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Preface

This third EPR of North Macedonia takes stock of progress made by the country in the management of its environment since it was reviewed for the second time in 2011 and assesses the implementation of the recommendations made in the second review. It covers legal and policy frameworks, greening the economy, environmental monitoring, public participation and education for sustainable development. Furthermore, the EPR addresses issues of specific importance to the country related to air protection, biodiversity and protected areas, as well as water, waste and chemicals management. 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 has an additional thematic angle on the Sustainable Development Goals: it includes an assessment of relevant targets and recommendations related to the achievement of Sustainable Development Goals.

This EPR of North Macedonia began in February 2018 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 on 17–26 September 2018. In December 2018, the draft report was sent to North Macedonia for comments and was submitted to the ECE Expert Group on Environmental Performance Reviews for consideration. During its meeting on 9–10 January 2019, the Expert Group discussed the draft report with a delegation from North Macedonia, 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-fourth session on 30 January 2019. A high-level delegation from North Macedonia participated in the peer review and the Committee adopted the recommendations in this report.

The Committee and the ECE secretariat are grateful to the Government of North Macedonia and its experts who worked with the international experts and contributed their knowledge and expertise. ECE would also like to express its deep 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 Norway and Switzerland for their financial support to this review.

Sincere thanks also go to Germany, Hungary, Sweden and the United Nations Environment Programme (UNEP) for having provided their experts to this review. Furthermore, ECE is grateful to the United Nations Development Programme (UNDP) for its support of this review.

ECE also takes this opportunity to thank Germany, Norway, Portugal and Switzerland for their financial support to the EPR Programme in 2018 and expresses its deep appreciation to Belarus, Estonia, Georgia, Germany, Hungary, Italy 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 Third Environmental Performance Review of North Macedonia assesses the progress made by the country in managing its environment and in addressing new challenges since the Second Environmental Performance Review in 2011, including progress in achieving Sustainable Development Goals.

Sustainable Development Goals

In North Macedonia, the formal institutional framework for coordination of the implementation and monitoring of the Sustainable Development Goals of the 2030 Agenda for Sustainable Development is established; however, it is not active. The national institutional framework includes the Cabinet of the Deputy Prime Minister responsible for Economic Affairs and Coordination with the Economic Sectors, and the National Council on Sustainable Development. The Cabinet of the Deputy Prime Minister oversees sustainable development policies and coordinates the implementation and monitoring of the Sustainable Development Goals. The National Council, established in 2010, has the role of the political body mandated to guide implementation of the Sustainable Development Goals. However, the Council last convened in 2015.

The national policy framework is still under development. No document adopted at the national level refers to the Sustainable Development Goals. Efforts are made to update the 2010 National Strategy for Sustainable Development for the period 2010–2030 by mainstreaming the Sustainable Development Goals in the Strategy. A Rapid Gap Assessment was prepared during 2016 through a multi-stakeholder consultation process but it was neither adopted nor made available to the public, ministries and stakeholders. The country did not make any specific effort to mainstream the Sustainable Development Goals into sectoral policy documents.

The Government has not conducted any assessment of the costs of implementation of the Sustainable Development Goals. The Cabinet of the Deputy Prime Minister responsible for Economic Affairs and Coordination with the Economic Sectors intends to undertake an assessment of costs and prioritization of the Sustainable Development Goals and targets.

The national availability of Sustainable Development Goals global indicators was not assessed. In 2018, the State Statistical Office published a book entitled “Sustainable Development” that included a compilation of sustainability-related data; some Sustainable Development Goals global indicators are covered in this book.

Ownership of the Sustainable Development Goals is low, as is awareness of them among local government authorities. Government officials have heard about the Sustainable Development Goals but believe that specific instructions should come from the Cabinet of the Deputy Prime Minister responsible for Economic Affairs and Coordination with the Economic Sectors, asking their institution to commence any work towards achieving them. While the general public’s level of awareness of the Sustainable Development Goals is also quite low, the level of awareness is much better among civil society organizations (CSOs).

North Macedonia uses the Partnership for Sustainable Development in its efforts to achieve Sustainable Development Goals. The Partnership is the United Nations strategy for 2016–2020, structured around five focus areas: employment, social inclusion, good governance, environmental sustainability and gender equality. The Partnership provides a framework for activities aligned with the Sustainable Development Goals, European Union (EU) accession, the National Sustainable Development Strategy and sectoral strategies in the country.

Overall, North Macedonia is at the inception stage for setting the premises for delivering on many targets reviewed in the Environmental Performance Review. However, the country took some action to support achieving several targets. The status of the country vis-à-vis relevant targets is addressed in each chapter, as appropriate, including progress made and challenges faced by the country. In many cases, a comprehensive analysis of the Sustainable Development Goals and targets is hindered by the lack of data and information.

Concerning achieving target 8.4 to improve resource efficiency in consumption and production and decouple economic growth from environmental degradation, *North Macedonia took policy action in the waste management sector.* The country established targets related to material resource productivity within the framework of the

extended producer responsibility (EPR) policy, with a view to creating incentives for producers to prevent waste at the production stage, take environmental considerations into account at the product design stage and support public recycling and materials management goals.

Regarding targets 16.7 and 16.10 related to good governance through participatory decision-making and access to information, *North Macedonia established two Commissions* – the State Commission for Decision-Making in Administrative Procedures and Labour Relations Procedures in Second Instance and the Commission for the Protection of the Right to Free Access to Public Information – *enabling the right of the public to challenge decisions on environmental matters and to file complains for non-provision of environmental information*.

To deliver on target 11.4 to strengthen efforts to protect and safeguard the world's cultural and natural heritage, *the country has appropriate legal measures in place for the protection of cultural heritage*, in particular the 2004 Law on Protection of Cultural Heritage. The National Strategy for Culture Development 2018–2022 identifies most related policy priorities for this target and the Ministry of Culture represents the institutional framework.

North Macedonia has data for reporting on achieving target 11.6 to reduce the adverse environmental impact of cities, including air pollution levels. However, the achievement of this target already presents a challenge for the country, given that the whole population is exposed to PM₁₀ concentrations exceeding the annual limit value of 40 µg/m³, since there is exceedance of the annual limit value recorded at all measurement stations throughout the country.

Concerning delivering on target 15.4 to ensure the conservation of mountain ecosystems, including their biodiversity, *as at 2017, North Macedonia's value on the Mountain Green Cover Index was 96.5 per cent*, while coverage by protected areas of important sites for mountain biodiversity accounts for some 23 per cent of Mountain Key Biodiversity Areas and remains unchanged since 2006.

Legal, policy and institutional framework

The implementation of existing legislation remains a challenge, especially in the areas of issuing permits, EPR and waste management, protected areas and noise. However, the speed of the approximation process in the environmental area has been commensurate with the national capacities for implementation.

Although the integration of environmental requirements into sectoral legislation has seen some progress, it is still limited in the spatial planning, mining and tourism sectors, and remains insufficient in the energy, industry, agriculture, transport and health sectors. The mechanism for intersectoral consultations preceding the adoption of laws, amendments to laws and subsidiary legislation is not used to its full potential to advance the environmental agenda of the economic sectors.

North Macedonia has started to integrate environmental requirements into sectoral policies, though not at an adequate level. Especially in spatial planning and energy development, they are scarcely reflected at all. Environment-related objectives in policy documents related to forestry, transport, agriculture and health have been implemented insufficiently. No policy document addresses environmental impacts from mining, despite high levels of public concern about the impacts of new mines.

Delayed adoption of strategic documents and a persistent lack of reporting on implementation are bottlenecks for efficient strategic planning in North Macedonia. Some policy documents are never adopted despite the significant efforts made to develop them. Preparing a national environmental action plan (NEAP), which is supposed to underpin planning in the environmental field, was discontinued following the second NEAP 2006–2012.

North Macedonia committed to the full and efficient use of the SEA instrument, in line with the best international practice, by ratifying in 2013 the Protocol on Strategic Environmental Assessment (SEA). The country has limited practical experience with conducting transboundary consultations as part of the SEA procedure.

The number of national planning documents undergoing SEA has increased during the past five years. However, some national planning documents are prepared by sectoral ministries and adopted without an SEA procedure,

despite the legal requirement to conduct one. The quality of SEA reports also remains an issue. No regular training and capacity-building on SEA at the national and local levels takes place.

The separation of the State Environmental Inspectorate (SEI) from the Ministry of Environment and Physical Planning in 2014 constitutes the major environmental institutional change since 2011. An environmental protection agency has not been established.

The Ministry of Environment and Physical Planning has yet to establish a policy to lead environmental protection efforts by its own example and demonstrate opportunities for functioning in an environmentally friendly way to other governmental bodies and non-governmental stakeholders. Green procurement is not practised for the purchase of goods and services in the framework of projects coordinated by the Ministry.

A system for regular training of staff of the Ministry of Environment and Physical Planning is in place but it does not function properly. Despite the provisions for specialized training in the annual training programme, such training lacks resources allocated from the state budget and it is solely project based. Training and professional development on environmental issues for staff in sectoral ministries is lacking.

Municipalities face significant difficulties with the implementation of their environment-related competences. The provision of guidance and assistance by the Ministry of Environment and Physical Planning is at an insufficient level. Regular consultations and meetings with the local self-government units (LSGUs) on environmental policy issues, as well as specialized training, are not organized by the Ministry.

Regulatory and compliance assurance mechanisms

The legislation for and implementation of single-medium environmental permitting are generally well in place. Since 2011, the Ministry of Environment and Physical Planning has put significant efforts into the issuance of the A- and B-type permits in the country. No public register of the permits issued was established. The current integrated environmental permitting (IEP) process is not implemented according to the relevant EU directives.

Relevant best practices for control of the issued A- and B-type permits are not applied. Enforcement capacity does not keep up with the pace at which legislation and rulebooks are being enacted. The reports of the inspections are not publicly available or are outdated. The self-monitoring reports submitted each year by the operators of the permitted installations are not validated by SEI and are not used for the national pollutant release and transfer register (PRTR).

The administrative capacity of LSGUs to process applications for B-type permits and monitor their implementation is limited. Therefore, the Ministry of Environment and Physical Planning helped compensate for delays at the municipal level with the issuance of B-type permits. As a result, visible progress was made in IEP issuance, with 140 A-type and 180 B-type permits issued in the period 2011–2018. Even though the Ministry oversees the issuing of all B-type permits, there is a lack of systematic communication and support from the central to the local level. In the period 2015–2016, the country strengthened the administrative capacity of LSGUs in the framework of a twinning project.

The existing procedure, by which the Ministry has both policy development functions and those of policy implementation, including environmental permitting, environmental impact assessment (EIA) and environmental elaborates proceedings, monitoring, assessment and reporting, is in contradiction with good practice in environmental governance and limits access to justice in environmental decision-making.

The legislation on EIA does not provide for a clear EIA screening process and does not set out clearly the decision-making process. The list of activities does not follow the annexes of the relevant EU EIA directives and, at the same time, the listed activities do not refer to national classification of activities.

The state environmental inspectors have put in a lot of effort to discipline operators and to change their behaviour towards the implementation of environmental legislation, as proven by the amount of written decisions and minutes. In 2014–2017, 100 per cent of the inspections carried out by SEI produced minutes with conclusions and the total number of written decisions directed to the operators to undertake certain actions was 1,530.

The Ministry of Economy undertook the only initiative to encourage corporate social responsibility (CSR) by organizing an annual national award for the best CSR practice. Since 2011, the country did not establish any voluntary compliance promotion instruments on the environment.

Greening the economy

During the past decade, North Macedonia enhanced and deepened substantially the use of economic instruments in environmental protection. In terms of energy taxes, excise duties are applied to all energy products used for transport and heating, with the major exception of electricity and coal. The country levies user charges for water abstraction and the extraction of minerals.

In the absence of cost-reflective tariffs for water and waste services, water and waste companies face operational difficulties due to the lack of sufficient funds for maintenance, repair and new investments. To address this concern, as of 2018, the country delegated the regulation of water tariffs to the Energy Regulatory Commission (ERC), with the mandate to establish the principle of full cost recovery of production of water services. The user pays principle has been strengthened with that tariff reform.

To upgrade and modernize the waste management sector, LSGUs are considering adopting cost-reflective user fee policies for waste collection and disposal tariffs. In addition, potential economies of scale from regionalization of waste management have yet to be exploited. Bill collection rates at the household level are in general quite low. Measures to ensure higher rates of waste service fee bill collection are lacking.

The role of renewable energy sources (RES) in total electricity supply has been promoted with an effective system of feed-in tariffs. Most of the electricity market is now liberalized. The country's efforts are ongoing to improve energy efficiency with a system of government subsidies. Electricity tariffs have approached cost-reflective levels and cross subsidies from business entities to households have been reduced.

The Government operates since 2014 a subsidy programme for the promotion of RES and improvements in energy efficiency in households. The total budget amounts to 50 million denars (€0.8 million) in 2018. Skopje operated a similar programme in 2016 designed to stimulate households to use renewable solar energy sources for heating of their homes, as well as introducing a support scheme for purchasing pellet stoves designed to reduce air pollution.

The polluter pays principle is enshrined in legislative acts, but it is not applied effectively. The main instrument to address air and water pollution is regulation (command and control) combined with prescription of best available techniques (BAT). The flat charge rates per type of polluting substance integrated into permit fees do not create incentives for enterprises to adopt cleaner technologies. Effective financial incentives in the form of environmental taxes are lacking.

North Macedonia established excise duties and other charges for motor vehicles and pump prices of motor fuels in an effort to address air pollution from road transport, a major source of air pollution in the country. However, the potential environmental effectiveness of these charges could be strengthened further.

Government environmental expenditure has been constrained by limited fiscal space. The business sector is the major source for mobilizing funds for the transition to green economy. The tax system provides generous incentives for business investments; however, they are not differentiated between green investment and other investments.

Environmental expenditures are financed mainly from the general budget; little use has been made of earmarked revenue from environmental taxes and charges. Available funds for environmental investments, notably in municipal infrastructure, have been supported by significant foreign financial assistance. The potential benefits from public-private partnerships in the provision of municipal utility services and the financing of the associated infrastructure are not explored. Public procurement is focused on the lowest price bid, thereby limiting its use to support environmental protection.

Environmental monitoring and information

The air quality monitoring network has improved with the addition of new monitoring stations, new parameters monitored and the replacement of old instruments. However, these activities depend solely on technical cooperation projects. Proper operation of the network is hindered by the lack of adequate maintenance and servicing capacity and resources.

The monitoring networks for surface water and groundwater, atmospheric precipitation and snow cover have been declining and do not meet the requirements of the national water-related legislation. The quality of groundwater is not monitored and surface water resources are partially monitored, covering mostly rivers.

Even though the noise monitoring methodology was harmonized and standardized, the status of the noise monitoring network remains unchanged since 2011. Noise is monitored in three localities but not systematically and using outdated equipment. Municipalities are also responsible for noise monitoring and for the production of noise maps, but comprehensive city-wide noise maps have not yet been produced. There is no monitoring of vibrations, nor are data available on environmental exposure to vibrations.

Monitoring of biodiversity is on an ad hoc basis depending on funding from international projects. Most data reporting activities have been under multilateral environmental agreement (MEA) obligations and in nationally designated areas. Comprehensive monitoring of forests and the development of a forest inventory are lacking.

The country did not perform soil monitoring systematically. The City of Skopje carried out a series of soil monitoring campaigns in the Skopje Region, focusing on heavy metals pollution, the results of which were made publicly available on the website of the City of Skopje.

The Ministry of Environment and Physical Planning collects waste-related data from various sources by waste typology. The Ministry's Environmental Information Centre collects reports from municipalities on municipal solid waste (MSW) generation and management. However, only around one third of all municipalities provided reports in the last round, despite the legal obligation to do so.

The two laboratories under the Ministry of Environment and Physical Planning and one under the National Hydrometeorological Service (HMS) face operational challenges and are not accredited under the ISO/IEC 17025 standard on "General requirements for the competence of testing and calibration laboratories". The Institute of Public Health operates 14 accredited reference laboratories, including for quality control of food and of water, for sanitary microbiology, for contaminants and eco-toxicology, and for radioecology and ionizing radiation.

North Macedonia made progress in developing databases and thematic information management systems. A national integrated environmental information system to support informed decision-making and satisfy various reporting obligations, including on the Sustainable Development Goals, is lacking.

The country has a robust system for producing environmental statistics and indicators and, in general, promotes the Shared Environmental Information System (SEIS) principles of open access to data and use of data for multiple reporting purposes. Producing all relevant indicators in the ECE list of environmental indicators, initiating the production of the Organization for Economic Cooperation and Development (OECD) green growth indicators and establishing relevant environmental indicators for reporting on the environmental dimension of the Sustainable Development Goals remain challenges for the country.

The three main environmental-data-based publications produced by the Ministry of Environment and Physical Planning have limited use in support of policymaking processes. They lack a multisector integrated environmental assessment approach and projections of negative trends and implications vis-à-vis national goals and policies, and do not address cross-cutting issues, such as the impact of transport on the environment and of air quality on public health.

Environmental democracy and education for sustainable development

Environmental democracy is under development with uneven progress in the implementation of its three pillars. The legislative framework is in place and efforts are concentrated on putting it into practice.

The public has access to environmental information published by the Ministry of Environment and Physical Planning. However, some information is outdated or not easy to find. Access to environmental information on the websites of other public institutions is largely lacking. Consolidated versions of laws and secondary legislation are not available to the public free of charge.

Civil society lacks awareness about the availability of environmental information and procedures to access it. An open, updated and user-friendly environmental portal supported by a single-window integrated information system would facilitate public access to information related to environmental media.

Effective public participation procedures are largely not developed and those in place are not aligned with the provisions of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention). Such procedures are established mostly for activities covered by EIA, SEA and IEP. Challenges exist with effective public participation in public hearings. However, in all cases, the public concerned has the right to challenge a decision before the State Commission for Decision-Making in Administrative Procedures and Labour Relations Procedures in Second Instance.

Access to justice in environmental matters has been promoted since 2012, mostly as a project-based activity to develop the capacity of the judiciary and CSOs. The governmental authorities, judiciary and independent review bodies lack adequate knowledge, capacity and expertise in promoting and implementing effective access to justice in environmental matters.

The public can submit cases related to environmental matters to the Ombudsman before deciding whether to file a court case. The time periods for challenging court decisions on specific activities relating to the environment – 30 days for the submission of an administrative lawsuit against an administrative act and 15 days for an appeal against the decision of a court of first instance to a court of appeal – might be too short for complex cases requiring extensive coordination among CSOs.

Environmental education is driven by CSOs, mostly within project-based activities. Progress has been made in promoting environmental education, mostly in primary and secondary schools and mostly through the eco-school programme.

In North Macedonia, eco-schools serve as a good example of integrating environmental education and demonstrate the interest and involvement of teachers, students and parents in environmental activities. The expansion of eco-schools represents a good practice for promoting environmental education in the country.

Education for sustainable development (ESD) as an approach is not embraced by the country, although some themes of the environmental and social dimensions of sustainable development are included in civic education and offered as elective courses. The lack of a legal framework or a policy document on ESD is a key barrier towards integrating ESD in a consistent and continuous manner.

Preschool educators have the opportunity to study environmental education as part of elective courses offered during their university years. The study programmes of future biology and geography teachers for secondary education include environment-related courses. In-service training for teachers does not include mandatory courses on environmental education or ESD. Ad hoc in-service training on environmental education and ESD was conducted by CSOs in the period 2010–2015 for teachers in eco-schools.

Implementation of international agreements and commitments

The country is a party to nearly all relevant global and regional environmental agreements. Since 2011, North Macedonia ratified several MEAs, including the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention). The country has yet to join a number of MEAs, such

as the Minamata Convention on Mercury, the Protocol on Water and Health and the Nagoya Protocol, and to ratify several amendments to a few MEAs, such as the Aarhus and Espoo Conventions.

Comprehensive implementation of and compliance with MEAs remain a challenge, especially recently ratified agreements. No efficient coordination structure among relevant state institutions charged with the implementation of obligations deriving from global and regional environmental agreements is established. The quality and timeliness of national reporting to MEAs is affected by the lack of environmental monitoring data. CSOs are neither involved in reporting nor do they participate in the development of the country's position for international meetings.

