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Preface

This third Environmental Performance Review (EPR) of Bosnia and Herzegovina takes stock of progress made by Bosnia and Herzegovina in the management of its environment since it was reviewed for the second time in 2010 and assesses the implementation of the recommendations made in the second review. It covers issues of specific importance to the country related to legal and policy frameworks, greening the economy, air protection, water and waste management, biodiversity and protected areas and protection of the Adriatic Sea. It also examines the efforts of Bosnia and Herzegovina to integrate environmental considerations into its policies in the forestry sector.

The review further provides a substantive and policy analysis of the country's climate change adaptation and mitigation measures and its participation in international mechanisms. The review also highlights challenges to be addressed by Bosnia and Herzegovina when implementing the globally-agreed SDGs.

The third EPR of Bosnia and Herzegovina began in February 2017 with a preparatory mission to agree on the structure of the report and the schedule for its completion. A team of international experts took part in the review mission from 28 March to 5 April 2017. In October 2017, the draft report was submitted to Bosnia and Herzegovina for comments and to the ECE Expert Group on Environmental Performance Reviews for consideration. During its meeting on 24 and 25 October 2017, the Expert Group discussed the draft report with a delegation from Bosnia and Herzegovina, focusing on the conclusions and recommendations made by the international experts. The recommendations, with suggested amendments from the Expert Group, were then submitted for peer review to the ECE Committee on Environmental Policy at its twenty-third session on 16 November 2017. A high-level delegation from Bosnia and Herzegovina participated in the peer review and the Committee adopted the recommendations in this report.

The Committee and the ECE secretariat are grateful to the authorities of Bosnia and Herzegovina and their experts who worked with the international experts and contributed their knowledge and assistance. ECE would also like to express its appreciation to the German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety and the German Federal Environment Agency for their support by providing funds through the Advisory Assistance Programme, and to Switzerland for its financial contribution. Sincere thanks also go to France, Hungary, Italy, Portugal and the United Nations Environment Programme (UNEP) for having provided their experts and to the United Nations Development Programme (UNDP) for its support of this review.

ECE also takes this opportunity to thank Portugal and Switzerland for their general financial support to the EPR Programme in 2017 and expresses its deep appreciation to Belarus, Estonia, Georgia, Germany, Hungary, Italy, Montenegro, the Republic of Moldova, Romania and Switzerland for having provided their experts for the ECE Expert Group on Environmental Performance Reviews, which undertook the expert review of this report.

Executive summary

The second Environmental Performance Review (EPR) of Bosnia and Herzegovina was carried out in 2010. This third review intends to assess the progress made by Bosnia and Herzegovina in managing its environment since the second EPR and in addressing new environmental challenges.

Legal, policy and institutional framework

The Stabilisation and Association Agreement (SAA) has been in force since June 2015. According to the SAA, the association shall be progressively and fully realised over a transitional period of six years. Since 2011 Bosnia and Herzegovina has made some efforts to transpose the EU environmental acquis into the national legislation; however, the country is still at an early stage in these efforts.

In terms of implementation steps for the 2003 Law on Environmental Protection of the Federation of Bosnia and Herzegovina since 2011, the major focus has been to make the environmental permitting system work. All new installations receive environmental permits and go through an environmental impact assessment (EIA), when required, before receiving an environmental permit. However, still, not all operators of existing installations have applied for environmental permits.

A new Law on Environmental Protection of Republika Srpska was adopted in 2012. In 2015, its provisions on EIA and environmental permits were amended. The main improvements are related to strategic environmental assessment (SEA), which is now covered by a dedicated chapter, more elaborated provisions on environmental permits and eco-labelling, and provisions on access to environmental information and public participation. Nevertheless, challenges remain for the implementation of provisions on SEA, EIA, environmental permits and eco-labelling.

There is a Law on Genetically Modified Organisms (GMO) at the state level. The country claims not to produce any GMO food or feed. The country allows imports of genetically-modified food and feed upon authorization. Republika Srpska has a Law on Genetically Modified Organisms accompanied by subsidiary legislation. There is no separate legislation on GMOs in the Federation of Bosnia and Herzegovina or in Brčko District.

The pollution release and transfer register legislation was adopted in 2007 in the Federation of Bosnia and Herzegovina and Republika Srpska. An EU-funded project provided the database, the training and the server for the PRTR. However, after the project ended, the web page disappeared and the register was left to the Ministry of Foreign Trade and Economic Relations. The Ministry of Foreign Trade and Economic Relations did not have the capacity and handed over the equipment to the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, which currently maintains the part of the database related to the Federation of Bosnia and Herzegovina.

The Criminal Codes of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District include articles on environmental crimes. These articles differ in the three Criminal Codes and do not cover the whole spectrum of offences as provided in the EU Directive 2008/99/EC on the protection of the environment through criminal law.

The Environmental Protection Strategy of the Federation of Bosnia and Herzegovina for the period 2008–2018 provides for strategic directions and measures in the legal and institutional field and covers the use of economic instruments, nature protection, land protection, air protection and waste management. As of early 2017, about half its measures are not implemented and remain relevant.

In the Federation of Bosnia and Herzegovina, SEA remains a novelty, although the requirement of SEA was first introduced in 2003. Only three SEAs were conducted in 2015–2016. Sectoral ministries do not initiate SEAs for their draft strategic documents because there is no subsidiary legislation that would tell them how to do it. Active promotion of the SEA instrument has not been a priority for the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina.

In Republika Srpska five SEAs were processed in 2015 and three in 2016. A major criticism is of the quality of public participation as part of the SEA procedure.

In Brčko District, no SEA has ever been done. There are plans to do an SEA for the new spatial plan of Brčko District to be prepared for the period 2017–2027.

Regulatory and compliance assurance instruments

The entity-level laws on environmental protection stipulate the requirement for EIA and SEA as prerequisites for the granting of operating permits to large-scale projects with significant environmental impact. However, there are no specific regulations on EIA and SEA that establish the direct links between the permitting and environmental assessment, either at project level (EIA) or spatial planning and sectoral plan level (SEA).

Both entities and Brčko District provide for both accomplice liability and liability of legal persons, as required by the EU Directive 2008/99/EC on the protection of the environment through criminal law. However, the legal provisions on who can initiate court proceedings for damage caused to the environment, how proceedings can be initiated, what represents such damage, how liability for such damage is determined, who is paid for such damage, and how such damage is repaired, are insufficiently specific, not precise and clear, and incomplete.

Integrated permits, such as are regulated by the EU Directive 2010/75/EU on industrial emissions (IPPC Directive), have not yet been issued in Bosnia and Herzegovina, since the Directive has not yet been fully transposed. Thus, an operator of an installation having multiple environmental impacts, for example, on air, water and generation of waste, would need to apply for multiple individual permits from different ministries.

Eco-labelling of products, corporate social responsibility and voluntary environmental reporting by companies are useful tools for implementing and promoting environmental standards. The implementation of voluntary environmental standards is best emphasized by the increased number of ISO 14001 certificates issued in the period 2009–2015.

In the event of emergency inspections (e.g., after accidents), but also during some routine inspections, immediate sampling of air, soil, water or waste samples cannot be performed. As of May 2017, the environmental inspectorate does not have an accredited laboratory of its own nor a collaborating partner which could be requested to take samples at short notice. The entities' bodies responsible for environmental inspection do not have framework agreements with accredited laboratories to provide such a service. These services are outsourced to private laboratories, are costly and cannot respond in the event of emergencies.

The current level of financial sanctions following damage to the environment by legal bodies does not motivate the permit owners who violate permit conditions to change their behaviour. The applicable fine, ranging from €500–€5,000, is too small to bring about behavioural change, especially in installations in need of technological upgrading to meet environmental standards.

Greening the economy

Progress has been made since 2011 with regard to legislation considering economic instruments for environmental protection, but their implementation is limited and often not compliant with efficiency and effectiveness principles, while policies to exploit Bosnia and Herzegovina's green economy potential are substantially lacking.

Tariffs are the dominant funding source of the water management sector and they are insufficient to cover operation and maintenance expenses. Water supply and wastewater services are not financially self-sustainable and the infrastructures for water management and provision are obsolete. The low levels of tariffs and collection rate are not effective in incentivizing water saving and water loss reduction.

The price of wood is settled by law and the profitability rates of public enterprises are very low. Underprofitability of forest management enterprises limits the resources available for infrastructural and equipment investments in forest management and remediation and discourages private capital flows into the sector, leading

to a gradual degradation of forest heritage and endangering the development of forest-related economic activities and exports.

Energy prices are low and do not reflect the total cost of production and provision. As a consequence of the low level of tariffs, financial resources to maintain and develop infrastructures are scarce and infrastructures face progressive deterioration. Further, the low per-unit prices of fossil fuel sources and electricity make it difficult to influence behaviours and cross-subsidization further hampers proper functioning of the instrument.

Setting energy prices in such a way as to reflect the total costs of energy should, on the one hand, grant the sustainability of energy supply and encourage energy efficiency, energy saving and the introduction of cleaner energy sources. On the other hand, increases in energy prices conflict with the affordability criteria due to, on the households' side, the low income levels and the high relative share of income spent on energy and transport.

The special environmental fee is paid at the time of motor vehicle registration. From April 2013, a correction coefficient has been introduced to account for the different types of engine and fuel, and vehicle age, aiming to better price environmental damage from emissions. However, the linkage of the fee with actual pollution, depending on vehicle use, is still weak.

The tax on emissions is linked to the actual emissions into the atmosphere by enterprises. Fees are progressive, being higher for bigger polluters.

The building sector is the second largest contributor to air pollution and is characterized by high levels of energy inefficiency. The low level of household income reduces the availability of the financial resources needed to improve energy efficiency and to switch towards cleaner technologies and energy sources; few financial mechanisms are available to small businesses or individuals and those that are available, such as loans from commercial banks, are poorly subscribed due to high interest rates, transaction fees and collateral requirements.

The Federation of Bosnia and Herzegovina introduced special fees on plastic bags, packaging and electronic wastes. Regarding plastic bags and bottles, several measures have been introduced, such as a deposit-refund scheme for recycling, economic incentives for selected collection and fines and penalties in the event of non-compliance, but their use should be reinforced.

Only one special fee is currently in force in Republika Srpska: the fee on packaging, paid mainly by importers. The fee revenue goes mainly to the Environmental Protection and Energy Efficiency Fund, which uses it to co-finance projects mobilizing private sector financial resources.

Environmental monitoring, information, public participation and education

Ten locations in Bosnia and Herzegovina conduct air quality measurements. Recent progress includes the establishment of a website where it is possible to obtain information on the real-time state of air quality. The United Nations Environment Programme (UNEP) has recently opened two new air monitoring stations in Bosnia and Herzegovina (in Prijedor and Gorazde) and brought two existing ones (in Ivan Sedlo and Banja Luka) back to full function since 2011.

The quality of groundwater is monitored only in areas where water is abstracted for public water supply. The monitoring of bathing waters is not performed systematically, but according to needs and available funds.

The lack of systematic soil monitoring, a soil and land information system and information on soil contamination is primarily linked to the lack of specific laws at the state or entity level that address soil protection and/or monitoring. The limited information available is restricted to basic land structure and use, soil classes and land ownership structures. Monitoring of noise is not carried out. There is no systematic collection of data on vibration. No biodiversity monitoring system is in place to provide quality data on the status of biodiversity in the country.

There are 11 automatic stations in Bosnia and Herzegovina distributed across the entities, which perform continuous measurement of ionizing radiation in ambient air.

The national shared environmental information system performance score for Bosnia and Herzegovina was 58 per cent in 2016. While this performance score reflects an increase in the overall accessibility of environmental indicators, the generally limited access to relevant environmental information and data in Bosnia and Herzegovina remains significant.

Bosnia and Herzegovina produced its first national State of the Environment Report in 2012. The report provides limited information on the state of the environment. This is principally due to the significant lack of relevant information and data on the environment (e.g. on biological diversity, climate change and land resources).

Some NGOs contribute to enforcing the law on access to public information, monitoring its application and collecting relevant data through the submission of freedom of information requests and starting appeal procedures. The participation of NGOs in environmental policy formulation and development is at a low level.

Implementation of international agreements and commitments

Bosnia and Herzegovina is a party to a number of international environmental agreements. This demonstrates the political importance that the Government attributes to being an engaged participant in international cooperation in the environmental domain. The aspiration to EU membership is the main driver for improving and completing the strategic and legal environmental framework in the country.

Bosnia and Herzegovina does not have in place effective institutional mechanisms to oversee and coordinate the implementation of all international environmental agreements to which the country is a party. The case-by-case approach followed in Bosnia and Herzegovina, under which implementation arrangements were established for some agreements, does not resolve the absence of these arrangements for the whole set of environmental agreements to which the country is committed.

Red Lists were developed and approved at the entity level. In 2012, Republika Srpska approved the Red List of Endangered Species of Flora and Fauna. In 2014, the Federation of Bosnia and Herzegovina approved the Red List of Endangered Wild Species and Subspecies of Plants, Animals and Fungi.

Bosnia and Herzegovina has no provisions in place at either the state or entity level aimed at combating the illegal killing of birds. There are no actions aimed towards the conservation of bird species and implementation of measures, including legal measures, to reduce and monitor illegal hunting, taking and trade of wild birds.

Implementation of the Vienna Convention and Montreal Protocol is progressing well. The country has complied with zero consumption of chlorofluorocarbons (CFCs) since 2009. In 2012, the hydrochlorofluorocarbons (HCFCs) phase-out management plan (HPMP) was approved, committing the country to follow the Montreal Protocol phase-out schedule for HCFCs.

The National Implementation Plan (NIP) for Reduction and Disposal of Persistent Organic Pollutants was adopted in 2016. The country has progressed, notably in developing the main foundations for implementation of the Convention. A preliminary inventory of POPs was developed in 2013. Bosnia and Herzegovina has prohibited the import of all 10 POP pesticides.

Bosnia and Herzegovina acceded to the Convention on the Transboundary Effects of Industrial Accidents in 2013. No significant progress has been achieved in implementing the obligations under the Convention. Bosnia and Herzegovina does not have in place mechanisms for consultation with neighbouring countries on the identification of hazardous activities. The absence of coordination and cooperation regarding the identification of hazardous activities, and their eventual notification to neighbouring and riparian countries, are major shortcomings in the Convention's implementation.

Climate change mitigation and adaptation

Extreme climate events in Bosnia and Herzegovina have become more frequent. In the period 2003–2014, 6 of the 12 years were either very dry or extremely dry. In 2001, 2002, 2009, 2010 and 2014, there were large to disastrous floods. These extreme climate and weather episodes have caused substantial material and financial deficits, as well as casualties.

The energy sector is the main source of anthropogenic emission of greenhouse gases (GHGs). Two the most carbon-intensive energy subsectors are energy conversion (thermal power plants (TPPs), heating plants and transport) and industrial fuel combustion. The share of the energy industry in total emissions varies from 61 to 70 per cent across the years.

The risks associated with climate change have not yet been systematically considered in strategies and management plans for hydropower development. The hydropower sector has not yet adapted its infrastructure to both low river flows and increased peak river flows.

There is no evidence that Bosnia and Herzegovina has already implemented or is currently implementing policies and measures on adaptation of agriculture, the industrial and transport sectors and infrastructure to the current and foreseeable impact of climate change.

There is no comprehensive system for the monitoring of epidemics and disease prevalence correlated with climate parameters in Bosnia and Herzegovina. The increased temperature is likely to result in a higher number of cases of cardiovascular and cerebrovascular illness. Higher temperatures will also contribute to the spread of vector-borne diseases, thus increasing the incidence and extent of infectious diseases. Increased humidity will increase the number of respiratory ailments. Heatwaves will affect risk and mortality, for the elderly population in particular.

The Climate Change Adaptation and Low-Emission Development Strategy was adopted in 2013. The Strategy has two main objectives: increase resilience to climate change and reach a peak and stop annual growth values of GHG emissions by 2025.

Air protection

Pollutant release and transfer registers (PRTRs) have been installed in entity ministries and the Hydrometeorological Institute of Republika Srpska. The implementation of the E-PRTR Regulation ((EC) No. 166/2006) is hampered by the lack of sufficiently trained personnel within the governments and operators.

The environmental permits for industrial establishments are issued at entity and cantonal levels in the Federation of Bosnia and Herzegovina or at entity level in Republika Srpska and include emission limit values (ELVs) for the main air polluting substances. ELVs are in many cases based on EU standards.

The transport sector causes causes 40 per cent of the nitrogen oxides (NO_x), 80 per cent of the non-methane volatile organic compounds and an estimated 10 per cent of the emission of particulate matter (PM_{2.5}) (particulate matter up to 2.5 µm in diameter). At the moment, the average age of the private car fleet is 17 years and more than 75 per cent of the cars use diesel as fuel. More than 50 per cent of vehicles fail to achieve Euro-3 standards.

In Bosnia and Herzegovina, the heating of buildings and services consumes more than 50 per cent of the primary energy consumption. About 70 per cent of the houses are individually heated by furnaces that use fuel wood, lignite or coal as fuel. In winter, with periods of unfavourable meteorological conditions, the many emissions points at low altitude intensify the bad air quality and considerably increase local peak concentration levels of SO₂ and dust.

The 2015 National Emission Reduction Plan (NERP) for Large Combustion Plants envisages the reduction of emissions of SO₂, NO_x and dust from large combustion plants by 95 per cent, 65 per cent and 85 per cent respectively, to gain (overall) levels in the IPPC Directive by 2027. However, its budget is assessed at more than €300 million; a solution for financing has still to be found.

The WHO Air Quality Guideline for the annual mean concentration of PM₁₀ (particulate matter up to 10 µm in diameter) is exceeded in many cities in Bosnia and Herzegovina, as is the EU Air Quality Standard.

Industrial air emissions, combined with the air emissions from the growing number of vehicles and from domestic heating using firewood and lignite, create severe air pollution in industrial and urban areas, which causes serious nuisance and health problems. During less favourable meteorological conditions, high concentrations of

substances such as SO₂ and particulate matter are reached in some urban areas that are situated in valleys, such as Tuzla, Zenica and Sarajevo.

The high levels of air pollution in and around cities in Bosnia and Herzegovina lead to serious health complaints, such as cardiovascular, respiratory and lung diseases. According to the World Health Organization, the per capita mortality rate in Bosnia and Herzegovina attributed to household and ambient air pollution is 223.6 per 100,000, which is one of the highest mortality rates by air pollution in the world. Concrete measures in all sectors (industry, traffic and domestic heating) are not being taken to improve this situation.

Water management

Most anthropogenic pressures on water are caused by urban zones without sewerage and wastewater treatment plants (WWTPs) or uncontrolled leachates from solid waste sites without proper treatment. It is evident that groundwater vulnerability is boosted by the prevalence of Bosnia and Herzegovina's karst geology.

