



Enhancing Nature-based Solutions in Kosovo

The role of ecosystems in disaster risk reduction and climate change adaptation

Daisy Hessenberger and Tanja Popovicki



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IUCN is pleased to acknowledge the support of its Framework Partners who provide core funding: Ministry of Foreign Affairs, Denmark; Ministry for Foreign Affairs, Finland; Government of France and the French Development Agency (AFD); Ministry of Environment, Republic of Korea; Ministry of the Environment, Climate and Sustainable Development, Grand Duchy of Luxembourg; the Norwegian Agency for Development Cooperation (Norad); the Swedish International Development Cooperation Agency (Sida); the Swiss Agency for Development and Cooperation (SDC) and the United States Department of State.

This publication has been made possible in part by funding from the Swedish International Development Cooperation Agency (Sida).

Published by: IUCN, Gland, Switzerland

Produced by: IUCN Regional Office for Eastern Europe and Central Asia (ECARO)

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Recommended citation: Hessenberger, D. & Popovicki, T. (2023). *Enhancing Nature-based Solutions in Kosovo: The role of ecosystems in disaster risk reduction and climate change adaptation*. Gland, Switzerland: IUCN.

Front cover photo: Sharr Mountain, Kosovo. Photo by Besart Ademi, [Unsplash](#).

Layout by: IUCN ECARO

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Executive summary

Kosovo is prone to a wide variety of natural hazards – including floods, landslides, droughts, earthquakes, and wildfires – that could pose serious damages to the economy, fiscal balances, and the well-being of vulnerable populations. Many of these climatic-related hazards are expected to magnify with future climate change. These climate and disaster risks can seriously affect productive sectors of the economy, particularly agriculture, infrastructure, energy, water resources, and communities and households.¹

Kosovo, due to its status at the UN, **is not a direct signatory of conventions, protocols and other international environmental agreements**. Consequently, the Government of Kosovo is unable to cooperate as an equal partner at the multilateral level. Although Kosovo has not participated in or signed the UN Framework Convention on Climate Change (UNFCCC), it has the responsibility to respond to the requirements as a signatory of the Energy Community Treaty. The Energy Community Treaty also sets clear reduction targets for energy use while demanding an increase in the share of renewable energies.²

Within the last decade, Kosovo has invested significant **efforts** towards completing the legislation and transposition of EU Directives into national law, strengthening the strategic and institutional framework, increasing investment in the environmental sector, and increasing the **number of policies covering issues related to climate change**.

According to a regional comparative policy analysis in the Western Balkans on integrating Nature-based Solutions (NbS) into policies for climate change adaptation (CCA) and disaster risk reduction (DRR),³ **the policies in Kosovo lag somewhat compared to other Western Balkan economies**. In particular, there is a relative lack of NbS proposed in cross-sectoral or sectoral policies, and of mainstreaming across global agreements relevant for CCA/DRR.

Though it was possible to identify several interventions in Kosovo that have the potential to be an NbS for CCA and/or DRR, to date, **no clearly “recognisable” major NbS projects have been implemented in Kosovo**, with the exception of a wetland, presented as a “Nature-based Solution for Wastewater Management”. This wetland was constructed on the municipal

¹ Climate Change Knowledge Portal [website]. Available at <https://climateknowledgeportal.worldbank.org/>. Accessed: May 2022.

² Ministry of Environment and Spatial Planning (2018). *Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021*. Pristina, Kosovo: Ministry of Environment and Spatial Planning.

³ Bisaro, A. & Meyer, K. (2022). *Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction*. Gland, Switzerland: IUCN.

lands of Kramovik (benefiting 1100 residents) as part of the Drin Project funded by Global Environment Facility (GEF).⁴

The majority of projects currently implemented in Kosovo target integrated water resource management (IWRM), and water security through the development of policy measures addressing climate changes based on adaptation and mitigation activities and initiatives. There are several capacity building projects focusing on stakeholder engagement or data collection (e.g., local action planning, preserving biodiversity and sharing responsibility). Hence, only the most recent donor initiatives focus on the promotion and development of ecotourism through the application of NbS.

The greatest potential for further application of NbS in Kosovo lies in the water and water management sectors, and the need to increase integrated watershed management through methods, like green engineering, aimed to support Kosovo in achieving greater environmental protection and reduced pollution.

Opportunities for the application of NbS in the forestry sector have been identified in sustainable forest management, increasing resilience of forests, protection from forest fires, forestation and reforestation of bare lands, and integrating carbon sequestration into forest management.⁵

The integration of biodiversity into sectoral planning is an opportunity for enhancing NbS, while the relative **absence of links to CCA/DRR in planning nature protection and conservation measures is a gap to be addressed.**

Sporadic measures have been taken by certain municipalities concerning improvements in urban planning and the application of CCA measures, including NbS. However, a serious lack of sufficient knowledge, expertise and institutional capacities on climate change have been identified, with a **strong need for increased capacities in climate change management and sustainable and climate-smart spatial planning, including knowledge and expertise in application of NbS** among municipal representatives dealing with urban planning in Kosovo.⁶

⁴ DrinCorda [website]. Available at <http://drincorda.iwlearn.org/>. Accessed: January 2023.

⁵ Ministry of Environment and Spatial Planning (2018). *Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021*. Pristina, Kosovo: Ministry of Environment and Spatial Planning.

⁶ United Nations Human Settlements Programme (UN Habitat) Kosovo (2021). *Municipal Capacity Gaps and Needs on Integrating Climate Change Aspects into Spatial Planning in Kosovo*. Pristina, Kosovo: UN Habitat.

Acknowledgements

We would like to express our sincere gratitude to the ADAPT project management team for their support and guidance during the process of preparation of this study:

- Mr Boris Erg, Director, IUCN Regional Office for Eastern Europe and Central Asia (ECARO),
- Ms Mihaela Dragan Lebovics, NbS Senior Project Officer, IUCN ECARO,
- Mr Fabien Techene, NbS Officer, IUCN ECARO,
- Ms Vesna Bjedov, Communication Officer, IUCN ECARO.

Also, our gratitude goes to representatives of the Ministry of Environment, Spatial Planning and Infrastructure of Kosovo for providing valuable comments and resources in enabling us to collect the necessary data on NbS in Kosovo, and to thus enrich the study with relevant examples.

Authors

Acronyms

CBD	Convention on Biological Diversity
CCA	Climate change adaptation
DRR	Disaster risks reduction
EbA	Ecosystem-based Approach
Eco-DRR	Ecosystem disaster risks reduction
ELAP	Environmental Local Action Plans
GEF	Global Environment Facility
GI	Green infrastructure
GDP	Gross domestic product
GHG	Greenhouse gases
IUCN	International Union for Conservation of Nature
IWRM	Integrated water resources management
JICA	Japan International Cooperation Agency
KEPA	Kosovo Environmental Protection Agency
MAFRD	Ministry of Agriculture, Forestry and Rural Development
MESPI	Ministry of Environment, Spatial Planning and Infrastructure
NAS	National Adaptation Strategy
NbS	Nature-based Solutions
NGO	Non-governmental organisation
NDC	Nationally Determined Contribution
PES	Payment for Ecosystem Services
PA	Protected area
RRBA	Regional River Basins Authority
RCC	Regional Cooperation Council
RCK	Red Cross of Kosova
SDC	Swiss Agency for Development and Cooperation
SDG	Sustainable Development Goal
SEE	Southeast Europe
Sida	Swedish International Development Cooperation Agency
UNFCCC	United Nation Framework Convention on Climate Change
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

1. Purpose and methodology of the scoping study

The overall purpose of this scoping study (hereinafter: Study) is **to provide the state-of-the-art of the Kosovo national context with regards to the application of Nature-based Solutions (NbS) approaches for climate change adaptation (CCA) and disaster risk reduction (DRR).**

The main objectives of this Study are to: 1) analyse the national institutional, policy and legal contexts that enable NbS application, 2) present an overview of natural hazards and disasters in Kosovo and the correlated risks, 3) elaborate on the added benefit of deploying NbS in the given context, 4) identify knowledge, institutional and capacity gaps and barriers for applying NbS, and 5) provide recommendations and entry points for mainstreaming NbS into national DRR and climate change policies and strategies.

The Study relies on the available and accessible data and information extracted from existing documentation on policies, programmes and strategies – from local to global contexts. This compilation is complemented by past and ongoing initiatives, projects and activities in Kosovo on NbS for CCA and DRR to create a comprehensive repository of best practices and lessons learned that support the recommendations and identification of entry points for potential NbS scalability and replicability.

1.1 The ADAPT Project

The [ADAPT: Nature-based Solutions for resilient societies in the Western Balkans](#) project aims to increase ecosystem and community resilience to climate change and environmental degradation in the Western Balkans. This regional umbrella initiative works with six Western Balkan economies, regional and local partners.

ADAPT contributes to reducing environmental degradation and increasing climate resilience through NbS, while ensuring social and gender equality in the Western Balkan region.

To ensure long-term and balanced outcomes, the project rests on three major pillars:

- ✓ Knowledge enhancement and awareness raising on NbS for disasters and climate resilience across multiple stakeholders – from decision-makers and natural resource managers to local communities – with a specific focus on gender;

- ✓ Mainstreaming climate-compliant and equitable NbS into adaptation and disaster reduction policy related policy instruments; and
- ✓ NbS implementation and scale-up for DRR.

2. Introduction

The Western Balkan region is among the most vulnerable regions in Europe in terms of climate change and environmental impacts. Extreme events, such as floods, droughts and forest fires, are predicted to occur more frequently and with greater impacts, calling for measures that increase resilience and CCA, while reducing disaster risks. The 2016 European Environment Agency report⁷ on climate change impacts and vulnerability in Europe considers Southeast and southern Europe as highly prone to climate change effects, as a region with the greatest impact of climate change and number of severely affected sectors and domains.

The study on climate change in the Western Balkans,⁸ published by the Regional Cooperation Council (RCC) in June 2018, shows an alarming increase of temperature over the whole territory, with an observed temperature increase of 1.2°C in the near future, destined to warm further by 1.7–4.0°C and even exceeding 5.0°C by the end of the century, depending on the global effort to reduce emissions of greenhouse gases (GHG). Analyses of climate change impacts in the region recognise that human health, safety and quality of life are strongly affected by natural hazards and sectorial weather-related losses, while also identifying agriculture, forestry, water resources, and human health as sectors that will be most impacted.

Kosovo faces major environmental challenges and climate-related risks, both of which exacerbate the risk and vulnerabilities of the population to disasters. Within the Western Balkans, as a region already deemed to be at a higher risk of climate change impacts, Kosovo is identified as highly vulnerable due to the heavy dependence of its two most important economic sectors, agriculture and forestry, on climate.⁹

There is an increasing understanding that nature provides ‘no-regret’ solutions that are cost-effective and can contribute to increasing community resilience beyond society’s capacity to absorb and recover from a single disaster, such as a flood or drought. While still an emerging concept, NbS have clearly demonstrated their value in providing multiple benefits to societies, e.g., in mitigating and adapting to climate change impacts, reducing disaster risks, improving community resilience and livelihoods and safeguarding ecosystems and biodiversity.

⁷ European Environmental Agency (2017). [Climate change, impacts and vulnerability in Europe 2016](https://doi.org/10.2800/534806). Luxembourg: Publications Office of the European Union. <https://doi.org/10.2800/534806>.

⁸ Regional Cooperation Council (2018). [Study on climate change in the Western Balkans region](#). Sarajevo, Bosnia and Herzegovina: Regional Cooperation Council Secretariat.

⁹ Alfthan, B., Krilasevic, E., Venturini, S., Bajrovic, S., Jurek, M., Schoolmeester, T., Sandei, P.C., Egerer, H. & Kurvits, T. (2015). [Outlook on climate change adaptation in the Western Balkan mountains](#). Vienna (Austria), Arendal (Norway) and Sarajevo (Bosnia and Herzegovina): United Nations Environment Programme, GRID-Arendal and Environmental Innovations Association.

Various approaches support the application of NbS, including green infrastructure (GI), ecosystem-based disaster risk reduction (Eco-DRR) or an Ecosystem-based Approach (EbA). Measures facilitating the practical implementation of NbS through policy development and enforcement, stakeholder involvement and building capacities of national institutions and/or local communities are equally important.¹⁰ The IUCN Global Standard for Nature-based Solutions™,¹¹ launched in July 2020, with its associated guidance document¹² operationalises NbS by providing a common language and framework in order to design, verify and scale up NbS applications and policies.

In order to elaborate on the specific context of Kosovo in relation to the opportunities deriving from the application of NbS approaches in addressing some of the above-mentioned climate, community resilience and disaster risks, one has to understand the overall framework for their implementation in Kosovo. NbS is an overarching, cross-cutting concept that by definition involves various sectors as shown in Figure 1.

The climate change and DRR issues penetrate into all relevant sectors, demanding that challenges be addressed through climate adaptation and mitigation measures or actions striving to reduce the risks from disasters.

¹⁰ Popovicki, T. (2019). [Study on Nature-based Solutions in Serbia](#). Belgrade, Serbia: UNDP.

¹¹ IUCN (2020). [Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of NbS](#). First edition. Gland, Switzerland: IUCN.

¹² IUCN (2020). [Guidance for using the IUCN Global Standard for Nature-based Solutions. A user-friendly framework for the verification, design and scaling up of Nature-based Solutions](#). First edition. Gland, Switzerland: IUCN.

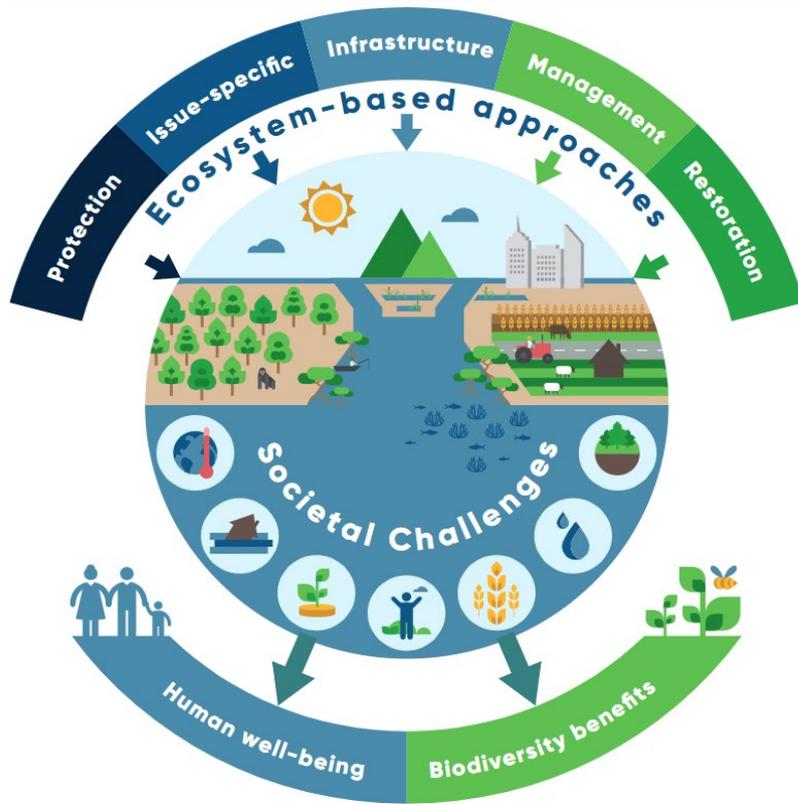


Figure 1. NbS approaches based on the IUCN definition including the seven societal challenges that NbS address (climate change adaptation and mitigation, disaster risk reduction, economic and social development, human health, food security, water security and ecosystem degradation and biodiversity loss) (Source: IUCN, 2020, see footnote 11)

3. Kosovo country overview

Kosovo is a landlocked country, situated in the centre of the Balkan Peninsula, bordering with Serbia, North Macedonia, Albania and Montenegro. According to the latest available data, Kosovo's territory covers an area of 10,908 km² and the estimated population (2021) is 1,773,971, giving a population density of about 163 persons/km².^{13,14}

Kosovo currently has the youngest population in Europe, with a national average age of 29.5 years and fertility estimated at 2.4 children per woman. There has been a major internal migration of the Kosovo population since cessation of the conflict in 1999, mainly from rural toward urban areas, though 58% of the population still lives in rural areas and 42% in urban centres. Pristina is the region with the highest rate of emigration, with an estimated 500,000 people living abroad.

