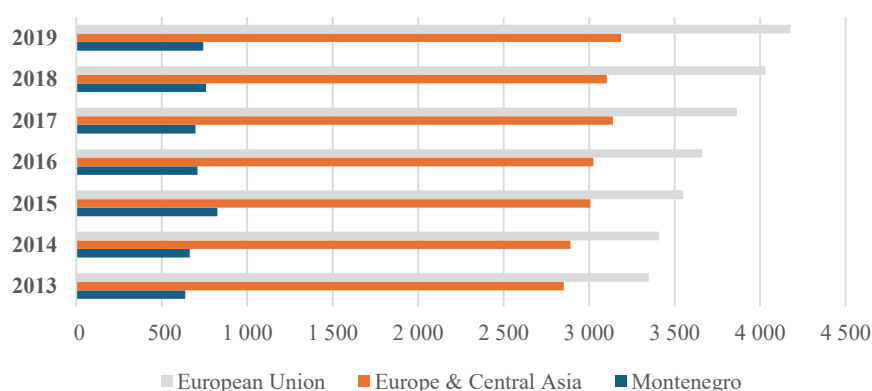
According to the Ministry of Science and Technological Development, the budget for research and innovation in the period 2022–2024 has steadily increased from €7.7 million in 2022 to €9.38 million in 2023, and €11.34 million are estimated in 2024. This is in line with the achievement of the SDG target 9.5: Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending.

The research and development expenditure as a proportion of GDP (SDG indicator 9.5.1) has been rather stable since 2013, representing 0.37 per cent of GDP in 2013 and 0.36 per cent in 2019.²⁰⁵ These expenditures are almost all done by the State. Moreover, compared to the EU, the country's expenditure on research and development is almost 6 times lower. Since 2019, there are no data available on this SDG indicator. The number of researchers per million inhabitants (SDG indicator 9.5.2) slightly increased from 637.65 to 743.38 researchers per million inhabitants in the period 2013–2019.²⁰⁶ Although there is an overall growing trend, the total number of researchers is not significant compared to that of the EU and Europe and Central Asia region (see Figure 12.4).

Figure 12.4: Number of researchers per million inhabitants, 2013–2019

²⁰⁵ Eurostat. UNESCO (Institute for Statistics). SDG Montenegro.

²⁰⁶ Ibid.



Source: SDGs Montenegro; World Bank (DataBank World Development Indicators), 2023.

The proportion of medium and high-tech manufacturing value added in total value added (SDG indicator 9.b.1) has decreased since 2013 from 15.88 per cent in 2013 to 14.86 per cent in 2020,²⁰⁷ suggesting that the development of medium and high-tech industries is at a slow pace. This is not aligned with the SDG target 9.b (Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities), although the recent efforts the country has made to develop its industry.

The Global Innovation Index²⁰⁸ takes the pulse of innovation against a background of an economic and geopolitical environment fraught with uncertainty. In its last edition published in 2023, Global Innovation Index of Montenegro was 75 among a total of 132 economies in the world. Serbia ranked 83, Bosnia and Herzegovina ranked 77 and Germany ranked 8, for comparison.

According to Statistical Office, the share of enterprises with innovation activities in 2018–2020, observed by enterprises size classes, was 56.3 per cent in small enterprises, 54.6 per cent in medium-sized and 72.7 per cent in large enterprises (see Table 12.3). The share of enterprises that had innovation activities in the category of industrial enterprises¹ was 52.8 per cent, while the share of service enterprises was 57.7 per cent. In the same period, 56.2 per cent of enterprises introduced at least one of the mentioned innovative activities, while 43.8 per cent of enterprises stated that they had no innovative activities.

Table 13.3: Innovation activities of enterprises, 2018–2020, percentage

	Enterprises by innovations, size classes and activities	Product innovations (goods or services)
Total	56.2	43.8
Small enterprises	56.3	44.5
Medium enterprises	54.6	41.5
Large enterprises	72.7	36.4
Industrial enterprises	52.8	46.2
Service enterprises	57.7	42.7

Source: Statistical Office, 2022.

Note: Preliminary data.

With the recent establishment of important infrastructure for innovation, the development in this area is expected to accelerate in the next years. New infrastructure includes the Innovation and Entrepreneurship Centre Tehnopolis, which provides infrastructure and support to the operation of startup companies and the development of business based on new ideas and technologies; and the Science and Technology Park of Montenegro, which focuses on the creation of a national technological and development centre that provides support to the improvement of the innovative and entrepreneurial ecosystem through programmes and activities.

Relevant industrial certificates

²⁰⁷ UNIDO (National Accounts Database).

²⁰⁸ WIPO (2023).

In 2022, the country held 82 ISO 14001:2015 (Environmental management systems (EMS)) certificates in 126 sites, which is less than in Serbia (1,921 certificates) and Albania (208 certificates). Many of these certificates are in manufacturing, mining and quarrying industries (e.g. non-metallic mineral products, concrete and cement, basic metal products, among others).

In the same year, the country held 59 ISO 45001:2018 (Occupational health and safety management) certificates in 79 sites, including construction, manufacturing and mining industrial sites. The country had only two ISO 50001:2011&2018 certificates on energy management systems, which is less than in Albania (28 certificates) and Bosnia and Herzegovina (23 certificates).

Industrial accidents prevention

Montenegro is party of the Convention on the Transboundary Effects of Industrial Accidents since 2009 (see Chapter 6) and had no major industrial accidents during the last 10 years. The country has then enacted and revised national laws and regulations related to industrial safety, emergency preparedness and environmental protection to align with the requirements of the Convention. This includes legislation on risk assessment, accident prevention, emergency response planning, and liability for industrial accidents. Montenegro has also established emergency response teams, communication protocols, and coordination mechanisms among relevant authorities, resulting in faster and more coordinated responses to industrial incidents.

Voluntary agreements

Although the extractive industries have consistently contributed to the national income and development, Montenegro has not joined the Extractive Industries Transparency Initiative. The Initiative proposes a transparent and accountable management of the mining sector, which is a requirement to attract domestic and foreign investment, as well as to strengthen civil society oversight.

Corporate and social responsibility

Montenegro has been increasingly recognizing the importance of corporate and social responsibility (CSR) in fostering sustainable development, responsible business practices, and stakeholder engagement. There has been growing awareness among companies about the benefits of CSR, such as enhancing reputation, improving employee morale, and building stronger relationships with communities and customers. Some larger companies in Montenegro have established CSR initiatives, including philanthropic activities, environmental sustainability programs, and efforts to promote social inclusion and economic development in local communities. While there may be industrial companies in Montenegro that engage in CSR activities, the extent to which they report on these activities publicly is less clear. Some companies may include CSR-related information in their annual reports, sustainability reports, or corporate websites as part of their commitment to transparency and stakeholder engagement.

12.5 Assessment, conclusions and recommendations

Assessment

In the review period, the annual GDP growth rate per capita of Montenegro (SDG indicator 8.1.1) has kept above the Europe and Central Asia average GDP per capita growth, except in 2020 due to the COVID 19 crisis. However, the manufacturing value added (constant 2015 \$) as a proportion of GDP (SDG indicator 9.2.1) declined by 0.25 per cent from 2013 to 2022. This negative trend recorded in the manufacturing sector is due to the decrease in production of basic metals, fabricated metal products, beverages, chemical and chemical products, and machinery and equipment.

In order to further develop the competitiveness of the national industry by maximizing its potential growth, the Government has adopted and implemented the Industrial Policy 2019–2023. Nevertheless, the development of a sustainable industrial production on the basis of innovative and green technologies is not yet well developed in the country and further investments to ensure full alignment of the existing industrial plants with BAT are still

lacking. Although the significant mineral potential of the country, the mining sector has no sustainable development strategy.

Since 2013, Montenegro has reduced air pollution from industrial sources, mainly due to the closure of large industrial facilities (e.g., aluminium and steel production plants) but also to the introduction of integrated permits. During the period 2013–2020, CO₂ emissions per unit of manufacturing value added (SDG indicator 9.4.1) have slightly declined while water use efficiency (SDG indicator 6.4.1) by the industrial sector has increased. However, industrial wastewater that is not adequately treated, significantly contributes to water pollution in the country.

Concerning the waste generation by the manufacturing and mining sectors, a significant increase was noted since 2013. With the implementation of the 2024 Law on Waste, significant progress on the management of manufacturing and mining wastes is expected. Due to a project for industrial waste management and clean up, some priority industrial waste sites have been rehabilitated. Even though, some mining tailings and industrial waste disposal sites, such as the red mud basins from aluminium production, still require remediation or reutilization/exploitation, but the facilities' ownership issues are hampering the process.

The research and development expenditure as a proportion of GDP (SDG indicator 9.5.1) has been stable since 2013 around 0.37 per cent of GDP. These are mostly State expenditures. Compared to the EU, the country's expenditure on research and development is almost 6 times lower. Since 2013, the number of researchers per million inhabitants (SDG indicator 9.5.2) slightly augmented, while the proportion of medium and high-tech manufacturing value added in total value added (SDG indicator 9.b.1) has decreased, suggesting that the development of medium and high-tech industries has been slow. Even though the interaction between the industry sectors and scientific research institutions remained weak, the situation has improved in recent years. The Government has adopted the Law on Innovation Activities, the Programme for Innovation 2023–2027 and the Strategy for Smart Specialization 2019–2024. It has also established the Innovation Fund of Montenegro in 2021, which has contributed to the implementation of several innovation projects.

Conclusions and recommendations

Sustainable development of the mining sector

While the industrial sector has a strategic policy document that provides direction for its sustainable development, the mining sector lags as there is no strategy or policy to indicate priority measures for its sustainable development.

Recommendation 12.1:

The Government should develop, adopt and implement a national sustainable mining strategy for the development of the mining sector.

Greening the industry and mining

The introduction of specific measures for greening the country's industry, such as circular and low-carbon economy, is at a slow pace. Many large industrial sites are energy intensive and use outdated technology and equipment. Moreover, remediation of old industrial waste disposal sites and mining tailings is not yet accomplished for all sites.

The two large red mud basins from the past aluminium production in Podgorica were not rehabilitated and, therefore, require constant maintenance to prevent deterioration. An accidental breach would severely impact the environment, including the transboundary Skadar Lake basin, as well as the population living in the area. Due to its high alkalinity, red mud causes high mobility of some heavy metals and other hazardous substances from the basins, which are found in soil and groundwater. Pollution risks are aggravated as these basins are located in a seismic zone. Additionally, they are sources of dust emissions that reach Podgorica, especially during the dry season, and can impact human health. Currently, these red mud basins are privately owned. As a Party to the Convention on Transboundary Effects of Industrial Accidents, Montenegro could explore opportunities under the Convention to support remediation and/or reutilization of the red mud.