Water resources in Bosnia and Herzegovina are sufficient to fulfil drinking water demands, but microbiological hazards are a health concern. Chlorination is the standard disinfection method in Bosnia and Herzegovina. However, 21 per cent of drinking water samples failed microbiological tests.

Approximately 82 per cent of the water abstraction in Bosnia and Herzegovina is for domestic use, 16 per cent is for industry and the remainder for agriculture and other applications. These figures are not the traditional pattern in EU countries and reveal the underdevelopment of industry and irrigated agriculture in Bosnia and Herzegovina.

Currently, surface water quantity monitoring is performed at 134 hydrological stations in Bosnia and Herzegovina, most of which (around 90 per cent) are automatic. Furthermore, the Sava River Watershed Agency has an online water monitoring service with forecasting and early warning, based on online data acquisition and numerical simulation.

The main environmental pressures on surface waters derive from urban and rural agglomerations, industrial facilities, livestock and poultry farms and fish farms. Diffuse sources of pollution in Bosnia and Herzegovina result from uncontrolled animal manure, the leaching of silage and solid waste dumping sites, and fertilizer surplus.

In the Federation of Bosnia and Herzegovina, 33 per cent of the population is covered by a sewerage system, but only about 3 per cent is connected to a WWTP in 2015 (excluding Sarajevo WWTP). In Republika Srpska, 36 per cent of the population is covered by a sewerage system but less than 5 per cent of population is connected to a WWTP. Brčko District has no urban wastewater treatment facility at all.

Adriatic Sea protection

The Bosnia and Herzegovina part of the Adriatic Sea is still one of the best-preserved regions in the Mediterranean. Generally, the marine environment in Bosnia and Herzegovina is in good condition. However, the elaboration of the current state of the investigated marine water body indicates that it is exposed to significant anthropogenic influence that needs to be better assessed. Illegal construction, without any wastewater treatment system, poses a big potential threat to coastal areas.

Coastal tourism, which is the major current and potential activity in Neum, has become a major impact threat since the town has 4,000 inhabitants and receives more than 20,000 tourists per day in summer. This level of tourism corresponds to the maximum capacity of local infrastructure, especially for sewage.

Along the Eastern coast, solid waste is one of the main identified sources of pollution; there are no sanitary landfills but numerous dumping sites. Due to the karstic nature of the terrain, leachates from waste dumping sites are quickly released into the sea, increasing health risks for the local population and endangering tourism activities.

The main regional challenge is the issue of ballast waters from maritime transport, which are recognized as one of the main vectors for the spread of invasive species in the Adriatic Sea. The introduction of invasive species

and loss of biodiversity further threaten tourism and fishing activities, including in the Bosnia and Herzegovina coastal area.

Waste management

The predominant method for waste disposal in Bosnia and Herzegovina is landfilling. According to the Agency for Statistics of Bosnia and Herzegovina, between 2011 and 2015, the rate of waste permanently disposed of in landfills varied between 67 per cent and 79 per cent. The recovery rate was increasing during this period, but it did not reach 1 per cent by 2015.

On the one hand, there has been some improvement in waste management in Bosnia and Herzegovina since 2011, first by the adoption of an operator system in both entities. On the other hand, the introduction of the operator system did not solve the municipal waste management issues because the operator system exists in parallel to the municipal solid waste (MSW) management services. The operator system does not interfere with the MSW management services, because the rules do not oblige the operators to cover MSW. Thus entities still lack long-term solutions for proper MSW management.

Although waste statistics are not reliable, there is a huge difference between the amounts of generated MSW and disposed waste, which suggests that about 20–30 per cent of the collected MSW ends up on illegal dumpsites. The completion of the long-awaited regional landfills would be only the first, though most important, step towards creating an MSW system that is sustainable. There are deficiencies with the management of other types of waste, most significantly of medical waste – even its quantities are unknown. Significant funds and investments will certainly be required for the development of adequate facilities for the proper disposal of medical waste.

With the introduction of the system of operators for packaging waste, both entities made a significant step towards promoting the separate collection, reuse and recycling of waste, with ambitious targets. Other waste streams are not included in these schemes.

There was some progress with the closure of illegal dumpsites, which was connected to regional landfill construction. Inventories of illegal dumpsites were prepared in both entities, but there are no data on the impact from illegal or uncontrolled dumpsites on human health and the environment.

Since 2011, the practice of hazardous medical waste management in Bosnia and Herzegovina has remained unchanged. Medical waste might be subject to separate collection, but the lack of data hampers sound medical waste management.

Biodiversity and protected areas

The territory of protected areas in Bosnia and Herzegovina is small, and its percentage share of the total territory of the country is well below the European average. The existing 30 protected areas in the country cover only 2.07 per cent of the national territory.

No biodiversity monitoring system is in place to provide quality data on the status of biodiversity in the country. The country does not have an institution tasked to monitor the state of biodiversity, while the entities lack capacities to establish their own monitoring systems stipulated in their laws on nature protection.

Data on biodiversity in Bosnia and Herzegovina are scarce, fragmented and often outdated. In spite of the country's rich biodiversity, international obligations and growing anthropogenic pressures, nature conservation efforts remain insufficient.

The major threats to biodiversity in Bosnia and Herzegovina include unsustainable use of land and forests, habitat conversion, vegetation succession and invasive alien species, overexploitation of natural resources, waste mismanagement, inadequate fire protection, illegal hunting and fishing and climate change.

Socioeconomic challenges, such as unemployment and poverty, have resulted in communities focusing on immediate economic priorities rather than environmental issues, including biodiversity. Thus, biodiversity conservation is not seen as a national priority.

There has not been progress in terms of biodiversity since 2011, apart from the improvements to the legal framework. Progress in collecting environmental data and reporting on the state of biodiversity remains hindered. Budgetary allocations for nature conservation and biodiversity monitoring are low and insufficient for proper conservation measures. Public involvement and interest in the matters of nature conservation are sporadic.

Forestry and environment

Forests and forestlands are important natural resources in Bosnia and Herzegovina. Forests cover 56.2 per cent of the entire territory of the Federation of Bosnia and Herzegovina and 57.9 per cent of the entire territory of Republika Srpska.

The forest in Bosnia and Herzegovina has a typical structure of forests in South-East Europe, which consists of high and coppice forests. In terms of forest types, broadleaf forest is predominant, accounting for 65.8 per cent of forests in the Federation of Bosnia and Herzegovina and 74.2 per cent in Republika Srpska.

Forest fires are a common occurrence in Bosnia and Herzegovina and result in incalculable damage, despite the fact that this area is not in the category of high risk within the European framework. Direct damage includes loss of timber stock, ground vegetation and other forest products, and the costs of firefighting and remediation and recultivation of the burned area.

5.7 million m³ of timber is harvested per year. Compared with an annual increment of more than 11 million m³, this means that only around 50 per cent of the annual increment is used for wood production.

Bosnia and Herzegovina has over 700 species of medicinal and aromatic plants, of which 200 are utilized. Various non-wood forest products (NWFPs) are extensively used by the local population and private companies who hire local people in the rural areas to collect mushrooms, medicinal plants, berries, etc. There are no clear statistics on the collection of NWFPs. It is estimated that around 100,000 people collect various types of NWFPs within companies registered for their collection and processing.

CONCLUSIONS AND RECOMMENDATIONS

Chapter 1: Legal, policy and institutional framework

Assessment

Since 2011, efforts have been applied at all levels (state, entity/Brčko District, cantonal, municipal) to improve the legal and policy framework on environmental protection in Bosnia and Herzegovina. These efforts were driven to a large extent by aspirations of EU accession and were supported with EU funding. However, due to the complex political and institutional set-up, progress with the introduction of legal and policy measures in Bosnia and Herzegovina requires considerably greater efforts and necessitates much more time than in other countries. Bosnia and Herzegovina is at the very beginning of the process to transpose the EU environmental acquis, and each entity and Brčko District has a considerable backlog of legislation that remains to be harmonized with EU directives and regulations.

Originally, the environmental legislation of the two entities and Brčko District was highly harmonized when similar packages of environmental laws were adopted by all three in the early 2000s. However, this high degree of harmonization of environmental legislation is no longer the case. The diverging legal frameworks for SEA, forestry, hunting and chemicals are just a few examples that illustrate this. Since both entities and Brčko District aim to eventually achieve full transposition of the EU acquis, this may serve as a catalyst for harmonization of their environmental policies and legislation in the future.

At the same time, approximation itself necessitates effective coordination and cooperation. In the absence of a state-level law on environmental protection and a strong state-level environmental authority, the current coordination is based on good will, which is not always present. The need for a state-level law on the environment and a state-level environmental agency is recognized at expert level but is not officially accepted for political reasons. Even if the adoption of a state-level law on environmental protection and the establishment of a state-level environmental agency – both called for in the first and second EPRs of Bosnia and Herzegovina – are not accepted as feasible at this point, these steps are still relevant for the country if it wishes to achieve progress with establishing a strong and coherent legal and policy framework on environmental protection with a view to becoming an EU member country in the foreseeable future.

Conclusions and recommendations

National sustainable development strategy

Bosnia and Herzegovina does not have a national sustainable development strategy or any other comprehensive development strategy adopted at the state level. The Reform Agenda 2015–2018 is a short-term document that does not touch upon all aspects of sustainable development. Also, Bosnia and Herzegovina does not have strong and effective mechanisms to enhance policy coherence for sustainable development, either in terms of intersectoral cooperation for sustainable development or in terms of cooperation between the levels of governance. The National Steering Committee for Environment and Sustainable Development was discontinued in 2005. No body that would regularly bring together the sectoral authorities and stakeholders to discuss broader issues of sustainable development currently exists. In the absence of a long-term planning document on sustainable development and a multisectoral, multi-stakeholder body on sustainable development, the country is poorly equipped for implementation of the 2030 Agenda for Sustainable Development, including its Target 17.14 (To enhance policy coherence for sustainable development).

Recommendation 1.1:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should:

- (a) *Develop and adopt a sustainable development strategy of Bosnia and Herzegovina for implementing the 2030 Agenda for Sustainable Development and Sustainable Development Goals;*

- (b) *Promote a harmonized approach towards achieving common guidelines on planning investments in the environmental field and in sustainable development;*
- (c) *Establish a multisectoral, multi-stakeholder body entrusted with promoting sustainable development.*

Sustainable Development Goals

The MDG experience of Bosnia and Herzegovina shows the importance of strong ownership of the Goals at various levels of the Government. As of April 2017, the SDG process in Bosnia and Herzegovina has been largely driven by the United Nations Country Team. In late March 2017, the Council of Ministers of Bosnia and Herzegovina appointed the Directorate for Economic Planning under the Council of Ministers to coordinate the process of SDGs implementation and monitoring. It is expected that this Directorate will be a technical body for coordinating SDGs implementation and monitoring. There is no political-level body or forum with the participation of all relevant stakeholders to guide and oversee SDGs implementation and monitoring. As of April 2017, the SDGs are not mentioned in any of the planning documents at the state and entity levels.

Recommendation 1.2:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should:

- (a) *Assume ownership of the SDGs process;*
- (b) *Identify the political-level body to guide SDGs implementation and monitoring;*
- (c) *Proceed with setting up aspirational and measurable national targets;*
- (d) *Ensure that the SDGs are integrated into future planning documents;*
- (e) *Ensure the preparation of reports on SDGs implementation.*

Inter-Entity Coordination Body for the Environment

The responsibilities of the Ministry of Foreign Trade and Economic Relations include coordination and facilitating harmonization of environmental policy and legislation among the two entities and Brčko District but implementing these tasks has proved difficult in the absence of formal mechanisms to address diverging positions. The Inter-Entity Coordination Body for the Environment deals with environmental issues, which require a harmonized approach among the entities. Its core function is to facilitate the harmonization of laws and subsidiary legislation of the entities. However, attention to implementing this function has been decreasing in the last few years. Information about the activities of the Body is scarce.

Recommendation 1.3:

The Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Department of Spatial Planning and Property Issues of Brčko District should enhance efforts to harmonize the respective legislation of the entities and Brčko District by:

- (a) *Focusing the activities of the Inter-Entity Coordination Body for the Environment on harmonization of the legislation of the two entities and Brčko District;*
- (b) *Setting clear time-bound objectives to be attained in terms of harmonization of the legislation, in line with the Environmental Approximation Strategy of Bosnia and Herzegovina;*
- (c) *Regularly reviewing progress achieved in terms of harmonization of the legislation in the framework of the Inter-Entity Coordination Body for the Environment;*
- (d) *Making the meeting reports of the Inter-Entity Coordination Body for the Environment publicly available.*

Integration of environmental requirements into sectoral policies and legislation

The integration of environmental considerations into sectoral policies and legislation is at the early stages in the energy, mining, transport, agriculture, forestry and health sectors, and has yet to begin in the tourism and education sectors. Such a low level of integration is partially explained by the weak legal framework for SEA and the limited use of this tool. As of April 2017, a number of sectoral legal and policy documents are in the process of development. These include, for example, the new law on mining in Republika Srpska, new laws on tourism in both the Federation of Bosnia and Herzegovina and Republika Srpska, the new law on forests in the Federation

of Bosnia and Herzegovina, the national energy efficiency plan, the state-level strategy on road safety, the forestry programme in the Federation of Bosnia and Herzegovina, the spatial plan in the Federation of Bosnia and Herzegovina and the new spatial plan in Brčko District. This provides opportunities for deepening the integration of environmental requirements into sectoral policies and legislation.

Recommendation 1.4:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska, and the Department of Spatial Planning and Property Issues of Brčko District should ensure the integration of environmental requirements into sectoral policies and legislation by:

- (a) *Strengthening cooperation with sectoral ministries and proactively commenting on the drafts of sectoral legal and policy documents;*
- (b) *Enabling active use of the SEA instrument;*
- (c) *Seeking, as necessary, the assistance of other governments and relevant international organizations in sharing knowledge and information on the integration of environmental requirements into sectoral policies and legislation.*

Strategic Environmental Assessment

In 2017, Bosnia and Herzegovina became a party to the Protocol on SEA.

In the Federation of Bosnia and Herzegovina and Brčko District, the legal framework for SEA consists of a few articles in their laws on environmental protection. This is clearly not sufficient for proper regulation and implementation of SEA. Very few SEAs were done in the Federation of Bosnia and Herzegovina and none in Brčko District. In Republika Srpska, the legal framework for SEA is quite developed, with two rulebooks complementing the provisions of a dedicated section in the Law on Environmental Protection. Still, there are gaps in the legal framework on SEA in Republika Srpska with regard to the lack of requirement to obtain the opinion of health authorities and the need to strengthen provisions on public participation and consultation. In terms of practical application, Republika Srpska has more extensive experience, although this experience is limited to spatial planning documents.

In the Federation of Bosnia and Herzegovina and in Brčko District, the legislation includes no provisions on transboundary consultations. In Republika Srpska, the Law on Environmental Protection provides for the obligation to ensure the participation of relevant authorities and the public of other countries in case the plan and programme may have an impact on their environment. The country's experience with SEA in a transboundary context is very limited.

Recommendation 1.5:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska, and the Department of Spatial Planning and Property Issues of Brčko District should develop procedures for transboundary notification and consultations and submit them to the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District for adoption.

Recommendation 1.6:

The Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina should:

- (a) *Ensure the adoption of detailed legislation on SEA, referring to the scope of SEA, competent authorities, procedural steps, content of an SEA report, public participation, monitoring and follow-up, and other requirements;*
- (b) *Raise the awareness of sectoral authorities on SEA and facilitate their training on this issue;*
- (c) *Ensure that all documents subject to SEA undergo an SEA.*

Recommendation 1.7:

The Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska should:

- (a) *Improve legislation on SEA, in particular by adopting subsidiary legislation detailing public participation and consultation procedures;*
- (b) *Raise the awareness of sectoral authorities on SEA and facilitate their training on this issue;*
- (c) *Ensure that all documents subject to SEA undergo an SEA.*

Recommendation 1.8:

The Department of Spatial Planning and Property Issues of Brčko District should:

- (a) *Ensure the adoption of detailed legislation on SEA, referring to the scope of SEA, competent authorities, procedural steps, content of an SEA report, public participation, monitoring and follow-up, and other requirements;*
- (b) *Raise the awareness of sectoral authorities on SEA and facilitate their training on this issue;*
- (c) *Ensure that all documents subject to SEA undergo an SEA.*

Training for civil servants

There is no systematic training and professional development of civil servants on the environment and sustainable development issues. Training and professional development of staff of the institutions responsible for environmental issues takes place sporadically as part of international projects. There is no system of training and professional development on environmental issues of staff in sectoral ministries.

Recommendation 1.9:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should establish:

- (a) *A system of training and in-service training of staff in the institutions responsible for environmental issues to ensure regular and comprehensive coverage of environmental and sustainable development issues;*
- (b) *Schemes of training and in-service training on environmental issues for civil servants in sectoral ministries.*

Implementation of international agreements

There is no state-level law on environmental protection, though numerous recommendations were made to the country in the past two decades to adopt such a law. According to the 2017 Environmental Approximation Strategy of Bosnia and Herzegovina, the competences of Bosnia and Herzegovina in environmental matters include, among others, the implementation of international treaties and coordinating activities to approximate the legal system of Bosnia and Herzegovina with the EU acquis. While the adoption of a state-level law on environmental protection is not accepted as feasible at this time, formalization of responsibilities for implementation of international agreements related to the environment, including for approximation to the EU acquis, could represent a step forward.

Recommendation 1.10:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should develop and adopt a state law to formalize the framework for implementation of international agreements and other international obligations of Bosnia and Herzegovina related to the environment.

Chapter 2: Regulatory and compliance assurance instruments

Assessment

A single entity-level administration for inspection activities has been enforced since 2006. Environmental permits are issued by the Ministry of Environment and Tourism in the Federation of Bosnia and Herzegovina and by the Ministry of Physical Planning, Civil Engineering and Ecology in Republika Srpska. The entities' administrations for inspection activities inspect compliance of the activities of permit holders with the permit conditions in the respective entities. This consolidation of regulatory and inspection activities has been accompanied by an institutional separation of inspection and permit-issuing processes.

The efficiency and effectiveness of the system of regulation and compliance have not changed since 2011. There is still inadequate vertical coordination and communication between cantons/municipalities and entities but also insufficient horizontal coordination at the inter-entity and intercantonal and intermunicipal levels. In addition, the shortage of staff and funding to carry out tasks and activities in environmental permitting, assessment and inspection is today still much the same challenge as it was in 2011. ICT tools on regulatory and compliance assurance mechanisms are not widely used. However, several steps to advance the regulatory and enforcement system since 2011 have been taken; for instance, the industrial plant and pollutant register has been established, the technical expertise of expert assessors of environmental impacts is enhanced and public concerns over environmental pollution are more frequently addressed.

Conclusions and recommendations

Environmental permitting

Integrated permits, such as are regulated by EU Directive 2010/75/EU on industrial emissions (IPPC Directive), have not yet been issued in Bosnia and Herzegovina, since the Directive has not yet been fully transposed. Thus, an operator of an installation having multiple environmental impacts, e.g. on air, water and generation of waste, applies for individual permits. This creates a burden on both the permit applicant and the permitting authority to process the applications. This procedure does not allow assessment of the cumulative impacts.