Kosovo is characterised by:¹⁵

- the youngest population in Europe (over half of its 1.8 million residents is under 29 years of age),
- one of fastest-growing economies in the Western Balkans,
- high migration rates due to a lack of formal jobs – particularly for women and youth, as well as infrastructure bottlenecks,
- the third poorest country in Europe based on the per capita gross domestic product (GDP),
- environmental hazards, particularly air pollution due to a reliance of coal-based energy.

3.1 Geography and territory

The Republic of Kosovo lies in Southeast Europe (SEE), in the central part of the Balkan Peninsula (Western Balkans). The Kosovo geographic coordinates are 41°50'58" – 42°15'42" N in latitude, and 20°01'02" – 21°48'02" E in longitude.¹⁶

¹³ Ministry of Environment, Spatial Planning and Infrastructure, Kosovo Environmental Protection Agency (2022). *State of Nature Report 2018 – 2021*. Pristina, Kosovo: Ministry of Environment, Spatial Planning and Infrastructure.

¹⁴ Kosovo Agency of Statistics [website]. Available at https://askdata.rks.gov.net/pxweb/en/ASKdata/ASKdata_Population_Estimate,%20projection%20and%20structure%20of%20population_Population%20estimate/tab001.px/table/tableViewLayout1/. Accessed: January 2023.

¹⁵ UN Kosovo Team (2021). *Maximizing Synergies between the 2030 Agenda and Kosovo's European Agenda*. Pristina, Kosovo: United Nations Kosovo Team.

¹⁶ Ministry of Environment, and Spatial Planning (2010). *Spatial Plan of Kosova 2010-2020*. Pristina, Kosovo: Ministry of Environment and Spatial Planning.

Organised on a unitary basis with one level of decentralisation, Kosovo's administration is divided into 38 municipalities (Figure 2). Of the 1,467 settlements, there are 29 cities and towns. Pristina is Kosovo's capital city and its administrative centre.

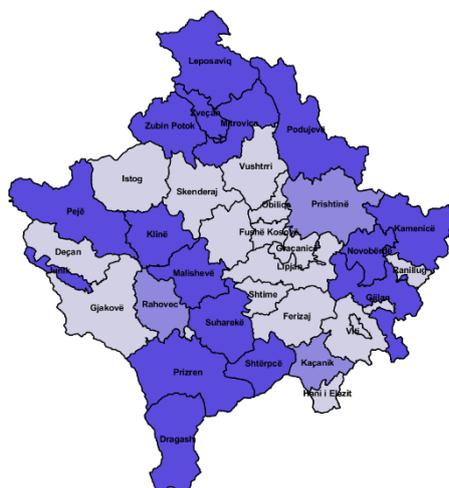


Figure 2. Kosovo's administrative units (Source: Kosovo Cadastral Agency)

The Republic of Kosovo is characterised by a relatively mild relief in the centre of the country, surrounded by high mountain ranges. The highest peak is Gjeravica with an elevation of 2,656 m, and the lowest point is Drini i Bardhë, Vërmicë, located on the border with Albania. Some of the characteristic parts of Kosovo relief are: the mouth of the Kaçaniku River, Rugova canyon, Mirusha canyon, Dukagjini plain, Kosovo plain, Drenica plain, and the Kriva Reka plain.¹⁷

The terrain of Kosovo includes flat fluvial basins at elevations of 400–700 m surrounded by several high mountain ranges with elevations from 2,000 to 2,500 m. The Bjeshkët e Nëmuna/ Prokletije mountains in the west, Sharri/Šar mountains in the south, and Kopaonik range in the north cover a large portion of the national territory. In addition to its mountain ranges, Kosovo's landscape is predominately defined by the two large lowlands covering 36% of the national territory. In the northeast is the Rrafshi i Kosovës lowland (Kosovo Plain) and the southwest is the Rrafshi i Dukagjinit lowland (Dukagjini Plain). The border between Rrafshi i Dukagjinit and Rrafshi i Kosovës forms the surface water divide between the Adriatic Sea on the one side, and the Black Sea and Aegean Sea on the other. There are four main river basins, all of which are transboundary basins.

¹⁷ Assembly of the Republic of Kosovo and Government of the Republic of Kosovo (2017). [Kosovo National Water Strategy Document 2017-2036](#). Pristina, Kosovo: Assembly of the Republic of Kosovo and Government of the Republic of Kosovo.

3.2 Socio-economic context

Despite having some of Europe's highest unemployment and poverty rates, Kosovo's economy has grown steadily since 2008.¹⁸ While Kosovo's informal economy is sizable, it remains one of the poorest countries in Europe and a decrease in foreign assistance has marked the past decades.¹⁹ Agriculture makes up a large part of the GDP, though it has exhibited low growth, linked to climate change.

The 2018 Kosovo Water Security Report²⁰ notes that Kosovo's natural resources are not being used optimally, and it specifically identified agriculture and rural livelihoods as lacking productivity and security, meaning that job creation should be a key priority in the development agenda.

Despite the challenges of socio-economic mobility (a real concern with a higher unemployment rate for youth), for much of the population there are some key enabling factors for growth. For example, Kosovo's population includes a significant share of well qualified young people, natural resources, viable climate conditions, infrastructure opportunities and access to the regional market of CEFTA and the European Union.²¹ However, not all of these enabling factors for growth are straight forward.

It is worth noting that in 2008, the overall health situation for the population was relatively poor in Kosovo and possibly the worst in SEE.²² Many people specifically have been exposed to environmental health risks, primarily pollution. This disproportionately affects vulnerable people and can also lead to an increase in non-income generating activities, specifically for women.

In terms of interest in climate, biodiversity and disaster topics, the priorities of the general public lie elsewhere, in the more tangible and pressing aspects of their lives, such as unemployment and poverty. Specifically, a 2020 survey of the understanding of the general populace showed over one-third of those surveyed know very little about environmental

¹⁸ Climate links [website]. Available at <https://www.climatelinks.org/resources/climate-risk-profile-kosovo>. Accessed: November 2022.

¹⁹ Climate Change Knowledge Portal [website]. Available at <https://climateknowledgeportal.worldbank.org/country/kosovo>. Accessed: October 2021.

²⁰ World Bank (2018). *Kosovo Water Security Outlook*. Washington, DC, USA: The World Bank.

²¹ Ministry of Internal Affairs (2017). *Disaster Risk Reduction Strategy and Plan of Action 2016 - 2020*. Pristina, Kosovo: Ministry of Internal Affairs.

²² School of Business, Economics and Law (University of Gothenburg) (2008). *Kosovo Environment and Climate Analysis*. Gothenburg, Sweden: University of Gothenburg.

health.²³ The same survey indicated that while 15.3% of respondents declared they are fully aware about the potential environmental threats to their own and their family's health, 74.2% of respondents declared to have little to average knowledge about these threats, and 10.5% declared no knowledge of potential environmental threats to their own and their family's health.

3.3 Gender context

The Constitution of the Republic of Kosovo defines international human rights conventions such as the Convention on the Elimination of All Forms of Discrimination against Women (known as CEDAW)²⁴ and the United Nations Resolution 1325 on Women, Peace and Security²⁵ as directly applicable in the domestic legislation, and in the case of inconsistencies it is considered to prevail over acts and laws issued by public institutions.

Kosovo also adopted the National Programme for Gender Equality for the period 2020–2024²⁶ with its overall strategic objective **to ensure that gender equality is placed at the centre of transformation processes in Kosovo, within all structures, institutions, policies, procedures, practices and programmes of government, agencies, civil society, the private sector and the donor community.** This objective will be achieved by working in three directions:

- ✓ creating equal opportunities to contribute to and benefit from economic development, increased inclusion and improvement of social welfare;
- ✓ promoting gender equality through quality education and health, inclusiveness and human capacity utilisation as factors contributing to sustainable human development and the elimination of gender inequalities and stereotypes, and
- ✓ promoting the protection of rights in decision-making, peace, security and justice, thereby guaranteeing the achievement of gender equality.

Based on the 2020 survey of the general populace, “gender-disaggregated data show that 11.1% of women and 9.9% of men have no knowledge about this issue and that women have less knowledge than men (2.4% points). Other indicators show no significant differences between men and women in their knowledge about potential environmental threats to their own and family's health”.²⁷

²³ USAID and UNDP (2020). [Kosovo Public Pulse XVIII](#). Pristina, Kosovo: United Nations Development Programme.

²⁴ UN Women [website]. Available at [Convention on the Elimination of All Forms of Discrimination Against Women \(CEDAW\) for Youth | UN Women – Headquarters](#). Accessed: December 2023.

²⁵ United Nations [website]. Available at [Landmark resolution on Women, Peace and Security \(Security Council resolution 1325\)](#). Accessed: December 2023.

²⁶ Government Agency for Gender Equality (2020). [Kosovo Program for Gender Equality 2020-2024](#). Pristina, Kosovo: Government Agency for Gender Equality.

²⁷ USAID and UNDP (2020). [Kosovo Public Pulse XVIII](#). Pristina, Kosovo: United Nations Development Programme.

Regarding gender mainstreaming within the climate and DRR policies in Kosovo, there is only an indication that the gender perspective is given consideration within the Kosovo DRR Strategy,²⁸ which calls for special attention for the most vulnerable communities, such as persons with disabilities, communities living in extreme poverty, communities concentrated in natural disaster areas, and the drafting of plans and programmes aimed at educating and raising awareness of communities, especially of children and youth by considering the social, gender, economic and cultural diversity aspects in Kosovo. Other than this, no gender dimension has been recognised within any other climate, environmental or DRR related document in Kosovo.

3.4 Environmental context

Kosovo has made efforts to harmonise with and implement the EU *Acquis* in the environmental sector by improving the legal framework, policies and strategies. Despite these efforts, Kosovo still has a long way to go for alignment with a large number of EU directives, regulations, and decisions, as well as with issuing related administrative instructions. Enforcement of legislation remains a critical challenge.²⁹

Though the Government Programme of the Republic of Kosovo 2017–2021 addresses environmental protection as a priority, the nation’s EU Progress Report for 2022³⁰ noted that “Kosovo needs to adopt revised strategies, action plans and legislation to ensure their coherence with the Green Agenda objectives and ensure their implementation. The adoption of the Strategy for Environmental Protection and Sustainable Development 2022–2030 is delayed. The implementation of the current strategic framework is challenged by the lack of funding and administrative capacity, and heavy reliance on international donors. Kosovo also needs to amend and implement the laws on environmental and strategic impact assessment. Interinstitutional coordination and civil society involvement needs to be enhanced. Kosovo needs to take over raising awareness responsibilities from the international community and civil society organisations”.

The Kosovo Environmental Protection Agency (KEPA) is the institution responsible for maintaining the quality of air, water, soil and biodiversity through integrated environmental monitoring, an efficient environmental information system and continuous reporting on the

²⁸ Ministry of Internal Affairs, Emergency Management Agency (2015). [Disaster Risk Reduction Strategy and Action Plan 2016 – 2020](#). Pristina, Kosovo: Ministry of Internal Affairs.

²⁹ USAID and UNDP (2020). [Kosovo Public Pulse XVIII](#). Pristina, Kosovo: United Nations Development Programme.

³⁰ European Commission (2022). [Kosovo 2022 Report](#). Brussels, Belgium: European Commission.

state of the environment. KEPA is also responsible for promoting the use of renewable energy sources and the sustainable use of natural resources to ensure a healthy environment for present and future generations in line with economic and social progress.

3.4.1 Land use

The total land area in Kosovo can be categorised as shown in Table 1.

Table 1. Land use in Kosovo (Source: Ministry of Agriculture, Forestry and Rural Development)

Ecosystem	2012 Coverage (%)³¹
Forests	44.7
Other wooded land	2.7
Cropland	28.7
Grassland	15
Settlements	4.5
Water	0.5
Other wetlands	0.1
Other lands	3.9

The dominant land use categories are forests and woodlands, agricultural land and urban land, while other major ecosystems include grasslands (especially at high elevations that harbour endangered species), agricultural landscapes and aquatic ecosystems (including glacial lakes, wet meadows, springs, streams, rivers, artificial reservoirs, fishponds and temporary ponds) and one wetland area (Figure 3). However, wetland data are scarce (analysis of fish diversity is especially lacking in Kosovo in comparison to the rest of SEE). Although species biodiversity in Kosovo is always presented as an “approximate number” and more precise records are lacking, it is generally accepted that Kosovo houses an impressive array of species.

Kosovo’s considerable species biodiversity (including over 1,800 identified plant species although the predicted number of plant species is well over 2,000)³² are protected throughout Kosovo in a series of national parks and protected areas (PAs). For example, due to the high

³¹ Ministry of Agriculture, Forestry and Rural Development (2013). [Kosovo National Forest Inventory 2012](#). Pristina, Kosovo: Ministry of Agriculture, Forestry and Rural Development.

³² Anon. (2015). Decision of the Minister No. 514/15/ 04.02.2015 for the Approval of the Red List of Vascular Flora of Kosovo. Pristina, Kosovo: Ministry of Economy and Environment, Republic of Kosovo.

and endangered biodiversity values of Sharri/Šar and Bjeshkët e Nemuna/Prokletije National Parks, both are identified as Important Plant Areas, Important Bird Areas, and Primary Butterfly Areas. Overall, Kosovo has 248 PA sites, whose coverage has increased to 126,023.2 ha in 2021,³³ or 11.55% of the total area of Kosovo.³⁴

Over 90% of Kosovo’s PA territory is found within just two national parks (mentioned above) situated along the national borders. No study so far has systematically mapped the occurrence of biodiversity and ecosystems, their value and health, against PA coverage to assess whether the PA network in Kosovo is aligned with biodiversity hotspots.

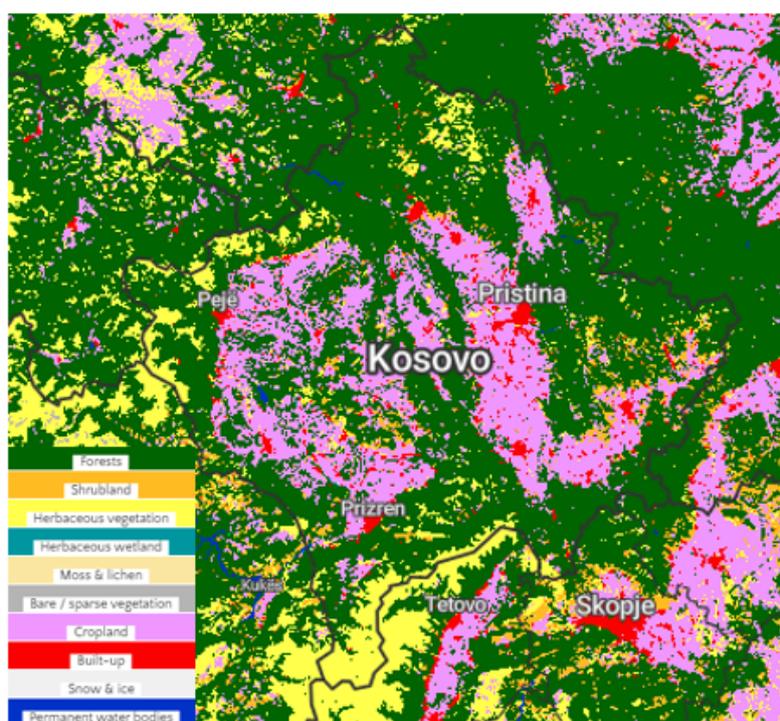


Figure 3. Land cover classification (single class forest) of Kosovo (Source: [Copernicus Global Land Cover](#))

3.4.2 Forests

Forests in Kosovo provide habitats for hundreds of important plant and animal species.³⁵ As one of the most important ecosystems economically (contributing 3% to GDP in 2018) and the most widespread ecosystems in Kosovo covering 44.7% of the land territory, there are more data and analyses available for forests than for other ecosystems. Most analyses focus on the

³³ Clarification: this area of protected areas does not include the protected areas located within the Sharri and Bjeshket e Nemuna National Parks.

³⁴ Ministry of Environment, Spatial Planning and Infrastructure, Kosovo Environmental Protection Agency (2022). *State of Nature Report 2018 – 2021*. Pristina, Kosovo: Ministry of Environment, Spatial Planning and Infrastructure.

³⁵ Ministry of Environment, Spatial Planning and Infrastructure, Kosovo Environmental Protection Agency (2022). *State of Nature Report 2018 – 2021*. Pristina, Kosovo: Ministry of Environment, Spatial Planning and Infrastructure.

economic productivity of Kosovo's forests, and a systematic understanding of their ecological health is still lacking.