Recommendation 12.2:

The Government should:

- (a) *Ensure the modernization of industrial enterprises that still use old technologies and obsolete equipment by shifting to best available techniques or greener technologies;*
- (b) *Reinforce the introduction of the principles of circular and low-carbon economy for developing more resource-efficient industry;*
- (c) *Continue to assess the environmental, health and safety risks of existing mining tailings and industrial waste sites and identify rehabilitation measures with the necessary funds for implementation;*
- (d) *Pursue the enforcement of obligations regarding the remediation of the red mud basins and explore opportunities under the Convention on Transboundary Effects of Industrial Accidents to support their remediation and/or reutilization.*

Green technology and innovation development

With the establishment of the Innovation Fund of Montenegro in 2021, the implementation framework for innovation policy has been significantly enhanced. During 2022, the capacities of the Fund were strengthened, and its role as an implementation body for programmes supporting the development of innovation entrepreneurship was clearly defined. Technology and innovation support centres were also established. However, there is still an insufficient connection between the industrial sector and scientific institutions, as well as low investment in research and development on green technologies.

Recommendation 12.3:

The Government should promote green technologies by:

- (a) *Increasing public research and development expenditures and encouraging the private sector to increase spending on research and development;*
- (b) *Continuing to strengthen the implementation capacity of the Innovation Fund;*
- (c) *Enhancing the collaboration between scientific institutions and industry;*
- (d) *Continuing to develop technology and innovation support centres.*

Chapter 13

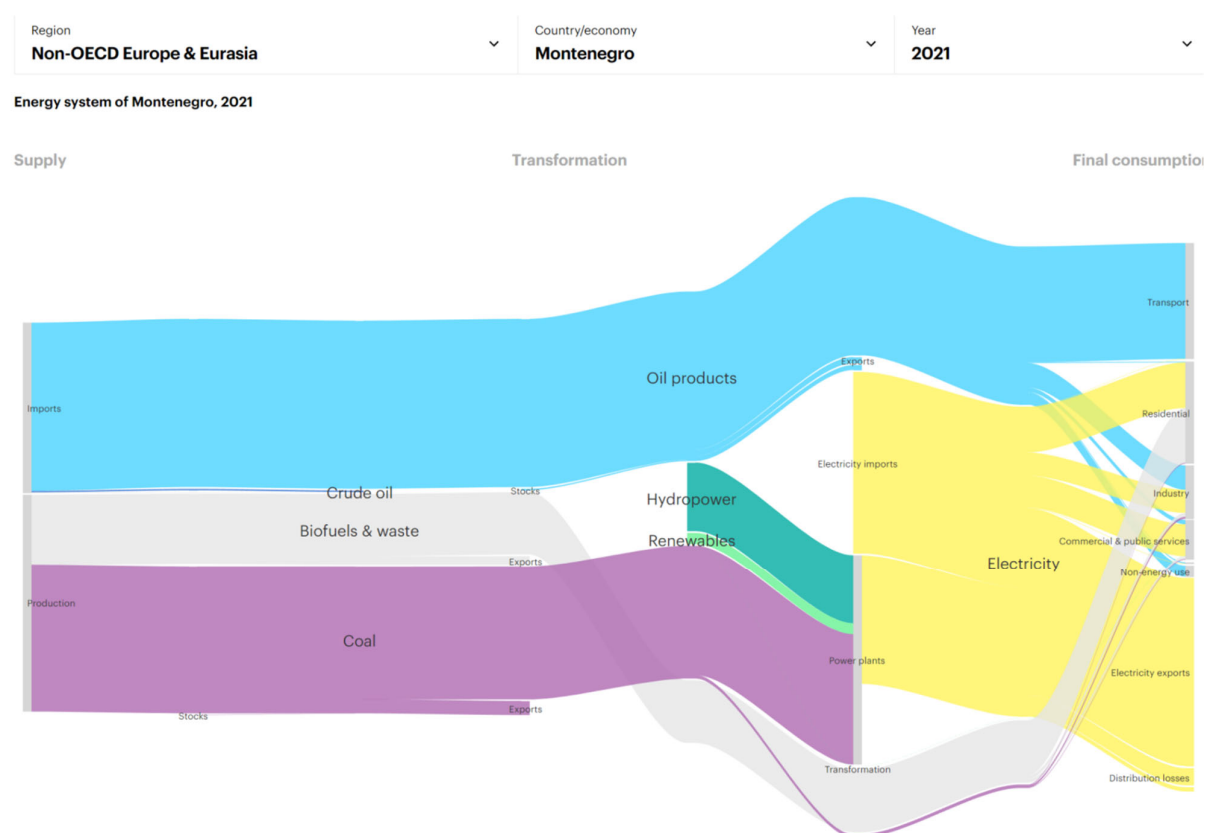
Energy – Air– Health

13.1 Energy and emissions inventory

Montenegro has limited non-renewable energy resources, the most important are coal deposits (see Chapter 13). A large coal mine is used to power the largest coal fired power plant in the north of the country, the Pljevlja TPP. The coal fired TPP is the only plant subject to the Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants and is the subject of much attention in the country to attempt to decrease its impact on air quality and GHG emissions of the country.

Coal represents 46 per cent of total electricity production in Montenegro, and 34 per cent per cent of total primary energy used in Montenegro in 2022²⁰⁹ (see Figure 13.1)

Figure 13.1: Energy flows in Montenegro, 2022



Source: IEA, 2024, unpublished

Montenegro has no consumption of natural gas, and no infrastructure to transport natural gas to end users. Gaseous fuels often come from fossil sources. Despite the lack of a clear policy for coal phase-out, the country considers transition and leapfrog away from coal in low carbon power generation sources using electricity as the main energy vector. A coal phase-out strategy is foreseen under the framework of the draft Climate and Energy Plan.

²⁰⁹ IEA, 2024, unpublished.

For residential energy (heating and cooking), Montenegro relies significantly on biomass (mainly wood) energy, which is a renewable energy if managed appropriately. Nevertheless, wood combustion does create air pollution in the form of airborne particulates. According to the IEA, in 2021, transport (36 per cent) and residential (31 per cent) sectors are responsible for the most significant final total energy consumption in Montenegro.

The Pljevlja TPP emits carbon oxide, sulfur oxide, water vapour, and suspended particles into the atmosphere by burning lignite. The combustion of coal also produces ash and slag. Wind blows ash particles from the landfills, and coal dust is blown around during coal transport and crushing, contributing to air pollution. The TPP also has an indirect impact on air quality due to the cooling tower's emission of water vapour, which contributes to the retention of suspended particles in the lower layers of the atmosphere.

Geographic and climatic characteristics of Pljevlja which is often under fog of smog and smoke in the colder part of the year are not in favour of air pollution dispersion. Thus, during wintertime, TPP emission cumulate with individual heating and coal burning and polluted air stick above the city.

A study performed on air pollution in the urban area of Pljevlja, from 2011 to 2018 using data on the concentration of the PM₁₀ from the station located in the centre of Pljevlja illustrates air pollution exposure for the inhabitants.²¹⁰ Results showed that annual, seasonal and daily mean concentrations of PM₁₀ were above the prescribed limit values, except during summer. Authors highlight the need to take appropriate measures, primarily the introduction of modern exhaust gas treatment technology at Pljevlja TPP and construction of a heating plant that would replace numerous individual (home) fireplaces in Pljevlja. As of April 2024, the Pljevlja TPP is under reconstruction to be upgraded.

The Government, with the support of World Bank, targeted to remediate five priority sites that posed environmental and public health risks: (i) the mine tailings site in Gradac; (ii) the coal ash facility in Pljevlja; (iii) the Bijela shipyard; (iv) the red-mud basins and the solid waste disposal area on the aluminium plant KAP site; and (v) the industrial waste disposal area in Niksic. Remediation actions were conducted to improve the situation and reduce environmental and population health risks at most of the targeted sites. However, no specific data were obtained for the impact on air quality monitoring after, during and before remediation, excepted for the Pljevlja - Maljevac ash landfill, where the daily average of PM₁₀ concentration is considered in the similar status before the remediation (min 9.83 µg/m³ to max 31.3 µg/m³) and after remediation (min 5.69 µg/m³ to max 34.46 µg/m³).

Globally, 1.05 (95 per cent [Confidence Interval: 0.74–1.36]) million deaths were avoidable in 2017 by eliminating fossil fuel combustion (27.3 per cent of the total PM_{2.5} burden), with coal contributing to over half. Other dominant global sources included residential (0.74 [0.52–0.95] million deaths; 19.2 per cent), industrial (0.45 [0.32–0.58] million deaths; 11.7 per cent), and energy (0.39 [0.28–0.51] million deaths; 10.2 per cent) sectors. Results show that regions with large anthropogenic contributions generally had the highest attributable deaths, suggesting substantial health benefits from replacing traditional energy sources.²¹¹

Emissions trends since 2013

Emissions of particulates (PM₁₀, PM_{2.5}) have been stable in the review period, and the dominant category of particulate emissions is residential heating (see Chapter 7). Furthermore, the most notable source of NO_x emissions is road transport and the emissions in this category have been steadily rising since 2013.

Analysing the contribution of sectors showed that PM₁₀ and PM_{2.5} emissions originated mostly from industrial and residential sectors. NO_x emissions are mostly released by energy production and road transport whereas SO_x emissions are mostly generated by energy production.

Fossil fuel (coal, oil, and natural gas) combustion contributes between 29 per cent to 35 per cent of outdoor PM_{2.5} exposures in Southeast European countries. Residential combustion and energy production are the largest contributors to deaths related to air pollution in these countries, resulting in 18,400 deaths in 2019. Agriculture, transport, and industry are also important contributors to the PM_{2.5} disease burden in many Southeast European

²¹⁰ Doderović (2021).

²¹¹ McDuffie (2021).

countries. In Montenegro, 20.5 per cent of PM_{2.5} come from windblown dust and contributes to PM_{2.5} disease burden. This seasonal windblown dust is mainly due to desert dust transported to the region from deserts, such as the Sahara Desert.²¹²

According to data on GHG emissions inventory, while emissions are substantially stable from 2013–2019, in 2018–2019, there has been an increase in emissions, mainly due to the energy sector (see Chapter 6). In Montenegro, the energy sector is the primary source of anthropogenic GHG emissions (74.6 per cent of the total emissions in 2019).

13.2 Air pollution trends and associated health risks

Since 2012, the concentration of PM_{2.5} decreased but remained above the WHO Guidelines (see Chapter 7).²¹³ However, nitrogen dioxide (NO₂) concentration and ozone increased by 5 per cent and 7 per cent respectively and remained under the WHO guidelines. The SDG indicator 11.6.2 on the annual mean levels of fine particulate matter (e.g. PM_{2.5} and PM₁₀) in cities (population weighted) indicates that there has been a moderate reduction of the annual mean levels during the reviewed period (2013–2019) which slightly supports the achievement of the part related to air quality of the SDG target 11.6 (By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management).