The list of ratified MEAs is available to the public on the website of the Ministry of Environment and Physical Planning. However, there is a general absence of information on the status of implementation of MEAs, including the national reports submitted, except the national reports to the Aarhus Convention and to the Convention on Biological Diversity (CBD).

The country has made some progress in establishing synergies among the Basel, Rotterdam and Stockholm (BRS) Conventions and in 2017 reported that coordination mechanisms existed at intraministerial level. Although national focal points have been appointed for MEAs and national committees have been established for certain conventions, communication, cooperation and coordination among the institutions dealing with biodiversity conservation, forestry and land use planning remain challenging. In general, experience on synergies at the national, regional and international levels is not shared through joint activities.

North Macedonia had a case filed under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), because of construction of hydropower plants (HPPs) being planned in protected areas. CSOs have raised their concerns about the lack of transparency on the number and locations of the proposed HPPs. As a result, in 2015, the country received a recommendation to suspend the implementation of all government projects, in particular the HPPs foreseen and related infrastructure, within the territory of the Mavrovo National Park, until an SEA is completed.

The country did not identify hazardous activities falling under the scope of the Convention on the Transboundary Effects of Industrial Accidents and subsequently did not notify potentially affected countries. Since 2012, the country did not submit an updated national self-assessment and action plan under the Convention's strategic approach, nor related project proposals addressing needs and challenges identified through the self-assessment and in the national action plan. No progress has been made on transposing the Seveso III Directive.

North Macedonia is committed to preventing and combating air pollution. The country joined the Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by 30 per cent (Sulphur Protocol) in 2010, and both the Protocol on Further Reduction of Sulphur Emissions (Oslo Protocol) and Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) to the Convention on Long-Range Transboundary Air Pollution (Air Convention) in 2014. The country is yet to accept amendments to the Protocol on Heavy Metals, POPs Protocol and Gothenburg Protocol to the Air Convention.

Climate change

The country is vulnerable to climate change, especially to extreme weather events. The policy framework and the human and technical capacities devoted to combatting climate change are not sufficient to tackle the challenges posed by climate change.

North Macedonia regularly fulfils its reporting obligations under the UNFCCC, Kyoto Protocol and Paris Agreement. It has been praised as one of only 16 countries that are on track to honour their commitments under the Paris Agreement.

Within the national plans on climate change, vulnerability and adaptation assessments have been prepared for the sectors of agriculture, forestry, water, health, biodiversity, crisis management, tourism and cultural heritage protection. These assessments serve as strategic documents for adaptation to climate change. However, legislation to specifically address climate change or an overall strategic document setting climate change priorities are lacking. Coordination among the different ministries takes place in the National Climate Change Committee.

Mitigation measures have been implemented in the energy sector, ranging from the introduction of energy audits to subsidies for energy efficiency measures in households. Because of the dominant use of domestic lignite for electricity production, the country has a potential for greenhouse gas (GHG) emissions reductions.

The waste sector is the second highest emitting sector in the country, accounting for 19 per cent of the total GHG emissions in 2014, excluding the Forestry and Other Land Use (FOLU) sector. Solid waste disposal is by far the greatest contributor to the GHG emissions of the waste sector, which is also the highest growing category in terms of emissions.

While the country expects access to international funding sources to significantly contribute to the implementation of adaptation and, especially, mitigation measures, the country is also dedicating internal resources to climate-related activities. According to the Second Biennial Update Report on Climate Change (SBUR), in 2017, 1.98 per cent of the planned government budget contributed directly or indirectly to climate change mitigation, while the budget of Skopje for the same year anticipated an almost US\$2 million contribution to climate-related initiatives. Additionally, in the period 2015–2017, the Fund for Innovation and Technology Development financed climate-related projects in the amount of €447,592.

Despite the economic impact that climate change has already had or is expected to have on various economic sectors in the country, no estimation of the costs of inaction for the different sectors is carried out.

At local level, the country acts on climate change. For example, the City of Skopje has implemented some measures included in the 2011 Skopje Sustainable Energy Action Plan, mostly in the building sector and, to a limited extent, in the transport sector. In 2015, eight municipalities developed through a participatory process and adopted climate change strategies with a 10-year time frame within the USAID-financed Municipal Climate Change Strategies Project.

Climate change issues are not integrated into primary, secondary and tertiary education curricula. Awareness-raising measures rely mostly on donor-financed projects. Overall public awareness on climate change issues remains limited.

Air protection

North Macedonia's efforts to decrease air pollution were successful in the period 2006–2016, in particular because of reduced use of fossil fuels in energy production and gasification of the heating sector. Since 2013, there have not been any exceedances of the limit values for concentrations of NO_x, but values close to the limit at stations affected by frequent traffic indicate the need for further action. The whole population of the country is exposed to PM₁₀ concentrations exceeding the annual limit value. Exceedances of air quality standards established for CO still occur occasionally during the heating season.

Data on air quality are often fragmented, due to inconsistent measurement that leads to a failure to meet data quality objectives (75 per cent of measurements valid during the year) and makes them unsuitable for official use. Despite the regular calibration of existing equipment, the lack of an accredited calibration laboratory brings data quality into question.

Reliable data are lacking to assess the impact of air pollution on human health and the environment, establish cause-and-effect relationships and design appropriate actions to mitigate negative impacts. Although some project-based environmental health assessment activities are performed in the country, the mortality rate attributed to indoor and outdoor air pollution is not monitored. Integrated air quality and health assessments are not carried out on a systematic basis.

The lack of monitoring of air quality at rural sites prevents assessments of the impact of air pollution on ecosystems and biodiversity. The only rural background station is at a high altitude and measurements of ozone and its precursors is highly inconsistent. There is no information on parallel assessments of foliar damage or other indicators of the impact of air pollution on vegetation.

The country maintains an air quality portal that provides complete information on the state of ambient air in the country; all data are public. Among other information, the portal contains information on measures for

improvement of air quality, on sustainable transport and cleaner domestic heating practices for citizens, instructions to the public in the event of exceedances of information and alert thresholds set for certain pollutants, health advice from the Institute of Public Health, as well as information on monitoring network activities, legislative and policy documents, projects, emission inventories and results of air quality modelling.

Policy documents and measures for the improvement of air quality are not regularly updated, their implementation is not monitored and the effectiveness of their implementation is not assessed. The strategic framework for air protection has not been updated since its development in 2012. There are no reports on its implementation and the effect of the implemented measures.

The 2018 Programme for Reduction of Air Pollution does not contain precise deadlines and institutions competent for its implementation, measurable indicators, financial estimations and other elements to enable the smooth realization of proposed measures, their monitoring and estimation of their impact on the improvement of air quality.

The Ministry of Environment and Physical Planning does not give enough political backing to ensure implementation of the measures proposed to improve air quality, even those proposed by an intersectoral working group.

Transport is a significant source of air pollution, especially in Skopje, primarily because of old vehicles (average age of 18.6 years), and the high share of passenger cars (77 per cent) and low share of urban and suburban public transport use (11.9 per cent in 2016). Public transport buses are also old, with an average age of 17.8 years.

Energy production (electricity and heat production) contributed 91 per cent of the SO₂ emissions and 41 per cent of the NO_x emissions in 2016. Energy production is also a dominant source of emissions of lead (38 per cent), mercury (45 per cent) and cadmium (49 per cent).

Residential heating represents a major air quality concern in the country. It has a major share in total national emissions of polycyclic aromatic hydrocarbons (PAHs) (79 per cent) and polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/Fs) (77 per cent). It also contributes 67 per cent of the CO emissions, although emissions of this pollutant decreased by 14 per cent in 2016 compared with 2015, due to greater use of natural gas and briquettes and pellets for residential heating instead of fossil fuels and wood.

Public awareness of the sources and impacts of air pollution as well as on the measures to mitigate those impacts has increased during the last decade. The Ministry of Environment and Physical Planning produced public awareness-raising brochures on understanding the effects of air pollution, good wood-burning practices at home and smart means of mobility and better living.

Water management

Water availability is expected to decrease in North Macedonia. Due to the lack of accurate data, unknown and unregulated use of surface water and groundwater, especially by industry, can occur. Water demand from other areas, such as for drinking water, is increasing.

In North Macedonia, the monitoring of quality and quantity of both surface water and groundwater is insufficient to provide a picture of the state of water resources. The network of water monitoring stations has deteriorated.

Major concerns related to water supply are the loss of water in drinking network systems, leakage from degraded irrigation systems, awareness of and technical devices for saving water resources and lack of sanitary protection of the sources. The existing irrigation structures, facilities and equipment are in poor technical condition. The fee for irrigation water is defined by area and the cultivated crop and not by the water consumed.

About 12.5 per cent of rivers assessed are of good ambient water quality. The main source of water pollution is poorly treated wastewater. Although 25 per cent of necessary wastewater treatment plants (WWTPs) have been built, most wastewater – especially industrial wastewater – is still discharged untreated into the rivers. Therefore, rivers are largely polluted, and it can be assumed that those river sections will not comply with the EU Water Framework Directive (WFD) criteria for “good” status.

Bigger cities still have no sewage treatment plants. Certain rural areas have developed combined domestic sewage and storm wastewater collection systems, but no treatment is performed prior to wastewater discharge. Landfills close to rivers or lakes are a further source of pollution by infiltration or run-off into surface water and groundwater.

The WFD has been transposed in the Law on Waters and Directive 2007/60/EC on the assessment and management of flood risks is intended to serve as a guideline for further action on flooding in the future. However, practical implementation is lagging behind significantly. The country is very vulnerable to river floods and flash floods, but an effective system of flood prediction, warning and appropriate measures in the event of a flood is missing.

The country is yet to establish river basin management councils (RBMCs) and to develop detailed criteria for representation of various groups of stakeholders, methodological guidance and funding issues. The National Water Council is not in operation.

River basin management plans (RBMPs) for Lake Prespa and the Bregalnica River have been developed, while RBMPs for the Strumica and Vardar River Basins have been drafted. None of the RBMPs so far developed has been adopted by the Government and none of them has been subject to SEA.

Waste and chemicals management

Since 2008, the country has made little progress in developing waste management infrastructure. The existing non-compliant municipal landfills do not meet even the basic conditions for safe waste disposal. Despite developments in the establishment of regional waste management systems and progress in the preparatory work, none of the regional landfills has been completed.

The existing non-compliant municipal landfills will continue to operate for at least another few years, but most of them do not fulfil the basic legal requirements and are subject to inspections checking only on limited parameters, which is not sufficient to ensure basic sanitary conditions. The lack of proper landfills makes it impossible to control the municipal disposal sites against the standards set by the legislation.

The 2008 Strategy for Waste Management and National Waste Management Plan (2008–2020), and the relevant legislation, define and focus on targets for separate collection of waste and waste recovery and recycling, but currently do not provide for adequate measures for the growth of a domestic recycling industry.

Progress was made in the separate collection and recycling of waste streams that are under the EPR schemes, such as packaging waste, waste electrical and electronic equipment (WEEE) and waste batteries and accumulators (WBA).

Waste collectors are not encouraged to collect waste separately (by type) wherever waste is generated. Industrial enterprises that use waste as raw material are not incentivized to recycle. Also, there is no encouragement of consumers to purchase products made of recycled materials.

Since 2010, the country has worked on applying the principles of the Strategic Approach to International Chemicals Management (SAICM), upgrading policy and improving practical measures for sound chemicals management, and is focused on preparing for the remediation of contaminated sites.

The Waste Management Information System is not operational. Reports by municipalities, health-care facilities, enterprises on the EPR scheme and public communal companies are submitted on paper, which makes their validation, further processing and publication much more burdensome. Data collection is mostly not evidence based and, because of some overlap in institutional responsibilities, there are significant discrepancies in the published data sets for some waste types.

Biodiversity and protected areas

North Macedonia has successfully preserved the abundance of wild native species of fauna, fungi and flora, including numerous species categorized by the International Union for Conservation of Nature (IUCN) as globally

threatened by extinction and species included in the European Red List, as well as many endemic species, such as the Balkan lynx and Balkan chamois.

The integrity of almost all natural ecosystems in the country is currently threatened, due partly to ongoing climatic changes but also to anthropogenic pressures, resulting in habitat degradation and the increasing threat of forest fires. The biodiversity loss continues, and populations of several rare species continue to decline in size. The currently applied management approaches and strategies do not provide for effective biodiversity conservation.

The 2011 lists of strictly protected and protected wild species are only based on assumptions and historical data. No national red list of threatened species has been adopted, and no corresponding red book has been published to date.

The National Biodiversity Information System and the national biodiversity monitoring system are not operational. Data on the size of and trends in populations of both the rare and widespread (e.g., game) species are either not available or not reliable. The level of threat to wildlife species occurring in the country cannot be assessed.

The process of revalorization and reproclamation of existing protected areas has not yet been completed, which impeded the preparation and adoption of all required management plans for protected areas. A land cadastre to allow the determination of land use and land ownership, and a national inventory of forest resources are lacking. The operations of national parks largely depend on own revenues deriving from the use of natural resources or external (foreign) financial support, while the majority of protected areas of other categories have neither a budget nor a management body.

Protected areas covered 8.93 per cent of the country's territory in 2017, which is well below the minimum value of at least 17 per cent by 2020 indicated in the CBD Aichi Biodiversity Target 11. The current national protected area network does not ensure ecological continuity and connectivity, as linking ecological corridors are still lacking.

North Macedonia has two Ramsar sites, one UNESCO Man and the Biosphere (MAB) Biosphere Reserve and one site inscribed on the World Heritage List. Two other sites with high potential for nomination under the World Heritage “natural” criterion have remained on the Tentative List since 2004.

The 2018 National Strategy for Nature Protection and Action Plan for the period 2017–2027 and the 2018 National Biodiversity Strategy and Action Plan (NBSAP) for the period 2018–2023 are ambitious. However, they require harmonization regarding timelines set for the same activities, which sometimes differ between the documents. A national wetlands policy or a programme for wetlands conservation remain to be developed. The national spatial plans do not include measures for the protection and sustainable use of wetland areas.

Various institutions and organizations are involved in activities for biodiversity conservation and nature protection. However, concerted efforts to coordinate activities between the responsible ministry for environmental affairs and many different sectors, such as forestry, agriculture, transport, energy and tourism, are lacking.

Main achievements in 2011–2018 and priorities for the future

In 2011–2018, North Macedonia's main actions to improve its environmental performance include:

- Separating the State Environmental Inspectorate from the Ministry of Environment and Physical Planning;
- Enhancing and deepening substantially the use of economic instruments in environmental protection;
- Operating a subsidy programme for the promotion of renewable energy sources and improvements in energy efficiency in households;
- Improving the air quality monitoring network;
- Implementing climate change mitigation measures in the energy sector;

- Decreasing air pollution by reducing the use of fossil fuels in energy production and gasification of the heating sector;
- Operationalizing several renewable energy projects that contribute to an increasing share of energy from renewable sources in the energy mix;
- Advancing the separate collection and recycling of waste streams that are under extended producer responsibility schemes;
- Advancing the sound management of chemicals through enhanced legal and policy frameworks, projects and capacity development, focussing on the remediation of contaminated sites;
- Promoting environmental education in formal and non-formal education.

The priorities for improving the country's environmental performance in the future include:

- Nationalizing the Sustainable Development Goals, raising awareness and ensuring multi-stakeholder participation in achieving the Goals;
- Advancing the use of integrated approaches to environmental sustainability such as Strategic Environmental Assessment, Integrated Water Resources Management and Environmental Impact Assessment, including in a transboundary context;
- Establishing an environmental protection agency;
- Establishing an effective mechanism for regular consultation and assistance to municipalities for implementing their environment-related competences;
- Greening the public procurement process to support environmental protection;
- Improving or establishing monitoring networks for surface water and groundwater, atmospheric precipitation and snow cover, biodiversity, soil and noise and vibration;
- Promoting and supporting eco-schools;
- Improving waste and wastewater management, with the construction of regional landfills and sewage treatment plants;
- Completing the process of revalorization and re-proclamation of existing protected areas and implementing the recent policy documents on biodiversity conservation and nature protection;
- Implementing legally-binding renewable energy targets by tapping the country's potential for solar photovoltaic power, thus reducing reliance on fossil fuels and hydropower and dependence on electricity imports.

CONCLUSIONS AND RECOMMENDATIONS

Chapter 1: Legal, policy and institutional framework

Assessment

North Macedonia continued efforts to approximate the national legislation with the EU environmental acquis. Since 2011, few new laws were adopted on environmental issues but extensive subsidiary legislation was developed to detail the requirements of the previously adopted laws. The country struggled with implementation of the existing legislation, in particular on permitting, EPR and waste management, protected areas and noise. No serious efforts have yet been applied to transpose the climate change acquis. Overall, the speed of the approximation process in the environmental area has not been fast, but it has been commensurate with the national capacities for implementation.

The integration of environmental requirements into sectoral legislation has seen some progress but remains insufficient in the energy, industry, agriculture, transport and health sectors. It is limited in the spatial planning, mining and tourism sectors. The mechanism for intersectoral consultations preceding the adoption of laws, amendments to laws and subsidiary legislation is in place. However, it is not clear to what extent the Ministry of Environment and Physical Planning uses this mechanism to advance the environmental agenda of the economic sectors.

Strategic planning in North Macedonia suffers from the delayed adoption of strategic documents and a persistent lack of reporting on implementation. Some policy documents are never adopted despite significant efforts having been made to develop them. The central pillars of the national policy framework are the 2010 National Strategy for Sustainable Development for the period 2010–2030 and the annually revised National Programme for the Adoption of the Acquis Communautaire. As at September 2018, the Sustainable Development Goals of the 2030 Agenda for Sustainable Development are not mentioned in any strategic document adopted at the national level.

Planning in the environmental field is supposed to rely on a national environmental action plan. However, the 2006 Second NEAP designed for the period 2006–2012 was not followed by the development of a third NEAP. The Strategy on Environment and Climate Change for the period 2014–2020, developed in 2014 and adopted in January 2018, is poorly known in sectoral ministries.

Integration of environmental requirements into sectoral policies has started but has not yet reached an adequate level. The 2004 Spatial Plan and the 2010 Energy Development Strategy until 2030 face criticism for poorly reflecting environmental considerations. While existing documents in the forestry, transport, agriculture and health sectors do include environmental considerations, the level of implementation of their environment-related objectives has been insufficient. Furthermore, the country continued to struggle with proper implementation of SEA.

In terms of institutional changes, the major change since 2011 has been the separation of SEI from the Ministry of Environment and Physical Planning in 2014. An environmental protection agency has not been established.

Conclusions and recommendations

Sustainable Development Goals implementation and follow-up

The country formally has an institutional framework for coordination of the implementation and monitoring of the Sustainable Development Goals, centred on the National Council on Sustainable Development supported by the Cabinet of the Deputy Prime Minister responsible for Economic Affairs. However, this institutional framework is not active. The National Council last convened in 2015. A Rapid Gap Assessment was prepared in 2016 through a multi-stakeholder consultation process but the document was not adopted and is not publicly available. As at September 2018, the Cabinet of the Deputy Prime Minister responsible for Economic Affairs and Coordination with the Economic Sectors intends to update the Rapid Gap Assessment, strengthen the National

Council and establish a working group for each Sustainable Development Goal. As at September 2018, the Sustainable Development Goals are not mentioned in any adopted strategic document at national level. No assessment of the availability of Sustainable Development Goals global indicators was completed. Awareness of the Sustainable Development Goals among governmental officials is insufficient.