For example, a recent analysis focused on sustainable forest management linked to potential carbon credits and renewable energy markets (Kosovo's forests are predicted to store 88 million tonnes of CO₂).³⁶ However, links between the role of forests with CCA and DRR are lacking.

There have been afforestation efforts, however most of this area has failed due to maladaptation to the site-specific context. Despite the importance of the ecosystem services provided by forests, national funding allocations are still not sufficient to address the pressures they face, and the use of non-indigenous species may be more vulnerable to climate change and even put greater pressures on native forests. A significant threat to forests is illegal harvesting; only 16% of the demand for firewood in 2012 was estimated to have been harvested legally. In 2018, only 12% of the total forest area in Kosovo was under protection.³⁷ That said, public forests may face additional threats (unsustainable, illegal extraction) while private forests are often under stronger management.

3.4.3 Water

There are four main river basins in Kosovo, with the largest two covering 80% of the national territory. The Black Sea Basin encompasses a surface water catchment area of 5,500 km², or 51% of the territory, and the Adriatic Sea Basin has a surface catchment area of 4,500 km², or 43% of the territory, while the Aegean Sea Basin has a surface catchment area of only 900 km², or 6%. The majority of water resources spring within the territory of Kosovo, with the notable exception of the Ibër/Ibar River that springs in Montenegro, where it has a catchment area of just over 1,000 km². The Ibër/Ibar River feeds Gazivoda/Ujëmani Lake.³⁸

Kosovo contains numerous aquatic ecosystems such as glacial lakes, wet meadows, springs, streams, rivers, artificial water reservoirs, fishponds and temporary ponds. Yet a biodiversity analysis of freshwater species, ecosystem and economic potential estimates is still pending for Kosovo.³⁹ Hydrogeological studies are similarly lacking. This lack of accessible understanding of the health of aquatic ecosystems has opened the door to unsustainable use,

³⁶ Connecting Natural Values & People (CNVP) (2013). [Study and Analysis of Innovative Financing for Sustainable Forest Management in the Southwest Balkans](#). Pristina, Kosovo: CNVP.

³⁷ United States Agency for International Development (USAID) (2018). [Kosovo Biodiversity Analysis](#). Pristina, Kosovo: USAID.

³⁸ Assembly of the Republic of Kosovo and Government of the Republic of Kosovo (2017). *Kosovo National Water Strategy Document 2017-2036*. Pristina, Kosovo: Government of the Republic of Kosovo.

³⁹ United States Agency for International Development (USAID) (2018). [Kosovo Biodiversity Analysis](#). Pristina, Kosovo: USAID.

such as hydropower, while putting other services they provide, such as the tourism and agriculture sectors, at risk.

Kosovo has insufficient water resources, and in the future, this will be a limiting factor for the nation's economic and social development. It is estimated that Kosovo has only 1,600 m³ of water per year per capita. Groundwater reserves are limited and are found mainly in western Kosovo, where surface water reserves are higher than in the east.⁴⁰

Kosovo is one of the most water-stressed countries in SEE due to its specific natural features combined with human pressure: lack of investments in water infrastructure, inefficient water use, and water pollution from mining, untreated wastewaters, and agricultural runoff. The growing demand for water only amplifies the challenge. Modifications of streams and natural basin structure heighten the risk of droughts and floods, while the impacts of climate change increase the vulnerability of ecosystems and economy. The transboundary character of the four river basins further complicates water management.⁴¹

3.4.4 Agricultural land

Agriculture is an essential activity in Kosovo, and the potential for agricultural development is untapped. The contribution of agriculture (agriculture, forestry, and fisheries) to GDP decreased from 10.3% in 2015 to 7.2% in 2018, increasing to 7.7% in 2019, and remained steady in 2020 at 7.4%.⁴²

According to agriculture survey data,⁴³ the agricultural land area has not changed significantly since 2016, recorded at 420,141 ha in 2019. The largest area of utilised land is occupied by meadows and pastures (including common ground), which constitutes 51.9% of the total agricultural land use area, followed by the category of arable land, with a share of 44.8% or an area of 188,365 ha, including vegetable growing in open fields (first crop) and in greenhouses (first crop).

Though Kosovo has high-quality agricultural land, land fragmentation, old and insufficient agricultural equipment and machinery, poor rural infrastructure (i.e., irrigation systems, agricultural roads, etc.), expensive inputs, and difficult access to finance are resulting in lower

⁴⁰ Assembly of the Republic of Kosovo and Government of the Republic of Kosovo (2017). *Kosovo National Water Strategy Document 2017-2036*. Pristina, Kosovo: Government of the Republic of Kosovo.

⁴¹ Integrated Water Resources Management in Kosovo [website]. Available at <https://skat.ch/portfolio-item/integrated-water-resources-management-in-kosovo-iwrm-k-program-inception-phase/>. Accessed: 18 September 2022.

⁴² Ministry of Agriculture, Forestry and Rural Development (2021). *Strategy for Agriculture and Rural Development 2022-2028*. Pristina, Kosovo: Ministry of Agriculture, Forestry and Rural Development.

⁴³ Kosovo Agency of Statistics (2019). *Agriculture Holdings Survey*. Pristina, Kosovo: Agency of Statistics.

productivity per annual work unit in agriculture compared to EU and neighbouring countries. Dominated by small non-modernised farms and open competition from EU countries and the region, the low competitiveness of agriculture in Kosovo is directly reflected in an open trade balance, especially with EU countries.⁴⁴

3.5 Climate change context

The Western Balkans region is expected to face increased temperatures and changes in precipitation patterns, leading to extended periods of drought, increased soil erosion, forest fires and flood risk. Temperatures in mountain areas are expected to increase more than the world average, reducing snow cover days and increasing spring flooding. There is an increased risk of water shortages and competition among water users (agriculture, industry, tourism, households), especially during the summer. Energy demands will increase, for example for air conditioning or cooling, followed by related emissions (which in 2019 already accounted for about 86% of the total GHG emissions in Kosovo) and atmospheric pollutants (already high across the region). Related climatic impacts will severely affect land ecosystems and species distribution, terrestrial carbon cycle, food production systems, agriculture, infrastructure, and overall health and well-being – causing significant habitat, human and economic losses.⁴⁵

Kosovo has a predominantly continental climate, with warm summers and cold winters. In the southwest Dukagjini Plain, this transitions to a mild Mediterranean climate with more frost-free days and higher annual rainfall. The temperature ranges from a minimum of -27°C in winter to a maximum of 39°C in summer. Annual precipitation ranges from 600 mm in the eastern Kosovo Plain to 1300 mm in the western mountains. As historical climate data specific to Kosovo are limited, in part due to an interruption in hydro-meteorological measurements from 1989 to 2000, the trends and projections below are mostly for the Western Balkans region.⁴⁶

During the summer, extreme climate events have increased with more flooding and dry spells during critical growing periods. In the winter, the variability of snowfall affects groundwater accumulation and freezing conditions, affecting fruit budding, the prevalence of pests and diseases, and sufficient water supplies. Finally, inconsistent spring temperatures are shifting

⁴⁴ Ministry of Agriculture, Forestry and Rural Development (2021). *Strategy for Agriculture and Rural Development 2022-2028*. Pristina, Kosovo: Ministry of Agriculture, Forestry and Rural Development.

⁴⁵ United Nation Kosovo Team [website]. Available at <https://kosovoteam.un.org/en/149874-one-worlds-hotspots-how-young-climate-ambassador-fights-climate-change-western-balkans>. Accessed: January 2023.

⁴⁶ Climate links [website]. Available at <https://www.climatelinks.org/resources/climate-risk-profile-kosovo>. Accessed: 20 November 2022.

Kosovo’s crop harvest period. Changes in harvest timing reduce Kosovo’s competitive advantage in tightly integrated and highly competitive markets.⁴⁷

According to Kosovo’s Climate Risk Profile,⁴⁸ climate projections for the Western Balkans include regional warming higher than the world average, especially for mountain areas; a decrease in overall annual precipitation, with the greatest decreases in the summer; increases in winter precipitation, particularly in the mountains, resulting in more frequent spring flooding; and, in Kosovo, a decline of 50 days per year of snow cover by 2050 (Table 2). Climate changes compound the effects of poor water and air quality in Kosovo. In 2014, a mild winter and record dry February were followed by a record wet April; exceptionally heavy rainfall triggered flash flooding and caused serious damage to infrastructure, especially in northern Kosovo. Impacts to human health in Kosovo include heat wave-related mortality and spread of foodborne diseases. Typically, marginalised populations, including women, children, elderly, and ethnic minorities, are more vulnerable to climate impacts.

In Kosovo, CCA remains a challenge and country-specific studies of climate trends, projections and impacts are limited. Kosovo’s large service sector (67% of GDP) is less vulnerable to climate change, but agriculture (14%) and industry (19%) are important drivers of the economy and are vulnerable to water shortages, heat waves, drought and flooding. Accelerated construction since 1999, combined with poorly regulated land use planning and lack of adherence to building codes, has increased the exposure to hazards for the rapidly growing population. Mining of lignite (a low-energy, high-pollutant coal) and mineral deposits, insufficient wastewater treatment and lack of public environmental awareness contribute to serious air and water pollution and environmental degradation challenges that Kosovo is working to control, all of which will compound climate change impacts.⁴⁹

Table 2. Overview of the historical and future climate features (Source: USAID, see footnote 48)

Historical climate	Future climate
<p>Observations in the Western Balkans include:</p> <ul style="list-style-type: none"> • Rising temperature since 1960, with greatest warming in the summer; increased frequency and severity of heat waves. • Changes in precipitation since 1960 are not as clear, but reflect an overall decrease. 	<p>For the Western Balkans, projections include:</p> <ul style="list-style-type: none"> • Regional warming higher than the world average, especially for mountain areas. • Decrease in overall annual precipitation, with greatest decreases in summer.

⁴⁷ CSR Wire [website]. Available at https://www.csrwire.com/press_releases/709191-innovation-and-climate-risk-mitigation-protect-kosovos-agricultural-sector. Accessed: January 2023.

⁴⁸ Climate links [website]. Available at <https://www.climatelinks.org/resources/climate-risk-profile-kosovo>. Accessed: 20 November 2022.

⁴⁹ Climate links [website]. Available at <https://www.climatelinks.org/resources/climate-risk-profile-kosovo>. Accessed: 20 November 2022.

<ul style="list-style-type: none"> • Since the 1980s, increased intensity and frequency of precipitation extremes; e.g., heavy rain events and droughts (including droughts in Kosovo in 1993, 2000, 2007, 2008 and 2013). • Increase in the number of forest fires since 2000 in Kosovo. 	<ul style="list-style-type: none"> • Increases in winter precipitation, particularly in mountains, resulting in more frequent spring flooding. • In Kosovo, a decline of 50 days per year of snow cover by 2050.
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Kosovo, due to its status at the UN, is not a direct signatory of conventions, protocols and other international environmental agreements, and as a consequence, the Government of Kosovo is unable to cooperate as an equal partner at the multilateral level. Although Kosovo has not participated in or signed the United Nations Framework Convention on Climate Change (UNFCCC), it has the responsibility to respond to the requirements as a signatory of the Energy Community Treaty, which also sets clear reduction targets for energy use while demanding an increase in the share of renewable energies.⁵⁰

Kosovo currently has no register of GHG sources and emissions, and it has not identified the baseline year for the estimation of GHG emissions. The GHG Inventories for 2008–2013 are one of the first initiatives in Kosovo contributing to global efforts to minimise the human impact on climate change.⁵¹ This was followed by GHG Inventories for 2014–2019. The reports are published on the KEPA website, as the institution responsible for collecting data and reporting to the European Environment Agency.

Since Kosovo is not a signatory of the UNFCCC, there is currently no legal basis for drafting Nationally Determined Contributions (NDC). No targets are set for 2030 and no regular reporting is undertaken.⁵²

Kosovo has adopted its Climate Change Strategy and Action Plan 2019–2028; however, implementation is weak. Based on the EU Progress Report for 2022,⁵³ “the strategic and legislative framework needs to be adapted to the EU strategic goals stemming from the Green Agenda for the Western Balkans. Administrative capacity and awareness raising needs to be considerably enhanced. Kosovo is not a UN member, and de facto not a signatory to the UN Framework Convention on Climate Change and therefore does not have a NDC under the 2015 Paris Agreement. However, full implementation of its climate change strategy should serve as a guide to achieve the objectives of the Agreement”.

⁵⁰ Ministry of Environment and Spatial Planning (2018). [Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021](#). Pristina, Kosovo: Ministry of Environment and Spatial Planning.

⁵¹ Ibid.

⁵² Energy Community [website]. Available at <https://www.energy-community.org/implementation/Kosovo/CLIM.html>. Accessed: January 2023.

⁵³ European Commission (2022). [Kosovo 2022 Report](#). Brussels, Belgium: European Commission.

3.6 Disaster risk context

Kosovo's population of 1.9 million is exposed to hydrometeorological and geological hazards: floods, heavy snowfall, drought, forest fires, and earthquakes.

Natural disasters in Kosovo pose a great risk for the life, prosperity, environment and cultural heritage of its citizens. In fact, the whole process of economic and social development of the country is vulnerable to natural disaster risks, often costing the economy millions of euro, and especially affecting the community in need. As a new country, Kosovo has not yet built full capacities for natural DRR at all stages of emergency management.⁵⁴

The wide variety of natural hazards affecting Kosovo mentioned above could pose serious damages to the economy, fiscal balances, and well-being of vulnerable populations. Many of these climate-related hazards are expected to magnify with future climate change. These climate and disaster risks can seriously affect productive sectors of the economy, such as agriculture, infrastructure, energy, water resources, and communities and households.⁵⁵

The recent database with historical data developed in 2015, entitled "DesInventar Kosova"⁵⁶ outlines the main natural and other disaster risks in Kosovo. According to the DesInventar findings, approximately 14,400 persons are affected by disaster each year, including 1–2 fatalities, whereas economic damages reach EUR 8.5 million with 1,228 houses and 1,261 hectares of land struck by disasters. The most frequent natural disasters are forest fires (74%), mainly in Pristina, Kamenica and Deçan; flooding (82%), mainly in Ferizaj, Rahovec and Skënderaj; and meteorological events (39%), specifically in Podujeva, Ferizaj and Gjakova.

Natural disasters are phenomena that affect security and the lawful state. Considering the low level of socioeconomic development, and the increasing environmental problems, natural risk disaster in Kosovo is considered to significantly impact socioeconomic development. The effort to reduce natural disaster risks in Kosovo, as elsewhere globally, is a problem that has deteriorated in the last 15 years of transition, due to climate change, national industrialisation,

⁵⁴ Ministry of Internal Affairs, Emergency Management Agency (2015). *Disaster Risk Reduction Strategy and Action Plan 2016 – 2020*. Pristina, Kosovo: Ministry of Internal Affairs.

⁵⁵ Climate Change Knowledge Portal [website]. Available at <https://climateknowledgeportal.worldbank.org/>. Accessed: May 2022.

⁵⁶ UNDRR [website]. Available at <https://www.desinventar.net/>. Accessed: October 2022.

war damages, informal settlements, lack of plans, and non-implementation of environmental protection measures, forestry and riverbed degradation, and waste disposal.⁵⁷

The 2018 World Bank analysis of Kosovo's water security noted extreme water scarcity alongside one of the lowest levels of water resource development and storage. It is predicted that in the next 20 years, all of Kosovo's water basins will be water stressed. This ultimately makes Kosovo extremely vulnerable to climate shock.⁵⁸ Due mostly to pressures associated with human activities and the exacerbating impact of climate change, Kosovo's water ecosystems are in ill health, with all major river basins moderately or heavily polluted. The degradation of ecosystems has already significantly contributed to water shortages in Kosovo and this is expected to worsen in the coming years.

The EU Progress Report 2022 for Kosovo⁵⁹ noted that Kosovo is not part of the Union Civil Protection Mechanism, though it is encouraged to participate more actively in activities under the mechanism, such as trainings, exchange of experts, prevention and preparedness projects, exercises, peer reviews and advisory missions. In improving its disaster management capacities, Kosovo should develop legislation, governance and financial frameworks related to preparedness, develop comprehensive investment plans for preparedness and response, improve coordination among responsible authorities in case of largescale disasters, and strengthen governance and procedures related to developing the national risk assessment.

