Enhancing Nature-based Solutions in Albania

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

Urban Research Institute

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Executive summary

The present study has identified three potential sites for the implementation of Nature-based Solutions (NbS) for flood risk management, and one additional site for forest fire management (Section 8). The proposed interventions range from ecological restoration of degraded lands and riverbanks, reducing erosion and soil loss, to reforestation using mosaic planting and drought-resistant species, forest fire prevention in protected areas, restoration of wetlands for flood prevention and water treatment, and dune stabilisation to prevent coastal erosion and flooding.

The study provides step-by-step recommendations for the implementation of NbS in Albania, including engaging with policy, implementing field activities, and fostering knowledge.

Challenges have been identified for advancing these opportunities. First, the national and local integrated strategic planning needs to be improved. Climate change and natural disasters are cross-cutting areas, and developed human resource capacities are needed to integrate the strategic planning of the many line ministries and municipalities, particularly for coordinating action planning and implementation. The mid-term budget is a key instrument of the national and local integrated planning and public expenditure, and requires performance indicators at both overall and specific objective levels. This calls for cross-institutional and interministerial cooperation, which in turn requires advocacy for national prioritisation.

Second, the national environment data system has to be integrated and improved to allow for effective action planning. National or international funding needs to be raised for monitoring across sectors involved in the environment, climate change and natural disasters. A national system for climate change data measurement, reporting and verification is an important component of an environmental data system, as regulated by the United Nations Framework Convention to Climate Change (UNFCCC) and also the EU *Acquis*; however, such as system is yet to be established in Albania, particularly since there is still no Law on Climate Change in effect.

Third, the monitoring of implementation of the national and sectorial development strategies related to climate change adaptation and disaster risk reduction at present is neither accurate nor complete, limiting the analysis of the level of implementation of nature-based or ecosystem measures. This is a challenge for general strategic planning and implementation in Albania, and also for the specific purpose of the study. As such, national funding and human resource capacity building are needed for improvement, in equal measure as promotion and advocacy for transparency and accountability are required.

The main findings and recommendations provided for the mainstreaming of NbS into climate change adaptation policy and disaster risk reduction management are:

- NbS is currently not integrated into disaster risk management areas, while it is well represented in climate change adaptation,
- there are data gaps concerning ecosystems, and the gender dimension of climate change and disasters,
- there are opportunities for mainstreaming nature-based solutions into the climate change adaptation and disaster risk reduction areas,
- central and local government integrated planning and budgeting needs to be advanced,
- monitoring the implementation of national and sectorial development plans related to climate change adaptation and disaster risk reduction needs to be improved,
- central and local government human resources need to be developed.

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- Ms. Alexandra Ibragimova,
- Ms. Mihaela Dragan Lebovics

Acronyms

CBD	Convention on Biological Diversity
CCA	Climate change adaptation
COP	Conference of the Parties
CSO	Civil society organisation
DPPI	Disaster Preparedness and Prevention Initiative
DRR	Disaster risks reduction
EbA	Ecosystem-based adaptation
Eco-DRR	Ecosystem-based disaster risks reduction
EU	European Union
FDI	Foreign direct investment
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gasses
GIZ	German Corporation for International Cooperation
HDI	Human Development Index
INSTAT	Albanian Institute of Statistics
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
LDN	Land degradation neutrality
NAP	National Adaptation Planning
NbS	Nature-based Solutions
NBSAP	National Biodiversity Strategies and Action Plans
NCCSP	National Climate Change Strategy and Plan
NDC	Nationally Determined Contribution
NSDI	National Strategy for Development and Integration
SDG	Sustainable Development Goal
Sida	Swedish International Development Cooperation Agency
TNC	Third National Communication to the UNFCCC
UNDP	United Nations Development Programme
UNFCCC	United Nation Framework Convention to Climate Change
WB	Western Balkans

1. Purpose and methodology of the scoping study

The overall purpose of this scoping study (the study) is to provide a state-of-the art overview of the Albanian national context in regard to the application of NbS approaches for climate change adaptation (CCA) and disaster risk reduction (DRR).

Moreover, the objectives of the study are to: 1) understand the national context, in terms of institutional, policy and legal framework for the application of NbS, 2) provide an overview of the most common natural hazards and disasters in Albania and 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 the application of 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 originating from existing policies, programmes and strategies (global, regional and national/local), taking into account data collected on past and ongoing initiatives, projects and activities in Albania on NbS for DRR, as well as impacts on climate change and the environment. It includes a brief overview of the current developments in Albania concerning NbS and their application in the Albanian context, followed by semi-structured interviews and discussions with selected key partners and relevant national stakeholders.

Furthermore, to identify and elaborate best practice cases and examples of NbS application, a comprehensive desk study was performed during the initial phase to compile data and information on all ongoing projects, programmes, activities or initiatives that are currently applying NbS in Albania.

Special attention has been given to screening and examining relevant national documents and policies, including strategies, plans and programmes that reveal existing or potential linkages between NbS, climate smart adaptation and DRR policies and measures, with consideration also given to climate and biodiversity, and the connections between climate and gender.

The study has mapped and identified the experiences with NbS in/or involving Albania that can illustrate benefits and applicability of NbS and reveal entry points for possible scale-up of NbS interventions based on existing experiences.

The main findings and conclusions of the study were further cross-checked, and inputs and suggestions of stakeholders and partners were incorporated. In addition to feedback from relevant stakeholders and other actors across sectors on the identified priorities and potential pilot sites proposed for Albania, this process has contributed to knowledge building and awareness raising through the sharing of data and information on the current state of affairs regarding disaster risks, climate change impacts, and identification of opportunities presented by the application of NbS.

Data presented in this study has been collected in the period from 2020 until mid-2022, which is the reason why some information could seem inconsistent or outdated. The study was developed as part of the ADAPT: *Nature-based Solutions for resilient societies in the Western Balkans* project, funded by the Swedish International Development Cooperation Agency (Sida) and implemented by IUCN.

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 (WB). This regional umbrella initiative works with the six WB economies, and regional and local partners.

ADAPT aims to introduce NbS as a means to reduce environmental degradation and foster climate resilience, including social equity and gender equality, in the WB region. In order to achieve balanced results and realise positive long-term impacts on communities and ecosystems in the region, the project has strong regional and national components. Regionally, it focuses on aligning NbS and DRR policy, knowledge generation and sharing, capacity development and networking, while the focus at the national level is on policy, stakeholder engagement, and demonstration through pilot NbS projects.

The project is implemented through the following three strategies:

- ✓ Enhance knowledge and awareness of nature-based DRR solutions among decision makers, natural resource managers and local communities, with a specific focus on gender;
- ✓ Integrate NbS and equitable climate-smart planning into adaptation and disaster reduction policy; and
- ✓ Implement NbS for DRR and their scale-up.

1.2. Sources of information

For this study, a combination of disaster data analysis, and a desk review of the scientific literature and case studies, surveys, and policy analysis were used to cover the following subjects:

- ✓ Socioeconomic profile of Albania;
- ✓ Priority hazards and impacts of disasters;
- ✓ Expected impacts due to climate change;
- ✓ Main threats to biodiversity;
- ✓ Main stakeholders in field of nature conservation and DRR, and their roles;
- ✓ Policy preparedness and opportunities for integration of biodiversity conservation, CCA, DRR and NbS;
- ✓ National experiences in applying NbS;
- ✓ Potential sites for implementation of NbS in Albania;
- ✓ Challenges of implementation of NbS.

2. Introduction

NbS are *"actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits."*

IUCN Resolution (WCC 2016 Res 069)

The Western Balkans is one of the most vulnerable regions in Europe in terms of climate change and environmental impacts. The 2016 European Environment Agency report[1] on climate change impacts and vulnerability in Europe considers Southeast Europe and southern Europe as highly prone to climate change effects, as regions expected to be most impacted by climate change and with numerous sectors and domains to be severely affected.

Albania is a small country situated in Southeast Europe, in the western part of the Balkan Peninsula. It is classified as a country with high disaster risk, ranking 40 out of 170 countries.[2] Meteorological events such as heavy rainfall, storms and heat waves are the most common natural hazards in Albania (34% of the total), followed by forest fires (24%), floods and flash floods (22%) and landslides (15%). The most recent climate change scenario for Albania predicts a rise in mean temperature and a change in precipitation patterns.[3] As a consequence, Albania will face the effects of climate change with increasing seasonal temperatures and decreasing precipitation, which is predicted to lead to more frequent floods. It is also anticipated that rising temperatures will increase the number of hailstorm days in summer, and the frequency and intensity of hot days and heat waves, ultimately leading to a higher risk of forest fires.

Population growth and human development in Albania has led to changes in land use, mainly for urban and infrastructure development, and for agricultural purposes.[4] Climate change, natural hazards and human development threaten the country's rich natural resources, upon which a large part of the economy relies for agriculture, food processing, lumber, oil, cement, chemicals, mining, basic metals, hydropower, tourism, and petroleum extraction.

[1] European Environment Agency (2017). *Climate change impacts and vulnerability in Europe 2016 – An indicator-based report*. Publications Office. https://doi.org/10.2800/534806

[2] Comes, M., Dubbert, M., Garschagen, M., Hagenlocher, M., Sabelfeld, R., Lee, Y. I., Grunewald, L., Lanzendörfer, M., Mucke, P., Neuschäfer, O., Pott, S., Post, J., Schramm, S., Schumann-Bölsche, D., Vandemeulebroecke, B., Welle, T. and Birkmann, J. (2016). *World Risk Report 2016.* Alliance Development Works and United Nations University – Institute for Environment and Human Security. https://collections.unu.edu/eserv/UNU:5763/WorldRiskReport2016_small_meta.pdf

[3] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

[4] Ibid.

On the other hand, Albania possesses a wide range of ecological systems, including coastal zones, estuaries and lagoons, lakes and wetlands, grasslands, middle-low altitude coppice forests, high altitude forests, alpine vegetation and glacial areas, hosting a high diversity of habitats and species. On this basis, the country has great potential for implementing NbS. At present, there is substantial institutional experience in implementing ecosystem-based strategies for DRR and CCA, on a project-by-project basis, mainly related to CCA through integrated water management.

Meanwhile, the WB also represent a uniquely biodiverse region of Europe, consisting of a diversity of ecosystems. It is these ecosystems that play a vital role in sustaining society, with the potential to address development concerns through NbS, which will be further explored in this study. However, since NbS have the potential to also address societal challenges such as human health, economic and social development, environmental degradation and biodiversity loss, food security, and water security (Figure 1),[5] this study focuses on the link of NbS to CCA and DRR.