Recommendation 1.1:

The Government should:

- (a) *Revitalize the National Council for Sustainable Development and ensure its active role to guide efforts to achieve the Sustainable Development Goals and in the monitoring of progress towards them;*
- (b) *Proceed with setting up aspirational and measurable national targets through a participatory and transparent process;*
- (c) *Ensure the production of indicators to measure progress towards achievement of the Sustainable Development Goals;*
- (d) *Ensure the preparation of reports presenting the results of monitoring of progress towards achievement of the Sustainable Development Goals;*
- (e) *Ensure that the Sustainable Development Goals are integrated into future planning documents;*
- (f) *Raise awareness of the Sustainable Development Goals among central and local government authorities.*

Strategic environmental assessment

The number of national planning documents undergoing SEA has increased since 2013–2014. However, some national planning documents are prepared by sectoral ministries and adopted without an SEA procedure, despite the legal requirement to conduct one. No activities to raise awareness of the SEA requirements among sectoral ministries are conducted. There are no statistics on planning documents adopted at the local level without an SEA. Though the number of SEA dossiers received by the Ministry of Environment and Physical Planning from LSGUs has decreased over the period 2011–2017, it remains high, which suggests that screening does not work well. The criteria for screening are defined in subsidiary legislation but are not used in practice. The quality of SEA reports also remains an issue. Their poor quality is partially explained by insufficient involvement of sectoral departments of the Ministry of Environment and Physical Planning in the evaluation by the Ministry of SEA reports. There are problems with the implementation of the public participation requirements in the SEA procedure. Although the Law on Environment includes a requirement to monitor the effects of the implementation of planning documents, no monitoring and follow-up have ever been done in practice.

No regular training and capacity-building on SEA at the national and local levels takes place. Nevertheless, proper implementation of SEA is crucial for achievement by the country of target 17.14 (Enhance policy coherence for sustainable development) of the 2030 Agenda for Sustainable Development.

Recommendation 1.2:

The Government should ensure:

- (a) *That all documents subject to strategic environmental assessment (SEA) undergo an SEA;*
- (b) *That authorities proposing planning documents observe all stages and requirements of the SEA process, including monitoring, follow-up and public participation;*
- (c) *The improvement of screening procedures by raising awareness and encouraging the use of the criteria to determine which planning documents are subject to SEA;*
- (d) *The improvement of the quality of SEA reports, in particular through securing sufficient expertise for the evaluation of environmental effects;*
- (e) *Training and capacity-building on SEA.*

Transboundary strategic environmental assessment

By ratifying the Protocol on Strategic Environmental Assessment in 2013, North Macedonia demonstrated its commitment to the fully fledged and efficient use of the SEA instrument, in line with the best international practice. This implies proper conduct of transboundary consultations as part of the SEA procedure. However, the country's practical experience with transboundary consultations is very limited.

Recommendation 1.3:

The Ministry of Environment and Physical Planning should:

- (a) *Solicit the support of international organizations and donors in organizing a pilot transboundary SEA;*
- (b) *Establish bilateral practical cooperation with neighbouring counties on SEA issues, such as establishing working groups.*

Approximation process

The institutional capacities for the approximation of environmental legislation are rather low. Although, formally, the Department for the European Union of the Ministry of Environment and Physical Planning was enlarged in 2011 with an increase in the number of staff, when the two IPA-focused Units were brought to this Department, the number of people who work on EU integration issues and harmonization of legislation actually decreased. The staffing situation is clearly not adequate vis-à-vis the tasks to be accomplished. As at September 2018, the Ministry had not started preparation for the screening process, tentatively expected to commence in mid-2019.

Recommendation 1.4:

The Ministry of Environment and Physical Planning should:

- (a) *Reorganize, as necessary, and strengthen the relevant main departments, including the Department for the European Union, in the Ministry of Environment and Physical Planning, with required capacity for the European Union approximation process;*
- (b) *Ensure careful planning and allocation of tasks in the process of approximation to the European Union acquis;*
- (c) *Start preparation for the screening process to optimize tasks for policy planning and for implementation of relevant primary and secondary legislation.*

Mining and protection of soil

The mining sector has been actively developed over the past 10 years but no study on the environmental impacts of the mining sector has been done. No policy document addresses environmental impacts from mining, despite high levels of public concern about the environmental impacts of new mines.

The country has no practical experience in remediation of land that is degraded by mining. The 2012 Law on Mineral Resources envisages the tool of a financial guarantee sufficient to cover the cost of the elimination of the harmful effects on the environment. However, no solution has yet been found on the type and amount of financial guarantee and no subsidiary legislation has been developed on this issue.

There is no policy document that explicitly targets the historic pollution hotspots from mining and industry.

A draft law on soil protection was prepared in 2014 but it was not adopted, largely due to its financial implications.

Recommendation 1.5:

The Ministry of Economy and the Ministry of Environment and Physical Planning should:

- (a) *Undertake a study on the environmental impacts of the mining sector;*
- (b) *Develop a policy document to address environmental impacts from mining;*
- (c) *Seek support from other countries and international organizations to identify good practices on rehabilitation and remediation of land degraded by mining activities;*
- (d) *Develop subsidiary legislation on financial guarantees to cover the costs of rehabilitation and remediation;*
- (e) *Develop a policy document to address historic pollution from mining and industry;*
- (f) *Prepare the law on soil protection and promote its adoption.*

Greening the Ministry of Environment and Physical Planning

In many countries, national environmental authorities take the lead and show opportunities for functioning in an environmentally friendly way to other governmental bodies and non-governmental stakeholders. In North Macedonia, the Ministry of Environment and Physical Planning does not have a policy to lead environmental

protection efforts by its own example. No efforts are applied to reduce the use of paper and the generation of waste in the Ministry's building or be energy and water efficient and carbon neutral. Green procurement is not practised for the purchase of goods and services in the framework of projects whose implementation is coordinated by the Ministry.

Recommendation 1.6:

The Ministry of Environment and Physical Planning should:

- (a) *Develop and implement policies for greening the activities of the Ministry, in particular with regard to water and energy efficiency, waste management and carbon neutrality;*
- (b) *Introduce green criteria for public procurement for projects under the umbrella of the Ministry;*
- (c) *Promote the greening of activities of other governmental institutions.*

Environment-related responsibilities at local level

Municipalities face significant difficulties with the implementation of their environment-related competences. They interact with the Ministry of Environment and Physical Planning, but the provision of guidance and assistance is at an insufficient level. The Ministry does not conduct regular consultations and meetings with LSGUs on environmental policy issues. Although some training is provided by the Ministry of Local Self-Government and ZELS, no regular programmes exist for training LSGUs on environmental issues. Coordination between the Ministry of Environment and Physical Planning and the Ministry of Local Self-Government in assisting the LSGUs to implement their environment-related competences is insufficient.

The Department for Coordination of Work of the LSGUs and Supervision Work in the Ministry of Environment and Physical Planning has significant responsibilities on waste permitting. Only two staff (of seven) in this Department work on the supervision and coordination of LSGUs' activities. Waste permitting is consuming too much time and effort and does not allow the Department to focus on its core task – supervision and coordination.

Recommendation 1.7:

The Ministry of Environment and Physical Planning should intensify efforts to assist municipalities in the implementation of their environment-related competences, including by:

- (a) *Enabling all seven staff in the Department for Coordination of Work of the Local Self-Government Units and Supervision Work to provide support and guidance to Local Self-Government Units and transferring the waste permitting responsibilities to the Department for Waste Management in the Administration for the Environment, while strengthening the capacity of the Department for Waste Management;*
- (b) *Providing training to municipalities on environmental issues;*
- (c) *Establishing, together with the Ministry of Local Self-Government, Ministry of Economy, Ministry of Transport and Communications and Association of Local Self-Government Units (ZELS), a working group on land and the environment for matters related to budget planning for several issues in waste, water and air protection.*

Training of staff

A system for regular training of staff of the Ministry of Environment and Physical Planning is in place but it does not function properly. An annual training programme outlines the needs for general and specialized training. However, the programme is poorly financed and no resources for specialized training are provided. Specialized training courses on environmental issues are entirely project based. There is no system of training and professional development on environmental issues for staff in sectoral ministries.

Recommendation 1.8:

The Government should:

- (a) *Ensure the training of staff in the Ministry of Environment and Physical Planning, in particular by allocation of adequate resources to enable specialized training in line with needs;*
- (b) *Establish training schemes on environmental issues for civil servants in sectoral ministries.*

Chapter 2: Regulatory and compliance assurance mechanisms

Assessment

The legislation for and implementation of single-medium environmental permitting are generally well in place.

The Minister of Environment and Physical Planning signs single-medium permits as well as IEPs (A-type permits and B-type permits in protected areas). The Minister also signs the decisions for approval of EIA studies and environmental elaborates. Such practice is in contradiction with good practice in environmental governance and limits access to justice in environmental decision-making, as there is no possibility for a preliminary appeal before turning to the courts.

Since 2011, visible progress has been made in IEP issuance. Before 2011, the total number of IEPs issued by the Ministry of Environment and Physical Planning was only 16 A-type and 39 B-type permits across all LSGUs. In the period 2011–2018, there were 140 and 180 respectively. These numbers reflect the efforts made by the Unit for Integrated Pollution Prevention and Control in the Ministry of Environment and Physical Planning to compensate for delays at the municipal level and to help municipalities with the issuance of B-type permits. Even though the Ministry of Environment and Physical Planning oversees the issuing of all B-type permits, there is a lack of systematic communication and support from the central to the local level.

Since 2011, significant changes in the institutional framework for inspections occurred: in May 2014, SEI became an independent legal body with a separate budget; in the same year, an Inspection Council was established with the main task to coordinate the work of the different inspectorates in the country. In the period 2015–2016, a twinning project aimed at strengthening the administrative capacities for enforcement at the central and local levels was implemented. Despite these actions, no visible progress has been made in the organization of the inspections, e.g., there is no evidence of the application of relevant best practices for control of the A-type and B-type permits issued. The reports of the inspections are not publicly available or are outdated. Also, enforcement capacity does not keep up with the pace at which legislation and rulebooks are being enacted. The draft law on environmental inspection, which was developed under a twinning project, has not been adopted.

LSGUs have a number of legal responsibilities to protect the environment. They often suffer from a lack of capacity and resources to comply with their many responsibilities in implementing environmental legislation. This is due partly to staff shortages and partly to the lack of capacity-building. The administrative capacity to process applications for B-type permits and monitor their implementation is still limited. A good start was made in good practice in intermunicipal cooperation in the environmental area during the implementation of the project “Strengthening capacities for implementation of environmental legislation at local level”.

Since 2011, no voluntary environmental arrangements were concluded.

Conclusions and recommendations

Institutional strengthening regarding implementation of environmental legislation

The Ministry of Environment and Physical Planning hosts services linked to the implementation of legislation, such as environmental permitting (single and integrated), EIA and environmental elaborates proceedings, environmental monitoring and reporting. Keeping these functions within the Ministry does not allow separation of policy formulation from implementation. This practice is in contradiction with good practice in environmental governance and it is limiting access to justice in environmental decision-making.

Recommendation 2.1:

The Ministry of Environment and Physical Planning should propose to the Government the reorganization of the Administration for the Environment and the Macedonian Environmental Information Centre into an executive environmental agency, which should focus on the implementation of environmental legislation, ensure environmental data collection, monitoring, assessment and reporting, address nature conservation and provide expert support to the Government.

Environmental impact assessment

The legislation on EIA and environmental elaborates do not provide for a clear EIA screening process, a key step in the overall EIA process. Also, the EIA legislation does not distinguish between the role of EIA, which is required under EU legislation, and the role of environmental elaborates, which are not so required. The decision-making process is not clearly set out in the legislation and so access to justice is not provided for in a clear and transparent manner. The list of activities does not follow the annexes of the relevant EU EIA directives and, at the same time, the listed activities do not refer to national classification of activities.

Recommendation 2.2:

The Ministry of Environment and Physical Planning should undertake the necessary steps to streamline the environmental impact assessment (EIA) process and increase its efficiency for the public administration, investors and the public by:

- (a) *Bringing the list of activities included in national legislation into compliance with the list of activities laid down in annexes of the Convention on Environmental Impact Assessment in a Transboundary Context and relevant European Union EIA directives, and aligning the screening process with these directives, notably in terms of clarity and transparency;*
- (b) *Ensuring a reasonable timeframe and opportunities for public participation, with a minimum of 30 days for public comments on EIA studies, which may, where appropriate, be extended as necessary, taking into account, among other matters, the nature, complexity and size of the proposed activity;*
- (c) *Revising the legislation on elaborates for environmental protection by limiting them to small activities outside the scope of the activities subject to EIA and giving responsibility for issuing approval of decisions for elaborates to Local Self-Government Units;*
- (d) *Providing training and methodological support under institutional strengthening projects to the staff of the Unit for Environmental Impact Assessment and Soil Protection, and to the local authorities.*

Integrated environmental permitting

Since 2011, the Ministry of Environment and Physical Planning has put significant efforts into the issuance of the A- and B-type permits in the country. Still, the current IEP process is not implemented according to the relevant EU directives. A draft law on industrial emissions aimed at the transposition and implementation of Directive 2010/75/EU on industrial emissions has not been adopted. A public register of the permits issued does not exist. There is no procedure in place that can be used to make the EU BAT conclusions binding and applicable.

The self-monitoring reports submitted each year by the operators of the permitted installations are not validated by SEI and are not used for the national PRTR.

Recommendation 2.3:

To develop further integrated environmental permitting, the Ministry of Environment and Physical Planning should:

- (a) *Promote the adoption of the draft law on industrial emissions;*
- (b) *Revise the list of installations requiring an A-type permit and bring it into compliance with the list of installations laid down in Annex I of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (Industrial Emissions Directive);*
- (c) *Prepare proposals for simplifying and clarifying the legislation between B-type permit and sectoral permit requirements, especially in water and waste management;*
- (d) *Abolish the practice of issuing “permit for adjustment with an operational plan” and provide industrial activities that cannot immediately comply with the integrated environmental permitting requirements a transition period defined in the integrated permit;*
- (e) *Change the rules on reporting by operators with permitted installations to make reporting a useful tool;*
- (f) *Ensure that data and information in the reports are validated by the controlling authorities and made publicly available according to the requirements of Pollutant Release and Transfer Register reporting.*

State Environmental Inspectorate and authorized inspectors for environment

Since 2011, SEI staff have worked independently of the Ministry of Environment and Physical Planning, as do all inspectorates in the country. SEI has also taken part in many institutional strengthening projects. The draft law on environmental inspection, which was developed under the twinning project “Strengthening the administrative capacities at central and local level for implementation and enforcement of the environmental acquis”, has not been adopted.

Recommendation 2.4:

The State Environmental Inspectorate should:

- (a) *Start the implementation of the outcomes of the European Union-funded projects, especially of the twinning project for which it was the main beneficiary, and organize training and methodological support for the authorized inspectors for environment at local level;*
- (b) *Promote the adoption of the draft law on environmental inspection.*

Voluntary arrangements for the environment

No significant progress has been made since 2011 on the establishment of voluntary compliance promotion instruments on the environment.

Recommendation 2.5:

The Ministry of Environment and Physical Planning should:

- (a) *Prioritize work on the European Union Ecolabel and Eco-Management and Audit Scheme (EMAS);*
- (b) *Continue to promote the EMAS and ISO 14001 in collaboration with the Economic Chamber.*

Corporate social responsibility

CSR, including reporting regarding this practice, is the key indicator to assess progress in the implementation of target 12.6 of the Sustainable Development Goals. At present, the only initiative to encourage CSR practice is undertaken by the Ministry of Economy in organizing an annual national award for the best CSR practices.

Recommendation 2.6:

The Ministry of Economy, in cooperation with the Ministry of Environment and Physical Planning, should promote corporate social responsibility practices and encourage companies to integrate sustainability information into their reporting.

Chapter 3: Greening the economy

Assessment

The use of economic instruments in environmental protection has been substantially enhanced and deepened during the past decade. In energy taxes, excise duties are applied to all energy products used for transport and heating, with the major exception of electricity and coal. Excise duty rates were increased with the general aim to approach the benchmark of EU minimum rates.

The country levies user charges for water abstraction and extraction of minerals. In the area of municipal utility services, the absence of cost-reflective tariffs for water and waste services has led to operational difficulties for water and waste companies due to the lack of sufficient funds for maintenance, repair and new investments. But as of 2018, the regulation of water tariffs has been delegated to ERC with the mandate to establish the principle of full cost recovery of production of water services.

There are pressures on LSGUs to adopt similar policies for waste collection and disposal tariffs. The potential benefits from PPPs in the provision of municipal utility services and the financing of the associated infrastructure have still to be explored. In the energy sector, electricity tariffs have approached cost-reflective levels and cross-subsidies from business entities to households have been reduced.

Most of the electricity market is now liberalized. The role of RES in total electricity supply has been promoted with an effective system of feed-in tariffs. Efforts are ongoing to improve energy efficiency with a system of government subsidies.

Environmental expenditures are financed mainly from the general budget; only a little use has been made of earmarked revenue from environmental taxes (water abstraction) and charges (vehicle registration fees). Available funds for environmental investments, notably in municipal infrastructure, have been supported by significant foreign financial assistance from diverse multilateral and bilateral sources, with the EU having a leading role during recent years.

Conclusions and recommendations

Pollution abatement incentives

The polluter pays principle is enshrined in legislative acts, but it is not effectively applied. The main instrument to address air and water pollution is regulation (command and control) combined with prescription of BAT. The flat charge rates per type of polluting substance integrated into permit fees do not create any incentives for enterprises to adopt cleaner technologies. Effective financial incentives in the form of environmental taxes are lacking.

Recommendation 3.1:

The Government should complement the existing regulatory framework for integrated pollution prevention and control permitting procedures for air and water pollution with effective financial incentives to stimulate pollution abatement.

User pays principle

The user pays principle has been strengthened with the recent tariff reform in the water supply, sewerage and wastewater treatment sector and the transfer of tariff-setting authority away from the municipal governments to ERC. However, cost-reflective user fees are still lacking in the municipal waste sector, although they are required for the upgrading and modernization of the waste management sector. Potential economies of scale from regionalization of waste management have not yet been exploited. Bill collection rates at the household level are in general quite low. Measures to ensure high rates of waste service fee bill collection, such as integrating the waste service fee into the local property tax, adopting adequate types of “pay-as-you-throw” schemes and raising awareness of solid waste issues among the population are lacking.

Recommendation 3.2:

The Government, in consultation with local authorities and other stakeholders, should:

- (a) *Review available policies and measures for overcoming the current obstacles to implementation of cost-reflective waste tariffs for collection of waste and its disposal on landfills, while taking into account the need to protect poor and vulnerable groups in the population, and advancing the regionalization of waste services;*
- (b) *Implement measures that are effectively raising bill collection rates for waste service fees.*

Road transport

Road transport is a major source of air pollution in the country. Motor vehicles are subject to excise duties and other charges; pump prices of motor fuels also include excise duties. There is scope to strengthen the potential environmental effectiveness of these charges.

Recommendation 3.3:

The Government should:

- (a) *Adjust excise duties on motor fuels to move towards European Union minimum rates and eliminate the differentiation between rates on diesel and petrol, following a broad, participatory, multi-stakeholder discussion;*

- (b) *Reform the vehicle registration tax and the excise duty on imports of passenger motor cars by taking into account environmentally relevant factors such as emission standards, including CO₂, the age of the vehicle and type of motor fuel.*

Green procurement

Public procurement is a major economic force in the country. However, the use of public procurement to support environmental protection has been quite limited, given the focus on the lowest price bid.

Recommendation 3.4:

The Government should make more use of green procurement, building on international experience of how to integrate environmental considerations into public tenders, including by setting credible standards for what constitutes green products and services, such as eco-labels.

Greening investments

Government environmental expenditure has been constrained by limited fiscal space. The business sector will, in any case, be the major source for mobilizing funds for the transition to green economy. The tax system provides generous incentives for business investments. However, these incentives are not discriminating between green investment and other investments. The country does not participate in the Batumi Initiative on Green Economy (BIG-E), which operationalizes the 2016 Pan-European Strategic Framework for Greening the Economy based on voluntary commitments in areas such as the greening of investments, which are part and parcel of sustainable development.