Pollutant concentration in the air is used to assess the impact of air pollution on health. The air concentration exceedances with respect to the EU Air quality directive are presented in the chapter on air of this report (see Chapter 7). One of the conclusions of this chapter is that the meeting the health-based guideline values published by the WHO in 2021 remains a major challenge in Montenegro to be tackled during the coming decades. Tighter emission control of the Pljevlja TPP is expected to lower air pollution in the region, while the priority sector for further action is residential heating.

Air pollution is the presence of one or more contaminants in the atmosphere, in quantities and duration that can be injurious to human health. The main pathway of exposure from air pollution is through the respiratory tract. Breathing in these pollutants leads to inflammation, oxidative stress, immunosuppression, and mutagenicity in cells throughout our body, impacting the lungs, heart, brain among other organs and ultimately leading to disease.²¹⁴ Air pollution includes multiple pollutants, such as fine particles, nitrogen oxides, volatile organic compounds, and ozone, and causes acute and chronic health effects.

In 2015, the World Health Assembly adopted a landmark resolution on air quality and health, recognizing air pollution as a risk factor for non-communicable diseases (NCDs), such as ischaemic heart disease, stroke, chronic obstructive pulmonary disease (COPD), asthma and cancer, pneumonia, and cataract (household air pollution only) and the economic toll they take.²¹⁵

There is also suggestive evidence linking air pollution exposure with increased risk for adverse pregnancy outcomes (i.e. low-birth weight, small for gestational age), other cancers, diabetes, cognitive impairment and neurological diseases (see Figure 13.1).²¹⁶

WHO estimates that in 2019, air pollution caused 6.7 million of deaths, of these, almost 85 per cent are attributable to NCDs. Air pollution is estimated to be the second leading cause of NCDs globally after tobacco. Some 37 per cent of outdoor air pollution-related premature deaths were due to ischaemic heart disease and stroke, 18 per cent and 23 per cent of deaths were due to chronic obstructive pulmonary disease and acute lower respiratory infections respectively, and 11 per cent of deaths were due to cancer within the respiratory tract.²¹⁷

In Montenegro, the 2023 Statistical Yearbook dedicated a chapter for health, providing data on health facilities, employed persons and activities for certain types of health services, and data on communicable diseases. The data

²¹² State of Global Air (Air Pollution and Health Impacts in Southeast Europe).

²¹³ WHO (2021).

²¹⁴ WHO (no date a).

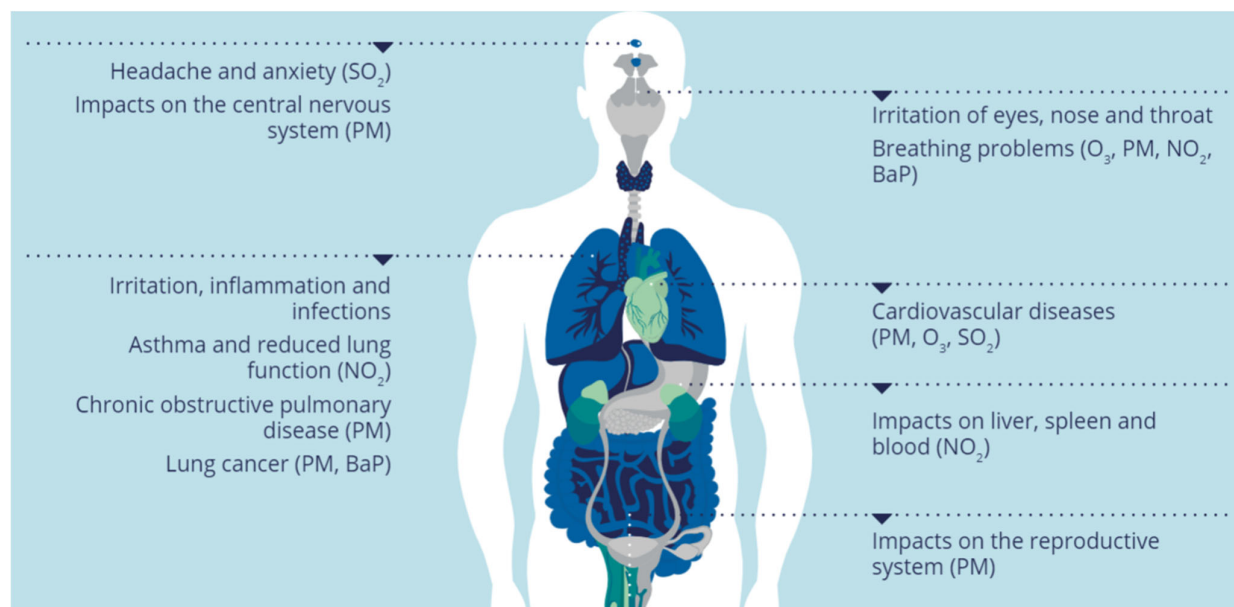
²¹⁵ UNEP (2015).

²¹⁶ WHO (no date a). EEA (2022a).

²¹⁷ WHO (2022).

on communicable diseases are confirmed and provided by the service of epidemiology of the Institute of Public Health according to their reports. Diagnoses by general practitioners and specialists are made according to a special standard list of diseases based on the International Classification of Diseases. However, there are no data on NCDs.

Figure 13.1: Impacts of air pollution on health



Source: EEA (2022a).

Stroke, ischaemic heart diseases and trachea, bronchus, lung cancers are the third first cause of deaths and disability-Adjusted Life Years (DALYs) per 100,000 population of Montenegro for the years 2014 and 2021 (see Tables 13.1 and 13.2). One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition are the sum of the years of life lost (YLLs) to due to premature mortality and the years lived with a disability (YLDs) due to prevalent cases of the disease or health condition in a population.²¹⁸

Table 13.1: Top 10 causes of death, 2014, 2021, per 100,000 population

	2014	2021
Stroke	350.4	239.92
Ischaemic heart disease	268.6	218.20
Trachea, bronchus, lung cancers	52.1	57.14
Cardiomyopathy, myocarditis, endocarditis	47.9	28.88
Alzheimer disease and other dementias	31.1	19.79
Diabetes mellitus	26.8	22.00
Kidney diseases	22.6	23.5
Self-harm	20.6	19.79
Breast cancer	20.4	25.11
Colon and rectum cancers	16.9	27.34

Source: WHO (no date b).

Table 13.2: Top 10 causes of DALY, 2014, 2021, per 100,000 population

	2014	2021
Stroke	5 844.5	3 786.4
Ischaemic heart disease	4 911.8	3 731.9

²¹⁸ WHO (no date c).

Trachea, bronchus, lung cancers	1 402.4	1 414.9
Cardiomyopathy, myocarditis, endocarditis	856.7	553.1
Alzheimer disease and other dementias		474.1
Diabetes mellitus	1 384.1	1 267.8
Falls	816.4	711.9
Self-harm	768.1	768.6
Road Injury	792.3	662.8
Back and Neck pain	835.3	2115.7
Breast cancer	605.5	640.9

Source: WHO (no date b).

In Montenegro, air pollution is in the top 10 of the major risks contributing to years of life lost due to ill-health, disability or early death (DALYs per 100,000 population) and is the first environmental risk of the list. It was at rank 5 in 2011 and rank 6 in 2021. Tobacco is the second major risk contributing to DALYs (per 100,000 population) for years 2011 and 2021 (see Table 13.3)

Table 13.3: Ranking of top 10 risks contributing DALYs, 2011, 2021, per 100,000

Risks	Risk	Change in DALYs per 100,000, 2011–2021		
		2011	2021	
Metabolic	High blood pressure	1	1	296.7
Behavioral	Tobacco	2	2	-403.9
Behavioral	Dietary risks	3	3	168
Metabolic	High body-mass index	4	4	433.5
Metabolic	High fasting plasma glucose	6	5	514.1
Environmental/occupational	Air pollution	5	6	-654.2
Metabolic	High LDL	7	7	18
Metabolic	Kidney dysfunction	8	8	131.5
Behavioral	High alcohol use	9	9	-15.3
Environmental/occupational	Non-optimal temperature	10	10	87.4

Source: Global Burden of Diseases, Injuries, and Risk Factors Study (2021).

Notes: All ages combined.

In 2013, outdoor air pollution and particulate matter were classified as carcinogenic by WHO's International Agency for Research on Cancer. According to the World Cancer Research Fund International, in 2020, in Montenegro, the incidence of lung cancer was 443 cases representing 39.7 cases for 100,000 population. In 2020, Montenegro had the rank 6 of the highest rate of lung cancer worldwide. About 370 deaths attributed to lung cancer were registered in 2020 in Montenegro representing a mortality rate of 31.6 deaths per 100,000 population. The International Agency for Research on Cancer considers that outdoor air pollution, PM in outdoor air pollution, and indoor air pollution from household burning of coal and biomass are linked to lung cancer.

Indoor and outdoor air quality is a part of cancer determinants. According to the Global Cancer Observatory (GCO), 2,739 new cases of cancer (1,415 new cases for males and 1,324 new cases for women) were estimated in Montenegro in 2022, representing an age standardised incidence rate of 238 cases per 100,000 population. The top three leading cancers ranked by cases were lung (15.3 per cent of total cancer cases), breast (15.2 per cent) and colorectum (9.5 per cent) for total population and were lung (21.9 per cent), prostate (15.5 per cent) and colorectum (11.2 per cent) for men and breast (31.4 per cent), lung (8.2 per cent) and colorectum (7.7 per cent) for women. In 2022, 1,535 cancer deaths were registered representing an age standardised mortality rate of 121.4 deaths per 100,000 population.²¹⁹

Health effects of different pollutants

Among air pollutants with the most serious impacts on human health are particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide and ground-level ozone.

²¹⁹ GCO (2022).

In 2010, air pollution in Montenegro was related to 973 deaths [702–1,370] and a loss of 20,800 DALYs. According to the Health Effects Institute (HEI) and the Institute for Health Metrics and Evaluation (IHME), the number of estimated deaths related to air pollution showed a tendency of slow decrease and the estimates were under 900 deaths after 2017. In 2021 the number of deaths attributable to air pollution was estimated around 827 deaths [576–1,380] and a DALY was 16,100 years.²²⁰

For Montenegro, 28 per cent of death of COPD, 21 per cent of deaths of ischemic heart diseases, 18 per cent of deaths of lower respiratory infections (LRI), 18 per cent of deaths of diabetes, 16 per cent of ischemic stroke, 15 per cent of deaths of lung cancer and 13 per cent of deaths for neonatal outcomes are attributable to air pollution.²²¹

In Montenegro, the death rate (age standardized) linked to total air pollution is estimated to be 119 [89.8–151] per 100,000 population.²²² The major contributor to the mortality related to air pollution is particulate matter with a death rate attributable to PM_{2.5} reaching 91.0 [69.2–114] per 100,000 population (see Table 13.4).