Figure 1. Major societal challenges addressed by NbS *(Source: IUCN Global Standard for NbS, see footnote 5)*

NbS rely heavily on the concept of ecosystems, the services they provide, and approaches to working with them. While the concept of ecosystems and working with them is not a new one, with communities of practice that date back decades, the demand for and visibility of NbS has only grown to prominence in the last decade. As the NbS movement grows in momentum globally, so do the opportunities for the potential for NbS to address societal challenges in Albania.

NbS have gained significant momentum at the global level in terms of interest and investment. There is an increasing understanding that nature provides 'no-regret' solutions that are cost-effective and can contribute to increased community resilience beyond society's capacity to

[5] 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. https://doi.org/10.2305/IUCN.CH.2020.08.en

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, such as in mitigating and adapting to climate change impacts, reducing disaster risks, improving community resilience and livelihoods, and safeguarding ecosystems and biodiversity (Figure 2).

Various approaches support the application of NbS, including ecosystem-based disaster risk reduction (Eco-DRR) and ecosystem-based adaptation (EbA), as well as complementary approaches to those such as green infrastructure projects, across a variety of sectors and fields. 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.[6] The IUCN Global Standard for Nature-based Solutions,[7] launched in July 2020, with its associated Guidance[8] operationalises NbS by providing a common language and framework to design, verify and scale up NbS applications and policies. IUCN defines NbS as "actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits" as defined and adopted at the IUCN World Conservation Congress in 2016 (WCC 2016 Res 069).[9] The societal challenges that NbS aims to address include climate change mitigation and adaptation, food security, water security, human health, DRR, economic and social development, and environmental degradation and biodiversity loss.

Ecosystem-based approaches to DRR and CCA are approaches that fall under the concept of NbS, which integrate science, policy, and practice for long-term sustainable solutions.[10]

[6] Popovicki, T. (2019). *Study on Nature-Based Climate Solutions in Serbia*. UNDP. https://www.undp.org/serbia/publications/study-nature-based-climate-solutions-serbia
[7] 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. https://doi.org/10.2305/IUCN.CH.2020.08.en
[8] 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. https://doi.org/10.2305/IUCN.CH.2020.09.en
[9] IUCN, Members' Assembly (2016). Resolution 6.069: Defining Nature-based Solutions, WCC 2016 Res 069. https://portals.iucn.org/library/node/46486
[10] Eggermont, H., Balian, E., Azevedo, J. M. N., Beumer, V., Brodin, T., Claudet, J., Fady, B., Grube, M., Keune, H., Lamarque, P., Reuter, K., Smith, M., van Ham, C., Weisser, W. W., Le Roux, X. (2015). Nature-based Solutions: New Influence for Environmental Management and Research in Europe. *GAIA - Ecological Perspectives for Science and Society, 24*(4), 243–248. https://doi.org/10.14512/gaia.24.4.9

Figure 2. 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 7)*

NbS interventions can take many forms, such as restoration of watersheds, protected area management,[11] biodiversity conservation,[12] integrated coastal zone management, integrated water resources management, and others that can be implemented in combination with conventional measures (such as construction of a concrete flood barrier). Together these solutions not only mitigate climate change and natural hazards, but also support biodiversity and local livelihoods. The main difference between NbS and conventional conservation approaches is that while NbS always focus on the protection of biodiversity, they also simultaneously address a societal challenge. This difference has been further explained and the NbS approach operationalised in the IUCN Global Standard for NbS (and its associated guidance). It is noted that in the case of the seventh societal challenge recently added in this framework, that if an NbS intervention addresses ecosystem degradation and biodiversity

[11] Murti, R. and Buyck, C. (ed.) (2014). *Safe havens: protected areas for disaster risk reduction and climate change adaptation.* Gland, Switzerland: IUCN. https://portals.iucn.org/library/node/44887
[12] Monty, F., Murti, R. and Furuta, N. *Helping nature help us: Transforming disaster risk reduction through ecosystem management.* Gland, Switzerland: IUCN. https://doi.org/10.2305/IUCN.CH.2016.15.en

loss, it must simultaneously address at least one of the other six societal challenges to be considered an NbS approach.

While the science and evidence on the importance of ecosystem management (and overall NbS) for long-term resilience is clear, investment in these approaches remains largely underdeveloped. As finance and demand for NbS grows, they offer an opportunity for Albania to address some of its most pressing challenges concerning disasters and climate change. Baseline studies to identify gaps and opportunities for their mainstreaming in conventional DRR and CCA practices and the dissemination of such information are expected to inform and catalyse actions for NbS.

In recent years, several events in Albania related to climate change have occurred, affecting the wellbeing of the inhabitants of affected areas. Climate change and DRR have multi-sectorial features that are not clearly defined by the current institutional framework. The application of NbS is still in its infancy in Albania, with the concept gradually being introduced among institutions and communities to raise awareness and increase knowledge of its benefits.

3. Albania country overview

3.1. Geographic profile

Covering an area of 28,745 km^2, Albania is a small country in Southeast Europe, lying in the western part of the Balkan Peninsula on the coasts of the Adriatic and Ionian Seas. Albania is bordered by Montenegro to the north, Kosovo to the northeast, North Macedonia to the east and Greece in the south. The length of its coastline on the Adriatic and Ionian Seas is 476 km.

Seventy per cent of Albania's territory is mountainous, with an average altitude of 700 m above sea level, rising to a maximum altitude of 2,753 m in the east (Mt. Korab).

Following the 2015 Territorial Reform, Albania has a new administrative layout with 12 Qarks/Regions, 61 Municipalities and 373 Administrative Units.

3.2. Climate

Albania's geographic position determines its Mediterranean climate, which is characterised by mild and humid winters followed by hot and dry summers. The majority of the country's rainfall occurs between November and March, with lower amounts during the growing season from June to September. The precipitation regime is a key factor for electricity production nationwide, as hydroelectric power plants produce the bulk of the country's electricity. Precipitation is also a crucial factor for agriculture, one of Albania's most important economic sectors.

Albania's climate is driven by the country's topography, with temperatures and precipitation varying by altitude and distance from the sea. Specific climatic conditions differ considerably depending on region, with four major climatic zones identified: southern coastal zone, central and northern coastal zone, hilly zone, and mountainous zone.[13] Some areas in the north, west and southwest of Albania are characterised by high amounts of rainfall, with an annual average of 1,430 mm. The spatial and seasonal distribution of rainfall varies, and the majority of rainfall occurs during the colder half of the year (70 per cent). The most humid areas are the Albanian Alps in the north (Koder Shengjergj with 2,935 mm and Boga with 2,883 mm of annual precipitation) and Kurveleshi in the south (Nivica with 2,204 mm of annual precipitation). Snowfall occurs in mountainous regions, i.e., in the Albanian Alps, and in the central and southern mountainous regions. Snow is rare in the western lowlands, particularly

[13] UNDP (2019). *Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards*. UNDP. https://www.al.undp.org/content/albania/en/home/library/environment_energy/land-degradation-neutrality-target-for-albania-and-soil-erosion-.html

along the southwestern coast. The coastal plains are under a strong maritime influence, which weakens eastwards and landwards, causing lower temperatures and reduced precipitation.

3.3. Socioeconomic profile

Since Albania's transition to a market economy, the country's economic development has been shaped by important events. The transition to modern economic growth was initially slow, with the introduction of prudent monetary and fiscal policies focussed on strengthening economic indicators. Based on data of the International Monetary Fund,[14] the initial years of Albania's economic transition were characterised by economic growth of around 9 per cent annually; however, in 1997 social and political turmoil in the country, associated with a financial system crisis, caused a severe decline of economic growth, up to -7 per cent. The economy recovered significantly in the following decade, with an average growth level of 6 per cent. However, the country was impacted by the global financial crisis of 2008. According to data of the International Monetary Fund, economic growth in Albania halved following that financial crisis, and rates have since been declining further to an average of below 3 per cent, mainly been driven by household consumption, followed by net exports, while investments have been negligible.

Only the past few years have witnessed an upward trend in growth and investments. For 2017, the International Monetary Fund estimated growth for Albania at 3.9 per cent, the highest growth rate in the Balkan region, with foreign direct investments (FDIs) and tourism as the main drivers. Specifically, FDIs were concentrated in the energy sector, and growth from this sector is the primarily due to the good hydrological conditions enabling higher electricity production.

Currently, the service sector is the main contributor to the Albanian economy, followed by construction and agriculture. The reduction of government debt is one the country's economic priorities – following a peak ratio at 73 per cent of gross domestic product (GDP) in 2015, based on the data of the International Monetary Fund.

Unemployment in Albania has been increasing since 2013, peaking at 17.5 per cent of the population above 15 years old in 2014, before decreasing to 13.7 per cent in 2017. Men are

[14] International Monetary Fund (2017). *Albania: 2017 Article IV Consultation-Press Release; Staff Report; and Statement by the Executive Director for Albania (Country Report No. 2017/373)*. IMF. https://www.imf.org/en/Publications/CR/Issues/2017/12/13/Albania-2017-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-45468

most impacted, with 14.6 per cent unemployed among them, as compared to women with 12.6 percent, according to data of the Albanian Institute of Statistics (INSTAT).[15]

Albania's poverty rate decreased steadily over the past decade, from 25.4 per cent of the population in 2002 to 12.5 per cent in 2008, according to INSTAT.[16] However, the situation has changed in the following decade, rising to 14.3 per cent in 2014.