The permits are valid for a maximum of five years. This relatively short period brings about a new round of application proceedings that again encumbers the parties in the permitting process and leaves the cumulative effects unaddressed.

Recommendation 2.1:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District should:

- (a) *Simplify environmental permitting procedures in order to avoid overlapping and achieve better efficiency;*
- (b) *Take first steps in applying an integrated approach to environmental permits and abolishing separate permits;*
- (c) *Consider extending the five-year period of validity of permits when applicable.*

Best available techniques

The environmental inspectorates are currently understaffed and lack continuous training programmes. One inspector performs 16 inspections a month and covers a wide range of sectors, which workload usually requires the capacity and competences of several inspectors. Environmental inspectors do not have periodic and systematic training to update and upgrade their knowledge and skills in the changing industrial technologies and associated BREFs. There are insufficient inspectors to conduct the inspections. Bosnia and Herzegovina could also use already translated BREFs from neighbouring countries such as Croatia and Serbia.

Recommendation 2.2:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District should:

- (a) *Translate relevant best available techniques (BAT) conclusions and parts of best available techniques reference documents (BREFs) into the official languages;*
- (b) *Increase the capacity of environmental inspection in terms of staff numbers and training.*

Accredited laboratories

In the event of emergency inspections (e.g. after accidents), but also during some routine inspections, immediate sampling of air, soil, water or waste samples cannot be performed. As of May 2017, the environmental inspectorate does not have an accredited laboratory of its own nor a collaborating partner which could be requested to take samples at short notice. The entities' bodies responsible for environment inspection do not have framework agreements with accredited laboratories to provide such a service. These services are outsourced to private laboratories, are costly and cannot respond in the event of emergencies.

Recommendation 2.3:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District should consider establishing accredited laboratories to support inspections, in particular those related to the environment.

Switchboard telephone number of environmental inspectorate

Anyone can submit a complaint of illegal work by companies or entrepreneurs via phone and, in the case of Republika Srpska, via a web form (<http://www.inspektorat.vladars.net/prijave>). However, a single switchboard telephone number is not available at the state or entity level that would enable people to report on environmental problems or obvious violations of environmental regulations. Such an entity-level direct switchboard would enable identification of the nature of the reported event and immediate action to be taken if necessary to prevent environmental and health hazards.

Recommendation 2.4:

The Administration for Inspection Affairs of the Federation of Bosnia and Herzegovina, the Administration for Inspection of Republika Srpska and the Inspectorate of Brčko District should introduce a switchboard telephone number for the environmental inspectorate to help the public to report on violations of environmental regulations and the inspectorate to determine which notifications to forward to the health and safety inspectorate, veterinary inspectorate or any other authority for a response.

Environmental fines

The current level of financial sanctions following damage to the environment by legal bodies does not motivate the permit owners who violate permit conditions to change their behaviour. The applicable fine, ranging from €500–€5,000, is too small to bring about behavioural change, especially in installations in need of technological upgrading to meet environmental standards.

Some operators have difficulties meeting the environmental conditions set in the environmental permits or to pay the penalties for violations. Penalties are too small to motivate operators to invest in technological improvements. No agreements are in place between competent ministries and operators, by which, for an agreed period, the operator would take responsibility to invest in the technology required to meet environmental standards and the competent ministries would waive the penalty for non-repayment of the loan advanced to the operator within the defined period.

Recommendation 2.5:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District should:

- (a) *Review environmental fines for non-compliance by permit holders since the fines are too small to motivate permit holders to take action to comply;*
- (b) *Encourage competent ministries to conclude time-bound agreements with operators allowing them to invest in environmentally sound technologies without being fined for non-repayment in the agreed time.*

Joint inspections

Although inspection activities have been consolidated under a joint administration, in both the Federation of Bosnia and Herzegovina and Republika Srpska inspections by the authorities under the joint administration are performed independently and overlaps are inevitable. Given the divided authorities of the inspectorates, health and safety, environmental and veterinary inspections are made separately or in parallel of the same operators and sites of operation. No joint inspections are carried out at the entity or district level.

Recommendation 2.6:

The Administration for Inspection Affairs of the Federation of Bosnia and Herzegovina, the Administration for Inspection of Republika Srpska and the Inspectorate of Brčko District should perform joint inspections when applicable.

Environmental impact assessment

Online platforms are not in place for the reporting of operators' self-monitoring results, inspection reports and reporting on project investments. Such online platforms for the pollutants register, permitting and enforcement data would also serve as useful tools of communication with other public authorities such as the health and safety inspectorate, veterinary inspectorate and regional and local authorities, enabling the sharing of common information across the entities. A common web-based portal of permits at the entity level would enable the authorities to have an overview of limit values and environmental measures established for the industrial operators in neighbouring areas and consider the cumulative effects of current and planned installations. A common web portal would also serve as an educational tool, not only for the authorities but also for experts and expert organizations involved in EIAs. Such a web portal would enhance transparency and public access to environmental information and engagement in the decision-making process – the permitting process is regarded as such by the Aarhus Convention.

A clear link between the conclusions of EIA reports and permit conditions is not established. Environmental inspectors cannot refer to the concrete conditions that need to be met by the permit holder. A common, publicly accessible database on environmental permits and associated EIAs would enable the authorities and interested stakeholders to follow the process of permitting and EIA.

Recommendation 2.7:

The Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska, and the Department of Spatial Planning and Property Issues of Brčko District should:

- (a) *Ensure that the conclusions of EIA reports are reflected in the permits' conditions;*
- (b) *Establish a common, publicly accessible database on environmental permits and associated EIAs.*

Environmental liability

The current formulation of what represents damage to the environment, who is determined to be liable for such damage, who can initiate court proceedings and how, who is to be sanctioned for such damage, and how environmental damage can be repaired, are insufficiently specific, not precise and clear, and incomplete. The financial sanction for damage to the environment is regarded as not motivating of behavioural change, due to the low level of fines. Thus, there is a need for review of the legislation on environmental liability and sanctions and to raise the associated fines to levels appropriate to the damage caused to the environment.

Recommendation 2.8:

The Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Department of Spatial Planning and Property Issues of Brčko District should update the legislation on environmental liability and financial sanctions for damage.

Eco-labelling and corporate social responsibility

The number of operators who hold ISO 14001 certificates has been slowly increasing, but adoption and implementation of voluntary environmental management systems more widely needs further promotion by the administrations. Integrating environmental management with social responsibilities of businesses also needs boosting by well-planned promotional activities by entity administrations.

Recommendation 2.9:

The Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Department of Spatial Planning and Property Issues of Brčko District should promote voluntary eco-labelling and corporate social responsibility programmes.

Chapter 1: Greening the economy

Set-up of economic instruments

Progress has been made since 2011 with regard to legislation considering economic instruments for environmental protection, but their implementation is limited and often not compliant with efficiency and effectiveness principles, while policies to exploit Bosnia and Herzegovina's green economy potential are substantially lacking.

Three main groups of issues have been identified that are not sufficiently addressed by the country's authorities. Addressing them would be useful to improve the efficiency and effectiveness of measures and to ensure satisfyingly sustainable economic growth:

1. The complex administrative structure, involving a high level of fragmentation and overlapping of responsibilities and competences;
2. The scarcity of available financial resources and the affordability problem;
3. The non-proper use of economic instruments for environmental protection and development of green activities.

The complexity of the administrative structure makes environmental policymaking particularly unwieldy in Bosnia and Herzegovina and necessitates strong coordination efforts to ensure consistency, effectiveness and synergy of environmental measures, including economic instruments.

Since 2011, progress has been made, with stronger exchange and collaboration efforts among entities and the more intense activity carried out by the Inter-Entity Coordination Body for the Environment. It was established in 2006, comprising eight members equally nominated by the entities' governments and meeting periodically.

However, further strengthening of central coordination would be desirable and appropriate to avoid the overlapping of plans and measures and to allow implementation of effective countrywide strategies.

In addition, the absence of a proper countrywide legal framework for data reporting and collection gives rise to a relevant issue of data transparency, homogeneity and availability. This problem is particularly relevant for economic instruments implemented at different levels of government and administration and prevents authorities from having a complete picture of the current situation and from adequately evaluating the socioeconomic effects of different measures, hampering effective and efficient policy formulation.

Recommendation 3.1:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should strengthen its role in:

- (a) *Monitoring and coordinating the design and implementation of economic instruments and planning coordinated and effective projects within the international cooperation framework;*
- (b) *Elaborating the legal framework for data reporting and accounting rules and supporting the establishment of databases;*
- (c) *Promoting studies and analysis on the effects of economic instruments and green economy.*

Implementation of economic instruments

A major issue that Bosnia and Herzegovina currently faces in the implementation of economic instruments for environmental protection and in the adoption of measures to support green economy developments is the shortage of available financial resources and the intractable affordability issues.

Weak economic conditions and the large presence of an inefficient and often unprofitable public sector, in particular in natural resources management and public utilities provision, limits the availability of financial resources for environmental protection, creating a vicious circle.

Inefficiencies and the underprofitability of the public sector largely reflect the need to support employment and national product competitiveness (e.g. the wood and wood processing industries maintain wood prices at low levels). In turn, inefficiency and underprofitability limit the resources available to allocate to environmental protection and discourage private capital flows, causing a progressive deterioration of natural capital and, given that the most important activities in Bosnia and Herzegovina are based on natural resources exploitation (wood, energy, quarries and mines), a worsening of economic growth potential. In addition, the need to support household incomes and to keep production costs low conflicts with the implementation of measures that are fully compliant with efficiency and effectiveness principles and results in fees and tariffs being too low, the underpricing of natural resources and tolerance of activities damaging the environment (e.g. illegal logging).

In order to arrest this vicious cycle, it is necessary to attract private investment, increase the flow of international cooperation and environmental funding and spur green economic growth for strategically beneficial results.

Recommendation 3.2:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Organize the collection of detailed financial and technical data and elaboration of significant performance indicators and establish exhaustive databases of economic instruments implemented for environmental protection and green economy;*
- (b) *Reduce privileges and pursue the efficiency principle in public enterprises and gradually open up natural resources management to private operators;*
- (c) *Introduce incentives (e.g. tax reduction/exemption in the first years of activity or financial subsidies, grants and microcredit) for the starting-up of sustainable economic activities (e.g. sustainable tourism, fishing and fish farming, hunting, forest food production, organic agriculture);*
- (d) *Reinforce the use of economic instruments for environment protection in a context of fiscal reform, to move the fiscal burden from "good" inputs to "bad" inputs to improve the trade-off between environmental protection and socioeconomic issues, keeping in mind compensating for increases in fees and tariffs on natural resources by a reduction in the current high level of social contributions;*
- (e) *Strengthen efforts to promote flows of international funds, for example by boosting the use of the Clean Development Mechanism for investment in the most polluting traditional sectors and, given the role of forests as a carbon sink, in forest management and for rehabilitation of mined forestlands.*

Use of economic instruments

Laws and strategies generally clearly indicate the efficiency and effectiveness principles (consumer pays, polluter pays and cost recovery) as guidelines for environmental policies. In practice, however, the use of economic instruments to protect natural resources and to incentivize green economy growth has limited results and is often not compliant with these basic principles. Accounting for affordability and competitiveness issues, policymakers in Bosnia and Herzegovina should gradually reinforce and improve their use.

Recommendation 3.3:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should gradually:

- (a) *Improve accounting rules (in particular in local governments, public enterprises, PUCs and industrial waste consortia) to increase the transparency of revenue and expenditure and enable the calculation of performance indicators for each entity and for the different sectors (water, waste, etc.);*
- (b) *Fix fees and tariffs considering total costs, including capital costs;*
- (c) *Better link fee structures to the actual use or pollution of natural resources;*
- (d) *Eliminate cross-subsidization between different users and for improvements in metering systems (e.g. water consumption, emissions) and strengthen incentives towards rationalization of natural resources consumption;*
- (e) *Introduce regular revisions of tariff rates, accounting for inflation and efficiency improvements.*

Foreign investment

Fragmentation of private ownership and the presence of mined areas hamper proper forest management and represent major obstacles for the development of green economic activities in forestlands.

Recommendation 3.4(a):

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should strengthen efforts to attract foreign investments for technological innovations and infrastructural improvements related to forest activities and management, through participation in international projects and exploiting the opportunities offered by international mechanisms.

Incentives

Recommendation 3.4(b):

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Incentivize the introduction of financial incentives for private forestlands owners e.g. public grants and microcredit, amendments to the tax systems to incentivize start-ups, particularly in green economic activities, and payments for ecosystem services provided by forests;*
- (b) *Incentivize the use of biomass for energy production, providing further financial resources for forest management and infrastructural investment and for forest-related economic activities;*
- (c) *Promote private forest owners associations.*

Tax on industrial air pollution

Recommendation 3.5:

The Governments of Republika Srpska and Brčko District should introduce a tax on industrial air pollution.

Law on forests and tariff digression

Recommendation 3.6:

The Government of the Federation of Bosnia and Herzegovina should:

- (a) *Approve the law on forests;*
- (b) *Introduce tariff digression in feed-in tariff design in order to account for decreasing costs of renewables technologies.*

Renewables and energy efficiency

Recommendations 3.7:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Introduce or extend the use of revolving funds and incentive mechanisms for the private sector, for both households and businesses, in particular for the use of biomass, waste and biofuels as energy sources and for investing in cogeneration plants;*
- (b) *Incentivize (and/or make investments) to spur the utilization of geothermal water as an energy source, in particular in aquaculture, agriculture and heating of settlements;*
- (c) *Address energy efficiency in the housing sector by applying new technologies and tax incentives;*
- (d) *Strengthen efforts to attract foreign capital, through donors and international projects, opening up to private enterprises and exploiting the opportunities offered by environmental international instruments.*

Waste management

Major issues facing Republika Srpska in the development of waste management are the absence of adequate infrastructure for the separate collection, treatment and recycling of waste, illegal landfills and the lack of effective measures to incentivize reduction of waste production.

Recommendation 3.8:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should introduce:

- (a) *Economic incentives to spur forces towards circular-economy developments, modifying behaviours and fostering the separate collection and treatment of waste to stimulate its reuse and recycling, and also in energy production;*
- (b) *Extended producer responsibility;*
- (c) *Adequate enforcement measures (fines and controls) against illegal landfills and to provide resources for their remediation.*

Chapter 4: Environmental monitoring, information, public participation and education

An integrated environmental monitoring and information system is not in place. Bosnia and Herzegovina does not have an adopted set of indicators. The country lacks necessary data for creating possible indicators. There is a lack of databases and information systems that would structure the environmental information and data and enable dissemination, vertical and horizontal cooperation for the operational and official flow of data, communication and coordination, including the exchange of data among the institutions that collect data for international reporting.

Access to information, public participation and access to justice

Members of the public have access to limited environmental information and data. There is a lack of coordination between the various agencies responsible for environmental monitoring and protection, such as the inter-agency entities.

Recommendation 4.1:

In line with the provisions of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Enhance legislative and institutional frameworks to ensure effective access to information, public participation and access to justice;*
- (b) *Conduct training for relevant authorities to build their capacity to organize effective public participation procedures.*

Integrated environmental monitoring systems

Enhancing air quality monitoring will be fundamentally important to improving overall air quality throughout Bosnia and Herzegovina, and to ensuring that the public has access to relevant information and data. This is particularly important given that Bosnia and Herzegovina has the highest European mortality rates attributed to indoor and ambient air pollution according to the 2017 WHO statistics. It would be relevant to continue developing and advancing the information system technologies underlying the air quality monitoring system.

Significant improvements in making environmental information and data available on the state of the environment are required. It would be particularly relevant to ensure that the ECE set of environmental indicators is being produced and published. Among other things, this would require that the relevant ministries address the significant environmental data gaps (e.g. on land and soil) as well as improved data collection, application and exchange between environmental information systems to ensure that environmental monitoring in the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District is harmonized.

Recommendation 4.2:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Establish integrated environmental monitoring systems based on a harmonized methodology, including all missing media, such as forests, land use, soil and environmental noise, and make data publicly available;*
- (b) *Assess social, economic and health impacts from environmental pollution and make results available.*

Environmental monitoring and data collection

Environmental monitoring is not systematic. It is important that all relevant entity authorities establish a harmonized programme for environmental monitoring and information management that is in line with the principles of a shared environmental information system (SEIS), including the strengthening of environmental statistics.

Information and data are either partially or completely lacking for many environmental indicators. Some data are not measured and/or collected. There are no harmonized (administrative and methodological) approaches, legislative frameworks relevant to the environment and agreement among the statistical agencies on the types of information relevant to the planning and design of environmental monitoring and method of processing data, including the establishment of data validation systems.

The general lack of environmental information and indicators makes it difficult to provide an overall image of the state of the environment in Bosnia and Herzegovina. A mandatory set of environmental indicators (in compliance with international methodologies) across the entities has not been adopted.

NGOs are not usually engaged to help in improving the collection of environmental information and data. The Association for Research and Conservation of Biodiversity did contribute towards establishing a system for collecting information on the state of biodiversity in Republika Srpska. Harnessing such collaboration could contribute towards improving the overall environmental monitoring system.

Recommendation 4.3:

The Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina and other relevant public authorities, should:

- (a) *Establish a joint programme for environmental monitoring and information management;*
- (b) *Adopt a common set of environmental indicators in compliance with international methodologies;*
- (c) *Extend open access to environmental data and information in line with the principles of a shared environmental information system;*
- (d) *Continue the implementation of a shared environmental information system to decrease the segregation of information systems and data flows;*
- (e) *Strengthen capacity for the collection of data on the state of the environment;*
- (f) *Establish a data validation system that would be used to check all the environmental data and information collected, as well as the way in which they have been collected;*
- (g) *Strengthen cooperation with relevant environmental NGOs to enhance data collection capabilities.*

Environmental education and education for sustainable development

Most of the environment-related education in school curricula is in the natural science area. Education on sustainable development has been reduced to education on environmental protection through school subjects (e.g. Biology, "My environment", "Nature and society") and through extra-curricular school activities. The limited education on sustainable development, and awareness on the state of the environment, would have to be improved. It would be necessary to take into consideration all sustainable development principles, such as participation in democratic decision-making and economic aspects of education for sustainable development.

Recommendation 4.4:

The Ministry on Foreign Trade and Economic Relations of Bosnia and Herzegovina and all other relevant authorities at the entity and cantonal levels should increase the relevance of awareness development about environmental protection and conservation in the educational sector and educational strategies for sustainable development in the country.