According to HEI and IHME, 19 per cent of deaths due to air pollution are in children under five.²²³ According to UNICEF, proportion of infant mortality (latest results in 2012) attributable to particulate air pollution was in the range of 3–9 per cent in Podgorica, 11–31 per cent in Pljevlja and 6–19 per cent in Niksic. The prevalence of bronchitis in children attributable to air pollution exceeding WHO guidelines was in the range of 0–21 per cent in Podgorica, 0–55 per cent in Pljevlja and 0–38 per cent in Niksic. The incidence of asthmatic symptoms among children attributable to air pollution was in the range of 1–7 per cent in Podgorica, 4–25 per cent in Pljevlja and 2–14 per cent in Niksic.²²⁴

Table 13.4: Death rate (age-standardized* with 95 per cent UI) linked to total air pollution, PM_{2.5}, ozone, and household air pollution from solid fuels in 2019**

	Total Air Pollution	Ambient PM _{2.5}	Ozone	Household Air Pollution
Bulgaria	159 (121–203)	131 (102–164)	2.22 (0.93–3.82)	26.1 (7.92–60.3)
North Macedonia	153 (120–193)	128 (98.3–162)	0.93 (0.35–1.71)	24.8 (8.61–51.1)
Bosnia and Herzegovina	147 (114–189)	110 (81.0–140)	2.67 (1.15–4.47)	34.8 (13.7–70.9)
Serbia	145 (114–185)	121 (94.1–152)	1.28 (0.49–2.26)	22.5 (7.36–51.6)
Montenegro	119 (89.8–151)	91.0 (69.2–114)	1.08 (0.47–1.78)	27.1 (8.75–58.2)
Romania	89.1 (66.8–117)	75.8 (58.7–96.2)	0.76 (0.27–1.46)	12.7 (3.91–31.2)
Albania	83.7 (60.3–113)	56.3 (40.0–77.3)	0.88 (0.33–1.63)	26.6 (10.8–49.6)
Croatia	79.8 (60.0–102)	72.3 (54.4–92.4)	4.04 (1.78–6.73)	3.98 (1.07–10.5)
Slovenia	45.3 (33.0–61.7)	39.7 (28.9–53.1)	3.05 (1.35–5.19)	2.98 (0.71–8.05)
Global	86.2 (76.3–96.8)	53.5 (44.6–62.0)	4.72 (2.26–7.29)	29.9 (21.1–40.3)

Source: HEI & IHME (2024).

Montenegro reported on SDG target 3.9 (By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination) and indicator 3.9.1 (Mortality rate attributed to household and ambient air pollution) that in 2019, expressed per 100,000 population, the age-standardized mortality rate attributed to ambient air pollution was 60, to household air pollution 66 and to household and ambient air pollution was 115. Also, the crude death rate in 2019 attributed to ambient air pollution was 77, to household and ambient air pollution was 140 and to household air pollution was 71. Not enough data are available to assess the progress of the country in achieving the part on air quality for the SDG target 3.9.

Estimates of the health impacts of exposure to PM, NO₂ and ozone in terms of morbidity and premature deaths

²²⁰ HEI & IHME (2024). IHME (2024).

²²¹ Ibid.

²²² HEI & IHME (2024).

²²³ Ibid.

²²⁴ UNICEF (2021).

Levels of air pollutants above EU standards are seen across Europe and air pollution remains a major health concern for the populations. In 2021, Central Eastern Europe and Italy reported the highest concentrations of particulate matter primarily due to the burning of solid fuels for domestic heating and their use in industry.

PM_{2.5}

Fine particulate matter is one of the air pollutants with the highest impact on health in terms of premature death and diseases. To protect population health, WHO updated its health-based guidelines for air quality and recommended a maximum concentration of 5 µg/m³ for fine particulate matter for long term exposure. In 2008, the EU set an annual limit value for fine particulate matter of 25 µg/m³ under policies to deliver clean air in Europe.

According to the SDG indicator 11.6.2 (Annual mean levels of fine particulate matter (e.g. PM_{2.5} and PM₁₀) in cities (population weighted)), in the period 2012–2023, PM_{2.5} annual averages are above the WHO guidelines for PM_{2.5} (see Figure 7.1).

For the year 2016, annual concentration of PM_{2.5} in Montenegro (19 mg/m³) exceeded the WHO air guideline value for PM_{2.5} (10 mg/m³). It was estimated that air pollution caused 20 per cent of deaths from stroke and ischaemic heart diseases.²²⁵ In Montenegro, 29 per cent of outdoor PM_{2.5} comes from fossil fuel combustion.²²⁶

The number of deaths attributable to PM_{2.5} in Montenegro was estimated at 731 deaths for the year 2010, this number increased regularly and reached 793 deaths in 2016 (127 Age-standardized Deaths/100,000) and then slightly decreased. It was estimated that 675 deaths (109 Age-standardized Deaths/100,000) were attributable to PM_{2.5} for the year 2021. For this same year 2021, the number of DALYs Attributable to PM_{2.5} was estimated at 13,200 (2140 Age-standardized DALYs/100,000).²²⁷

Ambient PM_{2.5} pollution is involved in 11 per cent of deaths of neonatal outcomes, 16 per cent of deaths of COPD, 17 per cent of deaths of ischemic heart diseases, 15 per cent of deaths related to diabetes, 13 per cent of deaths of ischemic stroke, 13 per cent of deaths of lung cancer and 16 per cent of deaths of LRI.²²⁸

In 2020, in Montenegro, the population-weighted mean concentration of PM_{2.5} was 17.4 µg/m³, this value reflects the exposure evaluated for the population. According to the evaluation, 920 premature deaths, 9,500 YLLs and 1,531 YLLs per 100,000 inhabitants were attributable to exposure to PM_{2.5} above the 2021 WHO AQ guideline level of 5 µg/m³. In 2015, the population-weighted concentration of PM_{2.5} was 18.5 µg/m³ which resulted in 640 premature deaths and 1,173 years of life lost per 100,000 inhabitants. (see Tables 13.5 and 13.6). Compared to 2019 a slight increase (+ 2 per cent) of the number of premature deaths was observed in 2020, the same tendency (+3 per cent) was also observed for EU27. It has to be noticed the effect of COVID19 pandemic for the year 2020, which has affected global death rate and air pollutants emissions and could generate a bias on the calculation and comparisons depending on the model used.

In 2019, the burden due to morbidity effects of asthma in children (< 15 years old) resulting from the exposure to PM_{2.5} represented 56.6 YLDs per 100,000 children (< 15 years old) [21.9–82 at confidence interval 95 per cent] meaning 86.6 years of healthy life lost to disability. The lung cancer diseases burden (adults > 25 years old) attributable to PM_{2.5} exposure was 2.5 YLDs per 100,000 adults > 25 years old) [21.9–82 at confidence interval 95 per cent] (see Table 13.5)²²⁹.

NO₂

Nitrogen dioxide is a pollutant generated mainly through the burning of fuels in vehicles, power plants, and industrial facilities. NO₂ and other nitrogen oxides also contribute to the formation of other harmful pollutants such as ozone and PM_{2.5}. NO₂ irritates the airways. It is linked with more frequent and severe asthma symptoms

²²⁵ WHO (Health and environment scorecard – Montenegro).

²²⁶ State of Global Air (Montenegro).

²²⁷ Ibid.

²²⁸ Ibid.

²²⁹ Kienzler (2022).

and may increase a child's likelihood of developing asthma. NO₂ exposure may also impair lung development in children, intensify allergies, and make people more susceptible to respiratory infections.²³⁰

In Montenegro, the population-weighted mean concentration of NO₂ was 13.7 µg/m³ in 2020 when it was 16.4 µg/m³ in 2015 (see Table 14.6). Also, 90 premature deaths, 950 YLLs and 153 YLLs per 100,000 inhabitants were attributable to exposure to NO₂ above the 2021 WHO AQ guideline level of 10 µg/m³.

Table 13.5: Asthma burden (morbidity) attributable to PM_{2.5} for children <15 years, 2019

	PAF (a)			YLDs(a)			YLDs/105 inhabitants <15 years (a)		
	Mean	Low	High	Mean	Low	High	Mean	Low	High
PM _{2.5}	0.32	0.124	0.463	63	25	92	56.6	21.9	82
NO ₂	0.087	0.054	0.12	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
COPD disease burden (morbidity) attributable to PM _{2.5} for adults ≥25 years									
PM _{2.5}	0.335	0.143	0.477	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Ischemic Heart Disease (adults ≥25 years) burden (morbidity) attributable to PM _{2.5} for adults ≥25 years									
PM _{2.5}	0.052	0	0.222	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Lung Cancer (adults ≥25 years) disease burden (morbidity) attributable to PM _{2.5} for adults ≥25 years									
PM _{2.5}	0.274	0.122	0.413	11	<10	16	2.5	1.1	3.8
Stroke (adults ≥25 years) Stroke disease burden (morbidity) attributable to PM _{2.5} for adults ≥25 years									
PM _{2.5}	0.222	0.026	0.389	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
NO ₂	0.044	0.023	0.064						
Diabetes Mellitus (adults ≥25 years) disease burden (morbidity) attributable to PM _{2.5} for adults ≥25 years									
PM _{2.5}	0.108	0.063	0.15	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
NO ₂	0.044	0	0.087	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.

Source Kienzler (2022).

Notes: Overall, no morbidity burden could be modelled for specific health outcomes due to missing input data, e.g. on population and exposure data but mainly due to patchy health data. Thus, the current estimates for the risk-outcome pairs sometimes differed with respect to country coverage. Using the CI allows to present a most likely lowest and highest estimates of the disease burden resulting from the exposure to the selected air pollutants. PAF: Population attributable fraction. (a): 95 % CI: low, high.

Ozone

Ground-level ozone comes from pollution emitted from power plants, industries and vehicles. It has a harmful effect on health, especially on hot sunny days when ozone reaches high concentration in the air. Children, people with asthma, elderly people, outdoor workers are the most fragile. Ozone exposure can cause coughing, breathing difficulties, aggravation of lung diseases such as asthma, emphysema and chronic bronchitis.

In 2020 in Montenegro, 50 premature deaths, 560 YLLs and 90 YLL per 100,000 inhabitants were linked to acute exposure to O₃ above 70 µg/m³ (see Table 13.7).

Montenegro is a part of the countries with the highest rates of YLL per 100,000 inhabitants attributable to exposure to O₃ concentrations above 70 µg/m³. The countries with the highest rates of YLL per 100,000 inhabitants were Albania, Montenegro, Greece, Bosnia and Herzegovina and North Macedonia, in decreasing rank.²³¹ While the overall average number of ozone related deaths in southeast Europe decreased by 31 per cent between 2010 to 2019, a large increase in number of ozone related deaths (29 per cent) was observed in Montenegro.