Recommendation 3.5:

The Government should:

- (a) *Create a favourable policy framework for attracting green investment and innovation, including for nature-based solutions;*
 (b) *Join the 2016 Batumi Initiative on Green Economy (BIG-E).*

Chapter 4: Environmental monitoring and information

Assessment

The air quality monitoring network operated by MEIC has been improved since 2011, with an increase in the number of stations and parameters monitored, as well as the replacement of instruments in some of the stations under the scope of technical cooperation projects. Nonetheless, some of the monitoring instruments in place are more than 12 to 15 years old and, in some cases, manufacturers can no longer secure spare parts. Older instruments in all remaining stations are not replaced by new ones except in the framework of technical cooperation projects.

Also, the operation of the network is undermined by insufficient capacity and resources to ensure adequate maintenance and servicing of the various air quality monitoring stations. Two service engineers in the Ministry of Environment and Physical Planning are alone responsible for the maintenance of the entire network and for calibration of the measuring instruments. In addition, the air quality calibration laboratory of the Ministry is not accredited, posing additional constraints.

The monitoring capacity and monitoring networks operated by HMS – surface water and groundwater, atmospheric precipitation and snow cover – have been in decline for some time due to insufficient maintenance, a lack of funding for the repair or modernization of outdated instruments and reductions in human resources. Overdependence on funding from international projects has resulted in overall fluctuating and declining monitoring capacity and infrastructure. HMS also faces several difficulties and constraints in monitoring surface water quality and is not yet able to meet all requirements of the national water-related legislation, in particular, the determination of chemical status or potential.

Also, as routine monitoring focuses mostly on rivers (water reservoirs and lakes are not included), the available monitoring data allow only a partial overview of the quality of surface water resources in the country. As at

November 2018, no monitoring of groundwater quality is being carried out by HMS due to insufficient resources. Few municipalities have the capacity to monitor noise or develop noise maps and the three regional CPHs that are carrying out noise monitoring activities as at November 2018 – Bitola, Kumanovo and Skopje – use outdated equipment. The Institute of Public Health also use outdated equipment for carrying out noise monitoring activities.

Due to the lack of funding, biodiversity monitoring activities are mostly carried out under the scope of specific projects and/or are dependent on funding from international projects, resulting in numerous gaps. Some of these gaps are filled by monitoring activities carried out by CSOs, which are also dependent on projects for carrying out their activities.

While progress has been made in the development of databases and thematic information management systems (on air, water, waste), there is little progress to date on the development of a national integrated environmental information system to support informed decision-making and satisfy various reporting obligations, notably on progress in achieving the Sustainable Development Goals.

The country has a robust system for producing environmental statistics and indicators and, in general, promotes the SEIS principles of open access to data and use of data for multiple reporting purposes. These are reflected in the effective use of environmental data to produce national indicators, addressing international reporting obligations, and in the production of environmental reports.

However, opportunities remain for further improving the production of environmental indicators by completing the production of all relevant indicators in the ECE list of environmental indicators, initiating the production of OECD green growth indicators and establishing relevant environmental indicators for reporting on the environmental dimension of the Sustainable Development Goals.

In their present form, the three main environmental data-based publications produced by the Ministry of Environment and Physical Planning offer only limited potential in terms of their use in support of policymaking processes. They are neither developed within a multisector integrated environmental assessment approach nor do they include foresight and projections of possible future negative trends and their implications vis-à-vis national goals and policies. Furthermore, they do not address cross-cutting issues such as air quality and health, or transport and the environment. The latest editions of the quadrennial SoER and biennial Environmental Indicators Report were published in 2013 and 2018, respectively.

Conclusion and recommendations

Equipment and capacity

There is limited capacity to maintain and service the air quality monitoring network operated by the Ministry of Environment and Physical Planning and the surface water, groundwater, atmospheric precipitation and snow cover monitoring networks operated by HMS, including related databases. There is also insufficient human, technical and financial capacity in the Ministry of Agriculture and Water Resources to ensure comprehensive monitoring of forest resources and the development of a forest inventory.

The City of Skopje does not have sufficient trained resources to systematically monitor noise or develop noise maps. Its automatic monitoring station and outdoor information panel to provide air quality data to citizens in near-real time in the city centre has been inactive since 2012.

Recommendation 4.1:

The Government should ensure adequate capacity of the environmental monitoring networks operated and coordinated by the Ministry of Environment and Physical Planning, Hydrometeorological Service and Ministry of Agriculture, Forestry and Water Economy by:

- (a) *Providing adequate and modern monitoring equipment, replacing outdated instruments and ensuring appropriate resources for regular maintenance and servicing of each monitoring network and related integrated databases, independently of funding provided by technical cooperation projects;*

- (b) *Ensuring stable and adequate funding of forest and biodiversity monitoring activities, supporting the development of a forest inventory and promoting improved coordination of different biodiversity monitoring activities within the scope of a national biodiversity monitoring system;*
- (c) *Conducting training on the basis of international best practices to strengthen the expertise of officials and operators dealing with environmental monitoring and information.*

Recommendation 4.2:

The Government should advise the City of Skopje and other municipalities to:

- (a) *Ensure adequate capacity to monitor noise systematically;*
- (b) *Provide adequate and modern noise monitoring equipment;*
- (c) *Ensure appropriate resources and training for regular noise monitoring and for the timely development of city noise maps;*
- (d) *Develop city noise maps.*

Policy and institutional framework

Responsibilities for environmental monitoring and data sharing and for the management of monitoring information flows are neither well defined nor updated in the National Book of Environmental Parameters dated 2015.

Recommendation 4.3:

The Government should prepare a national strategy and action plan on environmental monitoring and integrated information management supported by an updated National Book of Environmental Parameters and protocols for data sharing, clarifying responsibilities related to environmental monitoring and management of monitoring data and information flows, including through amending the related legislation as appropriate.

Laboratories

The Ministry of Environment and Physical Planning's Central Environmental Laboratory and Air Quality Calibration Laboratory both face challenges related to insufficient funding and staff and are not properly accredited. Neither laboratory is provided with sufficient and stable financial and human resources for servicing, updating and calibrating monitoring and calibration equipment, and for pursuing accreditation under the ISO/IEC 17025 standard on "General requirements for the competence of testing and calibration laboratories". The HMS laboratory also lacks capacity and resources to monitor surface water quality according to the national water-related legislation.

Recommendation 4.4:

The Government should ensure financial and human resources and capacity for:

- (a) *The Central Environmental Laboratory and the Air Quality Calibration Laboratory of the Ministry of Environment and Physical Planning, to adequately service, update and calibrate monitoring and laboratory equipment and meet the necessary requirements for their full accreditation under the ISO/IEC 17025 standard on "General requirements for the competence of testing and calibration laboratories";*
- (b) *The laboratory of the Hydrometeorological Service, to increase its capacity to monitor surface water quality and meet the requirements of the national water-related legislation through appropriate and modern laboratory equipment.*

National Environmental Information System

No national environmental information system was developed and established in accordance with the provisions of the Law on Environment and the 2005 governmental Strategy for Environmental Data Management. There are currently no provisions to allow a new system, once established, to be effectively operated, appropriately maintained and used for different reporting obligations and decision-making processes.

Recommendation 4.5:

The Ministry of Environment and Physical Planning, in cooperation with relevant ministries and environmental data holders, should:

- (a) *Establish a fully functional national integrated environmental information system able to support the monitoring, processing, reporting and dissemination of information on all environmental topics, including for informed decision-making and e-reporting to international organizations;*
- (b) *Ensure sufficient and stable resources so that the new national integrated environmental information system, once developed, can be effectively operated and appropriately maintained;*
- (c) *Use the new system to combine environmental information with data sources from other sectors, in order to support integrated, cross-sectoral policymaking and decision-making, including for achievement of the Sustainable Development Goals;*
- (d) *Continue to support the implementation of Shared Environmental Information System principles of open access to data, to provide timely, relevant and reliable information on the state of the environment to policymakers and the public.*

Environmental indicators

The production and online sharing of environmental indicators does not yet include all relevant indicators on the ECE list of environmental indicators, due to a lack of data. OECD green growth indicators are not being produced in the country and there is no monitoring of progress towards the global Sustainable Development Goals or their environmental dimension.

Recommendation 4.6:

The Ministry of Environment and Physical Planning should:

- (a) *Continue with regular production of national environmental indicators and produce all remaining indicators in the ECE list of environmental indicators, as well as the Organisation for Economic Co-operation and Development green growth indicators, that are relevant to the country;*
- (b) *Establish relevant environmental indicators for reporting on the environmental dimension of the Sustainable Development Goals;*
- (c) *Establish data collection and processing mechanisms for environmental indicators where such data are not yet available.*

Environmental reporting

In their current form, the Annual Report on the Quality of the Environment, the biennial Environmental Indicators Report and the quadrennial SoER offer only limited potential in terms of their use in support of policymaking processes. The production of the quadrennial SoER has been interrupted since 2013.

Recommendation 4.7:

The Ministry of Environment and Physical Planning should:

- (a) *Produce regularly reports on the state of the environment, including the biennial Environmental Indicators Report and the quadrennial State of the Environment Report, supported by better quality data and timely information in full alignment with Shared Environmental Information System principles of open access to environmental data, and include in these reports a summary for policymakers;*
- (b) *Strengthen the policy relevance of these reports by moving towards multisector integrated environmental assessment approaches, including: (i) cross-cutting issues; (ii) assessment of progress towards environmental goals and targets and the potential effects and effectiveness of the implementation of environmental protection measures under legal obligations and strategic action plans; and (iii) outlooks and projections of possible future negative trends and their implications vis-à-vis national goals and policies.*

Chapter 5: Access to information, public participation, access to justice and education for sustainable development

Assessment of environmental democracy

Environmental democracy is under development with uneven progress in the implementation of its three pillars. The legislative framework is in place and efforts are concentrated on putting it into practice. A list of environmental information holders is published on the website of the Ministry of Environment and Physical Planning, though the list has not been updated since 2007. The website of the Ministry contains most of the environmental information, which is accessible to the public; however, some information is outdated or not easy to find. Additional efforts are required to ensure online access to all environmental information based on a single-window integrated information system. Adequate expertise and financial resources are lacking to ensure effective implementation.

Public participation in decision-making is progressing well in some areas, while in some other areas the right of and effective procedures for public participation need to be established or revised to align them with the Aarhus Convention. Public participation in decision-making in environmental matters is limited by the established procedures for most of the activities not covered by EIA, SEA and integrated environmental permitting. However, in all cases, the public concerned has the right to challenge a decision before the State Commission for Decision-Making in Administrative Procedures and Labour Relations Procedures in Second Instance. Public participation in developing legal and policy documents is enabled by allowing the public to make comments on the draft documents posted on the website and during public hearings organized to discuss the draft documents. Challenges exist with effective public participation in public hearings. Specific procedures for public participation in decision-making processes regarding GMOs, chemicals and waste are not established.

Access to justice in environmental matters has been promoted since 2012, mostly as a project-based activity to develop the capacity of the judiciary and CSOs. The public can submit cases related to environmental matters to the Ombudsman before deciding whether to file a court case. There is no difference between individuals and CSOs in accessing the justice system, with the exception that costs can be waived for disadvantaged individuals. Court expenses are no different for environmental cases and there is no exemption from court expenses for CSOs. The public has the right to challenge in court decisions on specific activities relating to the environment by submitting an administrative lawsuit against an administrative act (within 30 days) and can appeal the decision of a court of first instance to a court of appeal (within 15 days), which might be too short a period for complex cases requiring extensive coordination among CSOs. The main bottleneck in promoting effective access to justice in environmental matters is the lack of capacity and expertise in governmental authorities, and on implementing access to justice in environmental matters in courts and other judicial institutions.

Assessment of education for sustainable development

Progress has been made in promoting environmental education and engaging relevant national and municipal institutions and schools. Environmental education is driven by CSOs. Since 2009, environmental education is promoted in the education system, mainly based on the Programme on integration of environmental education into the education system, the implementation of which is coordinated by an independent project unit located on the premises of the Ministry of Education and Science. The expansion of eco-schools represents a good example for promoting environmental education in the country.

Some themes of the environmental and social dimensions of sustainable development are included in civic education and offered as elective courses. However, ESD is still at the inception stage of development in the country and concerted efforts to develop and implement ESD in formal education at all levels, as well as in non-formal and informal education, are lacking.

Conclusions and recommendations on environmental democracy

Access to information

Public access to information related to environmental media is hindered by the lack of an open, updated and user-friendly environmental portal, which is also a challenge to the achievement of the environmental dimension of

target 16.10 of Sustainable Development Goal 16. The lack of awareness in civil society about the availability of environmental information and procedures to access it is another challenge.

Access to environmental information on the websites of public institutions other than the Ministry of Environment and Physical Planning is largely lacking. A minimal approach to comply with the Law on Free Access to Public Information is implemented by the provision of only the list of information without online access to actual documents. For passive access to information, the allowed extension of an additional 30 days for complex information requests often renders useless the information finally provided, because it was needed for events taking place during the first 30 days. Information related to public hearings is often published at short notice. EIA reports are not easy for the public to understand. The required procedures for getting access to various types of information are in place, but the quality of the information provided and the efficiency of these procedures are often questionable.

Consolidated versions of laws and secondary legislation are not available to the public free of charge. This refers not only to environmental legislation. To increase the accessibility of environmental legislation, the Ministry of Environment and Physical Planning publishes such legislation on its website, but the scope of legislative acts published is limited to core environmental topics and the texts displayed are not the latest versions and do not include consolidated versions of the laws that incorporate all amendments.

Recommendation 5.1:

The Ministry of Environment and Physical Planning should:

- (a) *Improve its website to ensure the provision of continuously open and user-friendly free access to environmental information, and enhance the use of social media;*
- (b) *Ensure that the future national integrated environmental information system is fully accessible through its website;*
- (c) *Ensure free online access to a wider spectrum of updated environmental legislation;*
- (d) *Support other relevant institutions to make available environmental information in their possession on open access on their websites;*
- (e) *Conduct awareness-raising activities to enhance the civil society capacity to access environmental information and monitor progress in raising the level of public awareness of environmental issues.*

See also Recommendation 4.5.

Public participation

The main challenges in ensuring effective public participation in decision-making on specific activities in line with the provisions of the Aarhus Convention are: (i) the lack of adequate financial resources; and (ii) the lack of appropriate expertise and insufficient human capacities. Effective public participation procedures are largely not developed. There is no public participation envisaged in the decision-making on chemicals. The lack of effective public participation procedures is a barrier to delivery on the environmental dimension of target 16.7 of Sustainable Development Goal 16.

Recommendation 5.2:

The Ministry of Environment and Physical Planning should:

- (a) *Ensure effective public participation procedures;*
- (b) *Develop capacity and expertise to ensure effective public participation, including by conducting training for public officials responsible for public participation procedures;*
- (c) *Enable public participation in decision-making on chemicals, for instance by initiating dialogue with the involvement of authorities and relevant stakeholders, including producers, researchers, civil society organizations and health and environmental specialists.*

Public participation in decision-making on genetically modified organisms

North Macedonia has not ratified the 2005 Almaty Amendment on Genetically Modified Organisms to the Aarhus Convention. The Law on Genetically Modified Organisms provides for public participation in decision-making,

but by-laws setting detailed procedures for engaging the public are lacking. To date, the Ministry of Environment and Physical Planning has not received an application for a GMO-related licence.

The Law on Food Safety does not include provisions for public participation in decision-making on food products containing or consisting of GMOs.

Recommendation 5.3:

The Government should:

- (a) *Establish detailed procedures to ensure effective public participation in decision-making on the deliberate release of genetically modified organisms (GMOs) into the environment and placing them on the market;*
- (c) *Amend the 2010 Law on Food Safety to include provision for public participation in decision-making on food and food products containing or consisting of GMOs, and establish detailed procedures to ensure effective public participation, in anticipation of accession to the European Union.*

Access to justice

The lack of knowledge, capacity and expertise in the governmental authorities, judiciary and independent review bodies in promoting and implementing effective access to justice in environmental matters is the main bottleneck in access to justice in environmental matters. That bottleneck, as well as the lack of a specific law, by-law or guiding document on procedures for processing environmental cases in the courts, is also an impediment to effective delivery of target 16.3 of Sustainable Development Goal 16.

No guidance document on the application of environmental legislation exists.

Recommendation 5.4:

The Ministry of Justice should:

- (a) *Ensure, in cooperation with the Academy for Judges and Public Prosecutors and the Ministry of Environment and Physical Planning, regular training on environmental legislation for judges, prosecutors and lawyers;*
- (b) *Promote, in cooperation with the Ministry of Education and Science, Ministry of Environment and Physical Planning and respective universities, the inclusion of a course on environmental law, as either a mandatory or elective course, at major faculties of law;*
- (c) *Raise awareness, train public officials and develop other preventive measures, in cooperation with the Ministry of Environment and Physical Planning and Ministry of Internal Affairs, to protect environmental defenders from being penalized, persecuted or harassed in any way in exercising their rights.*

Recommendation 5.5:

The Ministry of Justice, in cooperation with the relevant judicial branch, should develop a guiding document for the courts on the application of environmental law.

Enabling the promotion of environmental democracy

A considerable challenge in implementing effective public access to environmental information, public participation and access to justice in environmental matters is the lack of dedicated centres across the country to actively promote environmental democracy to the public at large and contribute to the development of the capacity of environmental CSOs.

Challenges identified for effective implementation of access to information, public participation and access to justice in relation to environmental matters by the Ministry of Environment and Physical Planning include the lack of human and financial resources and the lack of expertise. However, the resource needs are not estimated.

Recommendation 5.6:

The Government should consider establishing mechanisms to actively promote access to information, public participation and access to justice in relation to environmental matters.

Recommendation 5.7:

The Ministry of Environment and Physical Planning should undertake a comprehensive analysis to estimate the necessary expenditures (human and financial resources) for the satisfactory implementation on the ground of access to information, public participation and access to justice in relation to environmental matters.

*Conclusions and recommendations on education for sustainable development*From environmental education to education for sustainable development

The framework for environmental education is provided by the Programme on integration of environmental education into the education system, which is not formally adopted and implemented by the Government. ESD is broader than environmental education and no legal document includes ESD. The 2005 Law on Environment has a requirement to integrate environmental protection into the curricula of primary or secondary education as either an optional or compulsory subject, which is not sufficient for the adequate implementation of ESD.

Furthermore, no formal strategic or policy document on ESD is available in the country as at November 2018. A detailed assessment of VET programmes, with a view to integrating ESD into them, was made in 2016 in the framework of the project “Introducing the United Nations Sustainable Development Goals in Schools in South Eastern Europe (SEEDLING)”. The Ministry of Education and Science’s role in integrating environmental education and ESD into curricula and overseeing implementation is not clearly defined.

The lack of a legal framework or a formal strategic or policy document on ESD is a barrier towards achieving the global targets 4.7 and 12.8 of the Sustainable Development Goals.

Recommendation 5.8:

The Ministry of Education and Science, in cooperation with the Ministry of Environment and Physical Planning, Ministry of Labour and Social Policy, municipalities and other relevant institutions, should:

- (a) *Develop an action plan for education for sustainable development (ESD);*
- (b) *Develop competences for educators in ESD;*
- (c) *Integrate ESD into the curricula of all education levels and in lifelong learning, teacher education and in-service training;*
- (d) *Integrate ESD into student assessments at all education levels.*

Enabling the implementation of education for sustainable development

Environmental education and ESD are promoted mostly within project-based activities; the process is not continuous and sustainable. Progress has been made in environmental education, mostly in primary and secondary schools and mostly through the eco-school programme. Eco-schools serve as a good example of integrating environmental education and show the interest and involvement of teachers, students and parents in environmental activities.

State-supported in-service training for teachers does not exist. In-service training for teachers does not include ESD. The lack of teacher in-service training on ESD is a barrier towards achieving global target 4.7 of Sustainable Development Goal 4.

In the review period, the country has not benefited from the tools and materials developed in the framework of the ECE Strategy for Education for Sustainable Development, such as indicators to measure the implementation of ESD, the ESD competences for educators, the tools for policy and practice workshops on competences in ESD and examples of good practices in ESD, including in support of greening the economy.