Chapter 5: Implementation of international agreements and commitments*Assessment*

Bosnia and Herzegovina is a party to a number of international environmental agreements (annex II). Since 2011, the country became party to the European Landscape Convention (in 2012), the Convention on the Transboundary Effects of Industrial Accidents (in 2013), the Paris Agreement on Climate Change (in 2017) and the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (in 2017), and signed the Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (in 2013). This demonstrates the political importance that the Government attributes to being an engaged participant in international cooperation in the environmental domain. The aspiration to EU membership is the main driver for improving and completing the strategic and legal environmental framework in the country.

The development agenda in Bosnia and Herzegovina is, and continues to be, complex. Consensus-building and decision-making involves the State Government, the two entities (the Federation of Bosnia and Herzegovina and Republika Srpska) and Brčko District. Bosnia and Herzegovina has not yet put in place an overall efficient coordination formula among all the actors to ensure robust and continuous progress in meeting the obligations deriving from environmental international agreements.

In May 2017, the Environmental Approximation Strategy was adopted by the Council of Ministers. Environmental Approximation Programmes of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District have also been approved. There is no single document that outlines the general framework for international cooperation on environmental protection. National priorities for the environment will be drawn from the Environmental Approximation Strategy and Programmes, and it is likely that priority will be given to acceding to international environmental treaties to which the EU is a party, which treaties represent the integral part of the EU acquis and serve as additional tools or requirements for the country to achieve full legal harmonization with the EU acquis.

Bosnia and Herzegovina has registered progress towards several of the MDGs. However, SDGs are not significantly embedded in the policy documents of the country, entities and Brčko District.

Bosnia and Herzegovina has in place appropriate and efficient measures to ensure monitoring of international aid. However, there is no coordination mechanism with regard to financial assistance provided by the donor community in the environmental and sustainable development domains.

While Bosnia and Herzegovina continues to be supported by a number of bilateral and multilateral donors, the restrictions around the IPA II, caused by the absence of a countrywide environmental approximation strategy, prevent the country from fully benefiting from such important assistance.

The improvement of Bosnia and Herzegovina's performance vis-à-vis international and regional environmental agreements and the 2030 Agenda for Sustainable Development requires a coordinated and joint endeavour among different parts of the administration.

*Conclusions and recommendations***Institutional mechanisms**

Bosnia and Herzegovina does not have in place effective institutional mechanisms to oversee and coordinate the implementation of all international environmental agreements to which the country is a party. The case-by-case approach followed in Bosnia and Herzegovina, under which implementation arrangements were established for

some agreements, does not resolve the absence of these arrangements for the whole set of environmental agreements the country is committed to.

The absence of the appointment of focal points is a direct effect of coordination difficulties in Bosnia and Herzegovina regarding international cooperation in the field of the environment. There are a number of environmental agreements to which Bosnia and Herzegovina is a party that do not have a nominated focal point in Bosnia and Herzegovina.

There is no formal coordination mechanism established in Bosnia and Herzegovina for donor coordination in the field of the environment and sustainable development.

Recommendation 5.1:

The Ministry on Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District should:

- (a) *Set up an institutional mechanism to ensure coordination among all administration levels with regard to implementation and enforcement of multilateral environmental agreements, which should also serve as a platform for donor coordination on environmental and sustainable development issues;*
- (b) *Ensure the appointment of national focal points for all multilateral environmental agreements.*

Accession to multilateral environmental agreements

Despite the progress achieved by Bosnia and Herzegovina in ratification or accession to global and regional MEAs, there are still a number of MEAs to which the country is not a party.

Recommendation 5.2:

The Council of Ministers of Bosnia and Herzegovina should proceed with the country's accession to the following multilateral environmental agreements:

- (a) *Agreement on the Conservation of African-Eurasian Migratory Waterbirds;*
- (b) *Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization;*
- (c) *Convention on the Law of the Non-navigational Uses of International Watercourses;*
- (d) *1995 Amendments, amendments concerning the four Protocols already endorsed, and the Protocol on Integrated Coastal Zone Management to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean;*
- (e) *Protocol on Pollutant Release and Transfer Registers to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters;*
- (f) *GMO amendment to the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters;*
- (g) *Convention on Mercury;*
- (h) *Protocol to Abate Acidification, Eutrophication and Ground-level Ozone and its 2012 amended version, Protocol on Persistent Organic Pollutants (POPs) and its 2009 amended version, and Protocol on Heavy Metals and its 2012 amended version, to the Convention on Long-range Transboundary Air Pollution.*

Public engagement in implementation of MEAs

There is a general absence of information provided by the Bosnia and Herzegovina environmental authorities to the public on the status of Bosnia and Herzegovina's participation in global, regional and bilateral agreements and on the implementation of those agreements, including the reports submitted. NGOs are not involved in the decision-making processes with regard to the country's participation in MEAs. Consequently, they are not involved in the implementation of MEAs.

Recommendation 5.3:

The Council of Ministers of Bosnia and Herzegovina should engage actively in the intersessional process to develop recommendations on the Strategic Approach to International Chemicals Management and the sound management of chemicals and waste beyond 2020.

Recommendation 5.4:

The Ministry on Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District should:

- (a) *Ensure access through their websites to the texts of global, regional and bilateral environmental agreements, including translations into the national languages;*
- (b) *Make the information on the status of participation of the country in global, regional and bilateral agreements and on the implementation of those agreements (in particular, national reports on implementation) available to the public through their website;*
- (c) *Enhance the involvement of NGOs in development of national reports on implementation of multilateral environmental agreements;*
- (d) *Further involve NGOs in international decision-making processes on environmental matters, including on accession to and implementation of multilateral environmental agreements, through organizing effective public consultations and integrating NGOs in coordination groups dealing with international matters and ensuring their effective participation in such groups.*

Chapter 6: Climate change mitigation and adaptation*Assessment*

As a party to the UNFCCC and the Kyoto Protocol, Bosnia and Herzegovina participates in international activities and processes under this framework. In 2017, the country ratified the Paris Agreement.

Bosnia and Herzegovina fulfils its reporting obligations. The country has already submitted three national communications under the UNFCCC and two biennial update reports.

Bosnia and Herzegovina is progressing in developing its legal, policy and institutional framework on this topic. In particular, in 2013 the country adopted the Climate Change Adaptation and Low-Emission Development Strategy. The country established a mechanism for approving and sending NAMA projects to the UNFCCC Registry.

However, Bosnia and Herzegovina is still far from properly coping with the multiple challenges emanating from different natural and anthropogenic phenomena, which are and will be aggravated by anthropogenic climate change.

*Conclusions and recommendations***Impact of anthropogenic climate change**

Bosnia and Herzegovina lacks data and studies on the current impact of climate change on different components of nature, including water resources, land and soil cover, forest and other natural vegetation, biodiversity and ecosystems. The monetary impact of current anthropogenic climate change on economic sectors in the country is not available.

Recommendation 6.1:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should integrate and apply the results of studies of the current impact of anthropogenic climate change on components of the environment, social and economic situation and health sector in policy formulation and implementation.

Adaptation to climate change

Bosnia and Herzegovina is a small actor in the global environment due to its low total and per capita GHG emissions. At the same time, the country is vulnerable to the impact of different natural and anthropogenic phenomena and hazards, such as floods, precipitation patterns, heat and cold waves, forest fires, landslides and erosion. All of these can be aggravated by anthropogenic climate change.

Taking into consideration its limited resources for both mitigation and adaptation measures, the country needs to clearly identify priorities.

Recommendation 6.2:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should:

- (a) Develop and implement policies and measures that can bring the best results in terms of making the country more resilient, not only to the impact of climate change but also to other natural and anthropogenic hazards;*
- (b) Ensure that human settlements are included in the considerations about climate change adaptation and therefore included in future studies and strategies to be implemented in the country;*
- (c) When feasible, foresee district heating for new and existing neighbourhoods and buildings;*
- (d) Ensure that climate change adaptation and mitigation measures are included in spatial and urban planning.*

Chapter 7: Air protection

Assessment

Industrial air emissions, combined with the air emissions from the growing number of vehicles and from domestic heating using firewood and lignite, create severe air pollution in industrial and urban areas, which causes serious nuisance and health problems. During less favourable meteorological conditions, which often occur during winter, high concentrations of substances such as SO₂ and particulate matter are reached in some urban areas that are situated in valleys, such as Tuzla, Zenica and Sarajevo. Transboundary air pollution also occurs with the high emissions of SO₂ from TPPs and the oil refinery at the Bosnian/Croatian border. Advanced abatement techniques are not installed that would attain better and healthier air quality on a sustainable basis and achieve the EU acquis for ambient air quality in the future.

Measures to prevent air emissions from industry such as those described in the EU BREF documents are sometimes included in environmental permits in Bosnia and Herzegovina, but in many cases they are not (yet) implemented by installed abatement techniques. In the last few years, some measures have been planned and some abatement techniques have been, or soon will be, installed in companies in both entities (e.g. ACM Zenica and TPP Ugljevik), but the search for the necessary investments that would reduce air emissions, create better air quality and public health and maintain the competitiveness of industry, is a great challenge. Pressure to reach these targets is strengthened by growing public awareness of and protest about the lack of access to information and public participation in permit procedures to prevent bad air quality.

Due to the high industrial emissions, combined with traffic exhaust and, during the winter months, domestic heating with coal and wood, high concentrations of air-polluting substances are measured that often exceed the WHO Air Quality Guidelines and the less-stringent EU Air Quality Standards, especially when stagnant meteorological conditions occur during colder periods. The conditions that give rise to air pollution are worsened as some cities are situated in valleys, which prevents dispersion of polluting substances because of air inversion on cold days with little wind.

In rural areas, air pollution is mostly below dangerous levels, with the exception of areas in the vicinity of cities such as Zenica, Tuzla, Kakanj, Lukavac, Ugljevik and Brod. The high levels of air pollution in and around cities in Bosnia and Herzegovina lead to serious health complaints, such as cardiovascular, respiratory and lung diseases. According to the WHO, the per capita mortality rate in Bosnia and Herzegovina attributed to household and ambient air pollution is 223.6 per 100,000, which is one of the highest mortality rates by air pollution in the

world. Concrete measures in all sectors (industry, traffic and domestic heating) are not being taken to improve this situation.

Conclusions and recommendations

Pollution Release and Transfer Register

As part of the EU acquis, the country would have to comply with the E-PRTR standards.

At the state level and at Brčko District level, there is no PRTR.

In the Federation of Bosnia and Herzegovina, the legislation was adopted in 2007 and the PRTR database was established in 2011. About 70 per cent of the relevant facilities submit data electronically or by mail. Data are collected for 91 pollutants according to Directive 2010/75/EU. The PRTR is accessible by governmental institutions and reference centres, but the information is not publicly accessible. Data are not yet shared with the state level.

In Republika Srpska, the legislation is in place to support the implementation of the PRTR. However, due to the lack of knowledge, capacity and resources, response from the operators remains insufficient. The Government is working on improvement and the PRTR is expected to be publicly available on the website www.rhmzrs.com.

Recommendation 7.1:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should further improve the legal framework, make necessary institutional arrangements, develop technical capacity and allocate and train the staff required for an effective pollutant release and transfer register system at the state level.

Recommendation 7.2:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should ensure that:

- (a) *The respective PRTR systems are harmonized and data are reported according to the international obligations;*
- (b) *The reporting mechanisms are in place and in force.*

Legislation on industrial emissions

As a candidate for EU membership, Bosnia and Herzegovina agrees to harmonize its legal framework on environmental issues with the EU legal framework. Directive 2010/75/EU on industrial emissions lays down rules on integrated prevention and control of air and water pollution, energy efficiency and waste control arising from industrial activities. An EU-funded project is being carried out in Bosnia and Herzegovina to help implement the IPPC Directive, but no laws have yet been enacted that transpose the Directive.

Recommendation 7.3:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should amend the legislation to fully transpose Directive 2010/75/EU on industrial emissions and ensure that the legislation at the entities and District levels is harmonized.

Transport and air pollution

In Sarajevo and other cities, the growth in the number of private cars is one of the main causes of air pollution (NO_x, PM₁₀, NMVOC and SO₂). In December 2016, the air quality in Sarajevo was so bad that a cantonal emergency committee took the measure to ban half the city's cars from the roads on alternate days, allowing only cars with licence plates ending with an odd number one day and those ending with an even number the next day, for as long as the bad air quality episode lasted. Other measures followed, such as prohibiting older cars and heavy trucks on several routes. The critical situation in Sarajevo and other cities, such as Tuzla and Zenica, lasts

for several months each winter when temperatures are low and there are air inversions in the valleys that hamper air circulation.

Private cars in the country are generally between 15 and 18 years old, which means that they do not comply with modern emission standards. Import of cars is already restricted for vehicles with lower emission standards than Euro-3. Although most cities are not steep or have a great altitude differential, and a few have cycleways, only a few people use bicycles. There is no campaign to promote a shift to cleaner heavy-duty diesel vehicles and low-emission fuels and cars. It is not easy to use bicycles for shorter distances due to the lack of a safe cycling infrastructure or the common use of bicycles.

Recommendation 7.4:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Introduce economic incentives to facilitate the renewal of the country's ageing vehicle fleet with a view to improving the situation regarding motor vehicle emissions;*
- (b) *Support municipalities to abate air pollution from transport by improving their public transport system, in particular by promoting the use of clean and energy-efficient transport modes;*
- (c) *Promote active (non-motorized) mobility in cities and assess the possible benefits of such a transformation.*

Domestic heating and air pollution

Domestic heating is the other big source of air pollution in cities during winter. The lack of insulation of buildings leads to low energy-efficiency performance and bad air quality in the cities, in particular during winter. The use of firewood, coal and other heat sources in individual stoves and furnaces with low emission thresholds and the use of fuel with a high sulphur content in district heating systems contribute significantly to bad air quality and the exceeding of EU Air Quality Standards for dust, SO₂ and PAH in winter.

Recommendation 7.5:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should:

- (a) *Implement the measures for energy efficiency in residential and commercial buildings that are and will be proposed in the Second and Third National Energy Efficiency Action Plans in order to realize the envisaged 9 per cent improvement in energy efficiency in 2018 compared with the base year 2010;*
- (b) *Promote the use of low carbon technology (heat pumps, renewables) and cleaner fuels such as natural gas instead of liquid and solid fuels by individual households;*
- (c) *Seek financial support from international institutions to support these measures.*

European Monitoring and Evaluation Programme

Bosnia and Herzegovina does not comply with its reporting obligations under the EMEP Protocol and does not submit emission data.

Recommendation 7.6:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, should improve the monitoring and reporting system to the European Monitoring and Evaluation Programme of the Convention on Long-Range Transboundary Air Pollution.

Protocols to the Convention on Long-Range Transboundary Air Pollution

Bosnia and Herzegovina has been party to the Convention on Long-Range Transboundary Air Pollution and its Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) since 1993. To date, Bosnia and Herzegovina does not have a national focal point to this Convention and did not sign or ratify any other protocols under the Convention. The lack of human resources and the country's complex organization makes it difficult to maintain the required

contact points. The Convention is increasingly focusing on providing expertise and guidance to the Eastern European, Caucasian and Central Asian countries to help them ratify and implement the key protocols and reduce air pollution. Some of the Protocols of the Convention that have recently been revised and include stringent emission targets coupled with provisions for flexibility, to facilitate countries' accession to the EU, are the Gothenburg Protocol (to Abate Acidification, Eutrophication and Ground-level Ozone), the POPs Protocol and the Heavy Metals Protocol. For Bosnia and Herzegovina, these developments create opportunities to obtain guidance from the Convention on replacement of older technologies and to develop policies to implement new regulations.

Recommendation 7.7:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina should invest in acquiring twinning and other projects with EU countries and other parties and institutions to obtain the guidance and expertise that is necessary to ratify and implement the Protocols to the Convention on Long-Range Transboundary Air Pollution, as an important step in the direction of achieving the EU acquis on air protection.

Chapter 8: Water management

Water plan and institutional framework

Institutional organization in Bosnia and Herzegovina is decentralized in accordance with the constitution. From the water management perspective, bottom-up governance evolved from river basin level is not a problem if national targets are well defined and inter-entity coordination is effective. Thus, the main challenge is to reinforce integrated water resources management processes – planning, licensing, monitoring and community participation in decision-making – and to avoid discontinuities and fragmentation in river basin and aquifer management.

The same integrated perspective is required considering transboundary waters: international cooperation with riparian countries is of exceptional importance considering the Adriatic Sea and Sava River Basins regional framework. Because of these challenges and in order to tackle increasing responsibilities, a modern technical infrastructure and qualified human resources, as well as appropriate funding resources, are mandatory for river basin organizations. Currently, no national information system on water resources exists above the existing systems in the river basin agencies, to support monitoring of the Sustainable Development Goals. There is no integration of the information systems in the river basin agencies.

Recommendation 8.1:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina, the Ministry of Agriculture, Forestry and Water Management of Republika Srpska and the Government of Brčko District should:

- (a) *Develop a common water plan that will provide a straightforward, basin-wide vision for water and embrace a coherent and harmonized long-term water strategy for the whole country by merging information from the river basin management plans that are now reaching the final approval stage after preparation by the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District authorities, absorbing the programmes of measures related to water management;*
- (b) *Reach full coherence in legal procedures regarding water issues in the country, by endowing the Inter-Entity Coordination Body for the Environment with such a mission and boosting the role of river basin councils in decision-making processes at the river basin district level;*
- (c) *Reinforce the competences of the water agencies and make enduring efforts to increase their technological infrastructure, staff skills and financial self-sustainability;*
- (d) *Charge existing river basin organizations with sharing knowledge and information with each other, as well as with analogous institutions in riparian countries.*

Wastewater and sanitation

Bosnia and Herzegovina authorities are well aware of water quality issues and aquatic ecosystems protection, as well as human needs regarding water and sanitation services. The building of a modern and comprehensive legal system has been encouraged by the EU pre-accession process and multilateral financing is supporting important investments in urban wastewater treatment. Nonetheless, Bosnia and Herzegovina is far from European water

and sanitation benchmarking. Additional investments in water and sanitation are still required – namely, in sewerage systems – but operational costs can not be disregarded when planning sanitation infrastructure, as they will pose a heavy burden on consumers. Operational costs are not considered when designing wastewater collection and treatment schemes. Low-energy-demand types of WWTPs are not established whenever feasible. Operation is supported by water resources taxes and not by tariffs levied on the basis of willingness to pay, and neither are subsidized services provided to the most vulnerable segments of the population.

Because wastewater treatment facilities are designed with a long time horizon (40 years, in general), if construction is not phased in, some idle capacity may occur over the course of a decade or more. Therefore, co-treatment of urban and agro-industrial/industrial wastewaters should be considered as an option to solve multiple pressures. Sludge processing is a major concern in biological wastewater treatment facilities, reaching 30–50 per cent of costs. In this case, biomethanization and/or composting are well-known options for sludge processing and biosolids could be used as slow fertilizer if land application is monitored properly.

Water utilities in Bosnia and Herzegovina are very heterogeneous in size, staff skills and economic sustainability. The aggregation of small utilities into larger ones has been the international drive in the water sector, with the aim of benefiting from economies of scale and increasing external and internal accountability. Technical and financial performance is not assessed in a timely manner. Accountability principles are necessary guidelines to promote good governance.