²³⁰ State of Global Air (Nitrogen Dioxide (NO₂)).

²³¹ State of Global Air (Montenegro).

Table 13.6: Premature deaths attributable to PM_{2.5}, NO₂ and O₃ exposure in Montenegro

	PM _{2.5}		NO ₂		O ₃	
	Annual mean (e)	Premature deaths (a)	Annual mean (e)	Premature deaths (a)	Annual mean (e)	Premature deaths (a)
2015	18.5	640	16.4	20	6790	30
2016	20.3	630	11.9	<1	5269	20
2018	20.5	640	15	10	5630	30
2019		900		10		40
2020	17.4	920	13.7	90	4338	50

Sources: 2016 data: www.eea.europa.eu/publications/air-quality-in-europe-2019. 2018 data: www.eea.europa.eu/publications/air-quality-in-europe-2020-report. 2019 data: www.eea.europa.eu/publications/air-quality-in-europe-2021/health-impacts-of-air-pollution. 2020 data: www.eea.europa.eu/publications/air-quality-in-europe-2022/health-impacts-of-air-pollution-table2.

Notes: Population 622,000. Total country population, population-weighted mean concentrations and the estimated number of attributable premature deaths by country in 2020.

(a) For PM_{2.5}, calculations have been made using a counterfactual concentration (C0) of 0 µg/m³, as in previous years and a C0 of 2.5 µg/m³ to consider the estimated European background concentration. For NO₂, calculations have been made using C0 values of 20 and 10 µg/m³.

(e) The annual mean (in µg/m³ expressed as population-weighted concentration, is obtained according to the methodology described by the Technical Paper 2017/8 of the European Topic Centre on Air pollution and Climate change mitigation and not only from monitoring stations.

Table 13.7: Years of life lost attributable to PM_{2.5}, NO₂ and O₃ exposure in Montenegro

	PM _{2.5}		NO ₂		O ₃	
	YLL	YLL/100 000 inhabitants	YLL	YLL/100 000 inhabitants	YLL	YLL/100 000 inhabitants
2015	7 300	1 173	260	42	410	66
2016	7 400	1 189	<5	<1	300	48
2018	8 600	1 382	110	18	360	58
2019	9 700	1 566	140	23	500	74
2020	9 500	1 531	950	153	560	90

Sources: 2016 data: www.eea.europa.eu/publications/air-quality-in-europe-2019. 2018 data: www.eea.europa.eu/publications/air-quality-in-europe-2020-report. 2019 data: www.eea.europa.eu/publications/air-quality-in-europe-2021/health-impacts-of-air-pollution. 2020 data: www.eea.europa.eu/publications/air-quality-in-europe-2022/health-impacts-of-air-pollution-table2.

Note: Population 622,000. Total country population, population-weighted mean concentrations and the estimated number of attributable premature deaths by country in 2020.

(a) For PM_{2.5}, calculations have been made using a counterfactual concentration (C0) of 0 µg/m³, as in previous years and a C0 of 2.5 µg/m³ to take into account the estimated European background concentration. For NO₂, calculations have been made using C0 values of 20 and 10 µg/m³.

(e) The annual mean (in µg/m³ expressed as population-weighted concentration, is obtained according to the methodology described by the Technical Paper 2017/8 of the European Topic Centre on Air pollution and Climate change mitigation and not only from monitoring stations.

WHO, in collaboration with relevant national authorities, performed a health impact assessment based on the data from the national air quality monitoring network for major cities of Montenegro, including Podgorica, Pljevlja and Niksic (see Box 13.1).

Box 13.1: Assessment of health impact assessment in Montenegro

A health impact assessment was carried out in Montenegro based on concentrations of PM₁₀, PM_{2.5}, NO₂, SO₂ and ozone for the period 2009–2014. According to the results 2010–2012, the exposure of Montenegro population to PM_{2.5} contributed each year to 70.7 premature deaths per 100,000 population in Podgorica, 439.9 premature deaths per 100,000 population in Pljevlja and 202.3 premature deaths per 100,000 population for Niksic. Health of the population of Pljevlja appeared more affected by PM_{2.5} pollution compared to the two other cities. The presence of the power plant, mining related activities and the geographical configuration of the city contribute to the air pollution in Pljevlja.

Results showed that for the three cities the WHO air quality guidelines level for PM_{2.5} and PM₁₀ were exceeded in all cities. For the three cities, results demonstrate a seasonal variation with the highest PM and SO₂ concentrations in winter seasons. Days with SO₂ concentrations exceeding daily mean of 20 mg/m³ were limited in Podgorica, Niksic and Bar while there were much more exceeding concentrations in Pljevlja. These seasonal pick of pollutants concentrations are attributed to coal combustion by the TPP in Pljevlja, communal and industrial boilers as well as households combined with weather conditions.

13.3 Indoor air pollution

In Montenegro, there are no data on indoor air pollution. Indoor air pollution concerns the interior space of homes and workplaces because certain materials and human activities emit pollutants in enclosed spaces. Around 2.3 billion people worldwide (around a third of the global population) cook using open fires or inefficient stoves fuelled by kerosene, biomass (wood, animal dung and crop waste) and coal, which generates harmful household air pollution. Household air pollution was responsible for an estimated 3.2 million deaths per year in 2020, including over 237,000 deaths of children under the age of 5.²³²

In 2019, 39 per cent of population was relying on solid fuels for cooking in the country. This proportion is almost the same as Bosnia and Herzegovina (38 per cent) and higher compared to other countries in Southeastern Europe, such as Albania (29 per cent), North Macedonia (27.2 per cent) and EU (2.6 per cent).²³³

The death rate (age-standardized) linked to household air pollution is estimated at 27.1 per 100,000 population in Montenegro (see Table 13.4). About 4 per cent of death of COPD, 3 per cent of deaths of ischemic heart diseases, 3 per cent of deaths of LRI, 3 per cent of deaths of diabetes, 3 per cent of ischemic stroke, 2 per cent of deaths of lung cancer are attributable to household air pollution from solid fuel²³⁴.

Indoor air quality has not been considering by national policies of Montenegro. However, some specific projects deal with indoor air quality in schools (UNICEF) and radon exposure in schools and at home.

A project conducted by the Ministry of Health, Ministry of the Interior and UNICEF will give the first data in the end 2024. This study was performed in the north of Montenegro in 15 schools of seven municipalities, using different heating modes to see the impact on indoor air quality and children exposure. This project involves kids in the air quality measurements performed in the classroom and information are delivered on air quality and good practices such as ventilation and regular aeration of the rooms.

Air quality at workplace

Enterprises have agreements with medical centres to realise medical check of the workers every year. Until 2015, Montenegro had an agreement with a medical institute in Belgrade, Serbia, for managing the worker diseases database. As at April 2024, no database on worker diseases registration was available. If requesting by the risk assessment of the enterprise, measurement of air quality must be controlled by an accredited laboratory requested by the enterprise. Results of the analysis must be sent to the inspectorate body. In case of concentration above recommended limit value, a medical check of the worker has to be realised. However, no available national statistics related to air quality at workplace and occupational health statistics in relation is available.

Radon

Radon is a naturally occurring radioactive gas which may be found in high concentrations in indoor environments, such as homes, public buildings and workplaces. Radon is one of the leading causes of lung cancer and is estimated to cause between 3 per cent to 14 per cent of all lung cancers in a country.²³⁵

²³² WHO (2023).

²³³ HEI (2022).

²³⁴ State of Global Air (Montenegro).

²³⁵ WHO (2023a).

In Montenegro, according to 2019 data, it is estimated that 3 out of 100,000 people die from residential radon every year.²³⁶

Asbestos

Asbestos in material is prohibited by the Law on the Environment since 2016. There is no asbestos inventory available in Montenegro and no regulation dealing with specific measures to prevent asbestos exposure. However, as at July 2024, a national profile of exposure to the asbestos (imports, industry, waste) is in development. The objective of the profile is to make a diagnostic and formulate recommendations and regulation propositions.

Regarding exposure to asbestos, three new cases of mesothelioma and 2 deaths of mesothelioma were registered in 2022.²³⁷

13.4 Monetary valuation of environmental impact on human health

Economic value of premature deaths attributable to PM pollution exceeding WHO guideline levels was estimated in 2012–2014 to be \$367 million each year for the three cities Podgorica, Pljevlja and Niksic. Costs of health services or costs related to the restricted activity or workdays lost were not included in this estimated cost.

13.5 Synergies with climate change

Montenegro's has a climate policy that is expected to bring many benefits beyond compliance. Adaptation measures strengthen the resilience of economies and communities to environmental hazards that can increase significantly in the future. Improving resilience, especially in vulnerable communities, reduces risks and improves social and development outcomes. Mitigation measures, while meeting climate commitments, contribute to better air quality and health outcomes, open economic opportunities, and improve the security and flexibility of the energy system. Implementing adaptation and mitigation measures aligns Montenegro more closely with the EU, thus strengthening the application for the accession to the EU.

The third BUR pictures the trend of GHG emissions from 1990–2019. While emissions are substantially stable from 2013–2019, in 2018–2019, there has been an increase in emissions, mainly due to the energy sector. In 2019, CO₂ emissions constituted 73.7 per cent of GHG emissions, while CH₄ reached 16.7 per cent and N₂O only 1.7 per cent.

CO₂ from fossil energy is adding carbon to the atmosphere, while CO₂ from biomass has a more balanced equation with carbon sequestration (as tree grows in the case of wood) playing an important role to mitigate carbon concentration in the atmosphere. Table 13.8 shows the contribution of different energy sources to air pollution and climate, showing the path to the most desirable energy sources to improve both air pollution and climate.

Table 13.8: Contribution of various energy sources on air pollution, climate and energy storage capacity

		Air pollution	Climate	Energy storage capacity
	Coal	---	---	+++
Fossil	Natural gas	--	--	+++
	Oil	--	--	+++
Biomass	Biomass	--	o	+++
Hydro	Hydro	+++	+++	+++
Solar	Solar	+++	+++	--
Wind	Wind	+++	+++	--[1]
Nuclear	Nuclear	+++	+++	+++

Note: [1] Ministry of Capital Investments (2023).

Energy systems and transport infrastructures resilient to climate change provide a robust way to limit future impacts of climate change by adapting to extreme weather events. Roads or rail lines are not designed or adapted against sea immersion or landslides, which not ensure continuous access to vital services. Electrical networks are

²³⁶ WHO (Health and environment scorecard – Montenegro).

²³⁷ GCO (2022).

not buried, which does not guarantee continuous power supply during extreme weather events. Even though some energy sources, such as wind and solar, offer low impact on air pollution and climate, they intermittently generate energy, which might cause supply disruption if not managed properly. Demand management and awareness of energy efficiency measures are not widely used in the country to allow a better the integration of renewable energy sources.