3.6.1 Floods

Flash floods are common in mountainous areas, sometimes leading to mudslides. Kosovo is also exposed to landslides, particularly in Mitrovicë/Mitrovica, Prishtinë/Pristina, Peja/Pec, and Shtërpcë/Strpce. At least one quarter of communities are vulnerable to landslides and rockslides. Other hazards that threaten Kosovo are riverine floods (in plains) and cloudbursts (in Prishtinë/Pristine, Mitrovicë/Mitrovica, Besianë/ Podujevo, and Gjakovë, due to the structural vulnerability of dams in these areas). In some highly exposed river basins (such as the Drini River basin in the west), floods occur every two to three years. Between November 2007 and June 2008, three floods displaced 3,500 people, causing damage to homes and

⁵⁷ Ministry of Internal Affairs, Emergency Management Agency (2015). [Disaster Risk Reduction Strategy and Action Plan 2016 – 2020](#). Pristina, Kosovo: Ministry of Internal Affairs.

⁵⁸ Miftari, I. (2017). [Efficiency analysis of alternative production systems in Kosovo - an ecosystem services approach](#). Giessen, Germany: Justus-Liebig-University Giessen.

⁵⁹ European Commission (2022). [Kosovo 2022 Report](#). Brussels, Belgium: European Commission.

agricultural land, and necessitated humanitarian assistance from the international community.⁶⁰

According to the Water Management Strategy of Kosovo,⁶¹ “the length of rivers threatened by flooding in Kosovo is about 491 km. Approximately 140 km has been regulated (28%).” The Strategy prescribes a number of measures and lays down the objective of flood control in Kosovo, including flood warning, flood prevention, flood mitigation and emergency relief. The Ministry of Environment, Spatial Planning and Infrastructure (MESPI) is the competent national authority for water resource management in Kosovo, and is also responsible for water resource management and planning at the river basin district level.

For flash floods and flooding, an increasing trend has been observed at the annual level, with nearly 90% of all 264 occurrences occurring from 2000–2014. Overall, the number of occurrences is increasing, reaching a maximum (68 events) in 2006. In the last 15 years, flooding has affected the country each year, with approximately 18 events per year. Most water storage in Kosovo is in the form of snow cap. With the changing climate, this will decline and melt earlier in the year, creating not only flooding, but also changing the hydrography of rivers and reducing water availability in the dry season. Coupled with ongoing deforestation and land degradation, this increases the risks of flash flooding and water scarcity in summer.⁶²

In monetary terms, data from past disasters reflect an increasing trend of economic losses since 2000. This is demonstrated in the following graph on floods for the period 2000–2014 (Figure 4).⁶³

⁶⁰ International Bank for Reconstruction and Development / The World Bank (2021). [Diagnostic Report: Emergency Preparedness and Response Assessment: Kosovo](#). Washington DC, USA: The World Bank.

⁶¹ Assembly of the Republic of Kosovo and Government of the Republic of Kosovo (2017). *Kosovo National Water Strategy Document 2017-2036*. Pristina, Kosovo: Assembly of the Republic of Kosovo and Government of the Republic of Kosovo.

⁶² Ministry of Internal Affairs, Emergency Management Agency (2015). [Disaster Risk Reduction Strategy and Action Plan 2016 – 2020](#). Pristina, Kosovo: Ministry of Internal Affairs.

⁶³ Ibid.

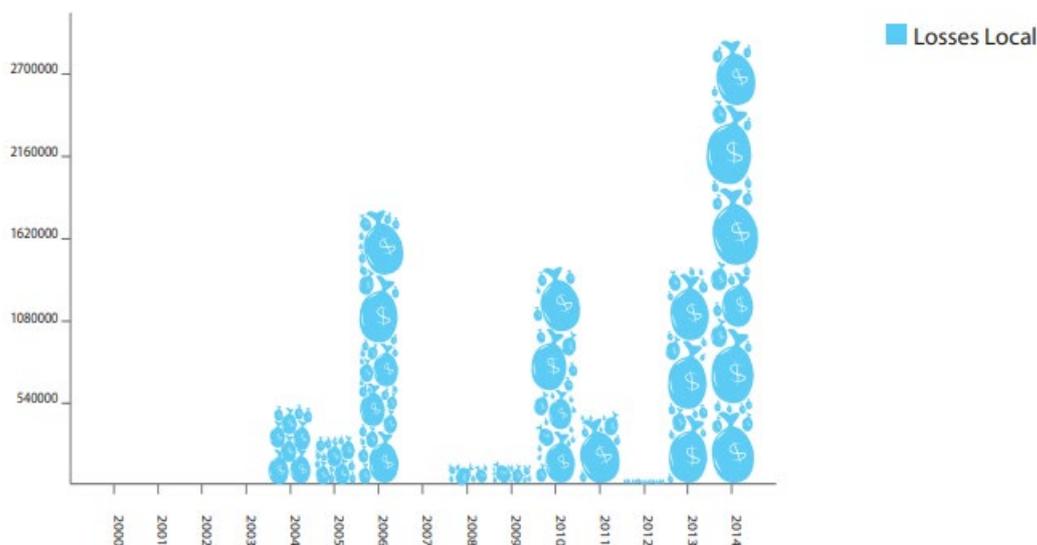


Figure 4. Economic losses (in EUR) from floods in the period 2000–2014 (Source: [DesInventar](#))

3.6.2 Droughts, forest fires and extreme temperatures

A full and detailed drought risk appraisal for Kosovo has not yet been completed, although a number of papers have been published. According to data from the National Water Management Strategy,⁶⁴ the first draft is underway as part of the River Basin Characterisation process.

Kosovo has faced drought several times in the last two decades (in 1993, 2000, 2007, and 2008). In 2000, moderate to severe droughts affected most of the national territory. Since 2004, 80% of Kosovo municipalities have at one time or another suffered from water shortages because of inefficient water management systems.⁶⁵

In addition to firewood, Kosovo's forests also provide erosion control. Much of the country's terrain is steep and prone to erosion, landslides, rock falls, and avalanches. However, historically poor management and conservation of forests, especially on steep slopes, caused an avalanche in Dragash/Dragaš (Sharr), in the village of Restelica/Restelicska, and a landslide on the national road from Kaqanik/Kaçanik to Skopje was the result of a quarry located on a steep and previously forested mountainside. Other similar incidents can be traced to the destruction of forests, especially on steep slopes. Both national parks contain large areas of high mountain pastures, the only available summer pasture for sheep herding. In Sharri/Šar National Park, grazing areas have been mapped and sheep herders pay a fee for

⁶⁴ Assembly of the Republic of Kosovo, Government of the Republic of Kosovo (2017). *Kosovo National Water Strategy Document 2017 – 2036*. Pristina, Kosovo: Government of the Republic of Kosovo.

⁶⁵ International Bank for Reconstruction and Development / The World Bank (2021). *Diagnostic Report: Emergency Preparedness and Response Assessment: Kosovo*. Washington DC, USA: The World Bank.

use of the summer pasture. No fee collection for pasture use occurs or is planned in Bjeshkët e Nemuna/Prokletije National Park.⁶⁶

Forests cover 44.7% of the territory of Kosovo and are especially prone to fires during the dry summer season (Figure 5). Since 2000, the number of forest fires has increased; fire brigades and other relevant operational teams perform 2,000 to 3,000 interventions per year. It is anticipated that exposure to hazards such as drought, floods, and wildfires will increase with climate change and the increasing frequency of extreme climate events.⁶⁷

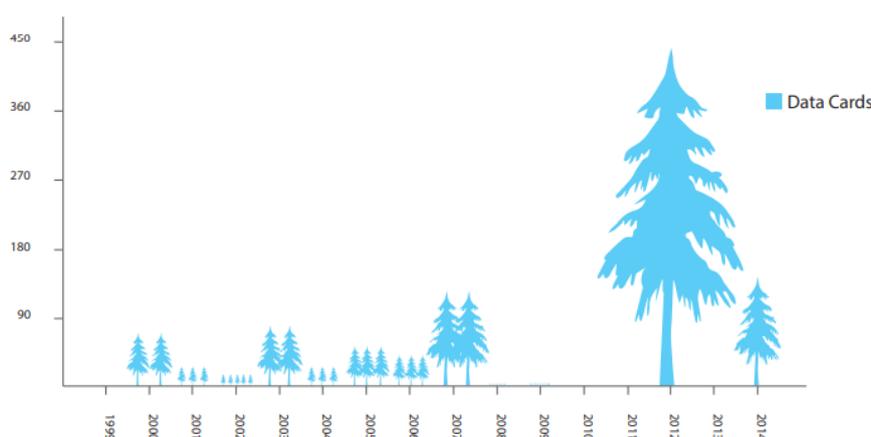


Figure 5. Time trends of forest fires in 1999–2014 (Source: [DesInventar](#))

3.7 Nature protection and ecosystem services

Despite its small territory, Kosovo is rich in natural values. Conservation of natural areas in Kosovo through the network of PAs was initially regulated in the late 1950s with the designation of the first nature reserves: Kozhnjeri (1955), Rusenica (1955), Gubavci (1959), and others. More developments in this respect were made in the late 1980s, when after complete scientific assessment of feasibility of the biodiversity and other natural values, the Law on the Sharr Mountains National Park was adopted in 1986. In 1988, the Law for the Preservation of Natural and Manmade Environments in Kosovo was passed. However, major developments occurred in the post-war period (after 1999), and particularly after 2003, when the first institutions of self-government were established and the Law on Environmental Protection and other relevant legislation were adopted.⁶⁸

⁶⁶ World Bank (2018). [Kosovo Water Security Outlook](#). Washington DC, USA: The World Bank.

⁶⁷ International Bank for Reconstruction and Development / The World Bank (2021). [Diagnostic Report: Emergency Preparedness and Response Assessment: Kosovo](#). Washington DC, USA: The World Bank.

⁶⁸ Veselaj, Z., and Mustafa, B. (2015). Overview of Nature Protection Progress in Kosovo. *Landscape Online*, 45, 1-10. <https://doi.org/10.3097/LO.201545>

There are significant trends for biodiversity loss, especially in the transition period from a centralised to a more market-oriented economy. Excessive and uncontrolled logging, the opening of many quarries, change of river flows for hydropower, and excessive hunting and fishing have all had an irreversible impact. According to research, Kosovo has about 1,800 species of flora, while more recent data shows there could be as many as 2,500 species. What makes Kosovo flora and fauna important and attractive is the large number (over 200) of endemic, endemic-relict and sub-endemic species. Especially important is a local endemic group of 13 plant species found only on the mountains. There are also about 250 species of wild vertebrates. Although data is sparse for invertebrate species, about 200 species of butterflies and 500 species of macrozoobenthos have been recorded. The richest areas with fauna are in Sharri/Šar and Bjeshkët e Nemuna/Prokletije National Parks, where it is estimated that there are 8 species of fishes, 13 species of amphibians, 12 species of reptiles, 180 species of birds, 37 species of mammals, and 147 species of butterflies and moths. To date, inventories have been compiled only for the preparation of the Red Book of Vascular Flora and the Red Book of Rare and Threatened Species, but not for biodiversity in general. The legal mechanisms do not protect biodiversity, resulting in the uncontrolled loss of several important species. In some cases, rare and exotic plants vital for medicinal research are unprotected. This loss in biodiversity is also exacerbated by the steady decline and destruction of the forested areas.⁶⁹

Kosovo's protected area (PA) system consists of 172 designated sites. From 46,397 hectares in 2003, the PA territory increased to 118,913 hectares in 2013, and further to 137,332 hectares in 2016, or 11.7% of the national territory. Kosovo's total forest area under protection is 59,600 hectares or 12% of the total forest area of the country. More than 90% of Kosovo's PA territory lies within the country's two national parks, Sharri/Šar and Bjeshkët e Nemuna/Prokletije. The two national parks also contain Kosovo's most important biodiversity and biodiverse ecosystems. Broadleaf and conifer forests, pastures, meadows, and freshwater ecosystems dominate the national parks. Both national parks are located on the country's borders: Sharri/Šar on the border with North Macedonia and Albania, and Bjeshkët e Nemuna/Prokletije on the border with Montenegro and Albania. Although very little has been done to date, there are substantial opportunities for cross-border cooperation.⁷⁰

Although the number and surface area of PAs have been increased by legislative developments, progress in establishing management bodies for the main PAs is moving very

⁶⁹ Ministry of Environment and Spatial Planning (2011). *Kosovo Environmental Strategy and National Environmental Action Plan*. Pristina, Kosovo: Ministry of Environment and Spatial Planning.

⁷⁰ United States Agency for International Development (USAID) (2018). [Kosovo Biodiversity Analysis](#). Pristina, Kosovo: USAID.

slowly, and this is reflected in the poor management and protection. National parks are run by respective directorates, under the jurisdiction of the MESPI. There is a lack of management institutions for PAs and only four of the designated PAs currently have established their own management institutions: two national parks, the Gërmia protected landscape (municipal level) and Gadime Marble Cave. However, all lack human capacities and financial resources. Within the KEPA organogram, there is a Directorate for Nature Monuments of Special Importance, though it is limited in staff and not fully functional, administrating only the Gadime Marble Cave for now.

A change of the situation on the ground, compared with legislative progress, is very slow. In this respect, there are limited developments especially in the protection of rare and endangered species living in Kosovo, which in many cases have been brought to the brink of extinction, as is the case with the lynx (*Lynx lynx*) and golden eagle (*Aquila chrysaetos*).⁷¹

While significant progress has been achieved in conservation within PAs, stagnation is seen in the conservation of rare and threatened species of flora and fauna. Although envisaged by legislation, the Red List of Kosovo of rare and threatened species has not yet been adopted. The *Red Book of Vascular Flora of the Republic of Kosovo* was published in December 2013 and the *Red Book of Fauna of the Republic of Kosovo* was published in November 2019. The Ministry for Environmental Protection adopted the “Administrative Instruction MEE - No. 12/2020 for proclamation of wild species protected and strictly protected” on 15 December 2020. However, the document does not mention the lists of all threatened species of flora and fauna specific for Kosovo.

Ecosystem Services and mechanisms of Payment for Ecosystem Services (PES) have been recognised as mechanisms for strengthening governance in the natural resources sector in Kosovo. Based on an analysis by United States Agency for International Development (USAID),⁷² a PES pilot could focus on drinking water provision (the national parks provide the service of filtering and retaining water) or on facilities located in national parks that benefit from their national park location (a fee could be applied to the facilities). Income generated from the PES pilot would be channelled towards PA management, benefiting drinking water enterprises and/or facilities located in the national park, as well as biodiversity conservation.

⁷¹ Veselaj, Z., and Mustafa, B. (2015). Overview of Nature Protection Progress in Kosovo. *Landscape Online*, 45, 1-10. <https://doi.org/10.3097/LO.201545>

⁷² Veselaj, Z., & Mustafa, B. (2015). Overview of Nature Protection Progress in Kosovo. *Landscape Online*, 45, 1-10. <https://doi.org/10.3097/LO.201545>

This should be accompanied by an awareness raising campaign about the ecosystem services that a well-managed national park provides.

Nature in Kosovo provides key ecosystem services, including those identified in the Kosovo Climate and Environment Analysis funded by the Swedish International Development Cooperation Agency (Sida) in 2008: the provision of food, water, fuel and energy, timber and non-timber forest products, run regulation, and recreational benefits.⁷³

A systematic analysis of ecosystems, their services and the pressures threatening them is still pending in Kosovo, although some sector specific efforts have been made. Analyses of ecosystem services were completed for agriculture in 2017⁷⁴ and multiple times for forests (although the emphasis was predominantly on economic services). Even then there are gaps; for example, the 2017 agriculture analysis noted there was a lack of studies on farm efficiency estimations and productivity changes. Plans are in place to apply an ecosystem services assessment and valuation specific to establishing and managing PAs as part of a regional process in the Western Balkans via the Biodiversity Task Force (a regional technical and advisory body working under the RCC).⁷⁵

In terms of pressures on these ecosystems, the 2018 USAID study identified the main threats, drivers and recommendations to Kosovo's biodiversity (Annex II).⁷⁶ There was no mention of disasters or natural hazards as a threat or driver regarding biodiversity, and although the recommendations may be complementary to building resilience, an overall link to DRR is lacking. Climate change impacts were identified as a main threat but not mentioned as a driver or linked to recommendations. Meanwhile, an earlier USAID study in 2017⁷⁷ made the further link that climate change was not just a threat, but that the other threats and drivers to biodiversity degradation would further compound climate change impacts.