Recommendation 8.2:

The Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina, the Ministry of Agriculture, Forestry and Water Management of Republika Srpska and the Government of Brčko District, in cooperation with the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, should:

- (a) *Put a hold on current efforts regarding construction or rehabilitation of wastewater treatment plants, to reconsider appropriate technologies and operational costs;*
- (b) *Aim at coordinated construction or rehabilitation of sewerage systems;*
- (c) *Consider sludge biotreatment/valorization from the design phase;*
- (d) *Require that drinking water safety plans are developed by drinking water suppliers following WHO guidelines, increase monitoring reliability and quality control and disclose all results.*

Integrated and sustainable water resources management

Bosnia and Herzegovina is moving towards integrated and sustainable water resources management. Flood and drought intensity and frequency might increase due to climate change patterns; risk mitigation is effective only if carried out on a river basin scale, in both surface waters and groundwater. Among measures to be considered are expanding water reservoir construction, aiming to increase the security of supply for drinking water and food irrigation. Therefore, multipurpose schemes covering the water–food–energy nexus should be planned on a river basin scale and be supported by river basin management plans and sustainable development goals. Some parts of river basins may be designated as no-go areas, in order to keep them as pristine as possible.

Recommendation 8.3:

The Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina, the Ministry of Agriculture, Forestry and Water Management of Republika Srpska and the Government of Brčko District should implement water-sensitive land measures regarding drought and flood risks (e.g. aquifer protection from contamination, non-structural measures and "non-aedificandi" areas regarding flood mitigation), and early warning systems and contingency plans.

Recommendation 8.4:

The Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina, the Ministry of Agriculture, Forestry and Water Management of Republika Srpska and the Government of Brčko District, in cooperation with the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, should ensure that the respective water agencies:

- (b) Carry out strategic environmental assessment procedures regarding new water resources projects for agriculture and/or hydropower purposes;
- (b) Implement a monitoring programme on ecological flows and enforce them where they are not applied.

Chapter 9: Adriatic Sea Protection

Assessment

Generally, the marine environment in Bosnia and Herzegovina is in good condition. However, the elaboration of the current state of the investigated marine water body indicates that it is exposed to significant anthropogenic influence that needs to be better assessed. According to the 2016 MAP/Land-Based Sources Protocol National Action Plan, although improvements have been realized, particularly regarding the 2012 provision of the new legislation platform that is well aligned with the EcAp-Good Environmental Status targets, there is no regulation related exclusively to sea water quality and monitoring, especially regarding nutrients from diffused pollution sources, including underground aquifers, marine litter in the coastal area of Neum and related upstream solid waste management, including landfills.

Clearly, when considering the management of its coastal area, Bosnia and Herzegovina and its entities might frame their policies, programmes and activities in the larger regional context, bilaterally with Croatia and multilaterally within the Central Adriatic Region and beyond, the Adriatic Ionian Region and its EUSAIR Action Plan. The geomorphology of the Adriatic Sea and the small distance between the two opposite coasts of the basin are favourable to the development of a system of small coastal protected areas that could increase their connectivity and be complemented by a wide offshore corridor conservation area represented by possible Ecologically and Biologically Significant Areas (EBSAs) in the Northern and Central Adriatic. Bosnia and Herzegovina, even with its small coastal area, could play its part in this network, especially considering a continuum with the Kelk Peninsula, which is currently preserved from any human land-based activity.

Coastal tourism, the most promising maritime activity in Bosnia and Herzegovina but also that which has the greatest environmental impact, is another example of the importance of bilateral and multilateral initiatives in the region.

As stated in the EUSAIR Action Plan, the net gains of a joint approach will not only increase tourist flows and access to new tourism markets but will help promote among tourism stakeholders the establishment of generally accepted standards and rules, and improved cooperation between public bodies and private tourism associations.

Conclusions and recommendations

Protocols of the Barcelona Convention

Bosnia and Herzegovina is not party to the 1995 Amendments and the Integrated Coastal Zone Management Protocol of the Barcelona Convention. Moreover, the country did not implement the Coastal Area Management Plan under the Mediterranean Action Plan and its Regional Activity Centre for Priority Action Programme, which has recently been submitted to the MAP National Focal Point and to the MAP-PAP/RAC. This would then support the preparation of a national integrated coastal zone management strategy to be mainly implemented by the Federation of Bosnia and Herzegovina, Herzegovina-Neretva Canton and Neum Municipality.

On the other hand, the implementation of the already ratified Dumping and Emergency Protocols could be strengthened through active consideration of some of the corresponding provisions of the IMO Convention already signed and accepted in 1993 by Bosnia and Herzegovina. As a matter of fact, though IMO is explicitly mentioned in only one of the articles of the United Nations Convention on the Law of the Sea (Article 2 of Annex VIII), several provisions in the Convention refer to the "competent international organization" in connection with the adoption of international shipping rules and standards in matters concerning maritime safety, efficiency of navigation and the prevention and control of marine pollution from vessels and by dumping.

Recommendation 9.1:

The Governments of the Federation of Bosnia and Herzegovina and Republika Srpska, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should enforce the Dumping and Emergency Protocols of the Barcelona Convention.

Coastal zone management and marine pollution

The Federation of Bosnia and Herzegovina and Herzegovina-Neretva Canton (in Mostar and Neum) prepare plans for the defence of the coastal zone and inner sea against sudden pollution from ships, and for the timely organization of relevant actions, but effective coordination, capacity and means of intervention are lacking. This hampers the achievement of SDG Target 14.C, the IMO being one of the major players in UNCLOS implementation.

Recommendation 9.2:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina and Republika Srpska, should prepare:

- (a) *A national integrated coastal zone management strategy;*
- (b) *A contingency plan on marine pollution; and*
- (c) *A state of the environment report on the Adriatic Sea by Bosnia and Herzegovina.*

EU Strategy for the Adriatic and Ionian Region and its Action Plan

Bosnia and Herzegovina participates in the 2014 EU Strategy for the Adriatic and Ionian Region, in particular in one of the Action Plan pillars related to environmental quality. This participation aims to ensure the good environmental status of the marine and coastal environment, halt the loss of biodiversity and degradation of ecosystem services and restore them, and improve waste management by reducing waste flows to the sea, including solid waste, nutrients and other pollutants from rivers and landfill leakage. This would help Bosnia and Herzegovina achieve SDG Targets 14.1 and 6.3. In addition, this could lead to the strengthening of plans and interventions in the event of sudden pollution from ships at sea.

Recommendation 9.3:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina and Republika Srpska, should implement the EU Strategy for the Adriatic and Ionian Region and its Action Plan.

State law on use and protection of the Adriatic Sea

Herzegovina-Neretva Canton and Neum Municipality development strategies seem rather disconnected from the fishery policies of the Federation of Bosnia and Herzegovina, aquaculture and coastal tourism activities. There is no overall vision encompassing water resources management as well as the main maritime activities that currently take place in the area (coastal tourism, aquaculture and fishing) through balanced and relevant spatial planning for human activities and development. In practice, spatial planning is mainly aimed at defining locations for construction and does not take into sufficient account public interest or environmental concerns. Coordination between Herzegovina-Neretva Canton and Neum Municipality is lacking on spatial and urban plans, which are not harmonized, particularly when defining roads and construction areas in the coastal area. Better coordination on spatial and urban plans would be a good step towards reaching SDG Target 14.2.

Recommendation 9.4:

The Council of Ministers of Bosnia and Herzegovina, in cooperation with the Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Herzegovina-Neretva Canton, should develop a state law on use and protection of the Adriatic Sea.

Protected areas

Bosnia and Herzegovina has not declared marine protected areas. Rather than considering a possible single and isolated marine protected area, the development of a system of small coastal protected areas along the Eastern

Adriatic coastline could increase their connectivity and be complemented by a wide offshore corridor conservation area represented by possible Ecologically and Biologically Significant Areas (EBSAs) in the Northern and Central Adriatic. The EUSAIR Action Plan and network could be used for such a joint endeavour. Designation of marine and coastal protected areas would support the achievement of SDG Target 14.5 in respect of 10 per cent of coastal and marine areas, but also other relevant targets, such as targets 6.6, 14.1 and 14.2, and also the Aichi Target 11 of the Convention on Biological Diversity.

Recommendation 9.5:

The Government of the Federation of Bosnia and Herzegovina, in cooperation with the Government of Herzegovina-Neretva Canton, should:

- (a) *Enforce the existing laws on spatial planning and construction;*
- (b) *Develop a system of small coastal protected areas along the Adriatic coastline.*

Marine research

Bosnia and Herzegovina has access to various initiatives linked to knowledge and research on maritime issues in the context of the EUSAIR Action Plan pillar "Maritime and marine governance and services". These initiatives focus on training and networking activities to boosting capacity-building and on twinning projects between EU and non-EU stakeholders, to develop networks of academies and training institutes on maritime profiles/professions, establish knowledge-based innovative communities and IT platforms for sharing data and exchanging knowledge, and promoting awareness about the macro-region's potential in terms of blue economy, new technologies, aquaculture and fisheries. The participation of Bosnia and Herzegovina in these initiatives would support the achievement of SDG Target 14.a to increase scientific knowledge, research capacity and transfer of marine technology.

Recommendation 9.6:

The Governments of the Federation of Bosnia and Herzegovina and Republika Srpska, in cooperation with the Council of Ministers of Bosnia and Herzegovina, should enhance the development of marine research.

Chapter 10: Waste management

Assessment

There has been some improvement in waste management in Bosnia and Herzegovina since 2011, first by the adoption of the system of operators in both entities, which sets the ground for long-term sustainable waste management by stimulating separate collection and reuse and recycling. On the other hand, the introduction of the operators system did not solve the issues with municipal waste management because the operator system exists parallel to the MSW management services and does not interfere with it, because the rules do not oblige the operators to cover the MSW; thus entities still lack long-term solutions for proper MSW management.

Although waste statistics are not reliable, there is a huge difference between the amounts of generated MSW and disposed waste, which suggests that about 20–30 per cent of the collected MSW ends up on illegal dumpsites. The completion of the long-awaited regional landfills would be only the first, though most important, step towards creating an MSW system that is sustainable. There are deficiencies with the management of other types of waste, most significantly of medical waste – even its quantities are unknown. Significant funds and investments will certainly be required for the development of adequate facilities for the proper disposal of medical waste.

Conclusions and recommendations

System of operators

The adoption of the system of operators in both entities sets the basis for sustainable waste management. The system stimulates separate collection and reuse and recycling. However, the systems show some bottlenecks: waste stream, such as batteries, medicines, used tyres and end-of-life-vehicles are not included in the systems. Introducing and monitoring new waste streams in the operators systems would help Bosnia and Herzegovina measure its progress towards the waste-related aspect 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) and Target 12.5 (By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse).

Recommendation 10.1:

The Ministry of the Environment and Tourism of the Federation of Bosnia and Herzegovina and the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska should extend and improve their respective system of operators in order to accelerate and ensure the better fulfilment of the goals set by the adoption of these systems.

Recommendation 10.2:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District should involve their respective administration for inspection in enforcement activities as an important part of implementation of the system of operators.

Recommendation 10.3:

The Government of Brčko District should adopt a system of operators for selected waste streams similar to those that operate in the Federation of Bosnia and Herzegovina and in Republika Srpska, starting with the systematic separate collection of waste, in order to enhance the recycling and reuse of the waste generated.

Waste statistics

Despite the improvement in waste statistics, there are serious discrepancies among data at the state and entity levels. Similarly, data for medical and agricultural waste and waste-related data for Brčko District are lacking. This could be explained by the limited efforts at coordination by the statistical bodies at the different administrative levels. However, the range of collected data on the state and entity levels is not harmonized, and separate waste-related data for Brčko District are not available.

There are waste types and streams, such as agricultural, medical, radioactive waste and POPs, and other selected waste streams, that might be subject to separate collection and extended producer responsibility but are not covered by data collection at all. Hazardous waste is only measured in the case of waste from productive activities and from construction and demolition, while the hazardous waste content of MSW and the amount of medical waste is not being collected at this time. The lack of these data hampers the measurement of the progress made by the country towards the waste aspect of 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).

Recommendation 10.4:

The Agency for Statistics of Bosnia and Herzegovina, the Government and Office of Statistics of the Federation of Bosnia and Herzegovina and its cantonal authorities, the Government and Institute of Statistics of Republika Srpska and the Government of Brčko District, should improve data reporting and information collection on all types of waste in order to provide the basic information needed for the development of sound waste management mechanisms, ensuring the efficiency of waste data collection and consolidation, as well as consistency and correspondence with actual waste flows.

Materials recovery from waste

With the introduction of the system of operators for packaging waste, both entities made a significant step towards promoting the separate collection, reuse and recycling of waste, with ambitious targets. Other waste streams are not included in these schemes. Their inclusion would help the country fulfil SDG Target 12.5 (By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse).

Recommendation 10.5:

The Ministry of the Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District, in cooperation with other competent institutions, should scale up and promote materials recovery from waste

through separate collections, reuse and recycling, and foster business development based on circular economy principles.

Regional sanitary landfills

Despite the financial support of international organizations, e.g. the World Bank, to build regional sanitary landfills, the envisaged plan to cover the whole country with regional landfills had not been completed by the end of 2016, mainly due to problems with the significantly longer than anticipated process of obtaining the required permits for urban planning/location, environment and construction, and delays in obtaining intermunicipal agreements for the establishment of the regional landfills.

There was some progress with the closure of illegal dumpsites, which was connected to regional landfill construction. Inventories of illegal dumpsites were prepared in both entities, but there are no data on the impact from illegal/uncontrolled dumpsites on human health and the environment. However, while Bosnia and Herzegovina does not yet measure Indicator 3.9.3 Mortality rate under 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), from the waste perspective, the closure of illegal/uncontrolled dumpsites would help the country to show progress on Indicator 3.9.3.

Recommendation 10.6:

The Governments of the Federation of Bosnia and Herzegovina and its cantonal authorities, Republika Srpska and Brčko District, in cooperation with municipalities, should:

- (a) *Accelerate the construction of regional sanitary landfills and the establishment of financially, socially and environmentally sound municipal waste management systems;*
- (b) *Close open dumpsites that are currently being used and remediate their territory.*

Medical waste

Since 2011, the practice of hazardous medical waste management in Bosnia and Herzegovina has remained unchanged. Medical waste might be subject to separate collection, but the lack of data hampers sound medical waste management.

Recommendation 10.7:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District should apply international best practices in order to improve medical waste management.

Awareness-raising

Despite the awareness-raising campaigns and several actions taken in both entities to promote sustainable waste management, the importance of waste management remains low in public opinion. It gains focus in public debate only when a serious pollution or malfunction of landfill occurs. In some regions, popular opposition to the construction of landfills seriously hindered the establishment of a modern waste management system, while dumpsites are still being used.

Recommendation 10.8:

The Ministry of the Environment and Tourism of the Federation of Bosnia and Herzegovina and the cantonal authorities, the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District, in collaboration with the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina and other partners, should:

- (a) *Raise public understanding and awareness of sustainable waste management to facilitate further progress on the development of regional landfills, prohibition of illegal dumping of waste, separation of waste, and minimizing the generation of waste in households;*
- (b) *Make efforts to distribute information widely on waste generation and management, relevant policy documents, and the development and establishment of legislation.*

Chapter 11: Biodiversity and protected areas

Assessment

Organizations/institutions/individuals with an interest in the preservation and protection of biodiversity in Bosnia and Herzegovina, and which participated in the NBSAP revision process, identified the following root causes of biodiversity loss in Bosnia and Herzegovina: low awareness about the benefits of nature conservation, lack of evidence-based decision-making, insufficient harmonization among stakeholders and different levels of governance in the country, lack of economic instruments for protected areas and scarce human and financial resources for nature conservation. In addition, the country has been in a socioeconomic and political transition, coping with high rates of poverty.

Socioeconomic challenges, such as unemployment and poverty, have resulted in communities focusing on immediate economic priorities rather than environmental issues, including biodiversity. Thus, biodiversity conservation is not seen as a national priority. Although, in the long run, biodiversity used in a sustainable manner can contribute to economic growth and poverty alleviation, it is now being used mostly as a source of resource exploitation.

There is a lack, at all administrative levels, of the capacity and resources necessary for implementation of biodiversity conservation measures. Threats to biodiversity come not only from biological and physical processes but also from institutional issues. Conservation authorities are understaffed and there is an evident lack of financial resources to implement relevant legislation and other tasks, including planning, establishment and supervision of protected areas.

Missing or inadequate conservation measures were identified as one of the greatest issues in biodiversity conservation in Bosnia and Herzegovina. Inadequate mainstreaming of the available, constrained financial resources and human capacity is evident. Foremost in this problem is the failure to adequately value biodiversity in decision-making, and this is exacerbated by shortcomings in knowledge of biodiversity and the lack of commitment and capacity to manage ongoing threats.

There is insufficient harmonization of legislation and strategic documents relating to biodiversity conservation. As biodiversity conservation is a true cross-cutting issue, one of the major obstacles is mainstreaming it into the array of economic sectors. There is overlapping of responsibilities/competences concerning the use of wild species and issuance of permits and fees collection between different institutions, while some key roles are lacking in the institutional framework (i.e. a nature protection agency in the Federation of Bosnia and Herzegovina).

There is no coordinated/adjusted policy framework. This results in poor coordination among sectoral strategies, the overlapping of existing relevant legislation (nature, spatial planning, forestry), and imprecise and overlapping legislation regulating the use of space and natural resources at the different levels of governance in the country (state, entity, cantonal, municipal). Most of the planned secondary legislation for the area of biological diversity exists, but most of the actions these acts provide for have not been implemented. As one example, the Rulebook on establishing and managing an information system for protecting nature and monitoring has been adopted but the information system and biodiversity monitoring do not exist. Furthermore, the following operational objectives are defined in the Environmental Protection Strategy of the Federation of Bosnia and Herzegovina for the period 2008–2018 in order to enable protection of biological diversity, by:

- Establishing a federal institution responsible for the protection of biological and geological diversity;
- Inventorying species of flora, fauna and fungi and identifying habitat types;
- Assessing the vulnerability of species of flora, fauna and fungi, and habitats and living communities, in accordance with IUCN;
- Establishing a sustainable network of existing and new protected areas;
- Strengthening legislation;
- Monitoring and controlling invasive species;
- Establishing ex situ conservation;
- Monitoring the state of biological diversity;
- Developing and strengthening the CHM;
- Strengthening information technology services and providers;

- Strengthening inter- and intra-entity cooperation;
- Raising public awareness.

These objectives are awaiting actions to be implemented for their realization.

The lack of institutional capacity was identified as a root cause of inadequate biodiversity conservation. Sometimes, implementation of developed policy documents and/or guidelines is delayed due to the lack of capacity of relevant institutions for their implementation and enforcement. The establishment of new protected areas was also hindered by this barrier and low political interest in conservation policy and measures.