According to the Third National Communication, “there is no reliable data on the impact of climate change on human health, as this data has not been integrated with compulsory health records”. However, climate change is increasingly linked with health issues. A recent study estimates that the number of deaths caused by climate change can rise between 5 and 15 per cent in different scenarios by 2050 and 2100 (see Chapter 6).

The Study on Climate Change in the Western Balkans Region²³⁸ outlines that the protection of human health and safety are amongst the selected top priorities at regional level. According to this study, the most important changes when it comes to climate change impacts on the health sector of Balkan countries are:

- Increase in frequency and intensity of heat waves,
- Highly probable drinking water quality reduction,
- Highly probable wider spreading and intrusion of new vector-borne diseases.

Furthermore, the extent to which the national health system is prepared for and has the capacity to manage changes in hazards, exposure, and susceptibility plays a crucial role in protecting and promoting the population’s health and well-being amid climate change challenges. However, the country’s data system on the climate impacts on health is not enough developed nor this information is disseminated and used for decision-making. To improve the situation, the Ministries of Health of the Western Balkan countries developed a joint action Roadmap for Health and Wellbeing in the Western Balkans (2021–2025).

13.6 Synergies with energy efficiency

Improving energy efficiency allows to lower energy needs for any given service (i.e., heating, mobility). There are numerous ways to improve energy efficiency in all sectors of the economic, such as introducing thermal insulation of buildings, improving fuel standards for road vehicles and shifting to low consumption devices and appliances, among others.

Energy efficiency policies in Montenegro seems to focus on the building/housing sector. Thanks to the efforts held in 2018 by the Global Fuel Economy Initiative (GFEI) to support Montenegro in deploying fuel economy policies for the transport sector, fuel economy labels have been established in Montenegro.²³⁹ Still a lot can be done to improve energy efficiency in the country.²⁴⁰ Further tracking of energy efficiency indicators might be a relevant approach given the co-benefits for air pollution and climate.

Shifting to modern technologies can also improve energy efficiency and its co-benefits. Electrification of energy use leads to improvements of energy efficiency, for example in household heating by using heat pumps, and by electrifying transportation modes thanks to the higher efficiency of electric motors versus internal combustion engines.

The proportion of the population with primary reliance on clean fuels and technology slightly increased from 61.9 per cent in 2013 to 62.6 per cent in 2022 (SDG indicator 7.1.2 of SDG target 7.1 (By 2030, ensure universal access to affordable, reliable and modern energy services). The proportion of urban population with primary reliance on clean fuels and technology is higher than the proportion of rural population (see Table 13.9). However, according to the 2023 World Energy Balances of IEA, the estimated renewable energy share in the total final energy consumption decreased from 49.34 per cent in 2013 to 39.64 per cent in 2021, indicating that it will be difficult to Montenegro to achieve SDG target 7.2 (By 2030, increase substantially the share of renewable energy in the global energy mix).

²³⁸ Study on Climate Change in the Western Balkans Region (2020)

²³⁹ GFEI (2018).

²⁴⁰ Energy Charter (2019).

Table 13.9: Population with primary reliance on clean fuels and technology, 2013–2022, percentage

	Clean fuels and technologies	Clean fuels and technologies for cooking	Clean fuels and technologies for heating	Clean fuels and technologies for lighting	Clean fuels and technologies for cooking, heating and lighting	Rural	Urban	All areas
2013	73					41.1	73	61.9
2014	73					41.2	72.3	61.8
2015	42					41.4	72.2	61.4
2016	72					41.7	71.6	61.6
2017	62					42.3	71.6	61.6
2018	42	63.8	29.7	99.6	28	42.7	71.2	61.75
2019	71					43	71.2	61.85
2020	62					43.8	71.3	62.1
2021	62					44	71.1	62.3
2022						44.7	71.5	62.6

Source: Montenegro data for Sustainable Development Goal indicators, 2024.

13.7 Legal, policy and institutional framework related to the Nexus: energy-air pollution-health protection

Legal framework

The Law on Efficient Use of Energy provides for measurable actions and activities aimed to achieve the improvement of energy efficiency. These include production of electric and heat energy using renewable sources, educational or informative activities aimed at raising awareness about the importance of energy efficiency improvement.

The Law on Energy sets the basic principles and necessary rules for all energy related activities to provide quality and sustainability in the energy production and consumption sectors. It also encourages energy production from renewable energy sources and high efficiency cogeneration, and also the way of organization and management of electricity and gas markets.

The Law on Air Protection transposed the EU legislation on Air Quality Directive, together with secondary legislation adopted in 2012–2018 and rulebooks established in 2012–2016. This law prescribes various standards, requirements and methods for the protection of the air quality in Montenegro. It also foresees the preparation of a national strategy for air quality management, as well as air quality plans and short-term action plans for the municipalities that have recorded exceedances of the limit values.

The Law on Industrial Emissions, which transposed the Directive EU 2015/2193, provides for minimum requirements for large combustion plants and activities using solvents and requirements for integrated permits for industrial activities and emission limit values based on the best available techniques.

The 2017 Regulation on limit values of the content of polluting substances in liquid fuels of petroleum origin establishes a reduced sulfur content in diesel, oil and marine fuels.

The 2021 Law on Health Care establishes the conditions for preservation and improvement of the health condition of the population as well as the enhancement of the quality of life in relation to health.

To protect the life and health of people, the 2019 Law on the Restriction of the Use of Tobacco Products prescribes measures aimed to reduce and restrict the effective use of tobacco and its deriving or similar products, and also prevent their harmful effects, use of harmful ingredients and their emissions.

The Law on the Protection against the Negative Effects of Climate Change prescribes the obligation to develop a strategy for low-carbon development with an action plan. This strategy would contribute to lowering air pollution and its health effects.

Policy framework

The Master plan of the Development of the Health System in Montenegro for 2015–2020 was the national strategic plan for the health sector. This plan underlined the critical role of health services for improving the population's health.

The regional Air Quality in the Western Balkans programme, designed and supported by the Swedish International Development Agency, focused on empowerment, skills building and civic engagement in programmes and policies affecting air quality on a national scale and the participation of a generation whose well-being and future depends on environmental policy. In total, 1,630 adolescents and young people participated in these activities (705 boys and 925 girls).²⁴¹

The Roadmap for Health and Well-being in the Western Balkans (2021–2025) is based on individual health goals and priorities of the Western Balkans countries through the framework of the European Programme of Work (2020–2025) – “United Action for Better Health” (see Box 13.2).

The Energy Efficiency Programme in Public Buildings was implemented in the period 2012–2015. The Programme implementation was financed in the amount of €13.44 million. Within this programme, works on application of the energy efficiency measures were executed in 20 primary and secondary schools and 1 students' dormitory. According to the preliminary results of the evaluation, the total achieved energy savings, for the buildings which were refurbished in 2013 and 2014, are 5,914,566 kWh, which represents 62.96 per cent of the total “baseline” consumption. The annual total reduction of the CO₂ emission was estimated at 2,181.24 t.²⁴²

The draft national strategy for air quality management for 2021–2029 has been prepared in 2019 and has not been adopted yet. This delay has caused subsequent delay in the development and updating of municipal air quality plans. This strategy proposes measures for the reconstruction of the Pljevlja TPP as the major investment (which is currently ongoing, to be finalised by 2025), as well as some other measures aimed at household heating and traffic.

The draft national energy and climate plan is planned to be adopted in 2024.

Box 13.2: Roadmap for Health and Well-being in the Western Balkans

Montenegro is involved in the Roadmap for Health and Well-being in the Western Balkans (2021–2025), which is built on the individual health goals and priorities of the Western Balkans countries through the lens of the European Programme of Work (2020–2025) – “United Action for Better Health” (EPW). The Roadmap identifies shared priorities and potential synergistic actions within and across the subregion. These culminate in ten High Impact Action Areas and 17 Reform Initiatives that were developed through extensive consultation with the WBs and partners. The Roadmap has been co-created based on country/area health and sustainable development goals and plans, and it has designated priorities that aim to close the health gap with the EU and identify shared commitments and joint actions for better health across the subregion.

After extensive collaboration with WHO Representatives, Country Offices, Ministries of Health, health authorities and partners in the WBs, as well as subsequent rounds of interdivisional consultations within WHO, the Roadmap's High Impact Action Areas and Reform Initiatives were formed to guide united subregional action for health and sustainable development in the WBs. These Action Areas and Initiatives centre the shared health and sustainable development priorities of the WBs, and they advance the three objectives of the Roadmap: 1) Political: to position health high atop the development and growth agendas of the WBs; 2) Investment: to promote investment in health within the WBs; and 3) Technical: to develop the critical points of health systems and close the health and sustainable development gap between the WBs and EU.

Among the 10 actions areas of the Roadmap, it could be underlined the action area 7 “combat avoidable noncommunicable diseases” with two initiatives: (1) 7.1: Western Balkans' Taxation, Legislation and Regulation Initiative for Health and (2) 7.2: Western Balkans noncommunicable disease Targets and Data Network. The objective of the 7.2 initiative is to set NCD targets and monitor trends based on accurate and comparable data on NCDs and their risk factors. The objective of the action area 8 “create healthy and green environments” could also be underlined as it focuses to reform the capacities and intersectoral policy infrastructure in and across the WBs for assessing, monitoring, and acting upon shared environment and health challenges, including climate change. Among the key results expected are improved data systems and evidence on the environmental and climate impact on health, based on a joint platform for monitoring, capacity building and dialogue, and support for regular governmental reporting on health and the environment; and “enhanced policy infrastructure for assessing, monitoring and acting upon environment and health challenges, based on collaboration across

²⁴¹ UNICEF Montenegro Country Office 2023 Annual Report and Youth for clean air

²⁴² Ministry of Energy and Mining (no date a).

policy and geographical boundaries, collaboration with international partners and the establishment of subregional communities of practice.

An annual progress report towards the implementation of the Roadmap for health and well-being in the Western Balkans (2021–2025) was published in October 2023 and presents the progress of the work.

Source: <https://www.who.int/europe/publications/i/item/WHO-EURO-2023-7597-47364-69543>.

Institutional framework

Ministry of Tourism, Ecology, Sustainable Development and Northern Region Development

As at June 2024, the then Ministry of Tourism, Ecology, Sustainable Development, and Northern Region Development (now the Ministry of Ecology, Sustainable Development, and Northern Region Development) was in charge of air pollution legislation, regulations and policies. Under the Ministry, there were two agencies responsible for air pollution issues: the EPA and the Institute of Hydrometeorology and Seismology. The Ministry was also responsible for climate policy adoption, implementation and monitoring.