Based on data of United Nations Development Programme (UNDP), Albania's Human Development Index (HDI) value for 2015 was estimated at 0.76, ranking 75th of 188 countries and territories, which marked an increase of 20.3 per cent from the 1990 level (0.64). Among the main HDI indicators, between 1990 and 2015, life expectancy at birth increased by 6.2 years, the mean years of schooling increased by 2.2 years, and the expected years of schooling by 2.6 years.[17] Time series data on Albania's socioeconomic profile from 2008 to 2017 are shown in Table 1.[18]

Table 1: Macroeconomic indicators of Albania. Data for 2017 are an estimation. *(Source: Compiled by the author based on data from IMF – see footnote 14, data on population growth and Foreign Direct Investments (FDI) from World Bank – see footnote 18, data on unemployment from INSTAT – see footnote 15, and data on HDI from UNDP – see footnote 17)*

	2008	2011	2012	2013	2014	2015	2016	2017*
Real growth rate	3.8	2.6	1.4	1.0	1.8	2.2	3.4	3.9
GDP in billion Albanian lek (ALL)	1,081	1,301	1,333	1,350	1,395	1,428	1,473	1,562
GDP in million US dollars (USD)	12,881	12,891	12,320	12,776	13,228	113,352	11,864	
GDP per capita	4,371	4,437	4,248	4,413	4,579	3,935	4,125	
HDI		0.75	0.76	0.76	0.76	0.76		
Inflation rate	3.4	3.5	2.0	1.9	1.6	1.9	1.3	2.1
Unemployment rate	13	14	13.4	15.6	17.5	17.1	15.2	13.7
Population growth rate	(0.8)	(0.3)	(0.2)	(0.2)	(0.2)	(0.3)	(0.2)	
FDI per cent of GDP	9.7	8.1	7.5	9.8	8.7	8.7	9.2	

[15] Institute of Statistics of Albania (2017). *Labour Force Survey – Third Quarter 2017*. Institute of Statistics of Albania. https://www.instat.gov.al/media/3639/lfs_q3-2017_standard_1.pdf
[16] Institute of Statistics of Albania (2012). *Living Standard Measurement Survey*. Institute of Statistics of Albania. https://www.instat.gov.al/en/themes/social-condition/living-standard-measurement-survey-lsms/
[17] United Nations Development Programme (2016). *Human Development Report 2016 – Human Development for Everyone*. UNDP. https://hdr.undp.org/system/files/documents/2016humandevelopmentreportpdf1pdf.pdf
[18] World Bank Group. Databank – World Development Indicators. https://databank.worldbank.org/reports.aspx?source=2&country=ALB

In recent years, the Government of Albania has embarked on a broad-based reform programme focussed on macroeconomic and fiscal sustainability, financial sector stabilisation, energy concerns, pensions, and territorial administration.

Climate risks assume an important position in these reforms, as set out in National Strategy for Development and Integration (NSDI) 2015–2020.[19] Several of the reforms' priorities relate to energy, agriculture, the environment, etc. The main national priority is the strengthening of energy diversification and low-carbon transition by reducing CO_2 emissions, increasing energy and resource efficiency, and improving climate resilience. These transitions will be further mainstreamed by enhancing the resilience of infrastructure to climate change as part of infrastructure development projects.

Moreover, the Albanian government has made progress in aligning the national agenda in NSDI 2015-2020 with the 2030 Agenda for Sustainable Development, and is currently developing a national action plan on the Sustainable Development Goals (SDGs). The challenges include developing a national vision 2030 and aligning SDG implementation and monitoring efforts with accession process to the European Union (EU).

Significant progress driven by ongoing reforms has created conditions for rebounding business confidence and domestic demand, including early signs of increasing investments and an export-led recovery. Maintaining the reform momentum and implementation is critical for Albania's continued economic growth and its aspirations for EU integration. On 25 March 2020, the European Commission opened accession negotiations with Albania, which entails the adoption of the EU *Acquis communautaire*. Furthermore, access to EU markets has increased the scale of the economy, thus boosting growth.

3.4. Gender context

The gender context can inform barriers and opportunities in regard to mainstreaming concepts such as NbS. Due to the interactions between people and ecosystem services, there are various entry points in which to consider the gender context of Albania. For example, recent research has brought to light the linkages between gender-based violence and the environment,[20] playing a role in the potential and sustainability of actions to address DRR and

[19] Republic of Albania, Council of Ministers (2016). *National Strategy for Development and Integration 2015-2020*. https://faolex.fao.org/docs/pdf/alb223197.pdf
[20] Castañeda Camey, I., Sabater, L., Owren, C. and Boyer, A.E. (2020*). Gender-based violence and environment linkages: The violence of inequality. Wen, J. (ed.).* Gland, Switzerland: IUCN. https://doi.org/10.2305/IUCN.CH.2020.03.en

CCA. Sectors that exemplify the entry point for gender contexts into NbS are water use and agriculture.

3.4.1. Gender and water-related disasters

Human activity and climatic factors interact frequently with water use. Climate change vulnerability and associated risks are largely social constructs that relate to development processes, structural (in)equalities, and sustainable resource management.[21] Although women play a key role in the provision, management and conservation of water, their role as providers and users seems to not be reflected in institutional arrangements for the development and management of water resources in Albania.

While water council boards lack female representation, climate vulnerability is increasing. Floods and droughts are recurrent events in Albania, putting women's lives and property at risk.[22] Floods have a massive impact in terms of human life, economy, agriculture, and the environment.[23] During the February 2015 floods, UN Women realised a rapid gender assessment of the impact of the floods underlining major concerns for women: damages to crops and land, losses of products for both personal consumption and sale, damages to the home, furniture and household equipment, and increase of domestic violence.[24]

With the new territorial and administrative division, women feel underrepresented by local decision-making bodies due to the long distance from the administrative units where they live to the centre of the municipality where these bodes are situated. This condition impedes them from participating in municipal council public hearings, transmitting their concerns and pushing for water budgets.[25]

3.4.2. Gender and agriculture

Rural women divide their daily time between household chores, care for children and elders, and agricultural activities, mostly focusing on livestock and activities nearby the farm. Access to social services, kindergarten, primary health care system, as well as to reproductive health

[21] Aguilar, L., Granat, M., & Owren, C. (2015). *Roots for the future: The landscape and way forward on gender and climate change, Washington*. DC: IUCN & GGCA. https://portals.iucn.org/library/node/45791
[22] Ministry of Health and Social Welfare of Albania and Ministry of Foreign Affairs and European Integration of Albania (2019). *National Review for Implementation of the Beijing Platform for Action - Beijing+25*. Ministry of Health and Social Welfare of Albania and Ministry of Foreign Affairs and European Integration of Albania. https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/64/National-reviews/Albania.pdf
[23] Food and Agriculture Organization of the United Nations (2016). *Gender Agriculture and Rural Development in Albania: Country Gender Assessment Series*. FAO. https://openknowledge.fao.org/server/api/core/bitstreams/301b26d7-b3f3-436b-9ed2-a9c5d8edac57/content
[24] UN Women (2021). *Gender inequality, earthquake and flood impacts in Albania. UN Women Women's Resilience to Disasters Knowledge Hub*. Retrieved from https://wrd.unwomen.org/explore/insights/gender-inequality-earthquake-and-flood-impacts-albania
[25] Kocaqi, M., Plaku, A. and Wittberger, D. (2016). *Gender Brief Albania*. UN Women & UNDP, Albania. https://albania.un.org/en/46623-albania-gender-brief-%E2%80%93-2016

care facilities is inadequate. Women's limited mobility, unpaid work, and limited social insurance coverage result in higher vulnerability of rural women.[26] The unpaid contribution to the family economy compromises their opportunities for schooling and employment. Indeed, the distribution of graduates across agricultural specialisations is highly gendered, with women weakly represented in agro-technical fields.[27] A significant share of women in rural areas live in houses with no running water, with toilets not connected to the sewage infrastructure, and use firewood as the main source for heating (80 per cent of households; as opposed to 7.1 per cent use that gas and only 4.1 per cent that use electricity).

Women's gainful engagement in the rural economy is hindered by limited participation in, knowledge of, and access to information on agricultural technology, which also negatively affects their ability to access financial resources. Representing only 7 per cent of farm owners, rural women have limited access to subsidy schemes and extension services, since entitlement is based on being officially registered as a "farmer". Men dominate the channels of communication and the market.[28] The reform of the division of agricultural land and its application to rural areas has negatively affected women's land ownership rights. According to the legislation on property registration and ownership rights, the certificate of ownership of agricultural land is issued in the name of the head of household. As mentioned above, the vast majority of heads of households are men.

Consequently, for the past 25 years, land has almost exclusively been registered in the name of men.[29] Women must claim their ownership right in court, for example, in cases of divorce or inheritance. However, complex legal procedures, financial implications, and social pressures are strongly discouraging factors, and respective claims made by women are uncommon. Furthermore, since land titles are intricately linked to a range of entitlements, women in general are at a clear disadvantage. In addition to the economic difficulties of and limited opportunities for women in rural areas, a broad range of structurally determined obstacles, such as accessing health care, education, infrastructure, and social services, as well as the discriminatory practices related to land rights and eligibility criteria for benefiting from support functions, need to be addressed.

[26] *Ibid*.
[27] Institute of Statistics of Albania (2019). *Women and Men in Albania 2019*. INSTAT. https://www.instat.gov.al/en/publications/books/2019/women-and-men-in-albania-2019/
[28] Kocaqi, M., Plaku, A. and Wittberger, D. (2016). *Gender Brief Albania*. UN Women & UNDP, Albania. https://albania.un.org/en/46623-albania-gender-brief-%E2%80%93-2016
[29] USAID (2010). *Property Rights and Resource Governance Country Profile Albania*. USAID. https://resourceequity.org/record/1285-property-rights-and-resource-governance-country-profile-albania/

3.5. Environment context

Albania houses an impressive diversity in terms of ecosystems, species and genetic resources. While various reports on biodiversity and the pressures on biodiversity are available, they are not linked and most are now obsolete. The most recent used in this study is the UN's 2018 ECEs Environment performance review.[30] National assessments were also performed in 2006, driven by the Global Environment Facility (GEF) funding, and in 2017 by German Corporation for International Cooperation (GIZ). [31,32]

In terms of environmental data availability, various global data resources that some of the above reports are based on are available. For example, the Red List of Threatened Species can provide information on the risks faced by individual species endemic to Albania.

3.5.1. Ecosystems

The mountainous topography, diverse geological strata, types of soil, and combination of continental and Mediterranean climate are the main factors defining Albania's ecosystem diversity. Several vegetation zones can be defined by altitude:

- Mediterranean shrub floor, rising to an elevation of 800 m;
- Oak floor, ranging from 400 to 1,200 m;
- Beech floor, extending from 800 to 2,000 m, and,
- Alpine pastures floor, extending from 1,800 to 2,700 m.

These zones contain a diversity of ecosystems including maritime ecosystems, coastal zones, lakes, rivers, evergreen and broadleaf shrubs, broadleaf forests, pine forests, alpine and sub-alpine pastures and meadows, and high mountain ecosystems.