In the past, these threats have been noted as resulting in land degradation and a loss of ecosystem services. For example, soil quality has been degraded due to open coal pits, disposal sites for soot, widespread dumping of household waste, heavy metal runoffs,

⁷³ School of Business, Economics and Law (University of Gothenburg) (2008). [Kosovo Environment and Climate Analysis](#). Gothenburg, Sweden: University of Gothenburg.

⁷⁴ Miftari, I. (2017). [Efficiency analysis of alternative production systems in Kosovo - an ecosystem services approach](#). Giessen, Germany: Justus-Liebig-University Giessen.

⁷⁵ Balkan Green Energy News [website]. Available at <https://balkangreenenergynews.com/western-balkans-countries-to-get-joint-guideline-on-ecosystem-services-assessment-and-valuation/>. Accessed: 2021.

⁷⁶ United States Agency for International Development (USAID) (2018). [Kosovo Biodiversity Analysis](#). Pristina, Kosovo: USAID.

⁷⁷ Climate links [website]. Available at <https://www.climatelinks.org/resources/climate-risk-profile-kosovo>. Accessed: 20 November 2022.

agricultural runoffs, new construction, sand extraction and other human factors.⁷⁸ Forests, on the other hand, face additional threats such as inadequate management and illegal logging (mostly due to the requirements for fuel). In 2008, only a third of Kosovo's forests were deemed ecologically healthy and economically productive.

According to the Kosovo EU Progress Report for 2022,⁷⁹ no progress has been made in the area of nature protection. The Strategy for Environment and Sustainable Development 2022–2031 is yet to be adopted. Detailed regulatory plans for the two national parks have been re-drafted into partial plans covering smaller areas. The 2016–2020 Action Plan for Biodiversity is still partially implemented, the designated areas continue to be polluted and poorly maintained and illegal activities such as construction, hunting and logging are not addressed. Effective measures remain necessary to ensure protection of critically endangered species. Even if Kosovo has taken steps to start inventories of natural habitats and species, the designation of potential NATURA 2000 sites is still at a very early stage. Kosovo made some progress on forestry, mainly in planning and management, through the adoption of relevant secondary legislation. The forest strategy and a forestry law are yet to be adopted. The Action Plan to Combat Illegal Logging was adopted in December 2021, though deforestation and illegal logging remain matters of serious concern.

⁷⁸ School of Business, Economics and Law (University of Gothenburg) (2008). [Kosovo Environment and Climate Analysis](#). Gothenburg, Sweden: University of Gothenburg.

⁷⁹ European Commission (2022). [Kosovo 2022 Report](#). Brussels, Belgium: European Commission.

4. Stakeholder roles and responsibilities

NbS could be applied among various sectors, penetrating into many fields of actions, including water management, nature protection and biodiversity, forestry, urban development, spatial planning, infrastructure, agriculture, etc. This should be considered in conducting both mapping and analysing the roles and impact of the various stakeholders in relation to NbS implementation.

In Kosovo, the formal competencies for policy development and implementation are held by various institutions (government bodies, municipal authorities or public agencies) responsible for implementing, in whole or in part, some of the important policies closely related to environment, climate change, nature protection, DRR and CCA. Therefore, the plethora of stakeholder groups and/or various actors could potentially influence and/or contribute to policy making, promotion, knowledge building and application of NbS in Kosovo.

At the national level, responsibilities for different aspects of climate change, DRR and biodiversity are split among ministries, national platforms, and local government. The MESPI and its agencies (Hydrometeorology Institute, KEPA, River Basin Regional Authority, etc.) could arguably have the most linkages to these topics, while other institutions with key roles include:

- ✓ Ministry of Economic Development
- ✓ Ministry of Agriculture, Forestry and Rural Development
- ✓ Ministry of Trade and Industry
- ✓ Ministry for European Integration
- ✓ Ministry of Local Government Administration
- ✓ Emergency Management Agency
- ✓ Office of the Prime Minister
- ✓ Ministry of Defence – Kosovo Security Forces
- ✓ Association of Regional Development Agencies⁸⁰
- ✓ Red Cross of Kosova (RCK)
- ✓ United Nations and international organisations active in Kosovo (UNDP, UN Habitat, SIDA, SDC, etc.)
- ✓ Kosovo Business Alliance
- ✓ Association of Kosovo Municipalities
- ✓ cities and municipalities

⁸⁰ An independent, non-governmental organisation established in January 2013 by the five Regional Development Agencies (North, East, West, South and Centre) in Kosovo.

The Ministry of Environment, Spatial Planning and Infrastructure is the key governmental body responsible for environmental protection including development and monitoring of the implementation of policies and programmes concerning the identification and reduction of environmental pollution and climate change; development of strategic documents; coordination of activities aiming to promote environmental policy and climate change, development policies, implement legislation and monitor activities for the protection of the environment and climate change, including water resources, air, soil and biodiversity. MESPI is also entrusted with developing policies for the management of water resources and monitoring their implementation. Two bodies operate under the MESPI:

- ✓ KEPA, responsible for development and coordination of an environmental protection information system related to monitoring the state of the environment in Kosovo, and collecting environmental data and preparing the GHG inventory;
- ✓ Kosovo Hydrometeorological Institute, responsible for constructing and maintaining the network of hydrological and meteorological stations, taking measurements and observations of elements and phenomena, such as hydrological, meteorological, biometeorological and hydrometeorological measurements and observations of atmospheric electricity and air pollution, water pollution and precipitation. The Institute systematically monitors and assesses the state of air quality, atmospheric precipitation, surface and ground water and soil, and studies and forecasts meteorological conditions.

MESPI is the main governmental institution responsible for nature conservation, and along with KEPA and its Kosovo Institute for Nature Protection, is responsible for establishing and maintaining the Nature Conservation Information System and the Environmental Information System.

While responsibilities and expertise appear to be scattered across ministries, many of these come together in the form of national platforms such as the **National Committee for Climate Change**. The key responsibilities of this body includes coordination of all activities deriving from the UNFCCC and Kyoto Protocol, assuring that projects having an impact on climate change are implemented in accordance with the national legislation and international agreements, drafting required documents for participation in and membership to international conventions, protocols and membership related to climate change, and establishing and preparing the National Communication for the UNFCCC Secretariat after ratification of the Kyoto Protocol.

Besides MESPI, there are several key responsible institutions for DRR that aim to develop integrating policies of different sectors to create the conditions for the protection of health and environment from natural disasters and other disasters in the areas of radioactive radiation, construction, pollution of air, water and land, measuring atmospheric precipitation, surface and underground waters, alerting of elementary hydrometeorology disasters, etc. as well as providing scientific and professional support for the national environmental policies. Some of these institutions are:

- ✓ Ministry of Internal Affairs, responsible for increasing the security level and protection of citizens of the Republic of Kosovo, with special attention to emergency management of natural and other disasters;
- ✓ Kosovo Security Force, responsible for the whole cycle of emergency management, though the primary goal of this entity is determined at the preparedness and response stage, to execute operational actions in cases of natural and other disasters in Kosovo and abroad, such as: civil protection operations within Kosovo, supporting civil authorities in reacting to natural and other disasters. The Security Force has an important role in search and rescue operations, elimination of explosives, control and clearance of hazardous subjects and other tasks related to humanitarian assistance.
- ✓ Ministry of Infrastructure, responsible for providing of technical, professional, development and organisational solutions for the maintenance, construction, reconstruction and security of railways, highways, national and regional roads, and air traffic. In order to reduce the risk of natural and other disasters, it collects data on traffic and security, advises and notifies the institutions and citizens on the situation of the network of roads, railways and air traffic, and regarding factors that could have an impact in the communication network.
- ✓ MAFRD – The measures to be taken by MAFRD to achieve DRR objectives are found in the policy to assist in administration and management of the forestry sector, including protection, reforestation activities, self-containment, prevention and protection from fire, pest and disease control, tree harvesting licensing, control of hunting and fishing; provision of veterinary services, including the prevention of animal diseases, zoo zones, and improvement of the quality of bird flocks.

Within MAFRD, the **Water Department** is accountable for analysis and strategic planning on the use, exploitation and protection of waters, the use and protection of water from negative impacts and pollution, control of water quality, water regulation and water flows, protection from erosion and stream regulation.

Municipalities have a range of competencies in relation to DRR, water management, air pollution and other environmental issues. They adopt Environmental Local Action Plans (ELAP) and environmental protection programmes, in accordance with the Environmental Protection Strategy and Kosovo Environmental Action Plan and their specific interests. In drafting the ELAP and programmes they are encouraged to actively involve the public, non-governmental organisations (NGOs), professional organisations and the business community.

Non-governmental and volunteer organisations support state institutions by providing assistance through awareness campaigns on climate, environment and DRR. Volunteer organisations provide their capacities by significantly helping to manage incidents at all levels.

The RCK is the only national association that operates pursuant to the Law on the Red Cross of Kosova, assisting local authorities on humanitarian issues throughout the country. It works with central, regional and local governmental entities and other NGOs to raise awareness of DRR among the population and government institutions, and coordinates integration of needs for humanitarian assistance in emergency cases.

4.1 Stakeholder analysis

The purpose of the stakeholder analysis is to provide insight into the importance and influence, interests, and potential roles of various stakeholder groups in relation to NbS for CCA and DRR. The analysis strives to reveal relations among stakeholder groups at the national and local levels, and how they may benefit or influence the application and implementation of NbS in Kosovo.

According to the EU Progress Report 2022 for Kosovo,⁸¹ improved coordination is needed between the central and local levels. No progress has been made regarding the disaster risk needs assessment, the development of a recovery strategy, and the preparation of disaster response plans.

In water resource management, agencies lack the infrastructure and information to carry out these functions, and capacity generally remains a constraint across all levels in the water sector. Compared to neighbouring countries, it is still lacking in basic infrastructure and administrative and technical skills. The country has a well-functioning **Inter-Ministerial Water Council** for intersectoral coordination, yet at the local implementation level, the integration of

⁸¹ European Commission (2022). [Kosovo 2022 Report](#). Brussels, Belgium: European Commission.

objectives in multipurpose planning, infrastructure and land and water use planning is limited, as only one river basin has a river basin management plan under preparation and the water information system is currently being developed.⁸²

MESPI with the support of the Swedish Embassy in Kosovo through Sida, together with the Regional River Basins Authority (RRBA), and KEPA has recently finalised the Kosovo Environmental Programme (KEP, components 3,4 and 7). Within these components, the White Drini River Basin Management Plan has been drafted.⁸³

Besides the inter-ministerial water council established and supported through Sida, the Swiss Agency for Development and Cooperation (SDC) is working on other river basins and national platforms. Together with MESPI, the River Basin District Authority is setting up the coordination of the RRBA's, with SDC support.

In relation to NbS policy mainstreaming and implementation, stakeholders can be divided into three main groups (based on their interest and influence on NbS and accompanying relevant policies in the field of climate, environment, energy, nature protection and DRR).

Group I – Significantly important

Governmental institutions, i.e., the line ministries and state bodies (primarily KEPA), responsible for issues related to climate, environment, water management, forestry, agriculture, DRR, biodiversity, and nature, and having a strong influence in policy development and law enforcement related to NbS, and a strong interest in implementation of the NbS approach in Kosovo.

Considering its competencies concerning emergency situations, the Ministry of Interior should also be included in this group.

Non-permanent governmental bodies such as the National Committee for Climate Change and the Inter-Ministerial Water Council might be also included in this group, since they could play a significant role and influence advocating for NbS policy mainstreaming.

Group II – Important

⁸² World Bank (2018). [Kosovo Water Security Outlook](#). Washington DC, USA: The World Bank.

⁸³ At the time of drafting of this Scoping Study (January 2023), the White Drini River Basin Management Plan was under approval procedures within the Government of Republic of Kosovo.

These players include government institutions such as ministries that are not directly responsible for NbS issues, but have an influence on its implementation, such as ministries responsible for local self-government, finance, education, and more importantly public utility and other public enterprises entrusted with the management of national parks, water, forest resources or coastal management.

All local government bodies with their internal structures should be included in this group, given their responsibilities for implementation of NbS measures and approach in their communities. Institutions in this group have a significant influence in this topic; however, this might be because their interest in the topic is not at a very high level.

Group III – other

All other institutions, organisations, individuals or groups with a strong interest in the topic, but with low or very low influence could be included here. These include NGOs, youth and women's organisations, academic and scientific (research) institutions, consultants, etc.

Considering the presence and (still) large influence of international and UN organisations in Kosovo, and their significant role in driving and facilitating reform processes and enforcement on international treaties, these might be included in the second group.

5. Policy and strategic framework for NbS

NbS are (still) perceived as a new and multisectoral approach, therefore a range of international and regional frameworks and conventions could influence and/or provide provisions for NbS globally and guide national actions. NbS can be applied through a variety of different measures, approaches and intervention within existing climate, environmental, nature protection or DRR policies, programmes or measures without being formally recognised as NbS. Therefore, in order to understand the scope and possible impact of the application of NbS, it is necessary to identify gaps in the current policy and strategic frameworks, and thus provide entry points for upscaling NbS within the Kosovo national policy and strategic frameworks.

A comprehensive overview of the policy framework in Kosovo is presented below, and in addition to climate and DRR, also encompasses forestry, water management, biodiversity and other relevant policies. The analysis helps identify opportunities for mainstreaming NbS into policies, including strategies, plans and programmes, as a first step towards greater NbS application in Kosovo.

5.1 Global level

NbS can be linked to a combination of global and regional frameworks and conventions that guide national actions. Recent years have particularly seen the adoption of major global agreements and establishment of mechanisms that significantly recognise the importance of ecosystems in the overall DRR framework and provide entry points to mainstream and upscale these approaches. The most relevant global and regional frameworks are provided in Annex III.

In the light of the last years and its “unclear political status”, Kosovo has not ratified any multi-lateral conventions, protocols or agreements related to the environment including climate change, and there is no information available on Kosovo’s future plans to sign/ratify international conventions. Were Kosovo a signatory of the UNFCCC, it would be expected to monitor and report to the UNFCCC on climate change related issues, including information on both mitigation and adaptation through the submission of a national communication. The initial communication is submitted within three years of the entry into force of the Convention for that party. National communications usually contain information on national circumstances, a vulnerability assessment, financial resources and transfer of technology, and education, training and public awareness. Kosovo, mentioned above, is presently building up its institutions and adapting the national legislation towards EU requirements. There is some

progress related to the legal environmental framework; however, implementation and enforcement are still very weak. Donor financed projects are followed-up by donors and national ownership is not always present.⁸⁴

Due to its status, Kosovo is not a signatory party to the UNFCCC or Paris Agreement and does not have NDCs.

5.2 National level

The last decade demonstrated an impressive development of the legal framework, strategies, action plans and policies in the fields of water, environment, energy, climate adaptation, and agriculture in Kosovo. Important achievements have been made in terms of actual performance in sub-sectors. Especially in the water and sanitation services sector, Kosovo has made impressive progress and achieved a decent regulatory framework through a long-term dedicated reform agenda, capacitated regional water management companies with sound governance structures, national monitoring systems available to the public, and the country has achieved much higher levels of coverage in rural areas as compared to other countries in the region, such as Albania or Romania.⁸⁵

In Kosovo, the following policy gaps can be identified. First, in the water sector, a gap exists in terms of linking water sector policy to adaptation planning. Adaptation planning explicitly acknowledges the role of NbS in, for example, reducing flood risk or other climate-related hazards. Second, the Forest Sector Strategy does not link improved forestry practices to CCA or DRR, and instead focuses on economic development opportunities presented by sustainable forestry (design at scale). While biodiversity is well integrated within the Forest Sector Strategy, with PA planning and management planning having a prominent role, these measures neither account for climate change nor are they seen as contributing to CCA.⁸⁶

5.2.1 Climate change

According to the regional policy analysis performed within the ADAPT Project,⁸⁷ Kosovo proposes almost no explicit NbS measures in its policies. Despite this, Kosovo shows good progress in recognising the role of nature or ecosystems in broader development and CCA and DRR.

⁸⁴ School of Business, Economics and Law (University of Gothenburg) (2008). [Kosovo Environment and Climate Analysis](#). Gothenburg, Sweden: University of Gothenburg.

⁸⁵ World Bank (2018). [Kosovo Water Security Outlook](#). Washington, DC, USA: The World Bank.

⁸⁶ Bisaro, A. & Meyer, K. (2022). [Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction](#). Gland, Switzerland: IUCN.

⁸⁷ Ibid.