Recommendation 5.9:

The Government should:

- (a) *Assign a clear mandate on ESD for the Ministry of Education and Science;*
- (b) *Establish a coordination mechanism on ESD among all relevant stakeholders;*
- (c) *Nominate a national focal point and participate in ECE regional activities on ESD;*

- (d) *Amend the mandate of the Academy for Teachers to include ESD in its activities and establish the Academy so that it can support the in-service training of educators and teachers;*
- (e) *Allocate resources for the implementation of ESD, including to support eco-schools.*

Chapter 6: Implementation of international agreements and commitments

Assessment

The ratification of several more MEAs since 2011, such as the Paris Agreement, the Water Convention and the Protocol on SEA, is evidence of the political importance that the Government attributes to being an engaged participant in international cooperation in the environmental domain. However, the adoption of environmental legislation in the country is mainly driven by the aspiration for EU membership.

Adequate participation in international negotiations, and full implementation of and compliance with MEAs, remain challenges, due in part to understaffing and limited financial resources in the ministry responsible for environmental issues. An effective response to international agreements and commitments depends on the capacity and financial resources of the Ministry of Environment and Physical Planning, and other involved entities, being consistent with the responsibility of being party to MEAs. Furthermore, the lack of monitoring data affects timely reporting and the quality of national reports. CSOs are not given any role in such reporting, and neither do they participate in the development of the country's position for international meetings.

Conclusions and recommendations

Capacity and resources

The extended mandate of environmental bodies and units in the public administration to ensure the country's implementation of and compliance with obligations deriving from global and regional agreements has not been matched by increased capacity and financial resources. Currently, in addition, no efficient coordination structure among relevant state institutions charged with the implementation of those obligations is established. Furthermore, there are difficulties with the harmonization of obligations under the high number of ratified MEAs. Also, there is no harmonization of activities with other sectors that have or may have an impact on biological diversity.

Recommendation 6.1:

The Government should:

- (a) *Establish efficient coordination mechanisms among relevant state institutions, scientific institutions and civil society organizations;*
- (b) *Undertake an in-depth analysis of the administrative and technical capacity and financial needs of the bodies in charge of the implementation of obligations deriving from multilateral environmental agreements (MEAs);*
- (c) *On the basis of the analysis, prepare an action plan to ensure that the adequate administrative and technical capacity and financial resources are secured for the implementation of obligations deriving from MEAs;*
- (d) *Increase efforts to fulfil its reporting obligations under MEAs and ensure the quality of national reports;*
- (e) *Ensure the participation of its representatives in the meetings of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).*

Energy sector

Since 2011, two non-compliance cases were filed under the Bern Convention and the 1985 Sulphur Protocol to the Air Convention; both cases concerned activities in the energy sector. These cases point to gaps in the current environmental governance and inadequate streamlining of environmental considerations in the country's energy sector development. Notwithstanding the presence of a requirement for compliance with MEAs in the Energy Development Strategy, in practice, its implementation in conformity with MEAs has proved to be challenging. The priorities for energy sector development, aimed to be harmonized with MEAs, have driven the national

energy policy in the direction of rapid construction of HPPs, with many planned in protected areas, resulting in tensions with obligations under the Bern Convention.

Elevated ELVs for sulphur, mainly granted to large coal-fired TPPs, caused a breach of sulphur reduction commitments under the 1985 Sulphur Protocol for the period 2013–2015. Furthermore, the country failed to fulfil some obligations under the Energy Community Treaty. Challenges exist in meeting the country's legally binding renewable energy target, due to its reliance predominantly on fossil fuels and hydropower, while its solar energy potential remains untapped.

Concerns have also been raised by CSOs with respect to a lack of transparency on the number and locations of the proposed HPPs. This points to a need for a more harmonized approach in the energy sector, development of which inherently touches upon several cross-cutting environmental issues covered by MEAs. In the absence of such an approach, the future implementation of MEAs will continue to be constrained and more non-compliance cases are likely to occur in the domain of energy sector development. Nature protection obligations should be recognized and respected by the Government whenever hydropower, mining or large infrastructure investments are planned.

Recommendation 6.2:

The Ministry of Environment and Physical Planning and Ministry of Economy should:

- (a) *Revise all legal and strategic documents that regulate and foresee hydropower construction to ensure that the site selection criteria applied to hydropower plants are based on international best practice, which excludes hydropower construction in protected areas and areas with high hydro-morphological and biodiversity status;*
- (b) *In cooperation with neighbouring countries that are pursuing a similar path in energy sector development, conduct a transboundary study into the cumulative and combined effects on the environment of planned small hydropower plants and associated new infrastructure construction, taking into consideration seismic and climate change effects;*
- (c) *Promote the production of electrical energy from renewable sources other than hydropower;*
- (d) *Ensure that SEAs carried out on energy sector plans and programmes under development are based on international best practice and provide greater transparency and public engagement.*

Industrial accidents

The country did not identify hazardous activities falling under the scope of the Industrial Accidents Convention and subsequently did not notify potentially affected countries. As a beneficiary country of the Convention's Assistance and Cooperation Programme, North Macedonia benefited from a subregional workshop for the countries in South-Eastern Europe on industrial accident prevention by identification and notification of hazardous activities and making linkages with the relevant EU legislation.

Since 2012, the country did not submit an updated national self-assessment and action plan under the Convention's strategic approach, nor related project proposals addressing needs and challenges identified through the self-assessment and in the national action plan.

No progress has been made on transposing Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso III Directive).

The country is expected to submit an implementation report for the period 2016–2019 in 2019.

Recommendation 6.3:

The Ministry of Environment and Physical Planning should:

- (a) *Transpose into national legislation Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances (Seveso III Directive) and work on implementing it;*
- (b) *Identify hazardous activities falling under the scope of the Convention on the Transboundary Effects of Industrial Accidents and notify potentially affected countries accordingly;*

- (c) *Submit an updated national self-assessment and action plan under the Convention's strategic approach, together with project proposals addressing needs and challenges identified;*
- (d) *Prepare in a participatory and transparent manner the implementation report on the Convention for the period 2016–2019 and submit it by the due date to the Convention's Secretariat.*

Access to information and public participation

The list of ratified MEAs is available to the public on the Ministry of Environment and Physical Planning website. However, no information on the status of implementation of MEAs or other international commitments, including the national reports submitted, is provided by the Ministry of Environment and Physical Planning to the public, except the 2018 national implementation report to the Aarhus Convention and the 2014 national implementation report to the CBD. The public, including CSOs, is not involved in the decision-making processes regarding the country's substantive contributions to and participation in MEA-related and other international processes.

Recommendation 6.4:

The Ministry of Environment and Physical Planning should:

- (a) *Make publicly available the information on the participation of the country in environmental agreements and international environmental processes and commitments, and the related national implementation and progress reports;*
- (b) *Provide timely access to information on environmental agreements and international processes and commitments to enable effective public participation;*
- (c) *Ensure the effective participation of the public in decision-making on environmental agreements and international processes and commitments, and in the preparation of national reports and other substantive inputs on their implementation;*
- (d) *Include representatives of relevant environmental civil society organizations in national delegations participating in international environmental processes.*

Participation in multilateral environmental agreements to which North Macedonia is not party

The country is clearly committed to preventing and combating air pollution and to accession and implementation of international agreements in this domain. Further joint work between the country and the ECE Secretariat of the Air Convention would allow the country to accept amendments to the Protocol on Heavy Metals, POPs Protocol and Gothenburg Protocol.

Though the country is a party to the Aarhus Convention, it has yet to ratify the 2005 Almaty Amendment on Genetically Modified Organisms. Although some preparatory work was carried out, the country has yet to accede to the Protocol on Water and Health and the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer. Furthermore, the country has not yet joined the Nagoya Protocol and has yet to accede to the Sofia and Cavtat Amendments to the Espoo Convention. Although the Government has already conducted primary activities of the Minamata Initial Assessment in 2018, it has not yet ratified the Minamata Convention on Mercury.

Recommendation 6.5:

The Government should start the necessary preparatory work and proceed with:

- (a) *Ratification of the Minamata Convention on Mercury;*
- (b) *Accession to the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer;*
- (c) *Accession to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity;*
- (d) *Acceptance of amendments to the Protocol on Heavy Metals, Protocol on Persistent Organic Pollutants, and Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) to the Convention on Long-Range Transboundary Air Pollution;*
- (e) *Ratification of the Almaty Amendment on Genetically Modified Organisms to the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters;*
- (f) *Accession to the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes;*

- (g) *Accession to the Sofia and Cavtat Amendments to the Convention on Environmental Impact Assessment in a Transboundary Context.*

Chapter 7: Climate change

Assessment

The country ratified UNFCCC, Kyoto Protocol and Paris Agreement. It regularly fulfils its reporting obligations and has submitted three national communications and two biennial update reports under the UNFCCC. The country submitted its INDC in 2015 and has recently been praised as one of only 16 countries globally that are on track to honour their commitments under the Paris Agreement.

The country does not have legislation to specifically address climate change, nor an overall strategic document on the issue. With climate change the country will face increasing temperatures, decreasing water resources and an increased incidence of extreme weather events. While strategic documents dealing with issues related to climate change have been developed on the local and sectoral levels, both the policy framework and the human and technical capacities devoted to tackling climate change are not sufficient to tackle the challenges posed by climate change.

Conclusions and recommendations

Establishing a strong legal and institutional framework

The country lacks a comprehensive law on climate change and an overall long-term strategy on climate action. While there is coordination among the different ministries that participate in the National Climate Change Committee, participating ministries tend not to have units or departments dedicated to climate change.

Recommendation 7.1:

The Ministry of Environment and Physical Planning should develop a law on climate change and an overall long-term strategy on climate action.

Recommendation 7.2:

The Government should:

- (a) *Strengthen human capacities of the most relevant institutions, especially those participating in the National Climate Change Committee, by establishing in all participating ministries climate change units or climate focal points with a clear mandate for mainstreaming climate change in the relevant sectors;*
- (b) *Provide a stronger institutional framework to the national greenhouse gas (GHG) inventory preparation process, which is currently implemented through international projects.*

Adaptation to climate change

There is no dedicated strategy for adaptation to climate change. A draft project is being developed for GCF to prepare a national action plan for adaptation to climate change.

Within the national plans on climate change (also known as National Communications under UNFCCC), vulnerability and adaptation assessments have been prepared for the sectors of agriculture, forestry, water, health, biodiversity, crisis management, tourism and cultural heritage protection. Therefore, in the absence of another strategic document for adaptation to climate change, the national plans on climate change serve as strategic documents for adaptation to climate change. The country is very vulnerable to climate change, especially to extreme weather events, as has been tragically shown during recent flash floods. The country lacks clear strategic priorities to be able to adapt to climate change and reduce disaster risks. Despite the economic impact that climate change is expected to have on various economic sectors in the country, no estimation of the costs of inaction for the different sectors is carried out.

Recommendation 7.3:

The Government should:

- (a) *Develop a national adaptation plan in response to climate change, covering all relevant sectors, including specific measures;*
- (b) *Develop a national disaster risk reduction strategy in line with the Sendai Framework for Disaster Risk Reduction;*
- (c) *Estimate the costs of inaction, and where possible undertake cost-benefit analysis for different sectors;*
- (d) *Implement specific measures identified in the Vulnerability Assessment of the Forestry Sector, including a programme for the adaptation of forestry to climate change;*
- (e) *Conduct a specific study on the incidence of forest fires under changed climatic conditions in the country;*
- (f) *Address the issue of the increasing vulnerability of the agricultural sector to climate change;*
- (g) *Update and fully implement actions contained in the 2011 Climate Change Health Adaptation Strategy and Action Plan, including intersectoral engagement and coordination with local governments, and improvement of information on climate change health adaptation.*

Climate change mitigation

The WEM and WAM scenarios prioritize the energy sector for the identification of mitigation measures. Mitigation measures have been implemented in the energy sector, ranging from the introduction of energy audits to subsidies for energy efficiency measures in households. Because of the dominant use of domestic lignite for electricity production, there is potential for GHG emissions reductions. The percentage of renewable energy reached 19.9 per cent in 2015, leaving a gap to fill in order to reach by 2020 the renewable energy target of 23.9 per cent as a percentage of gross final energy consumption.

Recommendation 7.4:

The Government should integrate climate change issues into overall energy planning and develop integrated climate and energy plans, which would include the gradual switch from the use of domestic lignite for electricity production to more sustainable and less polluting sources of energy, and the increase of the percentage of gross final energy consumption from renewable energies to meet the national target of 23.9 per cent by 2020.

The waste sector is the second highest emitting sector in the country, accounting for 19 per cent of the total emissions in 2014, excluding FOLU. Solid waste disposal is by far the greatest contributor to the emissions of the waste sector, which is also the highest growing category in terms of emissions. Analysing the sector's emissions by gas, the preponderance of CH₄ is evident, with methane emissions accounting for 97.6 per cent of the emissions of the waste sector.

Recommendation 7.5:

The Government should address GHG emissions from the waste sector through an integrated approach, including by improving the current waste management system.

Action at municipal level

The City of Skopje has implemented some measures included in the 2011 Skopje Sustainable Energy Action Plan, mostly in the building sector and, to a limited extent, in the transport sector. However, the 2012 GHG inventory shows an 8 per cent increase of GHG emissions for the City compared with the reference year 2008. Skopje has prepared and adopted the Climate Change Strategy in 2017 with financial and technical support from UNDP. It is estimated that the City would be on track to ensure a 22 per cent CO₂ emissions reduction by 2020, as compared with the reference scenario (scenario without measures), provided the measures contained in the Strategy are implemented. In 2015, eight municipalities developed and adopted climate change strategies within the USAID-financed "Municipal Climate Change Strategies Project". These strategies have been developed through a participatory process aimed at including the local population in policymaking and simultaneously familiarizing them with issues related to climate change and adopted as official documents by the respective municipalities with a 10-year time frame. An educational-promotional campaign in each municipality was an important component.

Recommendation 7.6:

The Government should:

- (a) *Encourage cities to become signatories to the Covenant of Mayors for Climate and Energy and to subsequently prepare, adopt and implement sustainable energy (and climate) action plans;*
- (b) *Support at municipal level the implementation of measures that would achieve GHG emissions reduction, which are included in the 2011 Skopje Sustainable Energy Action Plan;*
- (c) *Advise the City of Skopje to integrate the updated 2011 Skopje Sustainable Energy Action Plan with the 2017 Resilient Skopje Climate Change Strategy, financed by the United Nations Development Programme, to avoid duplications and overlaps;*
- (d) *Advise municipalities to use the experience gained in the implementation of the 2015 Municipal Climate Change Strategies Project, funded by the United States Agency for International Development (USAID), for the eight municipalities involved, including the project participatory process, in considering the preparation of their local climate change strategies and in raising the awareness of the local population.*

Awareness

Despite improvements in awareness of climate change, overall, awareness remains limited. Climate change issues are not integrated into primary, secondary and tertiary education curricula. Most awareness-raising measures are foreseen in the framework of donor-financed projects.

Recommendation 7.7:

The Government should:

- (a) *Regularly and systematically implement measures aimed at raising awareness on climate-change-related issues;*
- (b) *Ensure that climate-change-related issues are integrated into primary, secondary and tertiary curricula.*

Chapter 8: Air protection***Assessment***

Air pollution decreased in the period 2006–2016. Reduced use of fossil fuels in energy production and gasification of heating plants contributed greatly to the improvements achieved – there is a clear decreasing trend in concentrations of SO₂ and even in concentrations of PM in the ambient air. Nevertheless, the whole population of the country is exposed to PM₁₀ concentrations exceeding the annual limit value, which poses a great challenge for achievement of the Sustainable Development Goals target 11.6.

Since 2013, there have not been any exceedances of the limit values for concentrations of NO_x, but values close to the limit at stations affected by frequent traffic indicate the need for further action. There are still occasional exceedances of air quality standards established for CO during the heating season.

There is no continuous monitoring of heavy metals and polycyclic aromatic hydrocarbons, while monitoring of ground-level ozone does not reveal the impact of elevated concentrations on vegetation. So far, data for benzene (BTX) are available only for Skopje, while data for PM_{2.5} are available for Skopje since 2012 and for Tetovo, Bitola and Kumanovo since the second half of 2017. Despite the regular calibration of existing equipment, the lack of an accredited calibration laboratory brings data quality into question.

Despite insufficient administrative capacities, major achievements in the improvement of air quality management were achieved with international technical assistance. The institutional capacity cannot cover all tasks and activities in air protection and air quality management. Policy documents and measures for the improvement of air quality are not regularly updated, their implementation is not monitored and the effectiveness of their implementation is not assessed.

Conclusions and recommendations**Improvement of air quality data**

Air quality monitoring is in the competence of MEIC under the Ministry of Environment and Physical Planning, which has limited human resources and technical and financial capacities to perform this task.

Data on air quality are often fragmented, due to inconsistent measurement that leads to a failure to meet data quality objectives (75 per cent of measurements valid during the year) and makes them unsuitable for official use. The calibration laboratory is not accredited, which again puts data quality into question.

There is no accredited laboratory at the national level to analyse parameters such as heavy metals and PAHs. The air quality network mainly comprises stations positioned in urban settlements, which are affected by multiple sources (traffic, industry, household heating), and hence does not allow for the distinction of dominant sources from background pollution. All of these limitations distort the picture on air quality.

Recommendation 8.1:

The Government should ensure sufficient financial and human resources for:

- (a) *Regular maintenance and operation of the air quality monitoring network, including regular (every five years) recomposition of the network;*
- (b) *Accreditation of the existing calibration laboratory;*
- (c) *Establishment of an accredited analytical laboratory for the regular analysis of contents of heavy metals and PAHs in particulate matter or outsourcing of this task on a regular basis.*

Impact of air pollution on human health

Reliable data are lacking to assess the impact of air pollution on human health and the environment, establish cause-and-effect relationships and design appropriate actions to mitigate negative impacts. Although some project-based environmental health assessment activities are performed in the country, the mortality rate attributed to indoor and outdoor air pollution is not monitored. Integrated air quality and health assessments are not carried out on a systematic basis.

Recommendation 8.2:

The Ministry of Health, through its Public Health Institute, in cooperation with the State Statistical Office and Ministry of Environment and Physical Planning and other relevant stakeholders, should:

- (a) *Monitor population exposure to PM_{2.5} and PM₁₀, including in support of achieving Sustainable Development Goals target 3.9 and monitoring the global indicator 3.9.1 (Mortality rate attributed to household and ambient air pollution);*
- (b) *Implement an integrated environmental and health monitoring system with an adequate level of spatial resolution to enable monitoring of the implementation of policy measures on air pollution abatement and assessment of their effectiveness.*

Impact of air pollution on the environment

The lack of monitoring of air quality at rural sites prevents the assessment of the impact of air pollution on ecosystems and biodiversity. The only rural background station is at a high altitude and measurements of ozone and its precursors is highly inconsistent. There are no data on parallel assessments of foliar damage or other indicators of the impact of air pollution on vegetation.

Recommendation 8.3:

The Ministry of Environment and Physical Planning should ensure the monitoring of the negative impacts of air pollution on ecosystems, based on a network of monitoring sites that is representative of their freshwater, natural and semi-natural habitats and forest ecosystem types, using a cost-effective and risk-based approach.

Monitoring of the implementation of policy documents

The current strategic framework for air protection was created in 2012, when all the main policy documents were created with the support of international technical assistance. By 2018, none of these documents has been updated and there are no reports on their implementation and the effect of the implemented measures. This makes air

quality monitoring and analysis of emissions of air pollutants largely senseless, since gathered knowledge on recognized air pollution problems is not properly used for their solution.

The Ministry of Environment and Physical Planning focuses on the collection of data, their processing and the production of information on air pollutant concentrations and emissions, but the measures proposed to improve air quality, even those proposed by an intersectoral working group, are not given enough political backing to ensure their implementation.

The 2018 Programme for Reduction of Air Pollution does not contain precise deadlines and institutions competent for its implementation, measurable indicators, financial estimations and other elements to enable the smooth realization of proposed measures, their monitoring and estimation of their impact on the improvement of air quality.