There is also a lack of inclusive approaches and information sharing in protected area planning and management. Local communities are given a strong role in the decision-making process when it comes to spatial designation of protected areas in Bosnia and Herzegovina – which is why very low awareness about the importance of nature conservation and the modalities of protected area governance and benefit sharing is a troublesome issue, especially in expanding the protected area network.

One of the major barriers to nature conservation in the country is a widespread lack of awareness regarding biodiversity issues among the population. In particular, knowledge and awareness about biodiversity values and protected areas, as well as sustainable use of resources, is rather limited. The general opinion that any activity is forbidden within protected areas still exists in some parts of the country; thus, general resistance towards the establishment of new protected areas still exists among local communities. In addition, there is insufficient awareness about the values of protected areas and the ecosystem services they provide. Information sharing is extremely limited and data on biodiversity is scattered among several academic institutions.

Conclusion and recommendations

National biodiversity targets

There has not been progress in terms of biodiversity since 2011, apart from the improvements to the legal framework. The Law on the Fund and Financing of Environmental Protection of Republika Srpska, Law on Nature Protection of the Federation of Bosnia and Herzegovina, and Law on Nature Protection of Republika Srpska were revised and the NBSAP was adopted. Progress in collecting environmental data and reporting on the state of biodiversity remains hindered. Budgetary allocations for nature conservation and biodiversity monitoring are low and insufficient for proper conservation measures. Public involvement and interest in the matters of nature conservation is sporadic and often misguided when it comes to local communities' understanding of and support for establishing new protected areas on their territory. Nonetheless, the number of protected areas in the country is slowly increasing, as nature conservation is being recognized in the adopted spatial planning documents and several projects aimed at increasing the national protected area network in Bosnia and Herzegovina.

The current capacities for the implementation of the CBD and the development of legislation in line with EU requirements are not sufficient. In addition, there is an evident lack of infrastructure and institutional support (centres, institutes, agencies and public administration bodies) for adequate protection and sustainable management of biological diversity. Institutions lack cooperation and networking. A framework for the implementation of environmental conventions is not functional. Since 1954 in Bosnia and Herzegovina, there have been 153 areas that belong to one of the protection levels, including protected landscapes, monuments of nature or protected habitats (e.g. forest seed components). However, the classification and registration of these areas are still not in line with the new legislation.

Recommendation 11.1:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District should uphold adopted national biodiversity targets as key strategic goals for the country with regards to conservation and support their timely implementation at all relevant administrative levels.

Institutional framework

In order to achieve the CBD targets and the targets arising from the NBSAP (2015–2020), it is necessary to take actions to address the issues of lack of capacity and inefficient coordination of relevant competent institutions. In this context, it is necessary to place focus on certain priority issues, such as strengthening scientific and technical research in the domain of nature protection, according to the priority issues, and the creation of databases.

Recommendation 11.2:

- (a) *The Government of the Federation of Bosnia and Herzegovina should establish an institute on nature protection to deal with tasks related to biodiversity and protected areas in order to reach the protected areas coverage targets set by the Spatial Plan of the Federation;*
- (b) *The Government of Republika Srpska should strengthen the capacities of the Institute for Protection of Cultural, Historical and Natural Heritage in terms of staffing and budgetary allocations in order to reach the protected areas coverage targets set by the Spatial Plan of Republika Srpska.*

Recommendation 11.3:

The Governments of the Federation of Bosnia and Herzegovina, Republika Srpska and Brčko District, in collaboration with the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, should:

- (a) *Formalize the cooperation of the institutions dealing with tasks related to biodiversity and protected areas on sharing biodiversity data and linking relevant databases (i.e. protected area registers) to enable effective international reporting and national monitoring of biodiversity;*
- (b) *Ensure the inclusion of biological diversity concerns in policies of the economic sectors at the highest level of management, and the initiation of coordination activities among the different levels of management, in order to achieve the national targets set out in the National Biodiversity Strategy and Action Plan for the period 2015–2020.*

Natura 2000

Major concerns related to the decision-making process are lack of data, unavailability of existing data, lack of integration and application of various data classification and processing criteria, depending on various sources, poor data quality (in some cases, illogicalities and contradictions in the data collected) and lack of an adequate database.

The 2008 EU IPA project Support to Implementation of the Birds and Habitats Directives in Bosnia and Herzegovina (2012–2015) came up with a database compiling the distribution of species of habitats in the selected 122 potential Natura 2000 sites and their conservation status. The database is not made available publicly. The database is currently based in and under the ownership of the Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, and even though it is regarded as functional, it is not operational due to political disputes over centralized databases like this one.

Recommendation 11.4:

The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, in cooperation with the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina, the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska and the Government of Brčko District, should make available the database compiling the distribution of species of habitats in the selected 122 potential Natura 2000 sites and their conservation status to the conservation authorities and academia.

Nagoya Protocol

Although necessary preparation work was completed in 2014, Bosnia and Herzegovina's accession to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization is still pending.

Recommendation 11.5:

The Ministry of Foreign Trade and Economic Relation of Bosnia and Herzegovina, the Ministry of Environment and Tourism of the Federation of Bosnia and Herzegovina and the Ministry of Spatial Planning, Civil

Engineering and Ecology of Republika Srpska should prioritize finalization of the process of ratification of the Nagoya Protocol to meet the country's obligations under the Convention on Biological Diversity.

Chapter 12: Forestry and environment

Assessment

In the Federation of Bosnia and Herzegovina, the absence of forestry legislation and the insufficient number of forestry inspectors led to a series of negative phenomena, such as illegal clearing of private forests, usurpation of state forests and forestland, change of use of the original function of forests, and others. This situation was exacerbated by the unresolved issue of the delimitation of forest and agricultural land, the lack of structured cadastre and land registry records, the lack of registry records and seed facilities and a large number of pending applications for charging the perpetrators of damage to forests (Forest Management Plan 2015–2016).

Conclusions and recommendations

Forest certification

Although there are 700,600 ha of private forests in Bosnia and Herzegovina, no private forests have yet been certified. If the framework and requirements of the Forest Stewardship Council (FSC) are not suitable for privately managed forests, an alternative certification system should be sought. It is important for private forests to be included in the certification process because of increasing demand from the EU market for certified products and an increase in the share of products derived from private forests.

Recommendation 12.1:

The Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina, the Ministry of Agriculture, Forestry and Water Resources of Republika Srpska and the Government of Brčko District should:

- (a) Facilitate a certification process for private forests;*
- (b) Provide institutional support, such as establishment of advisory services for private forest owners, and financial support for the development of private forests;*
- (c) Improve silviculture of low forests and shrubs in private forests.*

Law and policy on forests

The forestry sector contributes 2.3 per cent of GDP and represents an important sector for export, import and employment. However, the sector is not sufficiently recognized in the public policy agenda.

Recommendation 12.2:

The Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina should:

- (a) Promote the adoption of the draft law on forests as a matter of priority and subsequent adoption of a forestry strategy;*
- (b) Undertake activities to raise awareness of the importance and potential of forests for decision makers and the public;*
- (c) Strengthen the participation of academia, non-governmental organizations, the media and civil society in the formulation of forest policy documents.*

Data processing and reporting

Due to different methodologies of data processing, data on the forests of Republika Srpska presented in various documents are not consistent. To support sustainable forest management and planning, data processing and methodology should take into account the wide scope of information on forest resources, such as the area under forests, volume by tree species and forest types, age, increment and productive possibilities of forests, habitat conditions, possibilities of multi-functional utilization, biodiversity potential and stability of forest ecosystems.

Therefore, the central database on forests and its regular updating as per individual inventory cycles will help the forestry and other governmental sectors, professional expert associations, individuals and NGOs to use the data for multiple purposes.

Recommendation 12.3:

The Ministry of Agriculture, Forestry and Water Resources of Republika Srpska should consider harmonization of data processing and improve and maintain the forest database system.

Recommendation 12.4:

The Ministry of Agriculture, Water Management and Forestry of the Federation of Bosnia and Herzegovina, the Ministry of Agriculture, Forestry and Water Resources of Republika Srpska and the Government of Brčko District should harmonize methodologies of data reporting with the current practice of international processes on forests and forest management.

IMPLEMENTATION OF THE RECOMMENDATIONS IN THE SECOND ENVIRONMENTAL PERFORMANCE REVIEW¹

Chapter 1: Policymaking framework for environmental protection and sustainable development

Recommendation 1.1:

The State Ministry of Foreign Trade and Economic Relations should take the following steps to strengthen the environmental mandate, authority and capacity at the State level:

- (a) *Elevate the current Department for Environmental Protection into a new Sector;*
- (b) *Expedite the adoption of the State law on environmental protection and all relevant secondary legislation. Specifically, the State law should ensure:*
 - (i) *A clear allocation of competences to various administrative levels;*
 - (ii) *That further provisions are made for the implementation of an obligatory reporting and coordination system for legislative drafting in order to avoid duplication;*
 - (iii) *Principles and mechanisms are put in place for integrating environmental concerns into other sectors.*

(a) Partially implemented. In 2011, environmental matters were dealt with by the Sector of Natural Resources, Energy and Environment of the Ministry of Foreign Trade and Economic Relations. In 2017, they are dealt with by the Sector of Water Resources, Tourism and Environmental Protection of the Ministry. While separation of competences on environmental protection from those on energy is a positive step, this reorganization is no more than a cosmetic improvement. The number of staff dealing with environmental issues did not increase. The role of the Ministry in coordinating and facilitating harmonization of environmental policy and legislation is limited.

(b) Not implemented.

Recommendation 1.2:

The State Ministry of Foreign Trade and Economic Relations in cooperation with the relevant authorities in the Federation of Bosnia and Herzegovina and Republika Srpska, and with broad participation from all stakeholders, should:

- (a) *Develop the legal basis for a sustainable development strategy;*
- (b) *Prepare and propose for adoption a draft a strategy for sustainable development, and specify the policy instruments and indicators to monitor and track progress, and the economic instruments that will be required to ensure its full implementation;*
- (c) *Elaborate an action plan for the implementation of the strategy. The action plan should be fully integrated into the budget process to ensure that it is allocated the financial resources needed to achieve its objectives.*
- (d) *Set up a national commission on sustainable development, to include members of major groups, which would be entrusted with strategic guidance of sustainable development efforts.*

Not implemented.

Recommendation 1.3:

The Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should expedite the adoption of secondary legislation and approximation of the EU environmental acquis. Specifically they should:

¹ The second review of Bosnia and Herzegovina was carried out in 2012.

- (a) *Strengthen legal capacity within the ministries to develop and implement environmental laws and policies;*
- (b) *Monitor evolving EU requirements and new EU legislation to which approximation efforts must be aligned.*

See also recommendation 5.1(a).

Partially implemented. The pace of the adoption of secondary legislation and approximation of the EU environmental acquis in Bosnia and Herzegovina is visibly slower than in other countries. Both the Federation of Bosnia and Herzegovina and Republika Srpska are at an early stage in their efforts to transpose the EU environmental acquis into their legislation.

Recommendation 1.4:

The entities Government should:

- (a) *Assess the extent of institutional weakness of environmental institutions affecting environmental policy, regulatory functions, and funding;*
- (b) *Where relevant, redress institutional fragmentation through improved reorganization of roles and responsibilities within the respective ministries.*

Not implemented.

Recommendation 1.5:

The Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should strengthen their overall capacity for environmental management by:

- (a) *Strengthening institutions by implementing capacity-building and training programmes;*
- (b) *Encouraging other sectors to integrate environmental concerns into their policy and legislative frameworks.*

(a) Not implemented. There is no systematic training and professional development of civil servants on environmental and sustainable development issues. In both entities, training and professional development of staff of the institutions responsible for environmental issues takes place sporadically as part of international projects and during workshops organized in the framework of conventions.

(b) Partially implemented. The integration of environmental considerations into sectoral policies and legislation is at the early stages in the energy, mining, transport, agriculture, forestry and health sectors, and is yet to start in the tourism and education sectors. Such a low level of integration is partially explained by the weak legal framework for strategic environmental assessment and the limited use of this tool.

* * * * *

Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I – Recommendation 1.1:

The Council of Ministers should establish an environment agency, which should:

- (a) *Provide advisory services to the authorities and institutions on both State and entity level in creation of strategy of sustainable development, environmental policy and management and protection of environment, natural resources and natural heritage;*
- (b) *Collect environmental monitoring data and report, as appropriate, to international bodies, convention-governing bodies and the European Environment Agency;*
- (c) *Manage, supervise and coordinate the implementation of the entities' plans for management and protection of waters, air, land, forests, as well as management of waste and chemicals (POPs, ODS, transboundary pollutants and dangerous pesticides);*
- (d) *Develop methodologies to facilitate a common approach to environmental management; and*
- (e) *Provide training, capacity building and awareness-raising.*

The environment agency should rely on and assist the inter-entity bodies.

Not implemented.

EPR I – Recommendation 1.2:

Pursuant to the decision of the Council of Ministers, the Ministry of Foreign Trade and Economic Relations should begin as soon as possible to draft:

- (a) A new State law on environmental protection and all relevant secondary legislation; and*
- (b) A strategy for environmental protection and sustainable development, in cooperation with the relevant Environment Ministries in the Federation of Bosnia and Herzegovina and Republika Srpska, and with broad participation from all stakeholders.*

The strategy should aim at:

- *Strengthening the institutional capacity for designing and implementing environmental policy at all levels;*
- *Developing and institutionalizing communication among sectors and ministries within and among the State, the entities and Brčko District;*
- *Establishing procedures for communication between officials and stakeholders in decision-making for sustainable development; and*
- *Improving the knowledge of the general public about the significance of environmental protection and encouraging the preparation of awareness-raising programmes.*

Not implemented.

EPR I – Recommendation 1.3:

The Federation's Ministry of Physical Planning and Environment and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should be strengthened, as a matter of priority, so that they are able to:

- (a) Prepare all secondary legislation required by the new Laws on Environmental Protection, Air Protection, Water Protection, Waste Management, Nature Protection and the Environmental Fund;*
- (b) Organize and implement effectively environmental permitting, inspection and control; and*
- (c) Implement all the tasks incumbent upon them as ministries.*

Both Ministries may be strengthened either by increasing the number of permanent staff or by hiring external experts ad hoc.

Partially implemented. Some increase in the number of staff working on environmental issues in the Department for Environmental Protection of the Ministry of Spatial Planning, Civil Engineering and Ecology of Republika Srpska was observed. However, practical implementation of this recommendation needs to be seen in the context of the current ban on the expansion of public administration in the country in line with the conditions imposed by the IMF.

Chapter 2: Compliance and enforcement mechanisms

Recommendation 2.1:

- (a) At all levels of Government, adequate formal and informal coordination of environmental matters (planning, permits, inspections and enforcement) is essential;*
- (b) The State's Ministry of Foreign Trade and Economic Relations should make a precise estimate of the staff required for environmental tasks and ensure that vacancies are properly filled;*
- (c) The main environmental authorities at entity level should provide regular education and training on the job, on a non-commercial basis, to ensure that staff who are responsible for issuing permits and for inspections, at the entity level, as well as at the cantonal and municipal levels, adapt their skills accordingly.*

See also recommendation 7.2 in this report.

- (a) and (b) Partially implemented. Coordination is in place, but understaffed.
- (c) Partially implemented. Joint training of sectoral inspectorates is needed.

Recommendation 2.2:

The Federal Administration of Inspection Services and Republika Srpska's Administration for Inspection Activities should ensure that operators of enterprises and installations file an environmental application, by preparing and publicizing a list of operators who should apply for environmental permit, accompanied by a schedule for mandatory application.

Partially implemented. The environmental permits are listed on the web, but there is a need to link them with the EIA reports and environmental requirements set in the permits.

Recommendation 2.3:

The Federal Ministry of Environment and Tourism and Administration of Inspection Services, and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology, and the Administration for Inspection Activities must keep each other informed about the content of permits (in outline at least), and the results of inspections, through an institutionalized procedure.

Partially implemented. The two entities' bodies responsible for inspection implement inspections independently.

Recommendation 2.4:

The Federal Administration of Inspection Services and Republika Srpska's Administration for Inspection Activities should exchange experiences on planning of inspection activities on the basis of risk assessment; This could also be usefully undertaken at other relevant governmental institutions.

Not implemented. The two entities' bodies responsible for inspection implement inspections, including planning, independently.

* * * * *

Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I - Recommendation 1.4:

The Federation's Ministry of Physical Planning and Environment and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should develop the necessary secondary legislation for the implementation of the new framework Law on Environmental Protection and other specialized environmental laws as soon as possible. The most urgent issues are:

- (a) *Establishment of a detailed to environmental impact assessment (EIA) procedure with all the necessary steps: preparation of the list of activities that are subject to EIA, early notification, screening and scoping, public participation at all levels, access to information and decision-making;*
 - (b) *Establishment of a detailed SEA procedure for plans and programmes;*
 - (c) *Development of a permitting system under the Law on Environmental Protection, including integrated (IPPC) permits; and*
 - (d) *Updating of their industrial plant inventories and establishment of new registers of polluters.*
- (a) Implemented. The EIA procedure is established by the law.
 - (b) Implemented. The SEA procedure is established by the law.
 - (c) Partially implemented. The regulatory framework has been established, but implementation is slow.
 - (d) Implemented. The register is established.

Chapter 3: Monitoring, information, public participation and education

Recommendation 3.1:

Based on the Memorandum of Understanding on National Environmental Information Systems, the State Ministry of Foreign Trade and Economic Relations, in cooperation with the Inter-entity Steering Committee for the Environment, the Inter-entity Commission for Water and relevant entity institutions and the DB should take steps to create an integrated monitoring system in BiH.

See also recommendation 9.1 in this review.

Not implemented.

Recommendation 3.2:

The State Ministry of Foreign Trade and Economic Relations, the Federal Ministry of Environment and Tourism, and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should complete the development of specific modalities for sharing, processing and integration of environmental data, publishing indicator-based environmental assessment reports for BiH, and their circulation and uploading on the Internet to make them available to the general public.

Not implemented.

Recommendation 3.3:

The Federal Ministry of Environment and Tourism, and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should ensure that existing environmental advisory councils work on the principles of the Aarhus Convention.

Not implemented.

Recommendation 3.4:

The State Agency for Education, in close cooperation with the State Ministry of Foreign Trade and Economic Relations and entities' education and environment ministries, media representatives and other stakeholders, should establish a national commission on education for sustainable development (ESD). The commission should be entrusted with the preparation of the national strategy for ESD, as a priority.

Not implemented.

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Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I – Recommendation 3.1:

The Ministry of Physical Planning and Environment of the Federation of Bosnia and Herzegovina and the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska should issue, without delay, regulations to specify, in particular:

- *New procedures for setting or revising environmental quality standards harmonized with European standards;*
- *Measurements, monitoring and reporting requirements for operators;*
- *Criteria for the qualification of experts for self-monitoring by polluting enterprises; and*
- *Modalities for the registers of installations and of pollution taking into account the requirements of the UNECE Protocol on PRTRs.*

Not implemented.