Due to its political status, Kosovo is not a signatory to the Paris Agreement and does not have NDCs; however, there are a number of policies covering issues related to climate change developed within last decade that are broadly aligned with the commitments to the UNFCCC. Some of the main challenges that Kosovo faces are: limitations in human capacities, insufficient information and data from relevant sectors, lack of understanding of the inventory efforts by relevant institutions (including academia), and low levels of awareness by institutions on prioritising the fight against climate change.

A key policy document for CCA is the 2014 Climate Change Framework Strategy, which comprises both a Low Emission Development Strategy, addressing GHG emission reductions, and a National Adaptation Strategy (NAS). The NAS provides broad strategic objectives for CCA and a prioritised list of adaptation measures to address these objectives. There are several aspects of note for integrating NbS into CCA. First, the NAS explicitly refers to water retention benefits of natural landscapes and forests, and their contribution to flood and drought risk reduction. Further, it proposes NbS of reforestation and land use changes to reduce flood and drought risk. NAS identifies measures and subsequently ranks them by stakeholders and experts using a multicriteria analysis, including the ecological/biodiversity impacts of the measure (*Net biodiversity benefits*) and the costs of implementation. Further, resources were identified for implementing prioritised measures in the plan (*Economic feasibility*). The NAS also proposes a measure of education and awareness raising on the benefits of forests and biodiversity (*Mainstreaming and sustainability*). The document thus provides a number of opportunities for enhancing NbS for CCA/DRR in development and sectoral policies.⁸⁸

In 2016, the Action Plan for Climate Change Strategy provided a more detailed elaboration of measures in addition to the NAS. The Action Plan describes a Drought Initiative, which focuses only on drought resistant crops and thus offers relatively little scope for NbS. However, it also proposes that River Basin Management Plans, as the key flood management policy instrument that the municipalities are required to draft, should be required to include reforestation and land use change to address flood risk. This presents an opportunity for NbS development.⁸⁹

In 2018, Kosovo adopted an updated Climate Change Strategy for 2019–2028 and the accompanying Climate Change Action Plan for 2019–2021. It also voluntarily joined the 2030 Agenda for Sustainable Development committing to the 17 Sustainable Development Goals

⁸⁸ Bisaro, A. & Meyer, K. (2022). [Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction](#). Gland, Switzerland: IUCN.

⁸⁹ Ibid.

(SDGs), aiming to eliminate extreme poverty, reduce inequality and create a greener planet. The Strategy sets out the policies for reducing GHG emissions and improving CCA, to take steps to combat climate change, protect the environment, to support economies in building a low carbon economy and high productivity. In addition, the Climate Change Strategy 2019–2028 also presents planning to adapt to climate change, ensuring communities address climate change.

The measures proposed to implement the Climate Change Strategy in Kosovo⁹⁰ provide an opportunity for the application of NbS within the forest sector through sustainable forest management, increasing resilience of forests, protection from forest fires, forestation and reforestation of bare lands, and integrating carbon sequestration into forest management. Moreover, the document prescribes that parts of forests and PAs should be left to natural development. Among measures for CCA, the document also recognises the afforestation and reforestation of degraded areas around riverbanks as a flood prevention measure.

An integral part of the Climate Change Strategy is the climate adaptation objectives and measures that include the more efficient use of scarce water resources, adapting building codes to future climate conditions and extreme weather events, building flood control structures and raising the levels of dykes, developing drought-tolerant crops, choosing tree species and forestry practices that are less vulnerable to storms and fires, and setting aside land corridors to support species migration.

Its adaptation objectives are to:

- ✓ develop mechanisms and improve current disaster risk mitigation measures in sectors of economic importance that are particularly vulnerable to climate change,
- ✓ increase capacities of natural systems to adapt,
- ✓ increase capacities of central and local stakeholders to integrate climate change issues and adaptation to development processes.

5.2.2 Disaster risk reduction

As a new country, Kosovo has not yet built full capacities for natural DRR at all stages of emergency management. Kosovo's foremost challenges include strengthening the connection between national and local levels, and cultivating professionalism within a system that will be

⁹⁰ Ministry of Environment and Spatial Planning (2018). [Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021](#). Pristina, Kosovo: Ministry of Environment and Spatial Planning.

supported by an engaged community, sound data management, and strong analytical capacities. Building academically based professional leadership capacities and fostering top-level decision-making abilities throughout the civil protection system are fundamental for systemic emergency preparedness and response development.⁹¹

Kosovo adopted a DRR Strategy and Action Plan for the period 2016–2020 in December 2015. For the first time, this is a single document that contains all fields related to natural and technological DRR. The goals of the Strategy are in line with the Sendai Framework Action, as well as the European Strategy for Supporting Disaster Risk Reduction in developing countries (2009), and serve as a guideline of Kosovo for membership to the European Forum for Disaster Risk Reduction.

Other national documents related to DRR are: Risk Assessment of Natural and Other Disasters, Risk Assessment (national and local level), and the National Response Plan. Moreover, the Programme of the Government of the Republic of Kosovo includes DRR in the Declaration of the Medium-term Policies Priority 2014–2016.

According to the Strategy there is a vast spectrum of governmental and non-governmental institutions involved and active in the area of DRR in Kosovo, and public and private higher education institutions that provide accredited courses on DRR. However, Kosovo institutions lack capacities for the management of natural and other disasters, and inter-institutional coordination on DRR is still in its early stages. There are also insufficient technical and organisational capacities for natural and other disaster risk management, including early notification and alert systems.

Drafting development policies and plans, both at the central and local levels and considering the role of the private sector and civil society, requires multidimensional and proper involvement concerning DRR, especially in the area of spatial planning, developmental plans, implementation of construction codes, climate adaptation, health, infrastructure, agriculture and forestry, education, etc.⁹²

While the goals of the DRR Strategy are in line with the Sendai Framework and the European Strategy for Supporting Disaster Risk Reduction in Developing Countries, it does not go

⁹¹ International Bank for Reconstruction and Development / The World Bank (2021). [Diagnostic Report: Emergency Preparedness and Response Assessment: Kosovo](#). Washington, DC, USA: The World Bank.

⁹² Ministry of Internal Affairs, Emergency Management Agency (2015). [Disaster Risk Reduction Strategy and Action Plan 2016 – 2020](#). Pristina, Kosovo: Ministry of Internal Affairs.

beyond proposing knowledge generation, institutional support and capacity building measures. Concrete DRR measures are not yet put forward in the Strategy (*Societal challenges*). Further, there is a gap in terms of integrating NbS into DRR/CCA, as the Strategy does not refer to any measures in the NAS, nor does it refer to the role of biodiversity in DRR (*Design at scale; Mainstreaming and sustainability*).⁹³ The DRR Strategy indicates measures for gender mainstreaming by noting that special attention should be given to the most vulnerable communities, such as persons with disabilities, communities that live in extreme poverty, and communities concentrated in natural disaster areas. Focus should also be placed on the drafting of plans and programmes with the purpose of educating and raising awareness of communities, especially of children and youth by considering social, gender, economic and cultural diversity aspects in Kosovo. Otherwise, gender is not recognised within any other climate or DRR related document in Kosovo.

5.2.3 Nature protection and biodiversity

Kosovo's regulatory framework for biodiversity conservation is largely in place; most of the guiding laws and bylaws, strategies, and action plans have been adopted. However, the legal framework is not well enforced. Lack of funding for biodiversity conservation is a significant constraint to implementing the legal framework, as are the numbers and types of staff in Government institutions charged with management of the country's biodiversity.⁹⁴

The key strategic document for biodiversity in Kosovo is the 2016 Biodiversity Strategy and Action Plan,⁹⁵ which reports on progress in implementing the 2010 National Strategy for Biodiversity and acknowledges the key role that biodiversity plays in the economy and society. The document aligned Kosovo's biodiversity policies with the global Convention on Biological Diversity (CBD) and Aichi targets and the EU Biodiversity Strategy to 2030, as part of its preparations for EU candidacy.

A key priority of the Strategy is the integration of biodiversity into sectoral planning. Further, the Strategy mandates that biodiversity be integrated into spatial planning conducted by municipalities and for PAs. However, here CCA and DRR are not explicitly considered (*Design at scale*). Similarly, while the development of a monitoring and evaluation framework is proposed and linked to the measures in the Strategy, this only implicitly addresses CCA/DRR

⁹³ Bisaro, A. & Meyer, K. (2022). [Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction](#). Gland, Switzerland: IUCN.

⁹⁴ United States Agency for International Development (USAID) (2018). [Kosovo Biodiversity Analysis](#). Pristina, Kosovo: USAID.

⁹⁵ Ministry of Environment and Spatial Planning (2010). *Strategy and Action Plan for Biodiversity 2011 – 2020*. Pristina, Kosovo: Ministry of Environment and Spatial Planning.

(*Adaptive management*). The Strategy demonstrates integration with sectoral planning, e.g., in the water sector, but does not make specific links to CCA, e.g., through integration of the objectives of the Climate Change Strategy (*Mainstreaming and sustainability*). Thus, while the strong emphasis on the integration of biodiversity into sectoral planning represents an opportunity for enhancing NbS, the relative absence of links to CCA/DRR is a gap to be addressed.⁹⁶

In Kosovo, there are 13 laws directly and 18 laws indirectly related to nature protection, biodiversity and environment. Criminal activities regarding biodiversity are sanctioned through the Criminal Code of Kosovo (Section XXVIII: criminal activities against the environment, animals, plants and cultural objects – Articles 347 to 364).

More than 90% of Kosovo’s PA territory lies within two national parks, meaning that the country’s most important biodiversity and biodiverse ecosystems lie within these parks ().⁹⁷ Broadleaf and conifer forests, pastures, meadows, and freshwater ecosystems dominate the national parks.

Table 3. Nature protected areas by IUCN categories in 2021 (Source: Ministry of Environment, Spatial Planning and Infrastructure, Kosovo Environmental Protection Agency, see footnote 97)

IUCN Category	Protected area category	No.	Surface area (ha)	Participation in the total area of PAs (%)	Participation of the PA in the territory of Kosovo (%)
I	Nature strict reserve	19	10,882.96	7.7	0.99
II	National park	2	115,957	82.1	10.6
III	Natural monument	219	6,173.35	4.4	0.56
V	Nature park	1	5,934	4.2	0.5
V	Protected landscape	6	2,227.35	1.6	0.2
V	Special protected area of birds	1	109.50	0.08	0.01
	Total	248	126,023.20⁹⁸	100⁹⁹	11.55

5.2.4 Forests

⁹⁶ Bisaro, A. & Meyer, K. (2022). *Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction*. Gland, Switzerland: IUCN.

⁹⁷ Ministry of Environment, Spatial Planning and Infrastructure, Kosovo Environmental Protection Agency (2022). *State of Nature Report 2018 – 2021*. Pristina, Kosovo: Ministry of Environment, Spatial Planning and Infrastructure.

⁹⁸ Clarification: this area of protected areas does not include the protected areas located within the "Sharri" and "Bjeshket e Nemuna" National Parks.

⁹⁹ Clarification: the percentage is derived from the total area, including the area of protected areas within national parks.

Of the total forested area of 481,000 ha, 295,200 ha or 60% are state-owned forests. The remaining 40% (180,800 ha) are private forests, and 5,000 ha are of unknown ownership. The forest coverage in Kosovo is greater than in the neighbouring countries (Albania 28%, North Macedonia 39%, Montenegro 40%, and Serbia 31%); however, the quality and productivity of the existing forests is of high concern due to continuous degradation. In particular, in steep, mountainous terrain there are alarming signals of desertification due to severe soil erosion. There are only two types of forests widespread in Kosovo: deciduous forests covering more than 90% of forest area in which the dominant species are oak and beech, and conifer forests covering 7% of the total forest area, dominated by *Abies alba*, *Picea abies* and *Pinus* sp, and 3% other forest land. The area covered by forests and forest land in Kosovo is estimated at 44.7% (481,000 ha). A national forest inventory was conducted in 2003–2004 and estimated that the total standing volume on public forestlands is about 40.5 million m³.¹⁰⁰

The key document for forestry sector development is the Policy and Strategy Paper on Forestry Sector Development that expired in 2020.¹⁰¹ However, this document laid the foundation for the tending of young forests, restoration of degraded forest lands, and establishment of plantation forests, and also introduced forest environment protection and non-wood products. The document recognises the forest as a complex ecosystem important not only as a tool for preserving biodiversity, but also for society in terms of science, education, cultural needs, recreation, and aesthetics, aspects influencing tourism, etc. It prescribed measures to ensure the role of forests as a contributor to environment protection, biodiversity, reduction of GHG and reducing the risks for natural catastrophes, thus opening space for the further mainstreaming of NbS approaches.

Several aspects of this document are relevant to integrating NbS into CCA and DRR. First, the Policy and Strategy Paper explicitly acknowledges the multiple co-benefits of forestry ecosystems in terms of economic and social benefits (“non-wood values”). It also refers to the role of forests in reducing impacts of natural catastrophes. However, this is not discussed in detail, and no reference is made to CCA (*Societal challenges*). The Policy and Strategy Paper articulates the role of sustainable forestry in development, and the importance of integrating biodiversity conservation within this. However, it does not link improved forestry practices to CCA or DRR, and rather focuses on economic development opportunities presented by sustainable forestry (*Design at scale*). While biodiversity is well integrated within the forest

¹⁰⁰ Ministry of Environment and Spatial Planning (2018). [Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021](#). Pristina, Kosovo: Ministry of Environment and Spatial Planning.

¹⁰¹ Ministry of Agriculture, Forestry and Rural Development (2009). [Policy and Strategy Paper on Forestry Sector Development 2010 – 2020](#). Pristina, Kosovo: Ministry of Agriculture, Forestry and Rural Development.

sector strategy, with PA planning and management planning having a prominent role, these measures neither account for climate change, nor are they seen as contributing to CCA (*Mainstreaming and sustainability*).¹⁰²

5.2.5 Water

The key policy document setting out the strategic objectives and measures regarding water use, water quality and water-related risks (e.g., flooding, droughts, etc.) in Kosovo is the National Water Strategy 2017–2036.¹⁰³ The document is based on the existing situation of the water sector, and outlines the requirements, management structures, international obligations, and requirements for protection and improvement of water status and quality, flood control, and protection of aquatic ecosystems. The Strategy follows the relevant EU Directives, aiming to promote reforms in the water sector to fulfil the national legal obligations and achieve the European Union requirements on water resource governance and management.

There are several aspects of the Strategy of relevance to integrating NbS for CCA and DRR. First, the Strategy is based on the principles of integrated water resources management (IWRM) and thus integrates biodiversity indicators, e.g., to maintain water quality status. However, it does not explicitly link biodiversity or nature to CCA or DRR. Further, a key measure for achieving objectives is developing River Basin Management Plans, and these also integrate biodiversity, but the Strategy does not explicitly refer to the need to include CCA in these plans (*Societal challenges*). Furthermore, the Strategy does not explicitly discuss the co-benefits of biodiversity or ecosystems beyond their contributions to water quality and thus Water Framework Directive objectives (*Economic feasibility*). The Strategy makes no detailed reference to other policy domains, such as CCA or biodiversity (*Mainstreaming and sustainability*). Generally, the Strategy focuses on physical infrastructure measures in more detail. Thus, there appears to be a gap in terms of linking water sector policy to adaptation planning, which more explicitly acknowledges the role of NbS in, for example, reducing flood risk or other climate-related hazards.¹⁰⁴

Key challenges for the water sector in Kosovo lie in strengthening the institutional framework, particularly for operationalisation and implementation of intentions enshrined in policy and legal framework, in improving the information and knowledge base for decision-making and

¹⁰² Bisaro, A. & Meyer, K. (2022). [Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction](#). Gland, Switzerland: IUCN.

¹⁰³ Assembly of the Republic of Kosovo and Government of the Republic of Kosovo (2017). *Kosovo National Water Strategy Document 2017-2036*. Pristina, Kosovo: Government of the Republic of Kosovo.