Ministry of Energy and Mines

As at June 2024, the then Ministry of Energy and Mines was in charge of the management of the energy and mining sectors, including the development of laws, regulations, policies, and programmes. In July 2024, there was an institutional restructuring, and this ministry was separated into two bodies: the Ministry of Energy and the Ministry of Mines, Oil and Gas.

Energy and Water Regulatory Agency

REGAGEN is tasked to ensure energy markets work properly but lack resources to ensure all the tasks indeed to develop the energy transition needed in the country.²⁴³

Ministry of Health

The Ministry of Health is the administrative, regulating and governing authority in the health sector. This ministry is responsible for the development and implementation of policy frameworks, strategies, legislation and regulations on specific aspects of public health.

The Ministry is consulted by the ministry in charge of environment for strategic documents and regulations, but it is not involved in the discussion and elaboration of such documents. There is no focal point of the ministry in charge of the environment in the Ministry of Health. The numerous changes of ministers (5 ministers in 10 years) affect the development of the national health strategy and its implementation in Montenegro.

The Ministry of Health has seven directorates: Public health and medicine, Digitalisation, Health care, Controlling health care, Project in health system, Pharmacology and Normative. This ministry is not involved in indoor air quality management and regulation. In 2020, the WHO report on the status of primary health care explored the capacity, performance and impact of primary health care to resolve priority health needs. Several recommendations were formulated. One of the recommendations (N°6) underlines the need to develop preventive services in primary care especially for cardiovascular diseases, diabetes and mental health needs. Another recommendation (N°7) deals with the need to enhance the health information system.²⁴⁴

The Public Health Institute depends on the Ministry of Health and is in charge of monitoring and surveillance of population's health. However, there are some information lost as the electronic system is not well developed to efficiently collect epidemiological and health data. The Institute collaborates with the Statistical Office by providing health statistics. Moreover, the Institute is the main body responsible for public health action and plays the role of national reference laboratory. Its activities and

²⁴³ Energy Community (2023).

²⁴⁴ WHO (2022a).

competencies are defined by the Law of Health Care and internal documents. Also, the Institute is involved in health promotion and prevention actions to protect population's health (program on cancer screening, nutrition and others). It is responsible of public health communication for example on what to do when air quality is unhealthy.

Ministry of the Interior

The Ministry of the Interior is responsible for safety issues in school, including exposure of children to indoor air pollution.

Former Ministry of Capital Investments

The Ministry of Capital Investments, through the Directorate for energy, is responsible for creating and implementing the energy efficiency policy. The Directorate for energy efficiency existed from November 2009. until the end of 2018 (then within the Ministry of Economy). Currently, there is only a department for energy efficiency as a part of Directorate for energy.²⁴⁵

Coordination between institutions with responsibilities related to the Nexus: energy-air pollution. health protection

Collaborations and coordination between ministries in charge of health, environment and energy are not fluent nor formalized. However, there are some examples of fruitful collaboration between these institutions. In 2016, the findings of the health impact assessment conducted on the initiative of the ministry in charge of the environment, in collaboration with the Public Health Institute, Environment Protection Agency and WHO, showing that 6–22 per cent of mortality was attributed to air pollution in three Montenegrin cities: Podgorica, Pljevlja and Niksic, were presented and discussed at a national consultative meeting. Participants at the meeting were representatives of different sectors – health, sustainable development and tourism, economy, and human and minority rights – along with representatives of the Parliament of Montenegro, local authorities, national agencies and directorates, embassies, civil society, nongovernmental agencies, the Organization for Security and Co-operation in Europe, and the United Nations Development Programme²⁴⁶.

13.8 Assessment, conclusions and recommendations

Assessment

Montenegro is building a cleaner and more efficient power generation system through the transition to renewable energy sources, such as hydro, wind and solar, and increasing energy efficiency. The Pljevlja coal-fired TPP is being modernized to comply with environmental legislation and reduce air pollution. Despite the lack of a clear policy for coal phase-out, the country considers transition away from coal to low carbon power generation sources using electricity as the main energy vector. A coal phase-out strategy is missing, although it is foreseen under the framework of the draft Climate and Energy Plan, which has not been adopted yet.

Transition to cleaner energy positively impacts air pollution and, consequently, human health. In Montenegro, air pollution is in the top 10 of the major health risks and is the first environmental risk. It is recognized as a risk factor for NCDs, such as ischaemic heart disease, stroke, chronic obstructive pulmonary disease, asthma and cancer, pneumonia, and cataract (household air pollution only). There is also suggestive evidence linking air pollution exposure with increased risk for adverse pregnancy outcomes, other cancers, diabetes, cognitive impairment and neurological diseases. Indoor air pollution is also an important health risk in the country. A system for monitoring and surveillance of population's health is in place in Montenegro. However, there are some information lost as the electronic system used is not enough developed to efficiently collect health data from all medical entities (e.g., clinics, primary health care). In addition, health data related to the medical monitoring of workers has not been available for several years while occupational health is a concern in industry

²⁴⁵ Ministry of Capital Investments (2023).

²⁴⁶ WHO (2016).

and energy production. Although the 2023 Statistical Yearbook has a chapter dedicated to health providing data on communicable diseases, it has no data on non-communicable diseases. Statistical data on health problems linked to air pollution are lacking in Montenegro.

Furthermore, the Montenegro's health system is not enough prepared for managing climate change impacts on health and thus effectively protect population's health against these challenges. The country's data base on the climate impacts on health is not developed, hampering the use of this information for decision-making.

Conclusions and recommendations

Ensuring the transition to a low carbon power generation

The rise of low-carbon electrification of final energy can provide strong co-benefits in air pollution and population's health, with lower costs compared with fossil fuel alternatives. The gradual and planned phase-out of coal use in Montenegro happens amid an increase in the share of renewables-based generation, which may, however, require a baseload capacity due to intermittencies. Better interconnection with neighbouring countries and stronger grid capabilities locally would provide an opportunity for broader deployment of intermittent renewable energy sources (such as wind and solar). Despite the efforts Montenegro has made to improve energy efficiency, there is still a need to implement measures to decrease energy intensity and promote energy saving.

Recommendation 13.1:

The Government, in cooperation with relevant institutions, should:

- (a) *Increase the share of low-carbon electrification in final energy needs by ensuring a stable and robust electricity supply;*
- (b) *Develop and adopt a national coal phase-down plan for the just and inclusive transition to low-carbon power generation, with an increased share of diversified renewable energy;*
- (c) *Enhance measures to decrease energy intensity and promote energy saving.*

Enhancing data on health linked to air pollution

Raw and statistical data on health diseases linked to air pollution are lacking in Montenegro. Most of the information available on the health impact of air quality comes from assessment of the impact on health based on environmental exposure evaluations or modelling. Also, the diseases declaration system (from the medical entities) and the health data and statistics used by the Ministry of Health are not based on precise data on the state of health of the population, particularly concerning non-communicable diseases. Furthermore, certain areas such as Pljevlja are being clearly identified as black spots with regard to atmospheric pollution. However, health surveys and specific medical monitoring of the most exposed population, more particularly children and pregnant women, are not carried out.

Recommendation 13.2:

The Government should:

- (a) *Improve the health information system in order to collect relevant data on non-communicable diseases related to air pollution;*
- (b) *Develop preventive actions intended to protect the population, and especially the most vulnerable, from air pollution.*

Improving air quality

Air pollution continues to be a major health concern in Montenegro. It contributes to the development of non-communicable diseases, among which are the top three causes of death in the country. Air pollution is above WHO recommended limits, requiring stronger policies to further reduce air pollution in the country. The populations most sensitive to air pollution are children, pregnant women and the elderly. They are also the most exposed to indoor air pollution because they spend long periods of time at home. Moreover, implementation of the new radon legislation is progressing at a slow pace.

Recommendation 13.3:

The Government should:

- (a) *Adopt an approach to improve air quality, reduce emissions of pollutants, and avoid and limit human exposure;*
- (b) *Mainstream indoor air quality in relevant public policies, particularly in public spaces for young children and sensitive populations, and develop specific actions to improve indoor air quality;*
- (c) *Inform the population about the health impacts of poor indoor air quality and good practices to improve indoor air quality;*
- (d) *Implement the new radon legislation.*

Climate change and human health

The country lacks data related to climate and health risks. Climate change results in a wide range of economic risks as it threatens existing and new economic assets, such as health infrastructure. It is therefore crucial to enhance resilience to climate change through mitigation and adaptation measures in the health sector. Awareness raising on air pollution and climate change impacts on human health and environment is lacking.

Recommendation 13.4:

The Government should:

- (a) *Improve data on climate impacts on human health;*
- (b) *Increase the resilience of critical infrastructure, including health facilities, to climate change;*
- (c) *Strengthen the capacity of the health workforce to deal with climate emergencies;*
- (d) *Increase public awareness of the adverse impacts of air pollution and climate change on human health and the environment.*

ANNEXES

*Annex I: Status of implementation of recommendations
of the third EPR of Montenegro*