EPR I - Recommendation 3.3:

When the State Ministry of Foreign Trade and Economic Relations prepares the environmental law for Bosnia and Herzegovina it should cover, among other things, the specific modalities for setting up, financing and operating a national environmental information system. The law should specify the responsibilities of the entities and the State's institutions (including the national agency to be established) regarding:

- (a) The collection of environmental data and information, their storage, evaluation and dissemination;*
- (b) The development, on the basis of international experience, of environmental indicators for data collection in the entities and the State and reporting to them;*
- (c) The publication of state-of-the-environment reports for consideration by the Parliamentary Assembly and the Council of Ministers of Bosnia and Herzegovina, their circulation among interested institutions at various levels and uploading on the Internet to make them available to the general public;*
- (d) Transmission of environmental data and reports, on behalf of Bosnia and Herzegovina, to governing bodies of applicable international conventions;*
- (e) Participation in EIONET, including the designation of a national focal point, national reference centres and expert institutions, and in other international programmes on environmental monitoring and assessment; and*
- (f) Training of experts in monitoring and information management.*

Not implemented.

Chapter 4: Implementation of international agreements and commitments

Recommendation 4.1:

The State Ministry of Foreign Trade and Economic Relations should:

- (a) Strengthen the practical implementation and enforcement of the global and regional multilateral environmental agreements that have been ratified;*
- (b) Ensure the appointment of national focal points for all MEAs;*
- (c) When necessary and/or envisaged by obligations under the MEAs, ensure establishment of the necessary institutional setting and adoption of the relevant programmes and plans including their adequate financing.*

- (a) Not implemented. In general, practical implementation and enforcement has not been strengthened. Although there were significant improvements in the implementation and enforcement of specific agreements, such as the Vienna Convention and the Montreal Protocol, the Rotterdam Convention and the Convention on Persistent Organic Pollutants, implementation has been below what is expected with regard to the CBD, UNCCD, UNFCCC and Kyoto Protocol in 2007, and the Basel and Aarhus Conventions, and has been very limited with respect to CITES, the Cartagena Protocol, the Convention on Long-range Transboundary Air Pollution, the Convention on the Transboundary Effects of Industrial Accidents and the Convention on Environmental Impact Assessment in a Transboundary Context.*
- (b) Not implemented. Bosnia and Herzegovina continues not to ensure the appointment of the required national focal points for all MEAs.*
- (c) Partially implemented. Bosnia and Herzegovina does not have in place mechanisms and rules to ensure coordination of the implementation of international environmental agreements. The establishment of mechanisms and rules that regulate the role and responsibilities of each of the actors, the actions to be taken and the inherent decision processes has not been put in place in Bosnia and Herzegovina except for a few agreements, namely on ozone, climate change and biodiversity. Some programmes and plans have been adopted in recent years (Action Programme aligned to the UNCCD 10-Year Strategy and Reporting Process under UNCCD, Strategy and Action Plan for Protection of Biodiversity for the period 2015–2020; National Implementation Plan for Reduction and Disposal of Persistent Organic Pollutants); however, they do not fulfil the mosaic of plans and programmes that are required under the MEAs the country has acceded to.*

Recommendation 4.2:

As soon as appropriate capacities for implementation are available, the Government of Bosnia and Herzegovina should accede to the following conventions and protocols:

- *Convention on the Transboundary Effects of Industrial Accidents;*
- *Convention on the Conservation of Migratory Species of Wild Animals;*
- *The relevant Protocols to the Convention on Long-range Transboundary Air Pollution;*
- *The relevant protocols to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean;*
- *Protocol on Pollutant Release and Transfer Registers to the Aarhus Convention;*
- *Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes*
- *Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents;*
- *Protocol on Strategic Environmental Assessment to the Espoo Convention.*

Partially implemented. Bosnia and Herzegovina has become a party to the following agreements included in the recommendation: the Convention on the Transboundary Effects of Industrial Accidents; the Protocol on Pollutant Release and Transfer Registers to the Aarhus Convention; the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes; and the Protocol on Strategic Environmental Assessment to the Espoo Convention.

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Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I - Recommendation 4.1:

The State Ministry of Foreign Trade and Economic Relations, working closely with the Federation's Ministries of Physical Planning and Environment and of Agriculture, Water Management and Forestry, Republika Srpska's Ministries of Physical Planning, Civil Engineering and Ecology of Agriculture, Forestry and Water Management and the appropriate authorities in Brčko District, should develop a national strategy and action plan for international environmental cooperation consistent with the Strategy for environmental protection and sustainable development proposed in recommendation 1.2. The strategy should address the role in international cooperation of all relevant actors, including non-governmental.

Not implemented. Bosnia and Herzegovina does not have a national strategy and action plan for international environmental cooperation. With the recent approval of the Environmental Approximation Strategy, which will provide the country and overall environment with a compass for action and taking into account the persistent fragilities pointed out with regard to the accession, implementation and enforcement of environmental multilateral and regional agreements, the country could benefit from developing and adopting the recommended international cooperation strategy.

Chapter 5: Economic instruments and expenditure for environmental protection

Recommendation 5.1:

The entity Governments should:

- (a) *Introduce the secondary legislation which is still missing into all entity-level environmental legislation. This secondary legislation should have an unambiguous fee structure;*
- (b) *Strengthen compliance with the "consumer pays" and "polluter pays" principles through adequate penalties and enforcement in cases of non-compliance;*
- (c) *Start to collect all fees and charges instituted by the new secondary legislation [in order to ensure full-cost recovery];*
- (d) *In case it has not been politically possible to make environmental fees high enough for them to have an effect on the environment, increase or adjust the level of fees and charges at a later date.*

Partially implemented. Secondary legislation, including a clear indication of fee structures, has been introduced in many cases. However, the legislation is usually not fully compliant with the consumer pays, polluter pays and cost recovery principles, for several reasons, including the level of fees being too low with respect to the costs of

providing the respective services and of restoring environmental resources. In addition, enforcement measures are not adequate in many cases. The affordability issue and the inefficiencies and underprofitability in environmental resources management are still key challenges for the implementation of effective economic instruments for environmental protection in Bosnia and Herzegovina.

Recommendation 5.2:

The Council of Ministers of BiH should strengthen the role of the State Agency for Statistics in:

- (a) *Collection, analysis and dissemination of environmental accounting data;*
- (b) *Conducting analysis on the efficiency of environmental taxes and fees and cost-benefit analysis of them.*

Partially implemented. Progress has been made in collection and dissemination of environmental data, but further progress is needed, in particular regarding collection of homogeneous financial and technical data, organized information about the implementation of economic instruments for environmental protection at all levels of government, the elaboration of significant performance indicators and analysis of the efficiency and effectiveness of taxes and fees, incentives and expenditures for environmental protection.

Recommendation 5.3:

The entity Governments should:

- (a) *Strengthen the organizational structure of the environmental funds, and*
- (b) *Increase their sources of funding, in accordance with relevant secondary legislation.*

Partially implemented. Secondary legislation has introduced sources for funding the Environmental Protection Funds of the Federation of Bosnia and Herzegovina and Republika Srpska, while, in Brčko District, there is no fund for environmental protection.

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Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I – Recommendation 2.1:

- (a) *The Ministry of Physical Planning and Environment of the Federation of Bosnia and Herzegovina and the Ministry of Physical Planning, Civil Engineering and Ecology of Republika Srpska in cooperation with the State Ministry of Foreign Trade and Economic Relations, should draw up by-laws and regulations to introduce the economic instruments stipulated in the environmental laws and ensuring the consistency with the State environmental policy.*
- (b) *When developing the secondary legislation, they need to propose adequate levels of charges, fees, taxes and penalties. If it is not feasible to introduce instruments at the desired levels (for example, user fees at the level of full cost recovery for the service provided), the charges may be reduced at first, but should increase incrementally with a clear time frame until they reach the desired levels.*

Partially implemented. Secondary legislation, including a clear indication of fee structures, has been introduced in many cases. However, this legislation is usually not fully compliant with the consumer pays, polluter pays and cost recovery principles, for several reasons, including the level of fees being too low with respect to the costs of providing the respective services and of restoring environmental resources. In addition, enforcement measures are not adequate in many cases. The affordability issue and the inefficiencies and underprofitability in environmental resources management are still key challenges for the implementation of effective economic instruments for environmental protection in Bosnia and Herzegovina.

EPR I - Recommendation 2.2:

The Federation's Ministry of Physical Planning and Environment and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should establish a regularly updated and readily accessible database of economic instruments for the environment. This would enable all levels of government, businesses and the general public to have a clear understanding of the instruments that exist, their main purpose, the recipients of the revenues (and the amounts) and whether the revenues are used for environmental purposes. The changes in

rates, when necessary, and the reasons for such changes would also become transparent. These databases should be made available to the State for policy-making.

Partially implemented. Progress has been made in collection and dissemination of environmental data, but further progress should be made, in particular regarding collection of homogeneous financial and technical data, organized information about the implementation of economic instruments for environmental protection at all levels of government, the elaboration of significant performance indicators and analysis of the efficiency and effectiveness of taxes and fees, incentives and expenditures for environmental protection.

EPR I – Recommendation 2.3:

The Federation’s Ministry of Physical Planning and Environment and Republika Srpska’s Ministry of Physical Planning, Civil Engineering and Ecology, in cooperation with environmental NGOs, the media and other stakeholders, should organize a public awareness campaign with the aim of increasing collection rates for services related to the use of natural resources as well as for waste management. Such a campaign should inform the public of the importance and the positive impact of economic instruments on the environment.

Partially implemented. Public campaigns to raise citizens’ awareness of the importance of environmental protection should be reinforced.

EPR I – Recommendation 2.5:

(a) *The Federation’s Agency for Privatization and Republika Srpska’s Directorate for Privatization should strengthen their cooperation respectively with the Federation’s Ministry of Physical Planning and Environment and Republika Srpska’s Ministry of Physical Planning, Civil Engineering. In particular, they should involve them in the decision-making in the privatization process to promote environmental investments by the new owners by:*

- *Developing and introducing clauses on past environmental liabilities into the privatization agreements;*
- *Requiring enterprises and industries put up for privatization to carry out environmental audits; and*
- *Including compliance plans, prepared by the new owner, in the privatization agreement. These plans should specify the measures that enterprises and industries have to take to comply with environmental standards and regulations.*

(b) *The Agency and the Directorate should have one or more environmental specialists on their staff.*

Partially implemented. The promotion of environmental investments in the privatization process has been made by introducing clauses on past liabilities and requirements on environmental compliance plans, as recommended. However, there is still a large presence of an often unprofitable and inefficient public sector, which is involved in a wide range of activities, discouraging private capital flows.

Chapter 6: Climate change and environment

Recommendation 6.1:

The State Government of BiH, in cooperation with the Governments of entities and Brčko District, should:

- (a) *Establish mechanisms and administrative structures for regular development of emissions inventories and emissions projections in accordance with international methodologies and for reporting;*
- (b) *Speed up preparation of the second National Communication under UNFCCC;*
- (c) *Finalize legal and institutional preparations for implementation of CDM projects.*

(a) Partially implemented. There are no legally prescribed procedures for the Bosnia and Herzegovina inventory and no institutions are mandated to carry out the GHG inventory at the state level, the level of the Federation of Bosnia and Herzegovina and Brčko District level. However, during the preparation of the Second and Third National Communications under the UNFCCC, the ad hoc GHG inventory compliance team was established and inventories were carried out. The GHG inventory in the Second National Communication covered a 10-year period, 1991–2001. In the framework of the Third National Communication, the GHG inventory was compiled for the years between 2002 and 2009, and for 2012 and 2013.

(b) Implemented. The Second National Communication under the UNFCCC was submitted in 2013.

- (c) Implemented. The Council of Ministers has adopted the Decision on Establishment of an Authorized Body for the Implementation of the Clean Development Mechanism (CDM) of the Kyoto Protocol of the UNFCCC in Bosnia and Herzegovina. In accordance with the Decision, the Designated National Authority (DNA) has been established and necessary documentation for the smooth operation of this body was prepared. The DNA commenced work at the beginning of 2012.

Recommendation 6.2:

The State Government of BiH, in cooperation with the Governments of the entities and Brčko District, should:

- (a) *Develop a national climate change mitigation strategy and related action plan;*
 (b) *Develop, within the framework of subregional activities, a national climate change adaptation strategy and related action plan.*

Implemented. The Climate Change Adaptation and Low-Emission Development Strategy was adopted by the Council of Ministers of Bosnia and Herzegovina in October 2013. The Strategy clearly defines the results and activities, as well as the funds necessary for their implementation. The adaptation component of the Strategy is focused on seven priority sectors.

Recommendation 6.3:

The State Government of BiH, as well as the Governments of the entities, should continue in their efforts to develop and/or update and implement energy strategies and strategic plans with the aim of:

- (a) *Improving energy efficiency in both production and consumption;*
 (b) *Supporting energy saving in the public sector;*
 (c) *Supporting the wider introduction of renewable energy, while respecting air and water protection and nature conservation;*
 (d) *Encouraging the development of carbon off-set forestry projects;*
 (e) *Coordinating activities relating to climate change mitigation with those for reduction of air pollutant emissions to make use of the "one measure, two effects approach" as per recommendation 5.4 from the first EPR (ratification of CLRTAP protocols).*

- (a) Implemented. The low emission development component of the Climate Change Adaptation and Low-Emission Development Strategy aims at creating a low-carbon and resource-efficient economy through increasing levels of energy efficiency, greater renewable energy use, and improved energy and transport infrastructure and services.
- (b) Implemented. In the Federation of Bosnia and Herzegovina, the 2017 Law on Energy Efficiency envisages the establishment of the agency for energy efficiency to perform activities that improve conditions and measures for rational use and savings of energy in all consumption sectors.
- (c) Implemented. In 2013, the Federation of Bosnia and Herzegovina adopted the Law on the Use of Renewable Energy Sources and Efficient Cogeneration, which transposed in the legislation of the Federation of Bosnia and Herzegovina provisions of Directives 2009/28/EC on the promotion of the use of energy from renewable sources and 2004/08/EC on the promotion of cogeneration. In Republika Srpska, the 2013 Law on the Use of Renewable Energy Sources and Efficient Cogeneration transposed in the legislation of Republika Srpska requirements of the same two EU Directives.
- (d) Not implemented. There is no information on the carbon offset forestry projects developed and implemented in Bosnia and Herzegovina.
- (e) Implemented. The Climate Change Adaptation and Low-Emission Development Strategy lists some measures that fall under the "one measure, two effects approach", for example, to improve the efficiency of energy generation in all coal-fired power plants to at least 40 per cent by 2025.

Chapter 7: Sustainable management of water resources

Recommendation 7.1:

- (a) *The Government of Bosnia and Herzegovina should streamline existing State-level authority over water-related issues so that there is one water resources management department in MoFTER.*
 (b) *The Federation's Government should streamline existing entity-level authority over water-related issues so that there is one water resources management department in the Federal Ministry of Agriculture, Water Management and Forestry.*

- (c) *Republika Srpska's Government should streamline existing entity-level authority over water-related issues so that there is one water resources management department in Republika Srpska's Ministry of Agriculture, Forestry, and Water Resources.*
- (d) *At the commune level, concentrate all water-related issues in one ministry with clearly defined responsibilities. The institutional organization of the cantons for water-related issues should be harmonized. Public water management companies should be organized in line with technical principles and be totally politically independent (especially the management). In RS, the public water management companies for flood management should be reorganized: an administrative and coordinative body should be implemented in the water management agencies for execution of complex works (such as operating and maintaining pumping stations) and simpler practical works should be privatized. This was also foreseen in the draft of the new RS water law and has been successfully implemented in the Federation.*

Not implemented. Some key steps towards better water governance in Bosnia and Herzegovina were taken. Indeed, river basin organizations are sounder and river basin management plans were prepared under their coordination. Both are of the utmost importance in promoting integrated water management. The priority is to increase communication among river basin organizations, including data sharing, criteria harmonization and process integration, and to foster international cooperation with similar organizations. River basin organizations should be empowered further in monitoring and flood protection, with a stronger interplay among the Federation of Bosnia and Herzegovina and Republika Srpska, as well as with Brčko District.

Recommendation 7.2:

The entity Governments should clearly define the responsibilities of water inspectorates to avoid overlapping duties. The competent authorities for inspection should be determined on the basis of the complexity of the inspection. Simple inspections should be performed at the cantonal (Federation) or municipal (Republika Srpska) level, whereas complex inspections should be performed at the entity level. The criteria for determining the complexity of inspections should be simple and transparent.

Not implemented.

Recommendation 7.3:

- (a) *The Government of Bosnia and Herzegovina should develop a State-level water law, taking into account the existing entity water laws and clearly identifying and allocating responsibilities in terms of shared water resources and countrywide water management issues. The Federal Government should also develop a national water management strategy and action plans which concretize the corresponding work at the national level.*
- (b) *The Governments of the Federation and Republika Srpska should accelerate the implementation of existing sub-laws and standards and harmonize the existing secondary legislation, including guidelines and standards. The Government of Republika Srpska should develop and adopt a water management strategy with corresponding action plans, as prescribed in the entity law on water protection.*
- (c) *Where the existing water laws are not in line with the new entity water laws, the cantonal authorities in the Federation and municipal authorities in Republika Srpska should accelerate the adoption and implementation of new communal water laws that are in line with the entity-level legislation. In terms of corresponding sub-laws in the different cantons and/or municipalities, special attention should be paid to uniform compliance, especially in the fields of water supply and wastewater management.*

Partially implemented. The implementation of this recommendation is making good progress, largely because of the EU pre-adhesion process in Bosnia and Herzegovina. A significant effort regarding the legal framework is being pursued at all institutional levels.

Recommendation 7.4:

- The entity Governments should establish a sustainable, efficient and transparent water funding system with uniform and comparable financial conditions and compliance. The following two goals should be considered:*
- (a) *A comprehensive and reliable sector finance study should be carried out, taking into account urban and rural areas.*
 - (b) *The pricing of water supply services should be adjusted to ensure that the cost of services, reinvestment and maintenance is covered, while adequate provisions for vulnerable social groups are made.*

Not implemented.

Recommendation 7.5:

The entity Governments should renovate existing, or build new, water infrastructure with an emphasis on water and groundwater protection according to a priority list of relevant water projects.

Not implemented.