Recommendation 8.4:

The Ministry of Environment and Physical Planning should establish a system to monitor the implementation of policy documents on air protection, entrusting this task to a separate administrative unit that would regularly estimate the effectiveness and appropriateness of implemented measures and, based on this, update policy documents to improve air quality and achieve progress towards the achievement of Sustainable Development Goals targets 3.9 and 11.6.

Renewal of the vehicle fleet

Transport is a significant source of pollution, especially in Skopje. The main characteristic of passenger transport, which dominates the sector, is a very high share of passenger cars (77 per cent), the average age of which was 18.6 years in 2016. The average estimated age of public transport buses in 2016 was 17.8 years. The share of urban and suburban public transport (11.9 per cent in 2016) is low compared with the use of individual passenger cars. End-of-life vehicles and the low rate of use of public transport against that of passenger cars together multiply significantly the negative impacts of transport on air quality.

Recommendation 8.5:

The Ministry of Economy, in collaboration with the Ministry of Environment and Physical Planning, should:

- (a) *Introduce measures for renewal of the passenger vehicle fleet, favouring fuel economy through the “feebate” system of charges and rebates, whereby energy-efficient or environmentally friendly practices are rewarded while failure to adhere to such practices is penalized;*
- (b) *Introduce a green public procurement system and advise national public institutions and municipalities to renew the public transport fleet, including by using the green public procurement system, favouring electric and gas-powered buses.*

Reducing air pollution by improving energy efficiency

Energy production (public electricity and heat production) contributed 41 per cent of the total emissions of NO_x and 91 per cent of the SO₂ emissions in 2016. Its contribution to CO emissions is 8 per cent, while its contribution to PM₁₀ and PM_{2.5} emissions is estimated at 11 per cent and 6 per cent respectively. Consumption of energy, especially in residential heating, makes a major contribution to PM emissions. Energy production is also a dominant source of emissions of lead (38 per cent), mercury (45 per cent) and cadmium (49 per cent).

Residential heating has a major share in total national emissions of PAHs (79 per cent) and PCDD/Fs (77 per cent). It also contributes 67 per cent of the total national emissions of carbon monoxide, although emissions of this pollutant decreased by 14 per cent in 2016 compared with 2015, due to greater use of natural gas and briquettes and pellets for residential heating instead of fossil fuels and wood. Residential heating also has a dominant share in emissions of PM₁₀ (46 per cent) and PM_{2.5} (58 per cent), which represent a major air quality concern in the country. Moreover, it contributes 29 per cent of total national emissions of VOCs, 10 per cent of emissions of PCBs and 8 per cent of emissions of NH₃.

Recommendation 8.6:

The Government should introduce measures to improve energy efficiency and to stimulate changes towards using more sustainable fuels in the housing and energy sectors.

Chapter 9: Water management*Assessment*

The monitoring of water quality and quantity, whether of surface water or groundwater, is insufficient to provide a picture of the state of water resources. The reasons are insufficient financial and staff resources. The network of monitoring stations has deteriorated. Monitoring and assessment of the state of water resources is essential for any sustainable management of those resources. Without accurate data, the preparation of a resilient and effective RBMP becomes questionable and the subsequent tracking of the results of implementation of programmes of measures is not possible.

Although some new WWTPs have been constructed, most wastewater – especially industrial wastewater – is still discharged untreated to the rivers. Therefore, rivers are largely polluted, and it can be assumed that those river sections will not comply with the WFD criteria for “good” status. The main source of water pollution is poorly treated wastewater from various sectors. Only 25 per cent of necessary WWTPs have been built and, due to the lack of maintenance and for other reasons, the actual number could be lower. Even though the WFD has been implemented in the Law on Waters and Directive 2007/60/EC on the assessment and management of flood risks is intended to serve as a guideline for further action on flooding in the future, the practical implementation of both lines of regulation is lagging behind significantly. Due to the organization and responsibilities of the water industry prescribed by the Law on Waters, coordination between the ministries is of great importance in implementing the measures. The establishment of RBMCs for all river basin units for the implementation of the WFD and Directive 2007/60/EC on the assessment and management of flood risks therefore seems appropriate.

The country is very vulnerable to river floods and flash floods. Without hydrologic knowledge of the rivers, flood prediction, warning and the taking of appropriate measures in the event of a flood are difficult to implement. Simply relying on precipitation data is not sufficient for flood prediction. In preparing for climate change, a strong, long-running, monitoring network is necessary.

*Conclusions and recommendations***Enhancement of water monitoring**

No comprehensive data on the quantity of groundwater resources are available. Although numerous hydrogeological studies have been carried out, there is no nationwide systematic and continuous monitoring and evaluation. The same applies to surface water monitoring.

Recommendation 9.1:

The Government should allocate an adequate regular budget for remediation and maintenance of the water monitoring network to enable the systematic monitoring and assessment of the status of surface water and groundwater bodies in line with international and European Union practices.

Water supply

Due to the lack of accurate data, unknown and unregulated use of surface water and groundwater, especially by industry, can occur. Higher water requirements are sometimes required, for example, for irrigating agricultural land during hot weather periods. Water demand from other areas, such as for drinking water, is increasing. The total national availability of water is expected to decrease. This would increase the value and importance of and competition for water. The loss of water in drinking network systems, leakage from degraded irrigation systems and awareness and technical devices for saving water resources are of major concern. The lack of sanitary protection of the sources leads to cases of non-compliance.

Recommendation 9.2:

The Government should:

- (a) *Improve data collection on groundwater and surface water abstraction and use;*
- (b) *Apply the water-user and polluter-pays principles for all water users and dischargers according to the 2008 Law on Waters, taking into account the needs of poor and vulnerable groups in the population;*
- (c) *Raise awareness of water-saving measures and provide water-saving technical devices;*
- (d) *Introduce domestic, municipal and industrial reuse and recycling of water, and rainwater collection for non-potable uses;*
- (e) *Ensure a special regime for the sanitary protection of sources of drinking water supply.*

Irrigation

The existing irrigation structures, facilities and equipment are in poor technical condition. High water losses are characteristic. There are no reliable data on water consumption for irrigation. The price for irrigation is defined by area and the cultivated crop and not by the water consumed.

Recommendation 9.3:

The Government should:

- (a) *Ensure rehabilitation of irrigation systems and expansion of the percentage of closed pipe systems in relation to open systems;*
- (b) *Provide measurement devices in irrigation systems for water quantity intake and water consumption by farmers and promote high-value, low-water-use crops;*
- (c) *Strengthen agricultural advice on different irrigation methods, selection of crops adapted to local boundary conditions and optimization of existing systems.*

Sewerage systems

About 12.5 per cent of rivers assessed are of good ambient water quality. One of the main reasons for this low proportion is the discharge of untreated wastewater. Wastewater treatment capacity is meeting 25 per cent of the demand of settlements. Bigger cities still have no sewage treatment plants. The average rate of wastewater collection in sewage collection systems is around 60 per cent for households (2002 Census).

Although certain rural areas have developed combined domestic sewage and storm wastewater collection systems, no treatment is performed prior to wastewater discharge. This situation worsens during low-flow periods in rivers during summer, due to lower sewage dilution. Industrial wastewater is discharged without prior treatment, or pretreatment is carried out in poorly maintained and inefficient facilities. Besides organic matter, toxic sewage is being discharged into rivers. Landfills close to rivers or lakes are a further source of pollution by infiltration or run-off into surface water and groundwater.

Recommendation 9.4:

The Government should:

- (a) *Ensure the construction of wastewater treatment plants and sewage collection systems for cities over 100,000 population equivalent as a priority and for municipalities over 10,000 population equivalent as a secondary priority;*
- (b) *Ensure that the sewage collection systems focus on separating wastewater from storm water, with the storm water being returned to the hydrological cycle by infiltration;*
- (c) *Prevent the deterioration of the existing sewage collection systems, which should be repaired or renewed;*
- (d) *Ensure maintenance and operation of sewage collection systems;*
- (e) *Consider the establishment of decentralized sewage treatment systems in rural areas;*
- (f) *Ensure that industry applies appropriate wastewater treatment prior to discharge into water bodies according to national standards;*
- (g) *Close and remediate all dumpsites along river banks exposed to flooding and infiltration into groundwater.*

River protection

The national legislation requires good ecological status for rivers and lakes. That can be achieved through good water quality and good hydromorphology status of riverbeds, banks and flood plains. Although rivers and, in part,

lakes suffer from wastewater discharges, most reaches of the rivers are not hydromorphologically degraded (except from reservoirs) by channelizing, embankments and loss of flood plains. This offers an excellent opportunity to ensure that most water bodies can reach good ecological status according to the Law on Waters, once water quality has improved. Dams in rivers and reservoirs are severe interruptions in the structure and ecology of a natural river. Fish migration and gravel and sediment transport are stopped and sedimentation, eutrophication, warming and oxygen depletion occur.

Recommendation 9.5:

The Government should:

- (a) *Ensure a sufficient buffer strip along rivers and lakes for agricultural lands exposed to erosion, and that relevant cultivation methods are applied to protect from erosion;*
- (b) *Ensure that ecological improvements on dams, such as fish ladders and fish ways, are considered and that the environmental flow below dams is set and inspected;*
- (c) *Consider more twinning arrangements with countries that have experience in implementing Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (Water Framework Directive) and river basin management;*
- (d) *Establish reference conditions for water bodies to enable their classification.*

Flood management

Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks is not transposed into the national legislation. Over recent decades, there have been many floods resulting in high levels of damage and even deaths. It took a long time to eliminate the negative consequences of those floods. Due to climate change, an increase in the number and size of floods is also to be expected. Nevertheless, there is still high pressure for new buildings, construction and land use on flood plains.

Recommendation 9.6:

The Government should:

- (a) *Ensure that flood plains are left open without further building, construction and land use involving water-polluting substances;*
- (b) *Consider preparing a handbook of flood-adaption planning and building in flood areas if it is unavoidable;*
- (c) *Raise public awareness of floods through reconnaissance and preparation for flood events, supported by flood preparedness and response exercises for those involved in flood management;*
- (d) *Ensure the maintenance of existing flood protection systems and consider the building of flood protection systems, including precise flood predictions and hydrological forecasts;*
- (e) *Adapt the management of reservoirs to flooding;*
- (f) *Promote the increase of the percentage of pervious surfaces in urban areas by considering the introduction of specific minimum values for new urban developments and for the regeneration of existing parts of urban areas;*
- (g) *Promote the implementation of nature-based solutions in urban areas to increase adaptation to climate change.*

Institutional framework

In water management planning, the Ministry of Environment and Physical Planning has an exclusive and coordinating role. It is responsible for the protection of waters from pollution and water permitting. It also has to prepare and manage monitoring activities. Furthermore, in agreement with the Ministry of Agriculture, Forestry and Water Economy and the Ministry of Transport and Communication, and in collaboration with the Ministry of Finance, the Ministry of Environment and Physical Planning has a responsibility for the definition of a plan for the use of funds for water management.

Since 2011, the Ministry of Environment and Physical Planning has been strengthened in the water management sector. However, the HMS, which is responsible for the meteorological and hydrological observation network and measurements, and monitoring and research of water resources, is not under the structure of the Ministry.

Recommendation 9.7:

The Government should:

- (a) *Provide sufficient financial and personnel resources to the Ministry of Environment and Physical Planning to enable it to perform its role in water management;*
- (b) *Consider establishing comprehensive data management;*
- (c) *Consider concentrating all state investments in the water sector within the Ministry of Environment and Physical Planning, including for irrigation and public water supply;*
- (d) *Ensure, by contract, subsequent maintenance and operation and consider fines in the case of infringement;*
- (e) *Consider transferring the Hydrometeorological Service to the Ministry of Environment and Physical Planning to complete the transition of competences for water management.*

River basin management

According to the Law on Waters, river basin management councils (RBMCs) will be created with the purpose of preparing, implementing and monitoring river basin management plans (RBMPs), and for proposing measures for improving water management. The establishment of RBMCs is new in the country and many aspects of their functioning, such as detailed criteria for representation of various groups of stakeholders, methodological guidance and funding issues, are not yet defined and tested and may require adjustment after a certain period of their work. RBMPs for Lake Prespa and the Bregalnica River have been developed, while RBMPs for the Strumica and Vardar River Basins have been drafted. None of the RBMPs so far developed has been adopted by the Government and none of them has been subject to SEA. In addition, RBMPs suffer in some areas from the lack of data, due to the poor state of the qualitative and quantitative water monitoring system.

As at November 2018, the National Water Council is not in operation.

Recommendation 9.8:

The Government should:

- (a) *Establish as a pilot project, based on a proposal by the Ministry of Environment and Physical Planning, a river basin management council for which a river basin management plan is at the final drafting stage, and work out the modalities for the effective launch and functioning of the new institution by seeking support from other countries to benefit from similar experience;*
- (b) *Apply, in due time and taking into consideration the lessons learned, the tested working arrangements for establishing river basin management councils in the other designated river basins, based on proposals by the Ministry of Environment and Physical Planning;*
- (c) *Ensure that river basin management plans for the remaining river basins are developed;*
- (d) *Ensure that the National Water Council is operational.*

Chapter 10: Waste and chemicals management*Assessment*

Waste management in the country has made some progress since 2008 but, due to the lack of infrastructure, the overall performance of the waste management system is only moderate. Despite developments in the establishment of regional waste management systems and progress in the preparatory work, none of the regional landfills has been completed in the past period. Also, the much-needed and planned upgrade of the Drisla landfill serving the City of Skopje has stalled, due to property disputes with the investor.

Until the completion of the regional landfills, the existing non-compliant municipal landfills continue to operate, but they do not fulfil even the basic conditions for safe waste disposal; thus, their control by SEI is limited. Due to the lack of adequate infrastructure, data collection is mostly not evidence based and, because of some overlap in institutional responsibilities, there are significant discrepancies in the published data sets for some waste types. Progress was made in the separate collection and recycling of waste streams that are under the EPR schemes, such as packaging waste, WEEE and WBA. However, the fine tuning of the laws that regulate the operation of

these schemes, to give more influence to the operators in actual waste collection, would be fruitful by better fulfilling the overall objectives of the laws, i.e. the increase of separate collection and recycling rates.

The country's application of the principles of the SAICM provided the foundations for sound chemicals management in the country. Since then, numerous projects have been implemented targeting both the upgrading of policy and improvement of the situation with practical measures, mostly focusing on (preparing for) the remediation of contaminated sites but also undertaking smaller measures, such as training events. Chemicals management has also taken a big step forward with the adoption of the 2010 Law on Chemicals that transposed the EU REACH Regulation.

Conclusions and recommendations

Inspections

The current regulations on the inspection system and final waste disposal were designed with the aim to ensure adequate control of landfills that comply with the national law. However, in the current situation, the lack of proper landfills makes it impossible to control the municipal disposal sites against the standards set by the legislation. The existing non-compliant municipal landfills will continue to operate for at least another few years, but most of them do not fulfil the basic legal requirements and are subject to inspections checking only on limited parameters, which is not sufficient to ensure basic sanitary conditions.

Recommendation 10.1:

The State Environmental Inspectorate should undertake relevant measures to stop environmentally harmful activities at non-compliant landfills.

Separate collection and recycling

Collective packaging waste management schemes are run by non-profit companies, which cannot perform waste management activities by themselves. This means that the collective waste handling companies have only indirect tools to promote separate collection and recycling. This separation of the activities prescribed by the law for the handler of waste, on the one hand, and those undertaken by the actual waste manager, on the other hand, hinders the provision and development of separate collection and recycling activities, because the collective waste handlers cannot directly affect and enhance the efficiency of such activities. Nevertheless, the experience of the existing EPR schemes shows that this system is an adequate way to manage different waste streams; thus, it is worth considering covering new waste types within this system and to ensure their separate collection and recycling.

Recommendation 10.2:

The Ministry of Environment and Physical Planning should assess the efficiency and impacts of the existing legislation on extended producer responsibility and introduce extended producer responsibility for other waste streams, in particular waste textiles, waste oils, used tyres and end-of-life vehicles.

The 2008 Strategy for Waste Management and National Waste Management Plan (2008–2020), and the relevant legislation, define and focus on targets for separate collection of waste and waste recovery and recycling, but currently do not provide for adequate measures for the growth of a domestic recycling industry. In the absence of a strong recycling industry, the recycling rate within the country cannot be increased.

Waste collectors are not encouraged to collect waste separately (by type) wherever waste is generated. Industrial enterprises that use waste as raw material are not incentivized to recycle. Also, there is no encouragement of consumers to purchase products made of recycled materials. To address concerns related to waste reduction, reuse and recycling, a draft national waste prevention plan has been prepared and is pending adoption.

Recommendation 10.3:

The Ministry of Environment and Physical Planning should:

- (a) *Adopt the draft national waste prevention plan to serve as the national policy on waste reduction, reuse and recycling;*

- (b) Undertake, in cooperation with collective waste handlers, awareness-raising and information campaigns for manufacturers and consumers on reduction, reuse and recycling of urban waste;
- (c) Promote, in cooperation with the Ministry of Economy and Ministry of Finance, recycling and reuse of waste by domestic industry and manufacturers.

Waste management infrastructure

The slow implementation of regional waste management plans and regional landfills hinders the effectiveness of the whole waste management system in the country. Therefore, the completion of the regional landfills has to be high on the Government's agenda.

Recommendation 10.4:

The Government should support the establishment of the regional waste management systems and take measures to speed up the construction of regional landfills.

Data collection

For some waste types (e.g., MSW and hazardous waste), both SSO and the Ministry of Environment and Physical Planning collect and publish data. There are discrepancies in data published by the two institutions. Calculation methodologies are not adjusted, and there is a lack of clear delineation between the two institutions and their responsibilities in data collection, thus leading to overlaps.

Recommendation 10.5:

The Ministry of Environment and Physical Planning and the State Statistical Office should:

- (a) Adjust their data collection methodologies and clearly delineate their tasks and roles, and propose the necessary amendments to the legislation related to data collection on waste;
- (b) Establish an expert group to agree on waste-related indicators, underlying statistics, data collection and reporting methods, to avoid overlap and the duplication of efforts, especially under conditions of limited financial resources and capacity.

Waste Management Information System

The Waste Management Information System was developed to facilitate reporting to the Ministry of Environment and Physical Planning by all the obligated parties (municipalities, health-care facilities, enterprises on the EPR scheme and public communal companies). The system is not operational because it is not fully compliant with the current legislation. Reports are submitted on paper, which makes their validation, further processing and publication much more burdensome.

Recommendation 10.6:

The Ministry of Environment and Physical Planning should ensure the implementation of the activities necessary to bring the Waste Management Information System into operation, to facilitate the legally binding reporting of all obligated parties to the Ministry and reduce the burden for data validation, exchange, processing and publication of information.

Chapter 11: Biodiversity and protected areas

Assessment

North Macedonia has successfully preserved the abundance of wild native species of fauna, fungi and flora, including numerous species categorized by IUCN as globally threatened by extinction and species included in the European Red List, as well as many endemic species (on either a regional South-Eastern European or local scale), including small but still viable populations of the rare flagship species such as the Balkan lynx and Balkan chamois. The country can be proud of harbouring areas considered to be the European centres of endemism. Furthermore, efforts and resources were invested in the approximation of the national legislation on nature protection with the EU nature legislation (e.g., Habitats and Birds Directives), as well as preparations for the implementation of Natura 2000.

However, natural ecosystems are seriously threatened by climate change, resulting in habitat degradation and the increasing threat of forest fires. The last remaining patches of wetland habitats, seriously affected during previously undertaken drainage works, are currently the most threatened, together with their flora and fauna. Populations of several rare species are declining in size at an alarming pace, while some other species have already become extinct. Biodiversity loss is progressing on a global scale, and North Macedonia is not an exception. A good example is the decline in the few small local populations of regionally endemic Balkan chamois, which is not only threatened by poaching but also remains among the legally hunted game species.

The level of threat to wildlife species occurring in the country cannot be assessed properly because the national biodiversity monitoring system is not operational at present. Consequently, data on the size of and trends in populations of both the rare and widespread (e.g., game) species are either not available or not reliable. In the absence of regularly updated nature inventories, the 2011 lists of strictly protected and protected wild species could only be based on assumptions and historical data. No national red list of threatened species has been adopted, and no corresponding red book has been published to date. Preparation of the list of alien invasive species is planned for the near future, while the control or eradication of already present invasive species may already be impossible in practice.