¹⁰⁴ Bisaro, A. & Meyer, K. (2022). [Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction](#). Gland, Switzerland: IUCN.

expanding the (green and grey) infrastructure platform to better manage water resources. This also includes building on strengths of the water supply sector, by moving to the frontier of wastewater treatment and improving service delivery in irrigation as part of a comprehensive agri-food revitalisation programme, while also linking irrigation support closely with land use planning and watershed management. Water related risk management needs to focus on reducing hazards, while also building resilience through better planning, protection and readiness. Finally, such strategies need to be sustainably financed, not only for the capital expenditures, but also for their operation and maintenance.¹⁰⁵

Protecting watersheds is important since all rivers (except the Iber River) spring in Kosovo and flow out of the country. Most storage in Kosovo is in the form of snow caps. With changing climate, these will be reduced and melt earlier in the year, creating not only flooding, but also changing the river hydrography and reducing water availability in the dry season. Coupled with ongoing deforestation and land degradation, the risk of flash flooding and water scarcity in summer is increased. Watershed protection is important for environmental functions and for ensuring satisfactory quality and quantity of water throughout the year.¹⁰⁶

Based on the recommendation of a World Bank study on strengthening the water security in Kosovo,¹⁰⁷ there is a need for “increasing integrated watershed management through methods like green engineering in order to help Kosovo achieve greater environmental protection and reduced pollution”. the study also recommended development of dam safety assessments to support increasing the resilience of dams to extreme weather events in Kosovo. Both recommendations represent potential for the application of NbS in the water sector and water management in Kosovo.

5.2.6 Spatial and urban planning

According to a recent survey by UN Habitat entitled *Municipal gaps and needs on integrating climate change aspects into spatial planning in Kosovo*,¹⁰⁸ some sporadic measures have been taken by certain municipalities towards improving urban planning and applying CCA measures, including NbS. However, there is a serious lack of sufficient knowledge, expertise and institutional capacities on climate change. Most local climate mitigation measures undertaken have focused on improving energy efficiency in the building sector, increasing

¹⁰⁵ World Bank (2018). [Kosovo Water Security Outlook](#). Washington DC, USA: The World Bank.

¹⁰⁶ Ibid.

¹⁰⁷ World Bank (2018). [Kosovo Water Security Outlook](#). Washington DC, USA: The World Bank.

¹⁰⁸ United Nations Human Settlements Programme (UN Habitat) Kosovo (2021). [Municipal Capacity Gaps and Needs on Integrating Climate Change Aspects into Spatial Planning in Kosovo](#). Pristina, Kosovo: UN Habitat.

energy generation from renewable sources, sustainable transportation planning, reforestation, air pollution and waste management. Most local adaptation measures have been focused on mapping risk-prone areas and restricting growth within these areas, restoring riverbeds and damaged ecosystems, and improving drainage systems. There is a strong need for increased capacities in climate change management and sustainable and climate-smart spatial planning, including knowledge and expertise in the application of NbS, which was expressed by over 70% of interviewees. Some examples are outlined below.

The Municipality of Mitrovica South adopted a Sustainable Urban Mobility Plan (following the EU and UN Habitat guidelines), which supports reducing transportation related emissions and improving air quality by encouraging walking, cycling and the use of public transport in the functional urban area. Similar measures have been taken by the Municipalities of Pristina and Mitrovica North. The Municipalities of Artana/Novo Brdo, Rahovec/Orahovac, Theranda/Suva Reka, Zvečan/Zvečan, Mitrovica North and Mitrovica South have worked on increasing green areas or regulating parks. Zubin Potok has also taken actions to prevent illegal forest logging.

The Municipalities of Vushtrri/Vucitrn and Theranda/Suva Reka have mapped flood-prone areas within the draft Municipal Zoning Map, helping to make informed decisions about settlement development, including agricultural land, infrastructure and community protection, and risk reduction. Flood protection measures, such as riverbed restoration, have also been taken by the Municipalities of Peja/Peć, Mitrovica South, Mitrovica North, Gjakova/Đakovica, Rahovec/Orahovac, Dragash/Drage, Shtërpca/ Strpce, Ranillug/Ranilug and Hani i Elezit/Elez Han, whereas drainage systems have been improved in the Municipalities of Graçanica/Gračanica, Dardana/Kamenica, Artana/Novo Brdo, Klina and Vushtrri/Vucitrn. The Municipalities of Shtërpca/Strpce, Ranillug/Ranilug, Viti/Vitina and Zubin Potok have restored ecosystems damaged by fire.

All municipalities claim the need for increasing municipal capacities in sustainable and climate-smart spatial planning, especially in the fields of sustainable land-use planning (86.84%), energy efficient buildings (84.21%), disaster risk response (78.95%), river management (76.32%), air quality planning (76.32%) and NbS (71.05%).

5.2.7 Other

The 2020–2023 Governance Programme of Kosovo identifies tourism as a key strategic response to the post-pandemic economic recovery. However, recovery during and after the pandemic is hindered by the lack of a national tourism strategy, which jeopardises any

coherent recovery interventions and coordination by all stakeholders—public, private, the civil society sector and the international development community.

To address this, the project “Greening recovery in Kosovo through ecotourism and inclusive governance” aims to bounce forward from the COVID-19 pandemic through greener recovery. This proposed intervention provides an opportunity for Kosovo to build back greener through NbS for tourism that will have a direct impact in preserving the nation’s rich environmental and cultural heritage. Accelerating green economic recovery in Kosovo is also a significant opportunity to build upon the momentum created by an increasing public awareness on environmental degradation in Kosovo.

The focus of the project will be on greening Kosovo’s tourism sector through public-private partnerships, coherent policy and a resilient and agile tourism strategy based on the principles of environmental, social and economic sustainability, and through a green accelerator programme for training tourism micro, small, and medium enterprises, and implementing pilot projects in the short-term. In the medium-term, the aim is to develop the sector as a catalytic pillar in the national green economy, creating employment, improving gender equality, and increasing innovative enterprise creation in tourism regions.¹⁰⁹

¹⁰⁹ UNDP Kosovo [website]. Available at <https://www.undp.org/kosovo/>. Accessed: January 2023.

6. Experiences with NbS

It was possible to identify several interventions in Kosovo that have the potential to be an NbS for CCA and/or DRR, or that could support the further mainstreaming of NbS (for example by building capacities or through data collection). However, **no clearly “recognisable” major NbS project has been implemented in Kosovo to date**, with the exception of a constructed wetland presented as a “Nature-based Solution for Wastewater Management”, on the municipal land of Kramovik (benefiting 1,100 residents) as part of the Drin Project funded by Global Environment Facility (GEF).¹¹⁰ Additionally, the project “Capacity Building for Disaster Risk Reduction through National Forest Fire Information System (NFFIS) and Ecosystem Disaster Risks Reduction (Eco-DRR)” started in March 2021 and is funded by the Japan International Cooperation Agency (JICA).¹¹¹ Among the activities implemented in Montenegro and Kosovo as part of this project, wind-break and avalanche prevention forests have been planted in the mountainous town of Restelica in Kosovo.

The majority of projects implemented or currently ongoing in Kosovo are related to the water sector, targeting IWRM, water security through the development of policy measures, and addressing climate changes through adaptation and mitigation activities and initiatives. Additionally, there are several capacity building projects focusing on stakeholder engagement or data collection (e.g., local action planning, preserving biodiversity and sharing responsibility) or promotion and development of ecotourism through NbS application.

A detailed list of existing or past projects complimentary to NbS is given in Annex IV of this Study.

¹¹⁰ DrinCorda [website]. Available at <http://drincorda.iwlearn.org/>. Accessed: January 2023.

¹¹¹ JICA [website]. Available at <https://www.jica.go.jp/>. Accessed: January 2023.

7. Conclusions and recommendations

Kosovo is prone to a wide variety of natural hazards – including floods, landslides, droughts, earthquakes, and wildfires – that could pose serious damages to the economy, fiscal balances, and the well-being of vulnerable populations. Many of these climate-related hazards are expected to magnify with future climate change. These climate and disaster risks can seriously affect productive sectors of the economy such as agriculture, infrastructure, energy, water resources, and communities and households.¹¹²

Due to its status at the UN, Kosovo is not a direct signatory of conventions, protocols and other international environmental agreements, and has not participated in or signed the UNFCCC or the Paris Agreement. However, during last decade, Kosovo has invested significant efforts into the drafting and transposition of EU Directives into national law, strengthening the strategic and institutional framework, and increasing investments in the environment sector.

According to the regional comparative policy analysis in the Western Balkans on integrating NbS into policies for CCA and DRR,¹¹³ the policies in Kosovo lag somewhat compared to other Western Balkan economies. In particular, there is a relative lack of NbS proposed in cross-sectoral or sectoral policies and a relative lack of mainstreaming across various global agreements relevant for CCA/DRR.

7.1 The key conclusions on NbS related policies

- Kosovo, due to its status at the UN, **is not a direct signatory of conventions, protocols and other international environmental agreements**. Consequently, the Government of Kosovo is unable to cooperate as an equal partner at the multilateral level. Although Kosovo has not participated in or signed the UNFCCC, it is responsible to respond to the requirements as a signatory of the Energy Community Treaty. The Energy Community Treaty also sets clear reduction targets for energy use, while demanding an increase in the share of renewable energies.¹¹⁴
- **There are a number of policies covering issues related to climate change developed by Kosovo** within the last decade that are broadly aligned with the

¹¹² Climate Change Knowledge Portal [website]. Available at <https://climateknowledgeportal.worldbank.org/>. Accessed: May 2022.

¹¹³ Bisaro, A. & Meyer, K. (2022). *Integrating Nature-based Solutions into policies for climate change adaptation and disaster risk reduction*. Gland, Switzerland: IUCN.

¹¹⁴ Ministry of Environment and Spatial Planning (2018). *Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021*. Pristina, Kosovo: Ministry of Environment and Spatial Planning.

commitments of the UNFCCC. The efforts of national institutions in Kosovo are focused on completing the legislation and transposition of EU Directives into national law, strengthening the strategic and institutional framework, and increasing investments in the environmental sector. Kosovo adopted its Climate Change Strategy and Action Plan 2019–2028, however its implementation is weak. Based on the EU Progress Report for 2022, “the strategic and legislative framework needs to be adapted to the EU strategic goals stemming from the Green Agenda for the Western Balkans. **Administrative capacity and awareness raising need to be considerably enhanced.** Kosovo is not a UN member, and de facto not a signatory to the UN Framework Convention on Climate Change and therefore does not have a NDC under the 2015 Paris Agreement. However, full implementation of its climate change strategy should serve as a guide to achieve the objectives of the Agreement”.

- The DRR Strategy indicates measures for gender mainstreaming by emphasising that special attention should be given to the most vulnerable communities, such as: persons with disabilities, communities that live in extreme poverty, and communities concentrated in natural disaster areas. Further, attention should be placed on the drafting of plans and programmes with the purpose of educating and raising awareness of communities, especially children and youth, by considering the social, gender, economic and cultural diversity aspects in Kosovo. Otherwise, **gender has not been recognised within any other climate or DRR related document in Kosovo.**
- Some of the main challenges in Kosovo are limitations in human capacities, insufficient information and data from relevant sectors, lack of understanding of the inventory efforts by relevant institutions (including academia), and low levels of awareness by institutions on prioritising the fight against climate change.
- The majority of projects implemented or currently ongoing in Kosovo are related to the water sector, targeting IWRM, water security through the development of policy measures addressing climate changes through adaptation and mitigation activities and initiatives. Besides, there are few capacity building projects focusing on stakeholder engagement or data collection (e.g., local action planning, preserving biodiversity and sharing responsibility). Hence, only the most recent donor initiatives have focused on promotion and development of ecotourism through NbS application.

7.2 Opportunities for NbS policy mainstreaming in Kosovo

- The measures proposed to implement the Climate Protection Strategy in Kosovo¹¹⁵ provide an **opportunity for the application of NbS within the forest sector through sustainable forest management, increasing resilience of forests, protection from forest fires, forestation and reforestation of bare lands, and integrating carbon sequestration into forest management**. Moreover, the document prescribes that parts of forests and PAs should be left to natural development. Among measures for CCA, the document also recognises the afforestation and reforestation of degraded areas around riverbanks as a flood prevention measure.
- The **potential for application of NbS in the water sector and water management in Kosovo has been recognised** through the need for “increasing integrated watershed management through methods like green engineering in order to help Kosovo achieve greater environmental protection and reduced pollution”.
- There is a **strong emphasis on the integration of biodiversity into sectoral planning as an opportunity for enhancing NbS**. At the same time, the relative **absence of links to CCA/DRR in planning nature protection and conservation measures represent a gap to be addressed**.
- **Sporadic measures have been taken by some municipalities to improve urban planning and the application of CCA measures, including NbS**. However, there is a serious lack of sufficient knowledge, expertise and institutional capacities on climate change. Most local climate mitigation measures undertaken have focused on improving energy efficiency in the building sector, increasing energy generation from renewable sources, sustainable transportation planning, reforestation, air pollution and waste management. Most local adaptation measures have been taken on mapping risk-prone areas and restricting growth on them, restoring riverbeds and damaged ecosystems, and improving drainage systems. A 2021 study by UN Habitat indicated a **strong need for increased capacities in climate change management and sustainable and climate-smart spatial planning, including knowledge and expertise in the application of NbS** among the municipal representatives dealing with urban planning in Kosovo.¹¹⁶

¹¹⁵ Ministry of Environment and Spatial Planning (2018). [Climate Change Strategy 2019-2028/Action Plan on Climate Change 2019-2021](#). Pristina, Kosovo: Ministry of Environment and Spatial Planning.

¹¹⁶ United Nations Human Settlements Programme (UN Habitat) Kosovo (2021). [Municipal Capacity Gaps and Needs on Integrating Climate Change Aspects into Spatial Planning in Kosovo](#). Pristina, Kosovo: UN Habitat.

Annex I: Nature-based Solutions for disaster risk reduction and climate change adaptation

Nature can provide solutions that are cost-effective and can contribute to community resilience beyond their capacity to absorb and recover from a single disaster, such as a flood or drought. At the 2016 World Conservation Congress and members' assembly, IUCN's Members adopted a resolution (WCC-2016-Res-069) which, for the first time, defined the use of nature for simultaneous benefits to biodiversity and human well-being. According to Resolution 069, NbS are *“actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.”*¹¹⁷

While still an emerging concept, NbS have clearly demonstrated their value in providing multiple benefits to societies, e.g., in mitigating and adapting to climate change impacts, reducing disaster risks, improving community resilience and livelihoods, and safeguarding ecosystems and biodiversity. There is growing evidence on the value and importance of NbS, and steady progress with documenting, communicating and mainstreaming NbS into climate change and sustainable development policy and disaster risk management.

NbS actions can contribute to flood prevention and protection, managing natural disasters risks, improving forest management, ensuring food and water security, combating climate change and contributing to the global improvement of the social, economic and health conditions, by strengthening the local communities' resilience to natural disasters.

NbS are a powerful mechanism for climate change mitigation due to their capacity to prevent degradation and loss of natural ecosystems, for example through sustainable forest management or improved conservation and land management actions. Moreover, natural and modified ecosystems can also effectively contribute to combating climate change thanks to their function of a 'natural carbon sink', i.e., absorption and insulation of CO₂ emissions.

NbS for DRR and CCA are a good strategy for the integrated management of land, water and biodiversity. They can provide low risk, low maintenance and low-cost solutions to many climate change-related disasters and impacts. They prioritise nature conservation and sustainable land use practices that can be implemented in harmony with more traditional

¹¹⁷ International Union for Conservation of Nature (IUCN), Members' Assembly (2016). [Resolution 6.069: Defining Nature-based Solutions, WCC 2016 Res 069](#). Gland, Switzerland: IUCN.

methods. The central role of ecosystems and biodiversity to address DRR and CCA challenges is endorsed in major risk related agendas, including the Sendai Framework on Disaster Risk Reduction, the Paris Agreement on Climate Change and the SDGs. Specifically, the Sendai Framework mentions ecosystems as being vulnerable to natural and human activity induced hazard impacts, and therefore need to be adequately protected.¹¹⁸

Various approaches can be used to apply NbS, including GI projects or EbA, in different fields. Measures facilitating the practical implementation of NbS through policy development and enforcement, stakeholder involvement and building the capacity of the national institutions and/or local communities are equally important.¹¹⁹ NbS can be implemented alone or in an integrated manner with other solutions to societal challenges (e.g., technological and engineering solutions); they have been applied in a wide variety of sectors to address a plethora of societal issues.¹²⁰

¹¹⁸ Ilieva, L., McQuistan, C., van Breda, A., Rodriguez, A.V., Guevara, O., Cordero, D., Podvin, K. & Renaud, F. (2018). *Adopting nature-based solutions for flood risk reduction in Latin America*, Working paper. WWF, IUCN, CEM, Zurich, Practical Action. <https://reliefweb.int/sites/reliefweb.int/files/resources/22311672018111511122.pdf>

¹¹⁹ Popovicki, T. (2019). *Study on Nature-based Solutions in Serbia*. Belgrade, Serbia: UNDP.