Of the 28,748 km^2 of national territory, in 2019, 24 per cent was agricultural land, 36 per cent was forests, 16 per cent was pastures/meadows and the remaining 24 per cent was classified as other (including urban areas, lakes, waterways and unused rocky areas).[33] Albania's hydrographic network is composed of rivers, lakes, wetlands, groundwater, and seas, with wetlands covering 3 per cent of the country for example.

[30] UNECE (2018). *Environmental Performance Review Albania: Third Review Synopsis*. UNECE. https://unece.org/DAM/env/epr/epr_studies/Synopsis/Albania_ECE.CEP.183_Synopsis.pdf
[31] UNDP/GEF (2006). *Project "Albanian National Capacity Self Assessment for Global Environmental Management": NCSA Albania Final Report*. UNDP. https://www.thegef.org/sites/default/files/ncsa-documents/Albania_final_report.pdf
[32] GIZ (2017). *National Assessment of Biodiversity Information Management and Reporting Baseline for Albania*. GIZ. https://balkangreenenergynews.com/wp-content/uploads/2017/08/Albania-Assessment_ENG.pdf
[33] UNDP (2019). *Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards*. UNDP. https://www.al.undp.org/content/albania/en/home/library/environment_energy/land-degradation-neutrality-target-for-albania-and-soil-erosion-.html

However, land use change has modified some of these per centages in the past decade. For example, from 2001 to 2019, Albania lost 39,000 hectares of tree cover, equivalent to a 6% decrease in tree cover since 2000. These trends differ across the country; the top three regions (Shkoder, Korçë and Dibër) were responsible for 53 per cent of all tree cover loss between 2001 and 2019.[34] On the other hand, in the period from 2001 to 2012, Albania gained 7,360 hectares of tree cover, representing less than 0.1% of the global total.

3.5.2. Species

The flora of Albania is composed of over 3,220 species,[35] of which 1 per cent are endemic and 5 per cent are sub-endemic. This floral diversity constitutes 29 per cent of the species in Europe and 47 per cent of the flora of the Balkan Peninsula. A wide variety of mammals, birds and reptiles live within this diverse vegetation. The marine waters are home to over 110 species of fish, representing nearly the whole Mediterranean Sea ichthyofauna, while the lakes and rivers host some 52 freshwater fish species. In Ohrid Lake, there are a number of endemic species with high environmental value, including an endemic Ohrid trout (*Salmo letnica*).

3.5.3. Protected areas

In Albania there are 768 protected areas of a total surface of 504,826 ha, constituting 17.56 per cent of the total territory of the country. Among protected areas, 23.6 per cent is coastal area and 2.6 percent is marine area.[36] Most forests in the coastal areas are located within protected areas, and consist of both natural forests and planted forests. Planted forests are those along coastlines (Mediterranean pine forests), and other species planted inland. There are three designated Ramsar sites: Karavasta Lagoon, Butrinti Lake and Shkodra Lake, together covering an area of 98,180.6 ha, or 3.42 percent of the national territory.

Protected areas are very important for CCA and DRR since most are also key biodiversity areas. Specifically, based on the data of Key Biodiversity Areas (KBA), there are 32 KBAs in Albania; 29 of these cover a total surface area of 4,955 km^2 while data are lacking for the remaining three. Protection coverage of 54 per cent of the total surface of these areas is over 81%, and only 7 KBAs (covering 181 km2 or 4 per cent of the total area) have no protected area or other effective area-based conservation measures coverage. Figure 3 presents the analytical situation.[37]

[34] Global Forest Watch. *Tree cover loss in Albania.* Global Forest Watch. Retrieved on March 17, 2021 from https://www.globalforestwatch.org/dashboards/country/ALB/?map=eyJjYW5Cb3VuZCI6dHJ1ZX0%3D
[35] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf
[36] Protected Planet (n.d.). *Protected Areas Albania*. Protected Planet. Retrieved on June 2, 2022 from https://www.protectedplanet.net/country/ALB
[37] Key Biodiversity Areas (n.d.). *KBA Data – filter Albania*. Key Biodiversity Areas. Retrieved in 2020 from https://www.keybiodiversityareas.org/kba-data

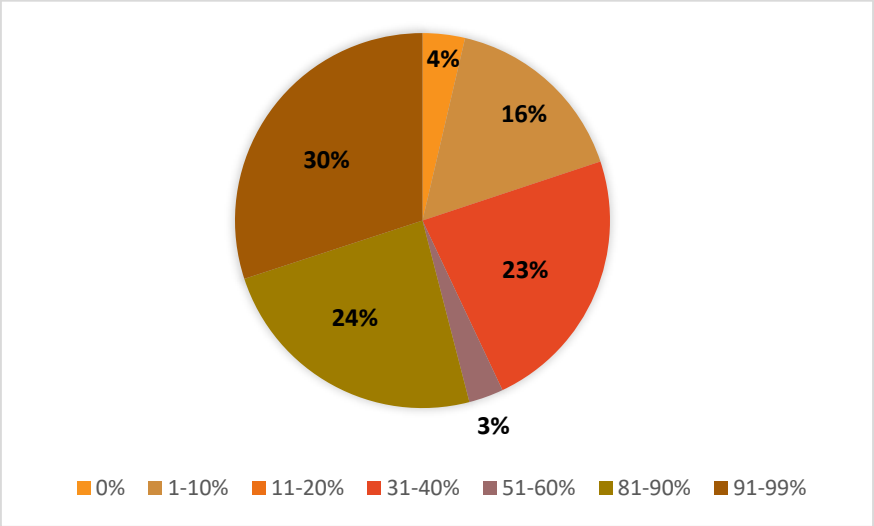

Figure 3. Percentage of Key Biodiversity Areas covered by Protected Areas *(Source: Key Biodiversity Area, see footnote 37)*

3.5.4. Pressures on biodiversity and ecosystems

At the ecosystem level, in 2017 the European Commission initiated the drafting of the European Red List of Habitats,[38] assessing a total of 490 habitats across 35 countries in Europe to determine their risk of collapse. This assessment benefited from the knowledge and expertise of over 300 experts, although limited data was received from Albania and Kosovo due to a shortage of expert contacts.

There are monitoring points for a variety of environmental factors including water, soil, forests, and biodiversity (Figure 4. Sectors of environmental monitoring and number of monitoring sites in Albania (*Source: UNDP, 2019, see footnote 39)*Figure 4). However, Albanian environmental monitoring is far from complete and so there is a significant knowledge gap in the understanding of the pressures and drivers of those pressures on ecosystems and biodiversity. Increased financial resources for environmental monitoring would also allow the government to implement the annual national environmental monitoring programme.[39]

The UNDP's final report in 2019 on the Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards [40] identifies the main causes (many interdependent) for environmental problems in Albania: unsustainable forestry, agricultural

[38] European Commission (2016). *European Red List of Habitats. Part 2, Terrestrial and freshwater habitats*. Publishing Office of the European Union. https://doi.org/10.2779/091372
[39] UNECE (2018). *Environmental Performance Review Albania: Third Review Synopsis*. UNECE. https://unece.org/DAM/env/epr/epr_studies/Synopsis/Albania_ECE.CEP.183_Synopsis.pdf
[40] UNDP (2019). *Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards*. UNDP. https://www.al.undp.org/content/albania/en/home/library/environment_energy/land-degradation-neutrality-target-for-albania-and-soil-erosion-.html

and pastoral practices, abandoned industrial installations, mining enterprises, and waste dumps. In addition, major concerns include soil erosion and land contamination, as the water management situation is dire posing a major source of pollution.

Albania environmental monitoring system for 2018	Number of monitoring points
Air	121
Noise	57
The river water	151
Lake water	36
Lagoon water	33
Sea water	28/102
Underground water	59
Bio-quality water	95
Soil	26
Forest	99
Biodiversity	76

Figure 4. Sectors of environmental monitoring and number of monitoring sites in Albania (*Source: UNDP, 2019, see footnote 39)*

Specifically, in regard to habitat loss and degradation, pressures will differ based on ecosystems. For example, in regard to arable land, habitat loss and degradation are caused primarily through desertification and conversion to land used for housing construction. In forest areas, habitat loss is primarily caused by deforestation due to illegal logging and destruction of meadows and pastures. In coastal areas, biodiversity faces specific pressures caused by excessive flooding of large areas and erosion. Protected areas also face pressures, as illegal activities, such as hunting, wood cutting and construction, are frequent activities in protected areas and the administrative capacity of the inspectorates to regulate and restrict them remains weak. Meanwhile, threats to KBAs have been identified as biological resources use, human disturbance, natural system modifications, and residential/commercial development.[41]

[41] Key Biodiversity Areas (n.d.). *KBA Data – filter Albania*. Key Biodiversity Areas. Retrieved in 2020 from https://www.keybiodiversityareas.org/kba-data

With different approaches and data used to identify pressures, a systemic overview of the pressures is difficult to elucidate.

3.6. Land use

Albania has a total land surface of 28,748 ha, of which 24 percent is arable land, 36 percent is forest, 16 percent is pastures and meadows. The remaining 24% is classified as other, which includes urban areas, lakes and waterways and unused rocky. In the past, the Albanian landscape has been dominated by extreme changes in land use, such as the urban residential sprawl taking over agricultural land in the period from 2000 to 2006. The sprawl areas mainly surrounded the capital city Tirana, extending along the main transportation network, and along the Adriatic coast, with a formation rate of new artificial areas (e.g., urban, infrastructure, recreation) that reached more than 50 per cent of the initial artificial area (4.96 per cent per year).[42]

3.7. Agriculture

Agricultural land in Albania covered a surface area of 696,000 ha in 2019.[43] Agriculture is one of the main economic sectors in Albania, contributing to approximately 20 per cent of the value added in the economy. Starting from 2006, the sector has experienced moderate growth. However, the development of the sector is highly constrained by several structural problems. Relatively underdeveloped infrastructure in rural areas holds back the emergence of agricultural products onto the market. Agricultural land fragmentation hinders the effective organisation of production, reduces productivity, and increases the cost of using agricultural machinery. Meanwhile, agricultural land is not utilised to its full capacity as a result of the external and internal migration of the population. This phenomenon, together with issues concerning land ownership, has limited continuing investment in the agricultural sector.