Moreover, other tasks remain pending, despite the fact that the Law on Nature Protection stipulated their accomplishment within the first three to six years of its entry into force. For example, the process of revalorization and reproclamation of existing protected areas has not yet been completed, which impeded the preparation and adoption of all required management plans for protected areas. Another obstacle for the development of management plans is the absence of a land cadastre, which would allow the determination of land use and land ownership. Similarly, the country has not yet prepared the national inventory of forest resources, which is required by the 2009 Law on Forests. The National Biodiversity Information System, established in 2011, is not operational at present.

In 2017, protected areas covered 8.93 per cent of the country's territory, which is well below the minimum value of at least 17 per cent indicated in the CBD Aichi Biodiversity Target 11. The area of three national parks constitutes almost half of all protected areas in the country, while strict nature reserves currently account for only 3 per cent of the total protected area. Moreover, the current national protected area network does not ensure ecological continuity and connectivity, as linking ecological corridors (both in-country and across national boundaries) are still lacking. In respect of international designations, in 2018, the country had only two Ramsar sites, one UNESCO MAB Biosphere Reserve and one site inscribed on the World Heritage List, while two other sites with high potential for nomination under the World Heritage "natural" criterion have remained on the Tentative List since 2004.

In 2018, the country adopted the National Strategy for Nature Protection and Action Plan for the period 2017–2027 and the NBSAP for the period 2018–2023. The two documents are ambitious, but they are not fully harmonized, as timelines set for the same activities sometimes differ between the documents. A national wetlands policy, which is mandatory for the parties to the Ramsar Convention, or a programme for wetlands conservation, has not yet been developed, and no measures for the protection and sustainable use of wetland areas have so far been included in the national spatial plans.

The capacities to implement the Law on Nature Protection and other relevant laws, and the recently adopted strategic documents, are limited; e.g., in the absence of funding by the state or LSGUs, the operations of national parks (including research, monitoring and implementation of protective measures in the field) largely depend on own revenues deriving from the use of natural resources, or external (foreign) financial support, while the vast majority of protected areas of other categories have neither a budget nor a management body. Another example of limited capacities is the Department for Nature of the Ministry of Environment and Physical Planning, where the three Units have only 16 employees in total.

Conclusions and recommendations

Biodiversity monitoring, inventories and research programmes

The availability of reliable, comprehensive and up-to-date information on biodiversity is a prerequisite for proper formulation of national policies, strategies, species conservation action plans and protected area management

plans, and for the proper setting of hunting quota. The National Biodiversity Information System, once in operation, will not be able to perform its planned policy support tool functions unless it is continuously provided with reliable and continuously updated information derived from biodiversity monitoring, field inventory work and scientific research. The lack of access to high quality data on biodiversity is an obvious impediment to progress in achieving targets 15.1, 15.2 and 15.5 of the 2030 Agenda for Sustainable Development.

Recommendation 11.1:

The Ministry of Environment and Physical Planning should:

- (a) *Implement the national biodiversity monitoring programme, with a special focus on rare and threatened flora, fungi and fauna species, plant communities and ecosystems, and invasive alien species;*
- (b) *Mobilize adequate financial resources to ensure the continuation of state programmes related to biodiversity monitoring and research in the long run;*
- (c) *Complete the inventory and assessment of the status of threatened species, in cooperation with relevant academic and scientific research institutions and environmental civil society organizations;*
- (d) *Adopt the Red List and corresponding Red Book(s), paying due account to the globally applied International Union for Conservation of Nature (IUCN) methodology and criteria, and update the 2011 lists of strictly protected and protected species accordingly.*

Recommendation 11.2:

The Ministry of Agriculture, Forestry and Water Economy, in cooperation with the Ministry of Environment and Physical Planning, should:

- (a) *Implement research on forest ecosystems and habitats, in cooperation with relevant academic and scientific research institutions and environmental civil society organizations;*
- (b) *Carry out a national inventory of forest resources, including scientific studies on the status of game species populations, for setting appropriate hunting quotas.*

Development and implementation of policies, strategies and conservation action plans

The integrity of almost all natural ecosystems in the country is currently threatened, due partly to ongoing climatic changes but also to growing anthropogenic pressures. The biodiversity loss continues, and populations of several rare species continue to decline in size. This means that the currently applied management approaches and strategies do not provide for effective biodiversity conservation. For instance, a national policy or programme on wetlands protection is still lacking, even though its development and implementation is mandatory. Similarly, only a few rare and potentially threatened species are currently covered by the existing species conservation plans, as the threats to species have not yet been adequately researched and assessed. Putting in place new national policies, strategies and ecosystem or species conservation action plans, and monitoring and evaluating progress in their implementation, will facilitate the achievement of targets 15.1 and 15.5 of the 2030 Agenda for Sustainable Development.

Recommendation 11.3:

The Ministry of Environment and Physical Planning should:

- (a) *Develop a national policy or a programme for wetlands conservation;*
- (b) *Develop relevant action plans/programmes for ecosystems and species conservation;*
- (c) *Mobilize adequate resources to ensure the implementation of the national policy or programme for wetlands conservation, as well as action plans/programmes for ecosystems and species conservation in the long run.*

Strengthening the national protected area network

In 2017, the national protected area network encompasses only 8.93 per cent of the country's territory, which is below the CBD Aichi Biodiversity Target 11 (at least 17 per cent to be conserved by 2020). Simultaneously, this network is currently in a transitional phase of development, given that not all existing protected areas have been firmly enshrined in the network, due to the fact that the procedures for their revalorization and reproclamation have not been finalized, while the expected accession to the EU would then require the designation of the Natura

2000 network (probably overlapping to some extent with the currently existing protected areas). Last, but not least, the existing network does not provide for the expected ecological continuity and spatial connectivity. Hence, to achieve targets 15.1 and 15.4 of the 2030 Agenda for Sustainable Development requires additional effort.

Recommendation 11.4:

The Ministry of Environment and Physical Planning should:

- (a) *Complete the revaluation and reproclamation of existing protected areas;*
- (b) *Proceed with the identification and valorization of areas with high potential for their future designation as Natura 2000 sites, and areas of key importance for the spatial coherence of the future national ecological network;*
- (c) *Designate new protected areas, and, where deemed necessary, extend the territories of existing protected areas, with a focus on providing for adequate coverage of all main ecosystem types representative of the country, as well as the sufficient inclusion of habitats of all rare and threatened wildlife species.*

Establishing a strong institutional framework for nature protection

The Ministry of Environment and Physical Planning develops and implements national policies on nature protection, protection of biological and landscape diversity and protection of natural heritage, as well as undertaking control and supervision over the enforcement of the provisions of the 2004 Law on Nature Protection. The competences of the Ministry of Agriculture, Forestry and Water Economy include the development and implementation of other important policies for biodiversity conservation, concerning, for example, agricultural land management, rural development, protection and use of forests, forestry (including afforestation and reforestation), hunting and fishing, and melioration. Various other institutions and organizations are involved in activities for biodiversity conservation and nature protection. Concerted efforts to coordinate activities are lacking.

Nature protection is a multisectoral issue that requires a high level of coordination and collaboration between the responsible ministry for environmental affairs and many different sectors, such as forestry, agriculture, transport, energy and tourism. Insufficient intersectoral coordination and cooperation, as well as overlapping responsibilities, weak communication, lack of capacities at the national and local levels and lack of financial resources have been identified as the main obstacles for implementation of the Convention on Biological Diversity at the national level. Usually, the benefits acquired from biodiversity and ecosystem services are overlooked and undervalued by decision-makers, which not only leads to loss of biological diversity but has also adversely affected human health.

Through the mapping and assessment of ecosystems and ecosystem services (measures under the EU 2020 Biodiversity Strategy and Convention on Biological Diversity), the country's role in implementing legislation and policy for the delivery of ecosystem services could be evaluated (e.g., the contribution of the Natura 2000 network to the delivery of ecosystem services, and the mapping, indexing and implementing of payment for ecosystem services).

Recommendation 11.5:

The Ministry of Environment and Physical Planning, in collaboration with the Ministry of Agriculture, Forestry and Water Economy and other relevant stakeholders, should:

- (a) *Establish effective coordination mechanisms with the involvement of all relevant actors for the coherent development and implementation of policies on biodiversity conservation and nature protection;*
- (b) *Establish an effective coordination mechanism for issues related to payment for ecosystem services;*
- (c) *Set up and ensure the operation of a national council for nature protection;*
- (d) *Conduct regular training to develop the capacity of civil servants involved in biodiversity conservation and nature protection activities.*

See also Recommendation 6.1 (a).

IMPLEMENTATION OF THE RECOMMENDATIONS IN THE SECOND ENVIRONMENTAL PERFORMANCE REVIEW¹

Chapter 1: Policymaking framework for environmental protection and sustainable development

Recommendation 1.1:

The Government should:

- (a) *Place high priority in implementing the National Strategy for Sustainable Development and develop a related action plan*
- (b) *Establish the Secretariat of the National Council for Sustainable Development.*
- (c) *Periodically review the validity of the strategy and if necessary amend the document should circumstances or priorities change in the coming years.*

Implementation of the recommendation is ongoing.

- (a) The Government is implementing the NSSD. However, as at September 2018, the 2010 NSSD still lacks an action plan to implement it. The drafting of an action plan took place in 2015 but the draft was not adopted.
- (b) A technical working group was established in 2012 to act as a secretariat of the National Council for Sustainable Development.
- (c) An implementation report for the NSSD was prepared in 2015 but it is not available to the government ministries and the public.

Recommendation 1.2:

The Government should consider merging the Administration for the Environment, State Inspectorate and Office of Spatial Information system in an Environmental Protection Agency, which roles should focus on monitoring state of environment in the country, ensuring implementation of the legislation, providing expert support to the Government and liaising with the European Environment Agency in preparing State of the Environment reports or other environmental assessments.

The recommendation was not implemented.

Recommendation 1.3:

Municipalities, which have not yet developed a local environmental action plan should do so as soon as possible taking into account the National Strategies and any other relevant document.

Municipalities, which already have a local environmental action plan should consider updating it in order to make it more in line with the current priorities of the country.

The recommendation has been partially implemented.

Before 2012, some local environmental action plans (LEAPs) were developed and some others were updated. However, no LEAP has been adopted after 2013. The Ministry of Environment and Physical Planning does not have data on valid and updated LEAPs.

¹ The second review of North Macedonia was carried out in 2011.

Recommendation 1.4:

The Ministry of Environment and Physical Planning should consider strengthening the Department for Communication with Local Self-government both in terms of number and knowledge of human capacities to be assigned.

The recommendation was not implemented.

Recommendation 1.5:

The Government through the Ministry of Environment and Physical Planning and other responsible institutions should place high priority on Chapter 27 – Environment by:

- (a) *Strengthening capacity, with an emphasis on providing sufficient financial resources for realization of the National Plan on Adoption of the Acquis Communautaire and the National Environmental Investment Strategy.*
- (b) *Establishing a coordination body chaired by the Minister for Environment and Physical Planning for the environmental issues, that will be responsible for coordination of the EU integration, implementation of the National Plan on Adoption of the Acquis Communautaire, and cooperation with international donors towards the preparation for accession negotiation process.*

The recommendation has been partially implemented.

- (a) Not implemented.
- (b) Implemented. In 2014 the Sector Working Group for Environment and Climate Action under the chairmanship of the Deputy Prime Minister in charge of European Affairs was established. The Group includes representatives of ministries, two CSOs and some donors and it discusses programme documents for the IPA and policy documents.

Recommendation 1.6:

The Ministry for Environment and Physical Planning should strengthen the Department for European Union (EU) and other departments responsible for specific areas within the Ministry in the process of approximation of EU acquis and fulfilling the obligation, which derives from EU Acquis.

The recommendation was not implemented.

Formally, the recommendation was implemented when the number of staff in the Department for the European Union was enlarged after the IPA Department (previously separate) was brought into this Department. However, the number of people working on EU integration issues and harmonization of legislation decreased.

Chapter 2: Compliance and enforcement mechanisms

Recommendation 2.1:

The Ministry of Environment and Physical Planning and other relevant environmental authorities should:

- (a) *Implement the proper steps of the strategic environmental assessment and environmental impact assessment procedures and contribute to better quality of the strategic environmental assessment and environmental impact assessment documentation*
- (b) *Validate different software models to estimate emissions, waste generation and other impacts based on proposed technological processes.*
- (c) *Strengthen the capacity at the local level with regard to the environmental impact assessment procedure*

The recommendation was partially implemented:

- (a) Implemented. The Ministry of Environment and Physical Planning is responsible for implementing EIA and SEA. The Department for Physical Planning is responsible for the implementation of SEA in a transboundary context. In the period 2013–2016, two SEA procedures in a transboundary context were started (SEA on nature protected areas management plans). The Unit for Environmental Impact Assessment and Soil Protection is responsible for EIA implementation. The staff of the Unit (three

people) is coordinating each EIA case to ensure a qualitative procedure on EIA. All steps of the EIA procedure are followed, especially the involvement of the public (public announcement of the public hearing, access to the EIA documentation, taking records of the public hearing).

- (b) Partially implemented. Air quality dispersion models have been implemented in the Ministry of Environment and Physical Planning, as well as a regional air quality forecast model. Dispersion models are used to estimate the impact of specific emission sources and source categories on air quality. However, poor availability of good quality input data has limited the use of dispersion models. Dispersion modelling studies have been made to estimate the air quality impact of energy production and industrial installations and traffic in the City of Skopje.
- (c) Partly implemented. LSGUs are not responsible for carrying out EIA procedures but they have to approve environmental elaborates. They take part in EIA procedures where the project would be implemented. However, LSGUs lack training and methodological support for the EIA process.

Recommendation 2.2:

The Ministry of Environment and Physical Planning should elaborate a mechanism and create a system for consecutive control of implementation of and compliance with the conditions, recommendations and measures set in the final documents under procedures of strategic environmental assessment and environmental impact assessment.

The recommendation was not implemented.

Recommendation 2.3:

The Ministry of Environment and Physical Planning should elaborate and propose to the Government for approval to:

- (a) *Increase the human and financial capacity of the State Environmental Inspectorate*
- (b) *Develop a network on information exchange and coordination between environmental inspectors of central and local level.*

The recommendation was not implemented.

Recommendation 2.2 from the 1st EPR:

The MoEPP should give the highest priority to strengthening its implementation bodies - the Environment Office and the State Environment Inspectorate:

- (a) *The Administration for the Environment should be reorganized into an Executive Environmental Agency for the implementation and enforcement of environmental legislation and fully oriented to the requirements of environmental management. In this regard, the Agency should, as a minimum, consist of an environmental monitoring centre (providing monitoring of all environmental media), an SEA, EIA and permit issuing division (dealing with single permits: water, waste, chemicals, as well as with integrated permits).*
- (b) *The State Environment Inspectorate should be strengthened at local levels with small units of two or three specialists and appropriate equipment. Coordination among the different inspectorates, especially where they share responsibilities in environmental protection, should be streamlined through a better exchange of information and joint site visits or inspections.*

The recommendation was partially implemented:

- (a) Not implemented.
- (b) Implemented. Since May 2014, SEI is an independent legal person at central level. The authorized inspectors for environment at local level are not subordinated to SEI. Their number and equipment depend on the budget of the municipality. There is informal communication among the environmental inspectors at central and local levels on a daily basis (by phone). Joint inspections are carried out case by case, especially when an installation with an A-type permit is the subject of inspection.

Chapter 3: Monitoring, information, public participation and education

Recommendation 3.1:

The Ministry of Environment and Physical Planning should speed up the process of interministerial consultations on the draft decree to establish a national environmental monitoring programme and to submit to the Government for approval. The programme should identify the responsible institutions, regulatory and technical requirements, budgets and performance indicators, to establish reliable and sustainable monitoring systems for all media.

The recommendation was not implemented.

Recommendation 3.2:

The Ministry of Environment and Physical Planning should continue, in cooperation with other relevant public authorities and other stakeholders, work towards the establishment of an environmental information system that should provide relevant comprehensive, accurate and publicly accessible information on the state of the environment. Future steps should include:

- *Establishment of environmental data and metadata standard;*
- *Establishment of standards to regulate methodologies and procedures in the creation, access, protection and uniformity of environmental information in the related institutions and the country as a whole;*
- *Preparation of appropriate secondary legislation on different environmental areas related to the data acquisition and sharing between the Ministry of Environment and Physical Planning and other stakeholders;*
- *Further development of the web interface that will allow data access via internet in real time that includes import of spatial data that enables geographical information system integration;*
- *Development of web applicative solutions that will integrate the central database with digital vector geographical information system data;*
- *Further development of the National Environmental Database under the Ministry of Environment and Physical Planning, with appropriate application modules, that will enable automated and standardized data gathering and automated data validation according to the Law on Environment.*

The recommendation was not implemented.

Recommendation 3.3:

The Ministry of Environment and Physical Planning should:

- (a) *Complete the Rulebook on the Content of the State of Environment Report, supplementing it, in particular, by recommendations from the Guidelines for the Preparation of Indicator-based Environmental Assessment Reports endorsed by the Belgrade Ministerial Conference "Environment for Europe"*
- (b) *Proceed with the preparation of the national environmental assessment report. Furthermore, the MoEPP should start providing methodological guidance and training to municipalities and the City of Skopje to help them publishing local environmental assessment reports.*

The recommendation has been partially implemented.

- (a) Implemented. The Rulebook was adopted in 2017.
- (b) Partially implemented. The Rulebook is not widely applied at the local level and it remains up to the LSGU to take the opportunity to work and develop a local assessment report.

Recommendation 3.4:

The Ministry of Education and Science, in cooperation with the Ministry of Environment and Physical Planning, media representatives, other relevant public authorities, and stakeholders, should coordinate the development of a national strategy for education for sustainable development.

The recommendation was not implemented.

Chapter 4: Implementation of international agreements and commitments

Recommendation 4.1:

(a) *The Government should establish an interministerial task force to strengthen coordination and to streamline investment activities in the environment sector;*

(b) *The Ministry of Environment and Physical Planning should strengthen:*

- *Its internal coordination mechanism for the preparation and selection of project proposals and strengthen its capacities in the responsible departments for monitoring and evaluation of the planned projects and investments.*
- *Its capacity in regard to forthcoming EU negotiations, especially in line sectors responsible for preparation of implementation plans for investment heavy directives.*

The recommendation has not been implemented.

Recommendation 4.2:

In line with the introduction of the programme-based approach concept for donor coordination and the principles of the Paris Declaration on Aid Effectiveness, the Ministry of Environment and Physical Planning should establish an up-to-date system for implementation, monitoring and evaluation of environment related projects supported by foreign assistance.

The recommendation has not been implemented.

Recommendation 4.3:

The Government should proceed with preparatory work to assess the possibility and feasibility of accession to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and its Protocol on Water and Health.

The recommendation has been partially implemented. The country acceded to the Water Convention in 2015. The country has not yet become party to the Protocol on Water and Health.

Recommendation 4.4:

The Ministry of Environment and Physical Planning should:

- (a) *Strengthen its internal capacity, elaborate action plans or strategies to implement the multilateral environmental agreements and continue to attract international assistance for this purpose in order to ensure the proper implementation of the multilateral environmental agreements which have been recently ratified – i.e. Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, Protocols to Convention on Long-range Transboundary Air Pollution;*
- (b) *Comply with the reporting obligations under those agreements to which the country is already a Party, specifically the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.*

The recommendation has been partially implemented.

- (a) Partially implemented. The mandate of environmental authorities to ensure the implementation of and compliance with obligations deriving from global and regional agreements has not been matched by increased capacity and financial resources. Currently, in addition, no efficient coordination structure between relevant state institutions charged with the implementation of those obligations is established. Furthermore, there are difficulties with the harmonization of obligations under the high number of ratified MEAs. Also, there is no harmonization of activities with other sectors that have or may have impact on biological diversity.
- (b) Not implemented. National reporting under the Basel Convention has not been undertaken in recent years, with the last report being submitted in 2002. The recommendation is partially implemented.