*Annex II: Highlights of SDG targets addressed in
the fourth EPR of Montenegro*

*Annex III: Participation of Montenegro
in multilateral environment agreements*

Annex IV: List of major environment-related legislation

Annex V: Sources

Annex III

Participation of Montenegro in multilateral environmental agreements

Year		Year	Status
1957	(Geneva) European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)	2006	Su
1958	(Geneva) Convention on the Continental Shelf	2006	Su
1958	(Geneva) Convention on Fishing and Conservation of the Living Resources of the High Seas	2006	Su
1958	(Geneva) Convention on the Territorial Sea and the Contiguous Zone	2006	Su
1958	(Geneva) Convention on the High Seas	2006	Su
1958	(Geneva) Agreement - Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts	2006	Su
1961	(Paris) International Convention for the Protection of New Varieties of Plants		
1963	(Vienna) Convention on Civil Liability for Nuclear Damage	2006	Su
	1997 (Vienna) Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage	2011	Ac
1963	(Moscow) Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water	2006	Su
1968	(London, Moscow, Washington) Treaty on the Non-Proliferation of Nuclear Weapons	2006	Su
1968	(Paris) European Convention - Protection of Animals during International Transport (revised in 2003)		
	1979 (Strasbourg) Additional Protocol		
1969	(Brussels) Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties	2006	Su
1969	(London) European Convention on the Protection of the Archaeological Heritage (revised in 1992)		
1970	(New York) Treaty on the Non-Proliferation of Nuclear Weapons	2006	Su
	Agreement between Montenegro and the International Atomic Energy Agency on the implementation of safeguard measures	2010	Ra
	Protocol Additional to the Agreement(s) Between Montenegro and the International Atomic Energy Agency for the Application of Safeguards	2010	Ra
	Small Quantity Protocol	2010	Ra
1971	(Ramsar) Convention on Wetlands of International Importance Especially as Waterfowl Habitat	2006	Su
	1982 (Paris) Amendment	2006	Su
	1987 (Regina) Amendments		
1971	(Geneva) Convention on Protection against Hazards from Benzene (ILO 136)	2006	Su
1971	(London, Moscow, Washington) Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil thereof	2006	Su
1972	(Paris) Convention concerning the Protection of the World Cultural and Natural Heritage	2006	Su
1972	(London) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter	2006	Su
	1996 (London) Protocol		
1972	(London, Moscow, Washington) Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, and on their Destruction	2006	Su
1972	(London) International Convention on the International Regulations for Preventing Collisions at Sea	2006	Su
1972	(Geneva) International Convention for Safe Containers	2006	Su
1973	(Washington) Convention on International Trade in Endangered Species of Wild Fauna and Flora	2006	Su
	1979 (Bonn) Amendment	2006	At
	1983 (Gaborone) Amendment	2006	At
1973	(London) Convention for the Prevention of Pollution from Ships (MARPOL)		
	1978 (London) Protocol relating to the International Convention for the Prevention of Pollution from Ships	2006	Su
	Annex I on Prevention of Pollution by Oil	2006	Su
	Annex II on Control of Pollution by Noxious Liquid Substances in Bulk	2006	Su
	Annex III on Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form	2006	Su
	Annex IV on Prevention of Pollution by Sewage from Ships	2006	Su
	Annex V on Prevention of Pollution by Garbage from Ships	2006	Su
	1997 (London) Protocol to Amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto - Annex VI		
1976	(Barcelona) Convention for the Protection of the Mediterranean Sea against Pollution	2007	Ra
	1976 (Barcelona) Protocol for the Prevention of Pollution in the Mediterranean Sea by Dumping from Ships and Aircraft (as amended in 1995)		
	2002 (Malta) Protocol Concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea (replacing the 1976 Emergency Protocol)	2007	Ra
	1996 (Syracuse) Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities (replacing the 1980 Land-based Sources Protocol)	2007	Ra
	1994 (Madrid) Protocol for the Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil		

Year		Year	Status
	1995 (Barcelona) Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (replacing the 1982 Specially Protected Areas Protocol)	2007	Ra
	1996 (Izmir) Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal	2007	Ra
	2008 (Madrid) Protocol on Integrated Coastal Zone Management in the Mediterranean	2012	Ra
1976	(Strasbourg) European Convention for the Protection of Animals Kept for Farming Purposes	2001	Ac
1977	(Geneva) Convention on Protection of Workers against Occupational Hazards from Air Pollution, Noise and Vibration (ILO 148)	2006	Su
1979	(Bonn) Convention on the Conservation of Migratory Species of Wild Animals	2009	Ra
	1991 (London) Agreement Conservation of Bats in Europe	2011	Ra
	1992 (New York) Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS)		
	1995 (The Hague) African/Eurasian Migratory Waterbird Agreement (AEWA)	2011	Ra
	1996 (Monaco) Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)	2009	Ra
1979	(Bern) Convention on the Conservation of European Wildlife and Natural Habitats	2009	Ra
1979	(Geneva) Convention on Long-range Trans-boundary Air Pollution	2006	Su
	1984 (Geneva) Protocol - Financing of Co-operative Programme (EMEP)	2006	Su
	1985 (Helsinki) Protocol - Reduction of Sulphur Emissions by 30%		
	1988 (Sofia) Protocol - Control of Emissions of Nitrogen Oxides		
	1991 (Geneva) Protocol - Volatile Organic Compounds		
	1994 (Oslo) Protocol - Further Reduction of Sulphur Emissions		
	1998 (Aarhus) Protocol on Heavy Metals	2011	Ac
	1998 (Aarhus) Protocol on Persistent Organic Pollutants	2012	Ac
	1999 (Gothenburg) Protocol to Abate Acidification, Eutrophication and Ground-level Ozone		
1980	(New York, Vienna) Convention on the Physical Protection of Nuclear Material	2007	Su
1981	(Geneva) Convention Concerning Occupational Safety and Health and the Working Environment (ILO 155)	2006	Su
1982	(Montego Bay) Convention on the Law of the Sea	2006	Su
	1994 (New York) Agreement related to the Implementation of Part XI of the Convention	2006	Su
	1995 (New York) Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks		
1985	(Geneva) Convention Concerning Occupational Health Services (ILO 161)	2006	Su
1985	(Vienna) Convention for the Protection of the Ozone Layer	2006	Su
	1987 (Montreal) Protocol on Substances that Deplete the Ozone Layer	2006	Su
	1990 (London) Amendment to Protocol	2006	Su
	1992 (Copenhagen) Amendment to Protocol	2006	Su
	1997 (Montreal) Amendment to Protocol	2006	Su
	2019 Kigali Amendment to the Montreal Protocol	2019	Ra
	1999 (Beijing) Amendment to Protocol	2006	Su
1986	(Geneva) Convention Concerning Safety in the Use of Asbestos (ILO 162)	2006	Su
1986	(Vienna) Convention on Early Notification of a Nuclear Accident	2007	Su
1986	(Vienna) Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency	2007	Su
1989	(Basel) Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	2006	Su
	1995 Ban Amendment	2006	Su
	1999 (Basel) Protocol on Liability and Compensation		
1990	(London) Convention on Oil Pollution Preparedness, Response and Cooperation		
1991	(Espoo) Convention on Environmental Impact Assessment in a Transboundary Context	2009	Ac
	2001 (Sofia) First Amendment	2009	Ra
	2003 (Kiev) Protocol on Strategic Environmental Assessment	2009	Ra
	2004 (Cavtat) Second Amendment	2009	Ra
1992	(Rio de Janeiro) Convention on Biological Diversity	2006	Su
	2000 (Montreal) Cartagena Protocol on Biosafety	2006	Su
	2010 (Nagoya) Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization	2020	Ac
	2010 (Nagoya - Kuala Lumpur) Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety	2011	Si
1992	(New York) United Nations Framework Convention on Climate Change	2006	Su
	1997 (Kyoto) Protocol	2007	Ac
	2012 Doha Amendment to the Kyoto Protocol	2018	At
	2015 Paris Agreement	2017	Ra
1992	(Helsinki) Convention on the Protection and Use of Transboundary Watercourses and International Lakes	2014	Ac
	1999 (London) Protocol on Water and Health	2020	Ac
	2003 (Madrid) Amendments to Articles 25 and 26	2014	Ac
1992	(Helsinki) Convention on the Transboundary Effects of Industrial Accidents	2009	Ac
	2003 (Kiev) Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters		

Year		Year	Status
1993	(Rome) Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas		
1993	(Paris) Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction	2006	Su
1993	(Oslo and Lugano) Convention - Civil Liability for Damage from Activities Dangerous for the Environment		
1994	(Vienna) Convention on Nuclear Safety		
1994	(Paris) United Nations Convention to Combat Desertification	2007	Ac
1994	(Sofia) Convention on Co-operation for the Protection and Sustainable Use of the River Danube	2008	Ra
1994	(Lisbon) Energy Charter Treaty	2012	Si
	1994 (Lisbon) Protocol on Energy Efficiency and Related Environmental Aspects		
	1998 Amendment to the Trade-Related Provisions of the Energy Charter Treaty		
1996	(New York) Comprehensive Nuclear Test Ban Treaty	2006	Su
1997	(Vienna) Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management	2010	Ac
1997	(New York) Convention on the Law of Non-navigational Uses of International Watercourses	2013	Ac
1997	(Vienna) Convention on Supplementary Compensation for Nuclear Damage		
1998	(Rotterdam) Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	2011	Ac
1998	(Aarhus) Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters	2009	Ac
	2003 (Kiev) Protocol on Pollutant Release and Transfer Register	2017	Ra
	2005 (Almaty) Amendment on GMOs		
1998	(Strasbourg) Convention on the Protection of Environment through Criminal Law		
2000	(Florence) Convention on European Landscape	2009	Ra
2001	(Stockholm) Convention on Persistent Organic Pollutants	2011	Ra
2001	(London) Convention on Civil Liability for Bunker Oil Pollution Damage	2011	Ac
2004	(London) Convention for the Control and Management of Ships' Ballast Water and Sediments	2011	Ac
2005	(New York) International Convention for the Suppression of Acts of Nuclear Terrorism	2006	Su
2013	(Kumamoto) Minamata Convention on Mercury	2014	Si

Ac = Accession; Ad = Adherence; Ap = Approval; At = Acceptance; De = Denounced; Si = Signature; Su = Succession; Ra = Ratification

*Annex IV**List of major environment-related legislation***Laws***1993*

Law on Geological Explorations (OG 28/93, 42/94, 26/07, 28/11)

2001

Law on Excise Taxes (OG 65/01, 12/02, 76/05; 76/08, 50/09, 78/10, 40/11, 61/11, 28/12, 38/13, 45/14, 08/15, 01/17)

2003

Law on Inspection Supervision (OG 39/03, 76/09, 57/11, 18/14, 11/15, 52/16)

Criminal Code (OG 70/03, 13/04, 47/06, 40/08, 25/10, 32/11, 64/11, 40/13, 56/13, 14/15, 42/15, 58/15, 44/17, 49/18)

2004

Law on Tourism Organizations (OG 11/04, 46/07, 73/10, 40/11, 45/14, 42/17, 27/19)

Law on Tourist Tax (OG 11/04, 13/04, 73/10, 48/15)

2005

Law on State Border Surveillance (OG 72/05)

Law on Integrated Prevention and Control of Environmental Pollution (OG 80/05, 54/09, 40/11)

Law on Strategic Environmental Assessment (OG 80/05, 73/10, 40/11, 59/11, 52/16)

2007

Law on Criminal Liability of Legal Persons (OG 2/07, 30/12).

Law on the Protection and Rescue (OG 13/07, 05/08, 86/09, 32/11, 54/16, 146/21),

Law on Ski Resorts (OG 13/07, 40/11, 21/14, 44/17)

Law on Water (OG 27/07, 73/10, 32/11, 47/11, 48/15, 52/16, 84/18)

Law on Forest Trees Reproductive Materials (OG 37/07)

2008

Law on Transport of Dangerous Materials (OG 05/08, 33/14 and 13/17)

Law on Genetically Modified Organisms (OG 22/08, 40/11)

Law on Explosive Substances (OG 49/08, 31/14, 31/17)

Law on Spatial Development and Construction of Structures (OG 51/08, 40/10, 34/11, 47/11, 35/13, 39/13, 33/14)

Law on Mountain Paths (OG 51/08, 53/11)

Law on Maritime Property (OG 51/08, 21/09, 73/10, 40/11)

Law on Game and Hunting (OG 52/08, 40/11, 48/15)

Law on Financing Water Management (OG 65/08, 40/1)

Law on Mining (OG 65/08, 74/10, 40/11)

2009

Law on Concession (OG 04/09, 44/10)

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2015

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2016

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