Despite the general expansion of credit to the economy during the period 2000–2008, credit for agriculture activities has remained at low levels. However, the expansion of the sector during 2005–2013 is believed to have contributed to the general economic increase in the country. In addition, the increase of agricultural prices on world markets conveys positive incentives for long-term production growth of this sector of the Albanian economy. This has been supported by developmental and structural reforms (aimed at increasing efficiency in

[42] UNDP (2019). *Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards*. UNDP. https://www.al.undp.org/content/albania/en/home/library/environment_energy/land-degradation-neutrality-target-for-albania-and-soil-erosion-.html

[43] INSTAT (2021). *Area (000/ha) by Land structure, Type and Year – Area of Agriculture Land in 2019*. INSTAT. Retrieved 2020 from https://databaza.instat.gov.al:8083/pxweb/en/DST/START__BU__AGI/NewBU0009/table/tableViewLayout1/

agricultural production, facilitating access of local agricultural products in domestic and foreign markets, and financially supporting businesses and farms of this sector) that have been considered to be a priority for future economic policies.

In 2011, the sector employed 54.6 per cent of the total number of employees. Agriculture is sensitive to short-term changes in weather and to seasonal, annual and longer-term variations in climate, and in particular to temperature and precipitation that are key drivers of agricultural production. These direct impacts on agriculture production are compounded by effects on soil characteristics, seed genetics, pests and disease, and agronomy practices that impact crop yields. Winter temperatures are important for the pest survival and studies have shown that increasing temperatures accelerate pest development. Pest-crop interactions will be also directly affected by the rising CO_2 levels through the alteration of host plant attributes.

3.8. Forestry

Forests cover around 36 per cent of the land area of Albania. Nearly four-fifths of the growing stock consists of broad-leaved species, predominantly species of deciduous and evergreen oak and beech. They consist of high stem forests (45.7 per cent) and coppice (54.3 per cent). Single species forests cover 72.3 per cent and mixed species forests 27.7 per cent of the land. Albania is one of the few European countries where there has been a decline in forest area in recent decades, due to clearance for agriculture, overgrazing, and cutting for fuel-wood. Firewood is an important commodity for Albania since it is used for heating by the majority of households (36 per cent of energy demand), while in rural areas it is also used for cooking (12 per cent). Timber production affects 86 per cent of forests in Albania, while 14 per cent perform protective functions (erosion control, biodiversity conservation, etc.).

3.9. Hydrology

Albania is rich in water resources. The hydrographical basin that feeds the nation's watercourses extends over multiple countries, covering a total area of 43,305 km^2 and is about 50 per cent larger than the national territory.[44] Seven rivers and their tributaries flow towards the Adriatic Sea. The rivers of Albania are an important source of hydropower, while 250 lakes occupy 4 per cent of the territory. The origin of the lakes is glacial, tectonic or human-made. However, management of water resources faces serious problems, due to the weak capacities

[44] UNECE (2018). *Environmental Performance Review Albania: Third Review Synopsis*. UNECE. https://unece.org/DAM/env/epr/epr_studies/Synopsis/Albania_ECE.CEP.183_Synopsis.pdf

of public water companies to manage basic services in delivering drinking water and wastewater treatment.

3.10. Climate change context

Albania is located in the Western Balkan region and is one of the most vulnerable countries in this region to the impacts of climate change. Future climate scenarios for Albania anticipate changes, such as increasing trends in annual and seasonal temperatures, both in terms of minimum and maximum values, decreased precipitation and a reduction of water resources and arable land. According to the Third National Communication to the UNFCCC (TNC), by the summer of 2050, the coastal zone is unlikely to experience average temperatures below 25°C; by 2100, average temperatures of up to 30°C are expected to dominate all coastal areas. In addition, all scenarios project a likely decrease in seasonal precipitation in all seasons compared to 1990 reference values.[45]

According to the First and Second National Communications to UNFCCC, simulations based on several Intergovernmental Panel on Climate Change (IPCC) models with a baseline period of 1961–1990 indicate the following forecasts for temperatures and precipitation:

- The expected annual increase in temperature could be up to 1.1°C by 2027 and 1.8°C by 2050, with temperatures expected to increase during all seasons. The IPCC Special Report on Emission Scenarios [46] developed for the Albanian Coast Projections are based on the IPCC Fourth Assessment Report [47] and anticipate a likely increase in annual temperatures relative to 1990 in all seasons. The scenarios project the lowest increase in winter temperatures compared to other seasons, and higher increases in spring compared to winter in 1990.
- Precipitation is estimated to decrease at a rate of around 4 per cent by 2027 and 6.1 per cent by 2050. The range of total annual precipitation by 2050 is expected to vary between 570 mm (in the southeast) and 2,100 mm (in the southwest). The maximum value is estimated at approximately 2,650–2,850 mm across the alpine zones. Due to the anticipated higher average temperatures in winter, more precipitation is likely to fall in the form of rain rather than snow, which will increase soil moisture together with soil erosion and run-off. Episodes of intensive rain are also predicted to rise. The number

[45] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf
[46] Intergovernmental Panel on Climate Change (2000). *IPCC Special Report on Emission Scenarios: Summary for Policymakers*. Intergovernmental Panel on Climate Change. https://archive.ipcc.ch/pdf/special-reports/spm/sres-en.pdf
[47] Intergovernmental Panel on Climate Change (2007). *Fourth Assessment Report*. Intergovernmental Panel on Climate Change https://www.ipcc.ch/assessment-report/ar4/

of days with heavy precipitation (24 hours maximum) compared to the 1961–1990 average is likely to increase by 1–2 days by 2027 and by 2–3 days by 2050.

- Overall, the changes in seasonal temperature and precipitation suggest a trend towards milder winters, warmer springs, and drier and hotter summers and autumns. Increasing heat and decreasing precipitation will result in a reduction of water resources.[48] One of the consequences of the predicted changes in temperatures and precipitation will be a likely rise in the number of hot days and heat waves in the coastal areas. More frequent and severe droughts with a greater fire risk are also expected.
- According to the information provided in the TNC, which includes an analysis of the coastal area, sea levels on the Albanian coast are expected to rise up to an average of 14.6 cm by 2050 and 40 cm by 2100, reaching a maximum of 73 cm by 2100.
- Reduced sea level pressure in summer will increase the occurrence of convective storms.

Impacts on climate change pose a major challenge for Albania, specifically in terms of coping with impacts on water and sanitation, agriculture, ecosystems and biodiversity, and the well-being of local communities. Elevating climate change preparedness remains a priority in Albania as the energy supply and agriculture sectors remain vulnerable to climate changes, especially in relation to hazards. Although there will likely be a decreasing trend in annual precipitation, high variability is expected, with an increase in extreme precipitation events in terms of magnitude and frequency (flooding). However, the overall reduced levels of precipitation will also lead to a rise in the number of consecutive days without precipitation (drought).

3.10.1. Water management

According to the National Strategy for Water Supply and Sanitation 2020–2030, by the end of 2018, approximately 2,400,000 inhabitants or 85 per cent of Albania's population was connected to the water supply system.[49] Despite this relatively high coverage, the level of service is still fairly weak, and could be further improved, as the average availability of drinking water was only 50 per cent.[50] Although progress has been made, the current standards are well below the EU standard.

[48] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

[49] Ministry of Infrastructure and Energy of Albania (2020). *National Strategy for Water Supply and Sanitation 2020–2030*. https://faolex.fao.org/docs/pdf/alb214413.pdf

[50] UNEP and Ministry of Tourism and Environment of Albania (2020). *Developing the capacities of Albania for an effective engagement with the Green Climate Fund: Official Country Programme for Albania*. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.uri.org.al%2Fweb%2Fwp-content%2Fuploads%2F2020%2F06%2F04082020_Final-Country-programme-Albania.doc&wdOrigin=BROWSELINK

The potential impacts of climate change on Albania's water resources include:[51]

- a reduction in the long-term average annual and seasonal runoff;
- increase in riverine flood risk, with the greatest risk of flooding moving from spring to winter;
- groundwater supply will be affected by the decreased percolation of water due to a reduced precipitation and stream flow, and loss of soil moisture due to increased evapotranspiration;
- sea level rise will have several direct impacts, including inundation and displacement of wetlands and lowlands, coastal erosion, increased storm flooding and damage, increased salinity in estuaries and coastal aquifers, and rising coastal water tables.

Reduced run-off implies a decrease in river discharge and consequently, a decrease in the availability of fresh water surface sources. Today, reservoirs provide some buffer capacity. Reduced recharges of aquifers imply reduced availability of groundwater resources and lower groundwater tables. The estimated volume of groundwater will not necessarily pose a threat, though potential occurrences of regional/local scarcity of groundwater cannot be excluded. Data is lacking or obsolete in regard to the impact of climate change on water pollution.

3.10.2. Agriculture

Agriculture is sensitive to short-term changes in weather and to seasonal, annual and longer-term variations in climate, and in particular, to temperature and precipitation, which are key drivers of agricultural production. Of all the economic sectors, agriculture is one of the most climate-sensitive, with climate change putting the livelihoods of rural populations at risk. Agricultural land covers about 16 per cent, so it is of no surprise that agriculture is one of the main economic sectors in Albania, contributing to approximately 20 per cent of the value added in the economy. Given that the majority of rural populations depends, indirectly or directly, on agriculture for their livelihoods, the risks of climate change in Albania are an immediate and fundamental problem.

The largest increase in temperature is expected to occur in the summer and spring periods, which coincides with plant growth and fructification. This is expected to lead to negative effects for the majority of agricultural crops and will affect water demand during the peak period when there is no precipitation for effective crop production. The 2013 World Bank report "Reducing

[51] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

the vulnerability of Albania's agricultural systems to climate change"[52] projects an impact across all four of Albania's four agro-ecological areas. Not all impacts are predicted to reduce yields; while yields of grapes and olives are predicted to decline by around 20 per cent in a medium impact scenario, there is the potential that climate changes could improve yields of irrigated alfalfa.