¹²⁰ Cohen-Shacham, E., Walters, G., Janzen, C. & Maginnis, S. (Eds.) (2016). *Nature-based Solutions to address global societal challenges*. Gland, Switzerland: IUCN. <https://doi.org/10.2305/IUCN.CH.2016.13.en>

THE KEY TERMS AND DEFINITIONS

Climate change adaptation: The IPCC defines CCA as adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Disasters: UNISDR defines a disaster as “a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources”.

Disaster risk reduction (DRR): UNISDR defines DRR as “reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events” (UNISDR, 2009)

Ecosystem-based Disaster Risk Reduction (Eco-DRR): Based on PEDRR, the Eco-DRR are defined as “Sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and by increasing livelihood resilience.”

Ecosystem-based Adaptation (to climate change) (EbA): IUCN defines EbA as the conservation, sustainable management, and restoration of ecosystems to help people adapt to the impacts of climate change. It includes for example, sustainable agriculture, integrated water resource management, and sustainable forest management interventions that use nature to reduce vulnerability to climate change.

Natural hazards: events such as cyclones, earthquakes, tsunamis that occur in the physical environment and that can potentially cause harm to people.

Nature-based Solutions (NbS): According to IUCN, NbS are “Actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”.

Annex II: Key threats, drivers and recommendations for Kosovo biodiversity¹²¹

Shading used to indicate linked entries (Green: policy; Blue: climate change; Red: data; Orange: capacity building).

Threat	Driver	Recommendation
1. Uncontrolled and illegal harvesting of the forest, mainly for firewood, inside and outside of PAs, has created highly degraded forest ecosystems.	1. Inadequate enforcement of legislation due to inadequate budget and numbers and raining of staff (ultimately due to lack of government will to conserve biodiversity).	1. Establish an Environmental Fund (Ekofondi).
2. Gravel quarries and the extraction of gravel and sand from rivers without restoration is destroying habitat.	2. Weak PA management that fails to control illegal activities, balance conservation and development, and manage resources sustainably	2. Hire biodiversity, tourism, and community natural resource professionals, and/or strengthen capacities of existing staff.
3. Road construction, especially highways, is fragmenting wildlife habitat.	3. The demand for firewood far exceeds the legal supply of firewood.	3. Place guard shacks to control movement of goods and collect fees to enter national parks.
4. Hydropower plant construction and operation, and ancillary activities are destroying aquatic ecosystems.	4. A shortage of legal and affordable alternatives to wood fuel for heating and cooking.	4. Develop forest vocational training programs wildlife management and hunting vocational training programs.
5. Illegal construction in PAs is fragmenting, degrading, and destroying habitat.	5. Households that lack the infrastructure (stoves, insulation) to minimize their use of wood fuel and/or to transition to alternative energy sources.	5. Create a country-level independent inspectorate agency.
6. Illegal and overexploitation of plant and wildlife species threatens some of Kosovo's most sensitive and endangered plants and wildlife.	6. A judicial system that is ineffective and inefficient in dealing with natural resources cases.	6. Develop a Payment for Ecosystem Services system to contribute to the PA budget and to raise awareness of the importance of biodiversity conservation.
7. Pollution is a threat, especially to Kosovo's aquatic biodiversity.	7. Special interests are able to benefit over the good of the population and of Kosovo's biodiversity.	7. Provide incentives for households to purchase efficient stoves and insulation and to use clean energy alternatives.
8. Climate change is affecting Kosovo's biodiversity.	8. Forest Stewardship Certification (FSC) certification standards have been developed for Kosovo, yet the	8. Strengthen the "environmental crime sector" by training members of the judiciary, prosecutors, and

¹²¹ United States Agency for International Development (USAID) (2018). [Kosovo Biodiversity Analysis](#). Pristina, Kosovo: USAID.

	most productive forest is now in the Bjeshkët e Nemuna/Prokletije National Park, resulting in pressure to degazette.	police officers in the environmental crimes unit.
	9. A pro property development attitude among government, media, and the general population.	9. Increase the penalties for environmental crimes.
	10. Weak civil society and lack of public awareness of the importance of biodiversity.	10. Strengthen the Environmental Impact Assessment (EIA) and permitting processes.
	11. Data deficiencies and lack of transparency and sharing of data.	11. Train environmental journalists in investigative environment and biodiversity-specific journalism.
	12. EU 20:20:20 goal to obtain at least 20% of energy from renewable energy sources.	12. Train biodiversity-related civil society organisations in advocacy, fundraising, and other measures to ensure their sustainability.
		13. Conduct biodiversity baseline surveys.

Annex III: Global and regional policies relevant for NbS application

The **most important milestones for NBS application** are the following:

- ✓ At the CBD COP (Conference of the Parties) 12 in 2014, decision XII/20 entitled “Biodiversity and Climate Change and Disaster Risk Reduction” was adopted. The decision encourages Parties to promote and implement EbA to address CC and DRR;
- ✓ In March 2015, the Sendai Framework for Disaster Risk Reduction 2015–2030 was adopted as the successor to the Hyogo Framework for Action 2005–2015. This new framework places a stronger emphasis on the importance of ecosystems and biodiversity, and proposes a more rigorous monitoring framework, which strongly advocates for capacity development and knowledge transfers for risk management;
- ✓ In June 2015, the Ramsar Convention Decision XXII.13 was adopted, which recognised the role of wetlands in DRR;
- ✓ In September 2015, the UN General Assembly adopted the SDGs;
- ✓ In December 2015, the Paris Agreement was adopted by 195 countries.

At the 2016 World Conservation Congress and members’ assembly, IUCN’s members adopted a resolution (WCC-2016-Res-069) that for the first time defined the use of nature for simultaneous benefits to biodiversity and human well-being. According to the resolution, the definition of NbS has been set.

In July 2020, IUCN launched the Global Standards for NbS™,¹²² as a set of clear parameters defining NbS and a common framework to increase the scale and impact of the NbS approach, to prevent unanticipated negative outcomes or misuse, and help funding agencies, policymakers and other stakeholders assess the effectiveness of interventions.

Regional policies

Green Agenda for the Western Balkans

The EU aims to reduce its GHG emissions to net-zero, where GHG emissions sinks balance out emission sources – by 2050 as part of the European Commission’s 2050 long-term strategy. In 2019, the new Commission also published its vision for a European Green Deal, highlighting specific actions to achieve a climate-neutral EU and, as a follow-up, proposed a new climate law. The law should stipulate the 2050 climate-neutrality target and related trajectory and establish a framework for actions to enhance certainty for society. Interim targets for 2020 and 2030 should help realise the vision for a GHG emission neutral EU by

¹²² IUCN [website]. Available at <https://www.iucn.org/theme/nature-based-solutions/iucn-global-standard-nbs>. Accessed: 10 January 2023.

2050. In its Europe 2020 strategy, the EU committed to reducing its GHG emissions by 20% compared with 1990, improving energy efficiency by 20%, and increasing the share of renewables in final energy consumption to 20%. The 2030 Climate and Energy Framework includes 2030 targets for GHG emissions, renewable energy and energy efficiency. The EU increased the ambition of the latter two targets in 2018, which are now reflected in the revised Renewable Energy Directive and the revised Energy Efficiency Directive. The targets commit the EU to cutting GHG emissions by at least 40% (from 1990 levels), achieving a minimum 32% share for renewable energy, and improving energy efficiency by at least 32.5% (compared with a projected business-as-usual scenario for 2030).

In its European Green Deal, the Commission also proposed to increase the ambition of the 2030 GHG emission target to at least 50% and towards 55% compared with 1990 levels. The Energy Union further supports the shift towards a resource-efficient, low carbon economy to achieve sustainable growth through legal frameworks and related initiatives, highlighting renewables as a key element of decarbonisation. Finally, the EU cohesion policy (2014 to 2020) sets aside EUR 29 billion for sustainable energy programmes and initiatives, including for energy efficiency, renewable energy, smart energy infrastructure and low-carbon research and innovation. The new cohesion policy (2021 to 2027) includes a 'greener, carbon free Europe' as one of its five main objectives.

SEE 2020

During the COP 23 in Bonn, ministers from the Western Balkans responsible for the environment and climate change signed a Ministerial Declaration on the 2nd High-Level Panel on Environment and Climate Action in the Western Balkans, under the framework for the implementation of the Southeast Europe 2020 Strategy (SEE 2020) and its Environment Dimension. The ministers re-affirmed their commitment to strengthening regional cooperation, joint efforts and concrete common action in addressing the existing environmental and climate challenges, together with preventing and mitigating future ones. The Declaration calls for further strengthening of synergies and regional cooperation for the implementation of the environment and climate change priorities in the region, as well as for strengthened high-level policy dialogue between the Western Balkans and the EU. With respect to climate change, the accession of the Western Balkan countries to the EU remains a key driver in improving environmental legislation and policy.

The SEE 2020 of the RCC provides a unique opportunity to mainstream and communicate the results of the project at the regional level. The SEE 2020 Pillar 3: Sustainable Growth aims to

“Increase adaptive capacity through awareness raising and education on climate change adaptation (knowledge and best practice transfer, experimental showcase projects and awareness rising in the fields of agriculture, forestry, water usage, energy usage for individual farmers, cooperatives, public and private companies and operators, local municipalities, community-based organisations and associations, media).”

DPPI SEE

Another major regional programme is the Disaster Preparedness and Prevention Initiative (DPPI SEE). Launched in 2000 to assist partners prevent and deal with the impacts of natural disaster, it has continuously provided a framework for Southeast European countries to develop joint activities, programmes and projects leading to strengthened capacity in preventing and responding to natural disasters. DPPI, as an umbrella regional network for developing programmes and projects to prevent and respond to natural and human-made disasters and as such, represents one of the major regional processes on DRR and CCA.

Other regional programmes

As part of the South Eastern Europe Disaster Risk Mitigation and Adaptation Programme (SEEDRMAP) initiated in 2007 by the World Bank, WMO, UNISDR, and UNDP developed two complementary project proposals that were funded together as the “Regional Programme on Disaster Risk Reduction in Southeast Europe” by the European Commission (EC) Directorate General for Enlargement, through its Instrument for Pre-Accession Assistance (IPA). This programme is targeting the following eight IPA beneficiaries: Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia (now North Macedonia), Montenegro, Serbia, Kosovo (as defined by UNSCR 1244/99) and Turkey and were initiated in March 2009.¹²³

The sixth ministerial conference “Environment for Europe” in Belgrade (10-12 October 2007), decided to enhance sub-regional cooperation in the field of climate change, an area considered to be of increasing importance. The Ministerial Declaration, which was adopted by acclamation, recognises the need (for interested countries in SEE) to develop a Climate Change Framework Action Plan (CCFAP), to establish a sub-regional virtual climate change centre in Belgrade, and to develop partnerships with regional and international organisations

¹²³ World Meteorological Organization (WMO) (2015). [Synthesis of the Status and Trends with the Development of Early Warning Systems. A Contribution to the Global Assessment Report 2015 \(GAR15\), Priority for Action \(PFA\) 2 – Core Indicator \(CI\) 3: Early Warning Systems are in Place for all Major Hazards with Outreach to Communities: Background Paper prepared for the Global Assessment Report on Disaster Risk Reduction 2015](#). Geneva, Switzerland: WMO.

and conventions. The CCFAP would support implementation of the UNFCCC, particularly its Nairobi Work Programme.¹²⁴

¹²⁴ School of Business, Economics and Law (University of Gothenburg) (2008). [Kosovo Environment and Climate Analysis](#). Gothenburg, Sweden: University of Gothenburg.

Annex IV: Project complementary with NbS

Name	Lead Organisation	Location	Description
Nature-based Solution for Wastewater Management	UNDP and GWP-Med	Village of Kramovik, Kosovo (1100 residents)	A pilot constructed wetlands was tested as a Nature-based Solution presented as part of the Drin Project.
Capacity Building for Disaster Risk Reduction through National Forest Fire Information System (NFFIS) and Eco-DRR	JICA	Kosovo: Pristina, Restelice (Optional activity site: Istok)	The capacity of government agencies for prevention and reduction of forest fires and other natural disasters is strengthened with the introduction of National Forest Fire Information System (NFFIS) and Eco-DRR, as part of this 5-year project that commenced in 2021.
Accelerating Green recovery in Kosovo through Ecotourism and Inclusive Governance	UNDP	National	<p>The focus of the project will be on greening Kosovo's tourism sector through public-private partnerships, coherent policy and a resilient and agile tourism strategy based on the principles of environmental, social and economic sustainability.</p> <p>The proposed intervention will provide an opportunity for Kosovo to build back greener through NbS for tourism that will have a direct impact in preserving its rich environmental and cultural heritage.</p>
Integrated Water Resources Management in Kosovo (IWRM-K)	SDC	National	<p>The project supports different stakeholders in Kosovo at the national, regional and local levels for establishing an IWRM approach. This approach will address issues such as pollution, rising demand for water for farming, industry and growing urban areas, and will help mitigate the impact of climate change.</p>
Climate resilience in the water sector of Kosovo	SECO	National	<p>Mainstreaming CCA and mitigation measures systematically into the operations of regional water companies in Kosovo by promoting non-revenue water reduction, energy efficiency and renewable energy.</p> <p>Strengthening the national framework for non-revenue water reduction, energy efficiency and renewable energy</p>

Name	Lead Organisation	Location	Description
Fostering and Leveraging Opportunities for Water Security (FLOWS) Program for Kosovo	World Bank	Morava e Binces basin	<p>The objectives are to (i) strengthen the national capacity for managing water security, and (ii) improve water security in the Morava e Binces basin.</p> <p>The project consists of three components:</p> <ul style="list-style-type: none"> • Basic measures for water security will lay the foundations for national water security, thereby increasing targeted community resilience to the climate change-induced threat of drought, and build readiness for major investments that duly consider the current and foreseen climate change impacts • addressing water crisis with catalytic investments aimed to catalyse water security investments in the Morava e Binces basin that address the immediate challenges of water shortages and other risks exacerbated by climate change (erosion, rising temperatures, evapotranspiration rates, etc.), poor service delivery, and a single-sector approach to cross-cutting water security issues while embarking on an integrated water security agenda. • project management to provide funding to contract professional and support staff to strengthen the project management team and ensure that certain specialised tasks are professionally executed by people with the required background and knowledge, including professional staff, short-term experts, and support staff.
Conservation of Biodiversity and Sustainable Land Use Management in Dragash	UNDP	Dragash Municipality and Sharr National Park	<p>UNDP has contributed to the collection of data about freshwater invertebrates, mammals, amphibians, reptiles, butterflies and other insects in Dragash Municipality and Sharr National Park. The ongoing Kosovo Environment Programme financed by Sida will</p>

Name	Lead Organisation	Location	Description
			implement a 3-year project which will involve the drafting of a Red Book of Animal Species of Kosovo for the first time.
Increased Transboundary Cooperation and Integrated Water Resources Management in the Drin River Basin	UNDP and GWP	Drin basin	The Drin Basin covers a geographical area that includes Albania, Greece, North Macedonia, Montenegro, and Kosovo. Within the Basin there are diverse and often conflicting and unsustainable management approaches. The Project aims to promote joint management of the shared water resources of the White Drin Basin contributing to the activities to foster joint management of the extended transboundary Drin River Basin based on scientific knowledge developed within the basin, and on collaborative action. The GEF funded project provides benefits to about two million people who live and rely on the basin for drinking water, agriculture, fisheries, industry, and hydropower.
Biodiversity and Ecosystem Services for Local Sustainable Development in the Western Balkans	European Centre for Nature Conservation (ECNC)	Dragash and Prizren	Training for selected municipalities in relation to preparation of the Local Biodiversity Action Plan and its implementation
Adaptation to CCA through Transboundary Flood Risk Management in the Western Balkans	GIZ	Drin River Basin	The project focuses on the Drin River Basin and supports institutions at the national and local levels in Albania, Kosovo, Montenegro and North Macedonia. Transboundary flood risk management is strengthened with regard to climate change. The project currently acts in three key areas: Flood Hazard and Risk Mapping, Early Warning, and Institutional development.
safEarth	EC	International	Transnational advanced management of land use risk through landslide susceptibility maps design. Led by the Croatian Geological Survey, safEarth developed an online landslide susceptibility mapping system that allows any potential or occurring disasters to be mapped in real time.



INTERNATIONAL UNION
FOR CONSERVATION OF NATURE

Regional Office for Eastern Europe and Central Asia (ECARO)
Japanska 35
11073 Belgrade, Serbia
Tel +381 11 2272 411
www.iucn.org/regions/eastern-europe-and-central-asia
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