Recommendation 7.6:

The entity Governments, should also take into consideration the following additional recommendations, while implementing recommendations 7.3, 7.4 and 7.5 of the first EPR:

- (a) *Emphasize the significance of drinking water quality control and treatment of drinking water, wastewater collection and treatment.*
- (b) *For wastewater treatment and water supply systems in small cities, focus on alternative low-cost facilities that are easy to maintain, extend and upgrade and have low energy consumption. Conventional facilities and outdated technology are often expensive to maintain as, due to the lack of local production, no spare parts are available on the local market.*
- (c) *Speed up the process of rebuilding the treatment plant in Sarajevo (for 600,000 inhabitants), which used to be an efficient plant before the war. Located on the upper part of the Bosna River, it would significantly improve the water quality situation in the densely populated area along the river.*

Partially implemented. Some water treatment and wastewater treatment plants are under construction/rehabilitation in Bosnia and Herzegovina. Several others are in tender processes or seeking funding in the next few years. The effort is massive and will be accomplished only if financial support from the EU and/or multilateral financing institutions is arranged. Therefore, these recommendations from the first EPR are still valid, – except (c), which was achieved in 2017. Recommendation (b) deserves continuous attention because the application of *appropriate technologies* is always the preferred approach.

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Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I – Recommendation 7.2:

- (a) *The Government of the State of Bosnia and Herzegovina, in cooperation with the Government of the Federation of Bosnia and Herzegovina and the Government of Republika Srpska, should develop a new water policy pursuant to the Memorandum of Understanding with the European Communities and taking into account the Millennium Development Goal to halve by 2015 the proportion of people without access to safe drinking water.*
- (b) *The Federation’s Ministry of Physical Planning and Environment and Republika Srpska’s Ministry of Physical Planning, Civil Engineering and Ecology, in cooperation with their Ministries of Agriculture, Forestry and Water Management, should start now to:*
 - (i) *Ensure that drinking water is safe by properly treating abstracted water;*
 - (ii) *Develop water protection strategies consistent with the new State policy and the Millennium Development Goals;*
 - (iii) *Establish standards and norms for water quality which are consistent with international ones; and*
 - (iv) *Reduce the leaks from the distribution systems by repairing and replacing old and damaged pipelines. The number of households with access to public water-supply systems should be substantially increased.*
- (c) *As soon as they are established, the river authorities should develop plans for river basin management.*

(a) and (b) Not implemented.

(c) Implemented, despite the fact that planning is a circular process.

EPR I – Recommendation 7.3:

The entities' Ministries of Agriculture, Forestry and Water Management in cooperation with the entities' Ministries of environment and with the help of the public enterprises for water management, should assist and require the municipalities to reduce the negative impact of wastewater discharges by:

- (a) Reducing the leaks from public sewerage systems and by building new sewerage systems to substantially increase the number of household connections;*
- (b) Building municipal waste-water treatment plants of environmentally high standards and with sufficient treatment capacity in all the big cities; and*
- (c) Ensuring that sewage sludge from municipal treatment plants and septic tanks is sufficiently treated for use as fertilizer in agriculture or disposal in sanitary landfills.*

Not implemented.

EPR I – Recommendation 7.4:

The Federation's Ministry of Physical Planning and Environment and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology, in cooperation with the other ministries involved, should take appropriate action to reduce the negative environmental impact of wastewater discharges from industry and seepage water from mining and manufacturing by:

- (a) Ensuring that water treatment plants are reconstructed and brought on stream again;*
- (b) Drawing up a survey of the most polluting mining, manufacturing and other industries; and*
- (c) Instructing mining, manufacturing and other industries to take immediate and appropriate action to stop or reduce the discharges where drinking-water resources are seriously threatened.*

Not implemented.

EPR I – Recommendation 7.5:

The proposed environment agency, with the Federation's Ministry of Agriculture, Water Management and Forestry and Republika Srpska's Ministry of Agriculture, Forestry and Water Management, should work in close cooperation with the new river authorities on an urgent basis to reduce the impacts of floods. Steps to be taken include:

- (a) Improving and repairing, in cooperation with the regional and local authorities, existing flood protection systems and building new ones in exposed areas that do not have them, and taking non-structural measures for flood protection, in particular the conservation or rehabilitation of natural wetlands and retention areas; and*
- (b) Drawing up a comprehensive national flood disaster strategy, which includes preparedness, mitigation, recovery and reconstruction.*

Not implemented.

Chapter 8: Waste management

Recommendation 8.1:

The Agency for Statistics, the Federal Ministry of Environment and Tourism, Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology, the Brčko District Government and the cantonal authorities should improve their data and information collection on all types of waste, in order to provide the basic information needed for the development of sound waste management mechanisms, ensuring the efficiency of waste data collection and consolidation, as well as consistency [and correspondance to actual waste flows].

Partially implemented. There is significant improvement in data collection related to municipal solid waste since 2011, and also related to waste generated in production activities (i.e. industrial, mining, construction and demolition) and hazardous waste on the state level. However, the range of collected data in the two entities and on the state level is not harmonized; in addition, separate waste-related data for Brčko District is not available. There are waste types and streams that are not covered by data collection at all in any of the territorial units, such as agricultural, medicinal, radioactive waste and POPs, and selected waste streams that might be subject to

separate collection and extended producer responsibility. Due to the significant inconsistency among the data at the state and entity levels for most data types, and the lack of appropriate waste-related data for Brčko District, this recommendation should be considered as still valid.

Recommendation 8.2:

- (a) *The entity Governments and municipalities should accelerate the construction of regional sanitary landfills and the establishment of financially, socially and environmentally sound municipal waste management systems, and close open dumpsites which are currently being used;*
 - (b) *The entity and cantonal governments should make further efforts to close illegal/uncontrolled dumpsites whose locations are threatening health and the environment.*
- (a) Not implemented. Despite the willingness of international donors to financially support the construction of regional sanitary landfills, the envisaged plan to cover the whole country with regional landfills had not been completed by the end of 2016, mainly due to problems with the process of obtaining the required permits for urban planning/location, environment and construction being significantly longer than anticipated, and delays in obtaining intermunicipal agreements for the establishment of the regional landfills.
 - (b) Not implemented. There was some progress with the closure of illegal dumpsites, which was connected to regional landfill construction; however, with the lack of a comprehensive dumpsite inventory on either the state or entity level, it is hard to give a realistic estimation of the number of dumpsites to be closed.

Recommendation 8.3:

The FBiH and RS Ministries of Health, in cooperation with the other relevant ministries - the Federal Ministry of the Environment and Tourism, Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology, and the Brčko District Government - should adopt international best practices in order to improve their hazardous medical waste management.

Not implemented.

Recommendation 8.4:

The Federal Ministry of the Environment and Tourism, Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology, the Brčko District Government and the cantonal authorities, in collaboration with various partners, should:

- (a) *Raise public understanding and awareness of sustainable waste management to facilitate further progress on the development of regional landfills, prohibition of illegal dumping of waste, separation of waste, and minimizing the generation of waste in households;*
- (b) *Make efforts to distribute information widely on waste generation and management, relevant policy documents, and the development and establishment of legislation.*

Not implemented. Despite the awareness-raising campaigns and several actions in both entities to promote sustainable waste management, this issue mostly remains of low importance in public opinion and it becomes the focus of public debate only when serious pollution or a landfill malfunction occurs.

Recommendation 8.5:

The Federal Ministry of the Environment and Tourism, Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology and the Brčko District Government should scale up and promote materials and energy recovery from waste through separate collections, reuse and recycling, and foster business development based on waste.

Partially implemented. With the introduction of the system of operators for packaging waste (and for WEEE in the Federation of Bosnia and Herzegovina), both entities took a significant step towards promoting the separate collection, reuse and recycling of waste, with ambitious targets. The system should be further adjusted, improved and extended to other waste streams.

Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I – Recommendation 6.1:

The Federation’s Ministry of Physical Planning and Environment and Republika Srpska’s Ministry of Physical Planning, Civil Engineering and Ecology, in cooperation with municipalities, should implement the Solid Waste Strategy. To strengthen its implementation, they should:

- (a) Raise awareness and organize training in separation, recycling and reuse; and*
 - (b) Undertake feasibility studies for organizing the separate collection of municipal waste and constructing facilities for its recycling and reuse. The studies should also examine economic aspects including the potential market for such recycled or reused goods.*
- (a) Partially implemented. Awareness-raising campaigns and actions aiming at promotion of separate collection are organized on an ad hoc basis in both entities; however, given the fact that facilities for separation of MSW are not available to residents in most parts of the country, these events should be further organized in parallel with the installation of such facilities in settlements, as part of the introduction of separate collection of MSW services in municipalities. Training and workshops for residents on recycling and reuse should be organized.
 - (b) Partially implemented. Feasibility studies for regional MSW landfills usually covered the aspects of separate collection of such waste; however, the implementation of the measures for separate collection in municipalities is mainly lagging behind, thus hindering the establishment of a viable market for recycled and reused goods in Bosnia and Herzegovina.

EPR I – Recommendation 6.5:

The Federation’s Ministry of Physical Planning and Environment in cooperation with its Ministry of Energy, Mining and Industry and Republika Srpska’s Ministry of Physical Planning, Civil Engineering and Ecology in cooperation with its Ministry of Economy, Energy and Development should:

- (a) Conduct feasibility studies on the introduction of environmentally sound processes for the use of some categories of waste or its components as secondary raw material; and*
 - (b) Prepare relevant legal acts on recycling and processing secondary raw material.*
- (a) Partially implemented. By the introduction of the system of operators for packaging waste (and also for WEEE in the Federation of Bosnia and Herzegovina), both entities took a significant step in this field, and the share of separated waste collected by the operators must be increased from year to year under the current regulations. However, the system should be extended to other waste streams and further measures are needed to enhance the use, and profitability of the use, of recycled (secondary) raw materials by manufacturers in Bosnia and Herzegovina.
 - (b) Not implemented. The current legal background for recycling and processing secondary raw materials is not sufficiently incentivizing for industry. Better regulation and incentives for manufacturers are needed, in order to increase the demand for secondary raw materials. This would also stimulate the separate collection of waste in the country.

Chapter 9: Forestry, biodiversity and protected areas

Recommendation 9.1:

- (a) The Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, the Federal Ministry of Environment and Tourism, Republika Srpska’s Ministry of Physical Planning, Civil Engineering and Ecology and the Logistics Unit of Brčko District should promote the adoption of the draft national biodiversity strategy and action plan;*
- (b) Once adopted, the relevant governmental bodies at the State, entity and intra-entity levels should ensure that regulations and institutional mechanisms for implementation of the strategy are in place, including through the establishment of a formal process for intersectoral and inter-entity coordination, and the integration of relevant provisions in other sectoral strategies and planning documentation;*
- (c) The Council of Ministers should identify a body that will be responsible for coordination of data collection, data exchange, information flows, and monitoring, as they relate to full and effective implementation of the strategy.*

- (a) Implemented. The first NBSAP was finally adopted in 2011.
- (b) Partially implemented. Some inter-entity coordination efforts were made effective by the establishment of the Inter-Entity Coordination Body for the Environment. Intersectoral coordination is improved in Republika Srpska while the Federation of Bosnia and Herzegovina lacks better coordination mechanisms between the entity and the cantonal levels.
- (c) Partially implemented. Apart from the efforts of the National Focal Points for the CBD, no further bodies were appointed to support biodiversity-related data and monitoring.

Recommendation 9.2:

The Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology, in collaboration with their respective forestry departments, should:

- (a) *Develop and promote the adoption of RDB regulations at entity level or, if more appropriate, make the necessary amendments to existing RDB regulations;*
- (b) *Establish entity working groups with relevant stakeholders on preparation of entity RDBs based on existing information;*
- (c) *In cooperation with relevant stakeholders, develop educational and public awareness programmes and campaigns on RDB legal provisions and importance for conservation.*

Not implemented.

Recommendation 9.3:

To strengthen implementation of CITES, the Council of Ministers should:

- (a) *Nominate as the management authority for CITES the State's Ministry of Foreign Trade and Economic Relations and as additional management authorities the Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology. Once nominated, the additional management authorities should designate scientific authorities and strengthen capacity by applying to the CITES secretariat for training and capacity-building for CITES implementation, and by requesting expert support and capacity-building from the wildlife trade monitoring network TRAFFIC;*
- (b) *Establish a joint group on CITES implementation consisting of management and scientific authorities, representatives of customs and of the inspectorates and border police;*
- (c) *Initiate preparation and adoption of the necessary regulations for CITES implementation with expert support from the CITES secretariat.*

Not implemented.

Recommendation 9.4:

To improve the regulatory and implementation framework for hunting, the Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should:

- (a) *Conduct an inventory on the status of species that are hunted for all hunting areas and coordinate this work in order to produce a national inventory;*
- (b) *Complete delineation of all hunting areas and ensure the development of appropriate management plans;*
- (c) *Coordinate with the Ministry of Foreign Trade and Economic Relations activities related to CITES implementation in respect of species that are hunted and non-timber forest products;*
- (d) *Introduce new economic instruments into the organization of hunting.*

Not implemented.

Recommendation 9.5:

- (a) *The Federal Government should adopt as a matter of priority the new law on forests and provide for timely and full revision of existing regulations and the development and adoption of new ones necessary for full and effective implementation of the new law;*
- (b) *Republika Srpska's Ministry of Agriculture, Forestry and Water Resources should initiate the process of revision of the existing forest plans of JPS Šume RS, Sokolac to incorporate all the provisions of Forest Stewardship Council certification;*
- (c) *The Federal Ministry of Agriculture, Water Management and Forestry, Republika Srpska's Ministry of Agriculture, Forestry and Water Resources, and the Brčko District Department of Agriculture and Forestry, in cooperation with the respective entity ministries of environment, should:*

- (i) *Develop forestry strategies for their respective entities, ensuring sustainable forest management and forest conservation, including use of non-timber forest products;*
 - (ii) *Provide for forestry education, training and capacity-building, incorporating the relevant provisions of the Ministerial Conference on the Protection of Forests in Europe (MCPFE) and forest law enforcement and governance (FLEG) processes;*
 - (iii) *Complete preparation of action plans and forest programmes on the basis of the forest inventory and subsequent strategies;*
 - (iv) *Establish coordination mechanisms to provide for inter-entity dialogue and, where appropriate, joint actions to achieve sustainable forest management and forest protection;*
 - (d) *The State's Ministry of Foreign Trade and Economic Relations should provide guidance on European and global forest processes to the Federal Ministry of Agriculture, Water Management and Forestry and Republika Srpska's Ministry of Agriculture, Forestry and Water Resources.*
- (a) Partially implemented. The draft law has been adopted by the Government (July 2017) and is now with the parliament for adoption..
 - (b) Implemented. The Public Enterprise "Šume RS" has an FSC certificate. The certification process for Republika Srpska is completed.
 - (c) (i) Implemented in Republika Srpska. The Strategy for the Development of Forestry for 2011–2021 was adopted in 2012.
Partially implemented in the Federation of Bosnia and Herzegovina. The forestry programme is developed and has been accepted by the Federal Government. It was subsequently sent to the Federal Parliament for adoption, but is not yet formally adopted since there is no law on forests, which would provide the legal basis for this. The draft programme encompasses 22 areas of sustainable forest management, including use of non-timber forest products.
 - (ii) Not implemented.
 - (iii) Not implemented.
 - (iv) Not implemented.
 - (d) Not implemented.

Recommendation 9.6:

- (a) *The Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should:*
 - (i) *Provide for an assessment of the representativeness of the system of protected areas in order to adjust physical plans, including incorporation of new legal provisions for categories of protected areas compatible with IUCN categories and in accordance entities laws;*
 - (ii) *Substantially enlarge the system of protected areas based on physical plans and using existing feasibility studies provided for a number of protected areas in both entities;*
 - (iii) *Provide official protection status to designated Ramsar sites with special urgency and attention regarding Hutovo Blato;*
 - (iv) *Develop an action plan for applying the EU Habitat Directive and the Natura 2000 network. In so doing, it is recommended that the results of the project "Europe's Living Heart" be fully utilized;*
 - (v) *The Federal Ministry of Environment and Tourism and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should establish entity cadastres of all protected areas and the State's Ministry of Foreign Trade and Economic Relations should collate this data and report to international organizations on the current status of protected areas.*
- (a) (i) Implemented. The entities' Laws on Nature Protection were revised and protected area categories adjusted to the IUCN methodology.
- (ii) Partially implemented. While there were new protected areas designated since the second EPR, the overall territory of Bosnia and Herzegovina under protected areas is still the lowest in Europe.
- (iii) Partially implemented. Hutovo Blato has been designated a nature park (category V). The other two Ramsar Sites in the country still do not have a national designation.
- (iv) Partially implemented. There is a developed list of potential Natura 2000 sites in Europe. Significant further efforts are needed to fully utilize the other recommendations of the "Europe's Living Heart" project.

- (b) Partially implemented. There is a register of protected areas in Republika Srpska, while it is still lacking in the Federation of Bosnia and Herzegovina. The Ministry of Foreign Trade and Economic Relations has had no role in coordinating and reporting on protected areas data so far.

* * * * *

Parts of the conclusions and recommendations from the first EPR of Bosnia and Herzegovina are still valid and are listed below.

EPR I – Recommendation 8.2:

Republika Srpska's Ministry of Agriculture, Forestry and Water Management, the Federation's Ministry of Agriculture, Water Management and Forestry and Brčko District's Department of Agriculture and Forestry, in cooperation with the respective entities' ministries of environment, should:

- (a) *As soon as possible, develop a national forestry strategy (including forest use and timber industry) applying Strategic Environmental Assessment. The Strategy should ensure the gradual recovery of the forests and sustainable forest management, and include the development of a programme for forest certification as a first step toward sustainable forest use and management.*
- (b) *Draw up action plans on the basis of the strategy.*

Not implemented.

EPR I – Recommendation 8.3:

(a) *The Federation's Ministry of Physical Planning and Environment and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology should:*

- *Finalize and adopt red data books for plant and animal species according to the IUCN classification; and*
- *Accelerate the development of the by-laws for the respective Laws on Nature Protection.*

(b) *Republika Srpska's Ministry of Agriculture, Forestry and Water Management and the Federation's Ministry of Agriculture, Water Management and Forestry should similarly accelerate the development of by-laws for the respective new Laws on Forests.*

(c) *In developing these two sets of by-laws, it is essential for the Federation's Ministry of Physical Planning and Environment and Ministry of Agriculture, Water Management and Forestry and Republika Srpska's Ministry of Physical Planning, Civil Engineering and Ecology and Ministry of Agriculture, Forestry and Water Management to work together in order to define clearly the institutional responsibilities for nature reserves, protected areas and national parks.*

- (a) Implemented. Republika Srpska adopted its Red List in 2012 and the Federation of Bosnia and Herzegovina adopted its own in 2014. While the compilation of the two Red Lists is a welcome development, they have not been harmonized and there is no single/harmonized Red List at the state level. Harmonization of the existing Lists would pose a major issue since, for instance, the List of Republika Srpska does not contain the conservation status of listed species and the methodologies used for compiling the Lists are not mutually synchronized and, for the most part, do not follow the internationally recognized IUCN Red List Methodology.
- (b) Not implemented.
- (c) Implemented. The entities' Laws on Nature Protection were readopted in 2013–2014 and now clearly define institutional competences for protected areas.