3.10.3. Ecosystems and biodiversity

According to Albania's TNC, there is already evidence that climate change, with changing precipitation patterns, has increased instances of flooding and droughts, sea level rise, and ocean acidification. This is impacting Albania's ecosystem and biodiversity, which is projected to decrease in the future on account of multiple stress factors, in particular increased land use intensity and the associated destruction or conversion of natural and semi-natural habitats. Coastal ecosystems have been identified as particularly vulnerable.[53]

Key climate change impacts on ecosystems in Albania include an increased incidence of forest fires, with a record number of forest fires in 2007, associated with plant stress and drying due to high temperatures,[54] and a destruction or shift in habitats; the latter is especially pertinent in coastal areas where unregulated urban development, deforestation, agricultural development, and the extraction of gravel and sand for construction have contributed to coastal erosion, thus increasing both human and ecosystem vulnerability to storm surges.[55] Habitat change can also have knock-on effects on human wellbeing, for example communicable diseases can emerge and increase as consequence of a warming climate (foodborne diseases such as salmonella) and water quality can be impaired (by waterborne diseases).[56]

3.10.4. Forestry

Forests cover around 36 per cent of the land area of Albania. The increased vulnerability of forests to extreme weather events associated with climate change includes:

[52] Sutton, W. R., Srivastava, J. P., Neumann, J. E., Strzepek, K. M. and Droogers, P. (2013). *Reducing the Vulnerability of Albania's Agricultural Systems to Climate Change: Impact Assessment and Adaptation Options*. World Bank. http://doi.org/10.1596/978-1-4648-0047-4

[53] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

[54] Kola, H. and Pjetri, E. (n.d.). *Albania.* Food and Agriculture Organisation. Retrieved from https://www.fao.org/4/k9589e/k9589e03.pdf

[55] The World Bank (2009). *Europe and Central Asia Knowledge Brief: Adapting to Climate Change in ECA*. The World Bank. https://openknowledge.worldbank.org/server/api/core/bitstreams/90f7b862-423e-5dc7-b8b6-d2b52003c0b2/content

[56] World Health Organization (2009). *Protecting Health from Climate Change*. WHO. https://www.uncclearn.org/wp-content/uploads/library/who55.pdf

- Forest cover: conversion of forests into non-woody energy plantations; accelerated deforestation and forest degradation, which may lead to risks of wildfires; increased use of wood for domestic energy;
- Biodiversity: alteration of plant and animal distribution; loss of biodiversity; habitat invasions by non-native species; alteration of pollination systems; changes in plant dispersal and regeneration;
- Productivity: changes in forest growth and ecosystem biomass; changes in species/site relations; changes in ecosystem nitrogen dynamics;
- Health: increased mortality due to climate stresses; decreasing health and vitality of forest ecosystems due to the cumulative impacts of multiple stressors; deteriorating health of forest-dependent people;
- Soils and water: changes in the seasonality and intensity of precipitation, altering the flow regimes of streams; changes in the salinity of coastal forest ecosystems; increased probability of severe droughts; increased terrain instability and soil erosion due to rising precipitation and the melting of permafrost; more/earlier snow melt resulting in changes in the timing of peak flow of and volume in streams. The capacity of the forest ecosystem to purify water is an important factor, avoiding the cost of expensive filtration plants;
- Carbon cycles: alteration of forest sinks and increased CO_2 emissions from forested ecosystems due to changes in forest growth and productivity;
- Tangible benefits of forests for people: changes in tree cover; changes in socio-economic resilience; changes in availability of specific forest products (timber, non-timber wood products and fuel wood, wild foods, medicines, and other non-wood forest products).

Initiatives to increase afforestation must be intensified and sustainable forest management ensured. The SDG targets on mobilising and increasing resources for sustainable forest management are crucial if Albania is to effectively address all challenges related to protection, restoration, and the promotion of sustainable forest management.

3.10.5. Tourism

Tourism in the coastal areas is dominated by “sun and sea” tourism. However, due to active marine erosion, the shoreline is moving inland, destroying hundreds of square meters of beach areas annually, while at the same time destroying hundreds of pine trees. Although only some of these transformations can be attributed to climate change, it is primarily caused by poor management of river outlets and the coastline. Projections suggest that:

- by 2030, Patoku Beach will have completely disappeared with the Kune and Seman beaches only partially remaining;
- by 2050, most parts of the Kune and Seman beaches are expected to have disappeared, and,
- by 2080, serious consequences are expected for the Vlora Beach and for most other beaches.

Apart from the destruction of existing beaches, new beaches will be formed further inland as the sea advances, which could be used for tourism purposes. The disappearance of beaches is expected to coincide both with population growth and an increase in the number of tourists due to rising temperatures (hot summer days are easier to tolerate at the coast).

3.11. Disaster risk profile

Albania is a disaster-prone country exposed to numerous hazards, particularly including geological (earthquakes, rock falls, and landslides) and hydro-meteorological hazards (flooding and torrential rains, droughts, snowstorms, high snowfall, and windstorms). There is evidence that the rate of disaster events increased in the period 1993–2013. For example, according to the European Environment Agency, Albania shows the highest level of drought severity per decade in Europe.

According to the World Risk Index, Albania is classified as a country with a high disaster risk, ranking 60 out of 181 countries. The World Risk Index calculates the relative disaster risk based on four components (exposure, susceptibility, coping capacity, and adaptive capacity) and 28 indicators. Scores for the four components of the index indicate that while Albania has a low susceptibility to disaster impacts, its high-risk index is mostly due to its very high exposure to hazards, coupled with relatively low adaptive and coping capacities.[57]

Disasters are defined as “serious disruptions 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”.[58] While natural hazards are naturally occurring phenomena, disasters are defined by how well a society copes with a hazard event, both in preventing its impacts and responding to it. Thus,

[57] Comes, M., Dubbert, M., Garschagen, M., Hagenlocher, M., Sabelfeld, R., Lee, Y. I., Grunewald, L., Lanzendörfer, M., Mucke, P., Neuschäfer, O., Pott, S., Post, J., Schramm, S., Schumann-Bölsche, D., Vandemeulebroecke, B., Welle, T. and Birkmann, J. (2016). *World Risk Report 2016.* Alliance Development Works and United Nations University – Institute for Environment and Human Security. https://collections.unu.edu/eserv/UNU:5763/WorldRiskReport2016_small_meta.pdf
[58] UNISDR (2009). *United Nations International Strategy for Disaster Reduction Terminology on Disaster Risk Reduction*. United Nations. https://www.preventionweb.net/files/7817_UNISDRTerminologyEnglish.pdf

not all hazards become disasters and as human agency often aggravates or inadequately responds to a hazard event, it could be argued that 'natural disasters' do not exist.

More than 7,481 disaster events were registered in Albania during the period from 1851 to 2019. Meteorological events are the general cause of around 59 per cent of disasters, while about 7 per cent are geophysical (earthquakes and avalanches), as presented in Figure 5. [59] The most common disaster events are forest fires (15 per cent), followed by floods and flash floods (15 per cent), landslides (9 per cent), earthquakes (7 per cent) and rain, wind and heat waves (6 per cent). The most recent event was an earthquake of magnitude 6.4 Richter which hit Albania in 2019, where 51 persons lost their life and many structures suffered severe damages.

However, the reporting of the Albanian authorities to DesInventar (the Sendai Framework's Disaster loss data for Sustainable Development Goals and Sendai Framework Monitoring System) needs to be more uniform across the country, so the data are more reflective of trends rather than exact statistics.

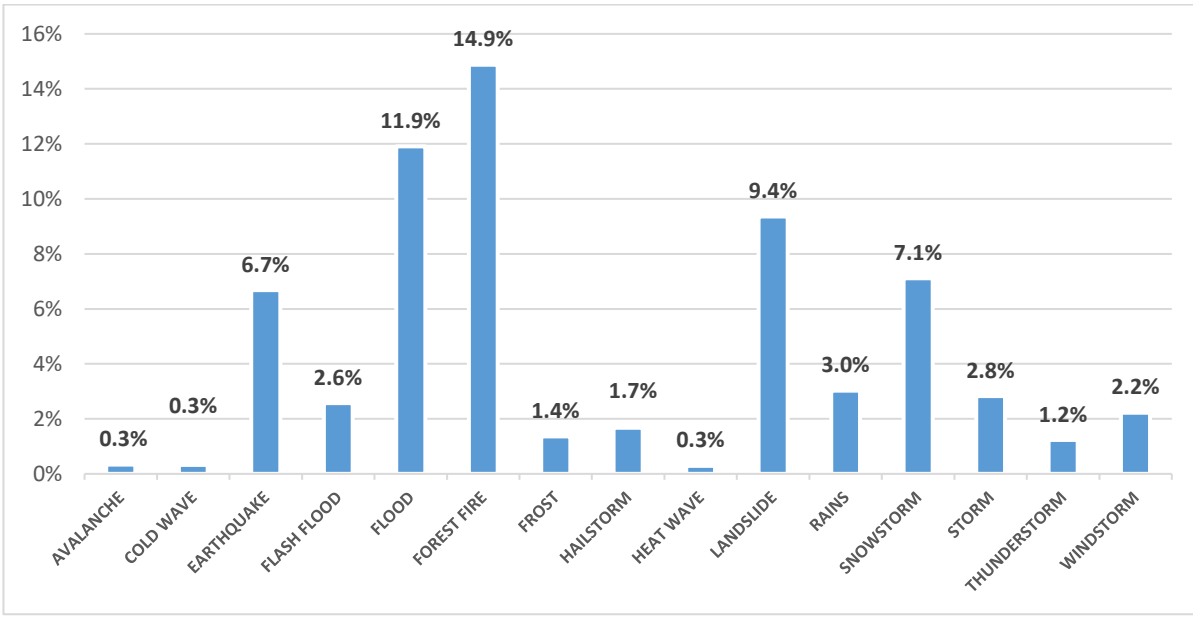

Figure 5. Disaster events in Albania from 1851 to 2019 (*Source: Data from UNDRR, see footnote 59*)

Records show that in the past 168 years, about 850,000 people have been affected by disasters. Figure 6 and Figure 7 show the percentage of people killed and affected by different disaster types. While earthquakes and floods are the deadliest individual events, more people

[59] UNDRR DesInventar - Sendai Framework for Disaster Risk Reduction (2020). *Albania – Multihazard Profile*. UNDRR DesInventar Sendai. https://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=alb&continue=y

were affected in total by meteorological events (49 per cent), followed by floods (26 per cent), earthquakes (14 per cent), and landslides (12 per cent).[60]