Recommendation 4.5:

The Government should:

- (a) *Comply with its reporting obligations and commitments under the United Nations Commission on Sustainable Development;*
- (b) *Establish the Office for Sustainable Development and provide adequate resources for its activities to support the implementation of the Sustainable Development Strategy;
Until the establishment of the Office for Sustainable Development, the Ministry of Environment and Physical Planning should ensure that the National Council on Sustainable Development meets at regular intervals and establishes a work plan.*

The implementation is ongoing. A stand-alone SDG implementation plan for the period 2016–2030 is currently under development. The SDG implementation plan, as well as a five-year action plan are being developed under the overall responsibility of the Cabinet of the Vice Prime Minister to mainstream the 2030 Agenda for Sustainable Development at the national level.

Chapter 5: Economic instruments and expenditure for environmental protection

Recommendation 5.1:

The Ministry of Environment and Physical Planning, in cooperation with other ministries, should, when further developing the current system, clarify the objectives and goals of environmental policies and use economic instruments to attain these goals by

- (a) *Defining the pollution, emissions or natural use taxes, fees and charges in such a way that they provide an incentive for the polluters and resource users to change their behaviour.*
- (b) *Full cost recovery is applied wherever possible taking into account the needs of deprived groups of society*

The recommendation has been partially implemented.

- (a) Partially implemented. The polluter pays principle has not effectively been applied.
- (b) Partially implemented. Tariff reform in the water sector entered into effect at the beginning of 2018 to ensure the transition to cost-reflective tariffs for water supply, sewerage and wastewater treatment services. There has also been progress with the application of cost-reflective tariffs in the electricity sector. A major unresolved issue is the application of cost-reflective tariffs in the municipal waste sector. The application of targeted affordability provisions remains a challenge.

Recommendation 5.2:

The Ministry of Environment and Physical Planning should render the existing laws operational by finalizing the missing rulebooks on air and water emission.

The recommendation has been implemented. Emissions of air pollutants from stationary sources and the discharge of water polluting substances are subject to permits and payment of permit fees.

Recommendation 5.3:

To find effective economic instruments, streamline their use, make the fees and charges effective and maintaining the effectiveness the Government should:

- (a) *Conduct studies and analyses on the effects of environmental economic instruments*
- (b) *Use the existing instruments more efficiently and give the correct environmental incentives by using appropriate base or unit on which the charges are levied on*
- (c) *Strengthen the effect of selected economic instruments by raising the levels of charges*
- (d) *Maintain the effectiveness of the charges by applying the inflation corrections to the charge levels*
- (e) *Use the proceeds from levies and charges to the benefit of protecting the environment, e.g., via Environment Investment Programme.*

The recommendation has been partially implemented.

- (a) Not implemented.

- (b) Partially implemented. See implementation of Recommendations 5.1 and 5.2.
- (c) Partially implemented. Excise duty rates on petrol and diesel as well as on the other energy products were raised to be better aligned with EU minimum rates. Excise duty rates on motor vehicles and vehicle registration fees remain to be reformed to take into account environmental parameters such as emission standards and age of vehicles.
- (d) Not implemented; but the overall inflation was moderate.
- (e) Implemented. Revenues collected from water abstraction charges are earmarked for financing water sector management; revenues collected from vehicle registration fees are earmarked for financing environmental projects.

Recommendation 5.4:

To strengthen its capacity and competence to develop, apply and analyse economic instruments used for environmental protection, the Ministry of Environment and Physical Planning, should:

- (a) *Enable the respective staff to have access to training in environmental economics and the principles of the use economic instruments and their implementation*
- (b) *Conduct studies and analyses on the effects of environmental economic instruments*
- (c) *Compile a centralized database on the national environmental revenues and expenditures*
- (d) *Consider establishing an Environmental Investment Agency*

The recommendation has been partially implemented.

- (a) Not implemented.
- (b) Implemented. There is general access to national and international studies on these issue©(c) Implemented. SSO maintains a database on environmental expenditures and environmental tax revenues.
- (c) Not implemented.
- (d) Not implemented.

Recommendation 5.5:

The Government should develop guidelines to assist municipalities with tariff calculation and provide training to this end.

The recommendation has been partially implemented. The Ministry of Environment and Physical Planning has issued guidelines for the setting of cost-reflective waste tariffs in 2013. However, municipalities have not implanted them due to the lack of training. Based on a water tariff study on a basic methodology for full-cost-recovery tariffs, ERC has adopted a corresponding tariff methodology for setting water supply, sewerage and wastewater treatment tariffs as of 2018. The Commission has also adopted cost-reflective tariff rules for the electricity sector.

Chapter 6: Prevention and control of environmental pollution

Recommendation 6.1:

The Ministry of Environment and Physical Planning in cooperation with the Ministry of Economy (Standards Commission) should update environmental standards to comply with the EU legislation

The recommendation has been implemented. All European and international standards relating to the environment are adopted as national standards.

Recommendation 6.2:

The Ministry of Environment and Physical Planning should develop the National Programme for Emission Reduction and promote its adoption.

The recommendation has been implemented. The National Emission Reduction Plan covering all large combustion plants in the country was adopted in 2017.

Recommendation 6.3:

The Ministry of Environment and Physical Planning, in cooperation with the Ministry of Local Self-governance and municipalities should:

- (a) *Reinforce capacity-building for the IPPC Unit staff on technical aspects;*
- (b) *Carry out a survey of existing installations that need a permit (A or B);*
- (c) *Provide technical assistance to assess IPPC applications.*

The recommendation has been partially implemented.

- (a) Partially implemented. The capacity of the Ministry dealing with integrated environmental permits (IEPs) remains stagnant. However, the Association of LSGUs (ZELS) has created a network comprised of LSGUs to train the staff of the municipalities and the City of Skopje, e.g., on elaborates for environmental protection, support for the issuance of IEPs.
- (b) Implemented. The lists of the installations for which an A-type or B-type permit is required are provided in Annex I and Annex II of the Decree on the determination of the activities of the installations for which environmental permit with adjustment plan and timetable for submission of application for permit with adjustment plan is issued.
- (c) Implemented. In the period 2015–2017, the twinning project MK 11/IB/EN/01/R “Strengthening the administrative capacities on central and local level for transposition and implementing new Industrial Emission Directive 2010/75/EU (IED)” has been implemented. The project has developed drafts of primary and secondary legislation in accordance with the IED, has provided training on the central and local levels, and has undertaken assessment of the economic impact of implementation of the IED.

Recommendation 6.4:

The Government should:

- (a) *Create incentives, such as low interest loans, tax exemptions, or specific funds and other financial mechanisms (awards, etc) to encourage the application of better practices and introduction of clean and modern technologies to enable enterprises to be compliant with requirements of the environmental legislation;*
- (b) *Consider establishing a revolving fund to which companies would apply for low interest loans.*

The recommendation has been partially implemented.

- (a) Implemented. The business sector can benefit from profit tax exemptions for investments in machinery and equipment, including green technologies.
- (b) Not implemented. There is a possibility for domestic commercial banks to on-lend funds received from foreign donors for the financing of energy efficiency measures in the business sector and the household sector. This facilitates access to loans, notably in rural areas.

Chapter 7: Sustainable management of water resources

Recommendation 7.1:

The Government should consider establishing an Environmental Protection Agency with the responsibilities according to the Law on Waters.

The recommendation has not been implemented.

Recommendation 7.2:

The Government should:

- (a) *Ensure construction of municipal sewage treatment plants with and sewage collection systems for cities over 100,000 equivalents as a first priority and for municipalities over 10,000 equivalents as a secondary priority. Sewage collection systems should emphasize on separating wastewater from storm water, while the storm water should be returned to the hydrological circle by infiltration. Deteriorating drinking water supply systems and sewage collection systems should be repaired or renewed;*

- (b) Consider establishing of decentralised sewage treatment systems in rural areas.
- (c) Ensure that industry apply appropriate wastewater treatment prior to discharge according to national standards.
- (d) Close and remediate all landfills along river banks exposed to flooding and infiltration. (e) Ensure special regime of protection of areas of drinking water supply.

The recommendation has been partially implemented.

- (a) Partially implemented. There are currently 24 WWTPs reported to be in operation with a total capacity of 525,000 pop. eq. (24.5 per cent of the required capacity). Since 2011, a treatment capacity for approximately 258,000 inhabitants has been constructed.
- (b) Partially implemented. WWTPs are not strictly required under the terms of the Directive as they are serving agglomerations of less than 2,000 pop. eq.
- (c) Not implemented.
- (d) Not implemented.

Recommendation 7.3:

The Government should:

- (a) Ensure rehabilitation of irrigations systems with high water losses and expansion the percentage of closed pipe systems in relation to open systems.
- (b) Provide measure devices at irrigation systems for water quantity intake and water consumption from farmers.
- (c) Improve data collection on water consumption by different users.
- (d) Apply the water-user and water-discharge-pay-principle for all water users and dischargers according to law on waters. The fees must be transparent and related to expenses of provider.
- (e) Raise awareness of saving water measures and provide water saving technical devices.

The recommendation has been partially implemented.

- (a) Partially implemented. The Ministry of Agriculture, Forestry and Water Economy developed programmes that are not implemented.
- (b) Not implemented.
- (c) Not implemented.
- (d) Not implemented.
- (e) Not implemented.

Recommendation 7.4:

The Government should ensure that:

- (a) The flood plains are left open from further buildings and constructions and intensive agriculture.
- (b) Agricultural lands exposed to erosion have a sufficient buffer strip to rivers and lakes and cultivation is changed into a manner to protect from erosion.
- (c) Flood protection includes precise flood predictions and hydrological forecasts.
- (d) Ecological improvements on dams like fish ladders and fish ways are taken into account and the environmental flow below dams is in place and inspected.

The recommendation has not been implemented.

Recommendation 7.5:

The Government should:

- (a) Twin arrangements with countries having experience in implementation of WFD and river basin management should be sought, together with their administrative, financial and political support to assist the country in its task.

- (b) *Implement measures according to Water Framework Directive as transposed in the national legislation as well as improvements in water quality for example new sewage treatment plant should be investigated before and after in hydro chemical and especially hydro biological controls of success.*

The recommendation has been partially implemented.

- (a) *Implemented. Studies and projects with the EU or other countries are carried out. The IPA twinning project “Strengthening the capacities for effective implementation of the acquis in the field of water quality” is in its final stage of implementation.*
- (b) *Not implemented.*

Chapter 8: Waste management

Recommendation 8.1:

The Ministry of Environment and Physical Planning should:

- (a) *Ensure adequate staffing for the Waste Management Department*
- (b) *Strengthen compliance to reporting requirements from municipal authorities*
- (c) *Streamline data collection and sharing and related procedures in order to achieve higher efficiency in the use of budget and donor resources in cooperation with the State Statistical Office.*

The recommendation has been partially implemented.

- (a) *Partially implemented. The number of staff of the Department for Waste Management seems to be sufficient; however, the division and organization of work within the Department is not fully adapted to the needs of the Department. More employees are working on permitting, while there are capacities lacking in dealing with strategic and legislative tasks and issues related to collective schemes.*
- (b) *Not implemented. A significant proportion of municipalities are not reporting regularly on waste, despite their legal obligation to do so.*
- (c) *Partially implemented. Data collection is operational and regularly provides data on different aspects of waste generation, but evidence-based data collection will only be operational once the dumpsites are replaced by landfills with adequate measurement gates. The waste management information system and its online reporting tool is not operational.*

Recommendation 8.2:

The Ministry of Environment and Physical Planning should:

- (a) *Ensure that all municipal disposal sites satisfy licensing requirements for their operation,*
- (b) *Expand the mandate of the state inspectorate to clearly include inspections of municipal disposal sites and organise regular inspections of them.*

The recommendation has not been implemented.

Recommendation 8.3:

The Ministry of Environment and Physical Planning should assess the effectiveness and impact of grants by the Ministry of Environment and Physical Planning to municipalities for the closure and/or remediation of illegal dumpsites and municipal disposal sites.

The recommendation is not relevant. The grant scheme has been discontinued since 2002. The closure and remediation of illegal dumpsites and municipal disposal sites are planned to be financed from the projects aiming at establishing regional landfills and regional waste management systems.

Recommendation 8.4:

To ensure the successful transition from municipal to regional landfills, the Government should ensure that:

The recommendation has been partially implemented.

- (a) Ongoing. The legal framework is adapted to adequately cover developments on the ground.
- (b) Not implemented.
- (c) Partially implemented. Monitoring and penalizing of illegal waste disposal is not at a satisfactory level.

Recommendation 8.5:

The Government, in cooperation with local authorities, NGOs and other relevant stakeholders, should:

- (a) *Develop and implement a national policy on recycling, reuse and reduction of waste,*
- (b) *Promote public awareness campaigns on Reduce Reuse Recycle (RRR) practices.*

The recommendation has been partially implemented.

- (a) Partially implemented. No national policy for reducing, recycling and reusing waste exists or has even been prepared. The Strategy for Waste Management for the period 2008–2020 sets the overall goals and basic principles for reduction reuse and recycling of waste.
- (b) Implemented. Collective scheme operating companies carried out public awareness campaigns. It is also in their interest to raise the amount of separately collected waste to fulfil the national targets. In addition to these campaigns targeting the public, there were also campaigns for pupils run by the Ministry of Education and Science.

Recommendation 8.6:

The Government should ensure that an adequate system for medical waste management is in place.

The recommendation has been partially implemented. A medical waste management system is operational and compliant with relevant international and EU regulations. However, the incinerator for medicinal waste operating at Drisla landfill is not upgraded and does not ensure adequate capacity and compliance with related regulations in the long run.

Chapter 9: Forestry, biodiversity and protected areas

Recommendation 9.1:

The Government should complete a land cadastre.

The recommendation has not been implemented. The Government has not started the development of a land cadastre, which hinders both the process of protected areas' reclamation and the preparation and adoption of protected area management plans.

Recommendation 9.2:

The Ministry of Agriculture, Forestry and Water Economy, the Ministry of Environment and Physical Planning and other relevant stakeholders should:

- (a) *Begin conducting a national inventory of all forests.*
- (b) *Design and conduct an inventory of all ecosystems and their land cover that would support a comprehensive assessment of the representativeness of the protected areas network.*
- (c) *Add environmental indicators that address sustainable forest management including wildfire control system and adaptation to climate change.*

The recommendation has not been implemented. The national forest inventory and monitoring systems on forestry resources, stipulated by the 2006 Strategy for Sustainable Development of Forestry (valid until 2026), remain to be established. A national inventory of ecosystems is not yet available. The identification, mapping and assessment of the status of the basic types of ecosystems is planned for 2019–2022 (2018 NBSAP, Actions 16.1.1, 16.1.2, and 16.1.3). Environmental indicators related to forestry include fire damage, but do not address sustainable forest management issues, e.g., wildfire control or climate adaptation measures.

Recommendation 9.3:

The Government, in collaboration with the scientific community, should:

- (a) Complete the inventory and assessment of threatened species;
- (b) Adopt a Red List of threatened species and commensurate Red Books for protecting and conserving these species.

The recommendation has not been implemented. The Government has not completed the inventory and assessment of the status of threatened species populations. Consequently, a national red list of threatened species and a corresponding red book have not been adopted and published. Completion of the above tasks is planned for 2023 (2018 NBSAP, Action 12.1).

Recommendation 9.4:

The Ministry of Environment and Physical Planning in cooperation with the relevant bodies should:

- (a) Complete the reevaluation and re-proclamation of all protected areas in accordance with the Law on Nature Protection.
- (b) Continue expanding the system of protected areas in a manner that represents the key habitats important for biodiversity conservation and is supported by local rural communities.
- (c) Adopt a management plan for each protected area.
- (d) Encourage the implementation of the Emerald Network in line with Natura 2000 guidelines and establish the National Ecological Network, which would include the Emerald Network, other important ecological areas, system of ecological corridors, and proposed areas of conservation.

The recommendation has been partially implemented.

- (a) Partially implemented. The revalorization and reproclamation of protected areas has not been completed. Between 2011 and 2015, six protected areas have successfully been reproclaimed. The completion of the protected area revalorization and reproclamation is planned for 2023 (2018 NBSAP, Action 11.1.2).
- (b) Partially implemented. Since 2011, the national protected area network decreased in size by 4,575.95 ha, despite the increase in number of protected areas (from 81 in 2011 to 86 in 2014). Ten new monuments of nature were designated, but within the same period the number of strict nature reserves, nature parks, and protected landscapes decreased.
- (c) Partially implemented. The Ministry of Environment and Physical Planning has not adopted management plans for each protected area. At December 2018, management plans are in force for three sites: two national parks (Galičica, Pelister) and one nature reserve (Ezerani). Draft management plans were prepared for one national park (Mavrovo), five monuments of nature (Lake Prespa, Matka Canyon, Tikvesh, Smolare, Koleshino Waterfalls) and one multipurpose area (“Jasen”), but cannot be adopted prior to the completion of the reproclamation procedure for the area concerned. The adoption of management plans for national parks and/or other protected areas is planned to be completed by 2023 (2018 NBSAP, Action 11.4.2), hence, simultaneously with the finalization of the revalorization and reproclamation process.
- (d) Ongoing. The preparatory works for the establishment of the National Ecological Network (including ASCIs identified under the national Emerald Network and taking into account the Natura 2000 guidelines) are ongoing. However, the establishment of the National Ecological Network, through the adoption of MAK-NEN and its incorporation into planning documents, is delayed (it was expected in 2018 according to the 2018 NBSAP, Action 10.5), while the identification of potential Natura 2000 sites (SCIs and SPAs) is currently planned to be completed by 2022 (2018 NBSAP, Action 11.2).

Recommendation 9.5:

The Government should strive to increase funding for management of protected areas according to the Law on Nature Protection and also continue developing the legal and economic framework to diversify funding options for national parks and other protected areas.

The recommendation has not been implemented. Even though the 2004 Law on Nature Protection indicates the state budget as a possible source of funding for protected area management (also for Public Institutions – National Parks), protected areas most often operate on a self-financing basis and depend on the revenues from either visits or the use of their natural resources, supplemented by external funding sources (e.g., EU funds, foreign donors).

Chapter 10: Human health and the environment

Recommendation 10.1:

The Government should:

- (a) *Strengthen the central environment and health function and coordination within the Ministry of Health;*
- (b) *Allocate appropriate human and financial resources to environmental health;*
- (c) *Promote research and systematic sharing of data and information with the aim of contributing to an integrated environment and health information system.*

The recommendation has been partially implemented.

- (a) Not implemented.
- (b) Not implemented.
- (c) Implemented. An intersectoral group on air quality meets when there is a spike in pollution and provides the Government with recommendations on actions and measures to be taken.

Recommendation 10.2:

The Government should:

- (a) *Update the national environmental health action plan 2 in line with current legislation and circumstances and/or develop a children's environmental health action plan developed, in line with the adoption of the declaration on environment and health at the Parma Ministerial Conference;*
- (b) *Revise urban plans and processes (e.g., transport, construction, urban planning etc), with the aim to improve respiratory health and reduce noise disturbance;*
- (c) *Strengthen the application, control and financial obligations of employers in implementing occupational health measures.*

The recommendation has been partially implemented.

- (a) Not implemented.
- (b) Not implemented.
- (c) Partially implemented. The legislation is in place, but few companies have implemented occupational health measures.

Recommendation 10.3:

The Ministry of Health should:

- (a) *Manage hospital waste and promote the implementation of hazardous waste management practices according to EU regulations;*
- (b) *Ensure drinking water quality control, in particular in rural areas.*

The recommendation has been partially implemented.

- (a) See the implementation of Recommendation 8.6.
- (b) Implemented. Drinking water quality monitoring is conducted for public water supply systems by regional centres of public health. Control monitoring of municipal public water supply systems is conducted by the Institute of Public Health periodically. The estimates of access to safe drinking water in rural areas show an increase from 80.9 per cent in 2000 to 98.1 per cent in 2015.