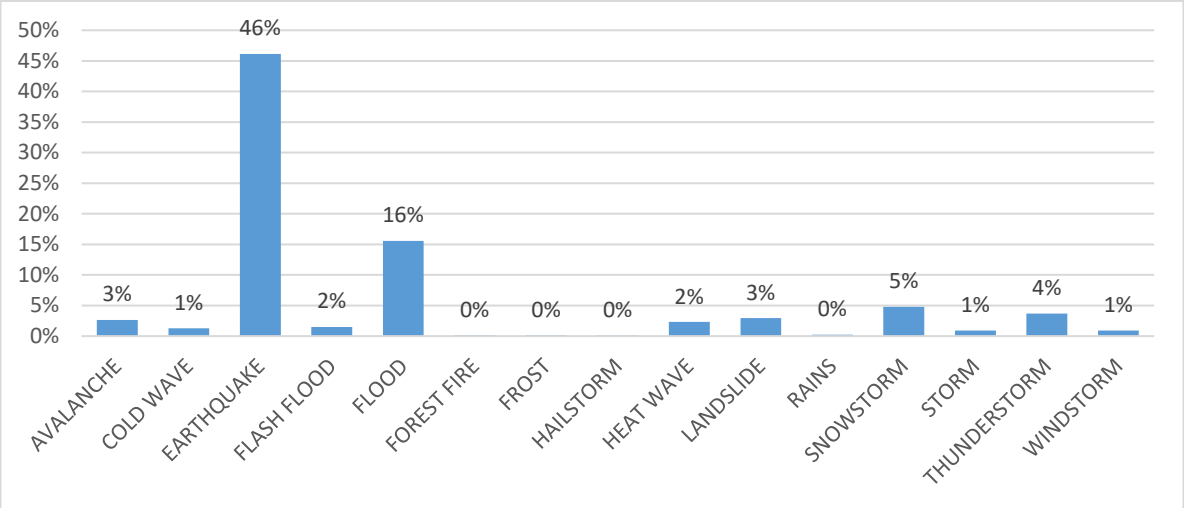

Figure 6. Percentage of human fatalities by hazard type in Albania from 1851–2015 *(Source: UNDRR, see footnote 60)*

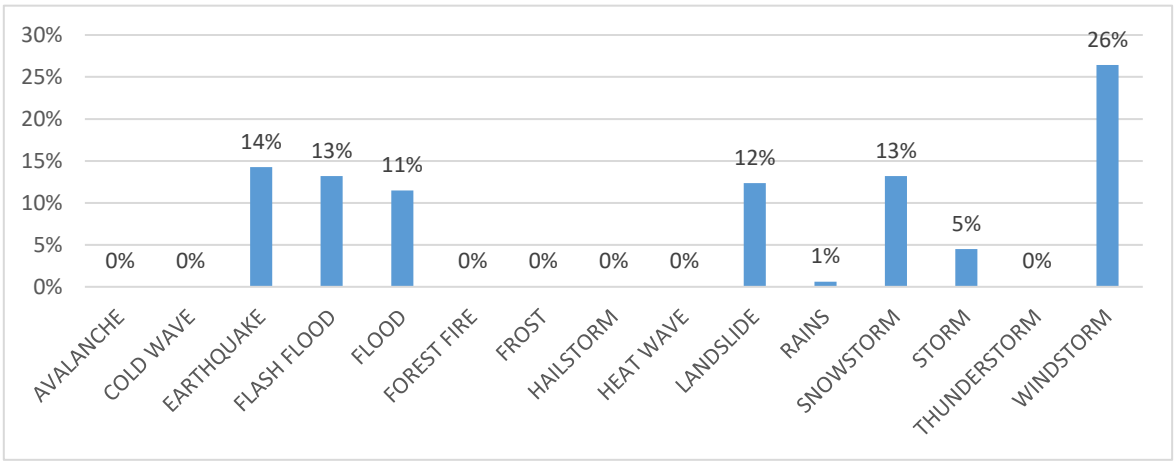

Figure 7. Percentage of people affected by hazard type in Albania from 1851–2015 (*Source: UNDRR, see footnote 60*)

In terms of economic impacts, the highest direct economic loss is due to hydrological events (mainly floods and flash floods), accounting for 62% of the total economic loss in the local currency.[61] Floods in Shkodra in 2002 and 2010 strongly contributed to direct economic losses, at 2.8 billion ALL (20 million USD) and 4 billion ALL (40 million USD) in losses, respectively. These two disasters accounted for 67 per cent of the total direct economic losses

[60] UNDRR DesInventar - Sendai Framework for Disaster Risk Reduction (2020). *Albania – Multihazard Profile*. UNDRR DesInventar Sendai. https://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=alb&continue=y
[61] *Ibid.*

of the last 30 years.[62] Although earthquakes pose a strong risk of high impact, they are less likely to occur.[63] Landslides also create high level of losses; though no major events have been recorded, the high value of losses is related to many small events that damaged houses, accounting for 11 per cent of all economic losses recorded by all disasters.

Additional details on floods and forest fire frequencies and hotspots are provided in the following sections.

3.11.1. Floods

As stated earlier, Albania is vulnerable to floods and flash floods. Between 1997 and 2017, recurring floods caused USD 218 million in damage, directly affecting more than 550,000 inhabitants.[64]

Historical flood data from the WB suggests a more frequent occurrence of flood events in the region, characterised by more extreme and more rapid increase in water levels, attributed to an uneven distribution of precipitation and torrential rain, especially since 2005.[65]

In Albania, all regions have experienced at least one flood in their territory during the period from 1851 to 2019. Figure 8 and Figure 9 show the spatial distribution of floods by region and municipality for this period. The regions most exposed to floods are Shkodra and Lezha in the northwest, and Fier in the southwest.[66]

[62] Toto, E. and Masabo, M. (2014). *Historical Collection of Disaster Loss Data in Albania*. CIMA Research Foundation, International Centre on Environmental Monitoring. https://www.cimafoundation.org/docs/reports/Historical_collection_of_Disaster_Loss_Data_In_Albania.pdf
[63] World Bank Group (2015). *Europe and Central Asia (ECA) Risk Profiles: Albania*. World Bank Group. http://documents.worldbank.org/curated/en/894321493877728628/pdf/114766-WP-PUBLIC-drp- albania.pdf
[64] Dibra, L., Tafaj, L. and Borde, A. (2019). *Striving to Adapt to Climate Change: Lessons from Albania*. NAP Global Network. Retrieved 2020 from https://napglobalnetwork.org/2019/10/striving-to-adapt-to-climate-change-lessons-from-albania/
[65] European Commission (2015). *Flood Prevention and Management: Gap analysis and needs assessment in the context of implementing the EU Floods Directive*. European Commission. https://www.mvp.gov.ba/Baneri-Linkovi/FLOOD%20PREVENTION%20AND%20MANAGEMENT%20GAP%20ANALYSIS.pdf
[66] UNDRR DesInventar - Sendai Framework for Disaster Risk Reduction (2020). *Albania – Multihazard Profile*. UNDRR DesInventar Sendai. https://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=alb&continue=y

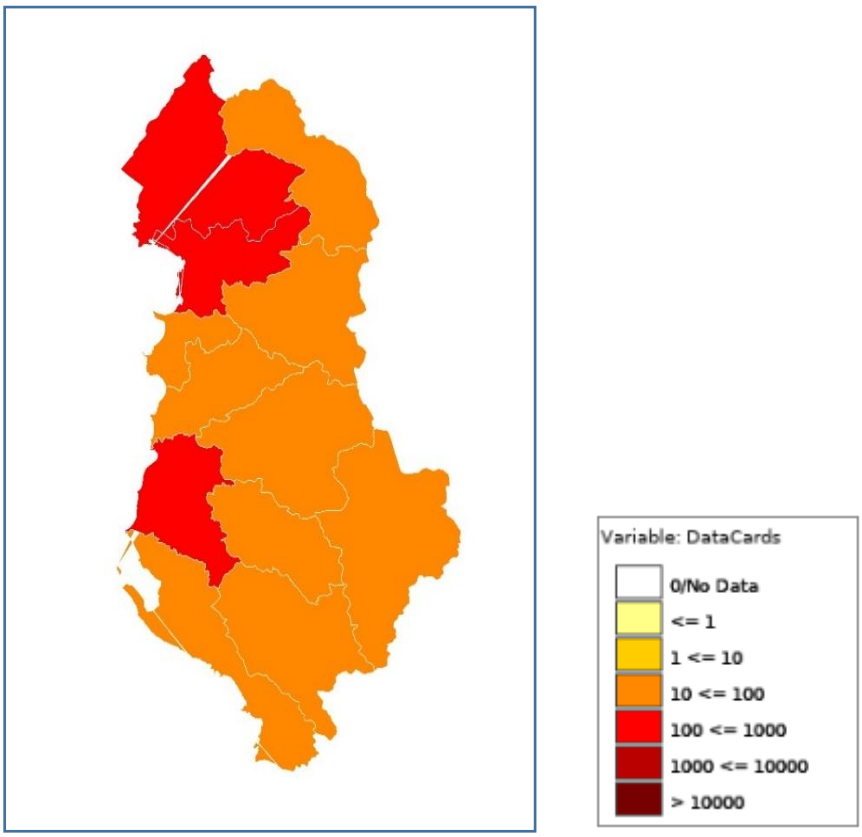

Figure 8. Map of flood hazard occurrence in Albania, by regions from 1851 to 2019 (*Source: UNDRR, 2020, see footnote 66)*

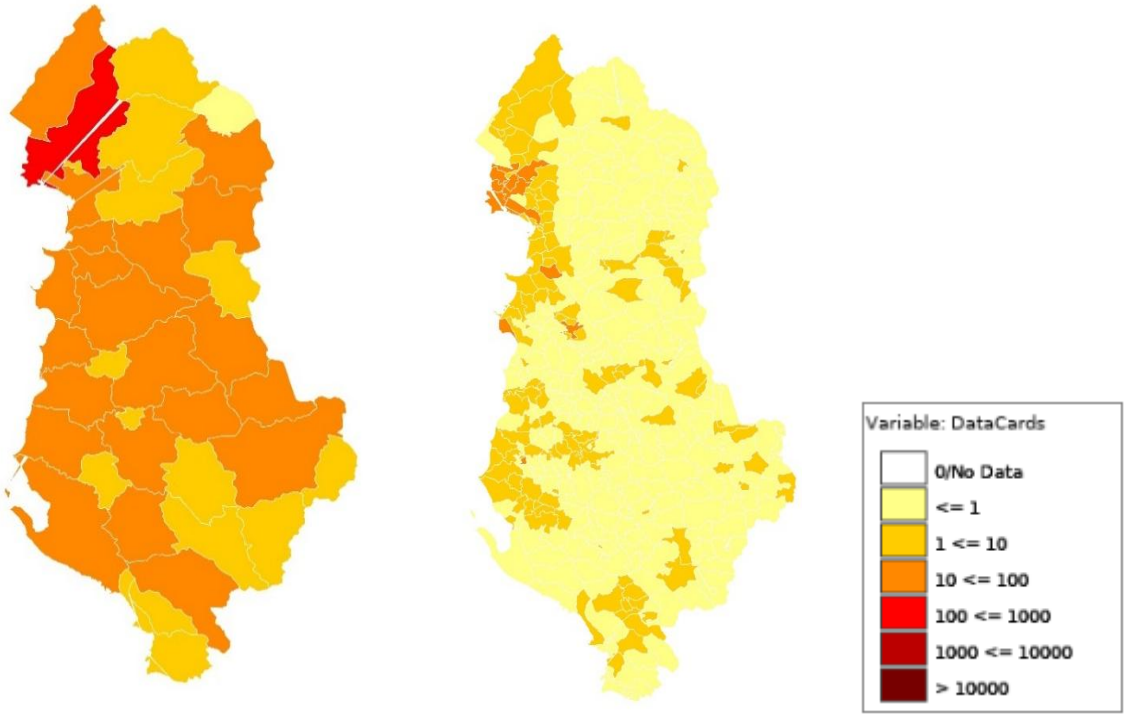

Figure 9. Map of flood hazard occurrence in Albania, by municipalities and administrative units from 1851 to 2019 (*Source: UNDRR, 2020, see footnote 66)*

Figure 10 shows the temporal behaviour of floods and flash floods for the period from 1865 to 2019. Generally, the number of events is increasing with a maximum in 2010 (110 events). In the last 20 years, at least one flood occurred every year in the country, with an average of 23 events per year.[67]

[67] *Ibid.*

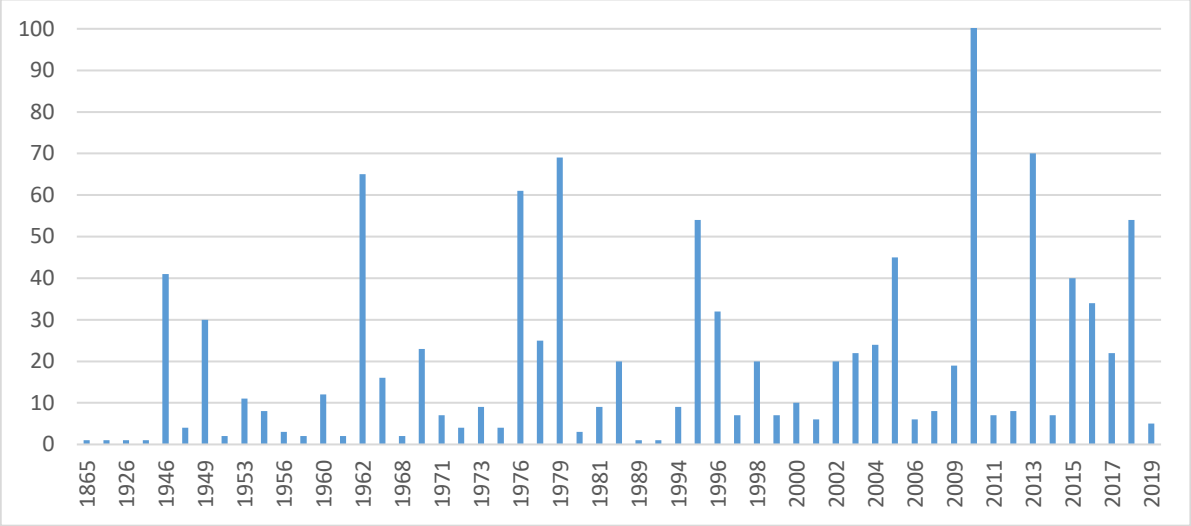

Figure 10. Floods and flash floods frequency in Albania from 1851 to 2019 (*Source: UNDRR, 2020, see footnote 67)*

3.11.2. Fires

Forest fires affect a large part of the territory, especially in mountainous areas; according to Albania's TNC. Recent decades have seen both intentional and accidental fires, and events remain unpredictable in terms of frequency and duration. However, future projections of changes to temperature regimes expect more hot days and heat waves, which in turn will increase the fire risk.[68]

Figure 11 and Figure 12 show the spatial distribution of forest fires by region, municipality, and administrative unit for the period from 1851 to 2019. The most affected regions are Fier, Vlore and Berat in the south, and Dibra in the north. Figure 13 shows the temporal trend of forest fires during the period from 1950 to 2019 with an average of 33 forest fires per year. The highest number of events (nearly 200 occurrences) was in 2007.[69]

In addition to the risk to human health and survival, wildfires have a detrimental effect on agriculture, forestry and tourism. Wildfires also have a substantial economic and social impact on the exposed communities. Finally, wildfires have an impact on ecosystems that is difficult to quantify, including degradation of forests, soil erosion, and loss of fertility, decline in biodiversity, and emission of greenhouse gases (GHG).[70]

[68] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

[69] UNDRR DesInventar - Sendai Framework for Disaster Risk Reduction (2020). *Albania – Multihazard Profile*. UNDRR DesInventar Sendai. https://www.desinventar.net/DesInventar/profiletab.jsp?countrycode=alb&continue=y

[70] United Nations Development Programme (2016). *Human Development Report 2016 – Human Development for Everyone*. UNDP. https://hdr.undp.org/system/files/documents/2016humandevelopmentreportpdf1pdf.pdf

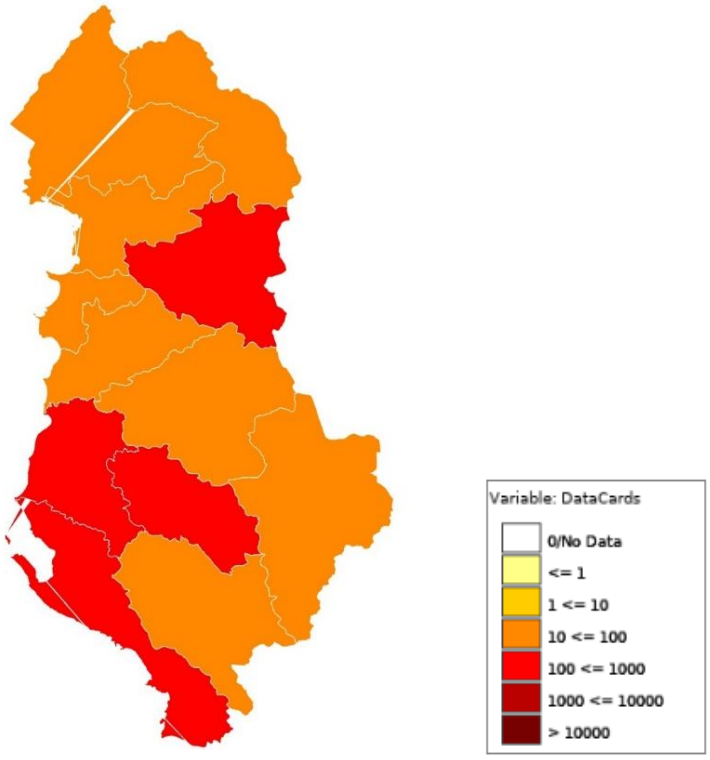

Figure 11. Map of forest fire hazard occurrence in Albania, by region from 1851 to 2019 (*Source: UNDRR, 2020, see footnote 69)*

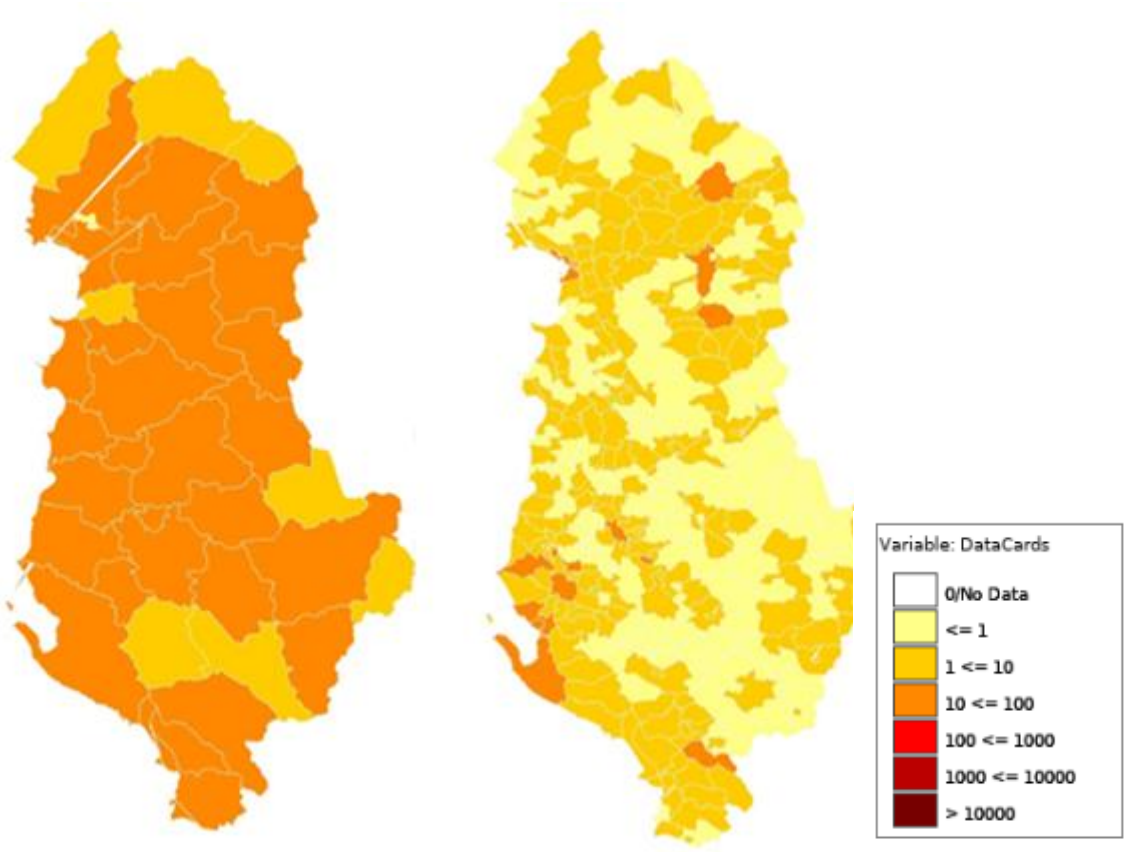

Figure 12. Map of forest fire hazard occurrence in Albania, by municipality and administrative unit from 1851 to 2019 (*Source: UNDRR, 2020, see footnote 69)*

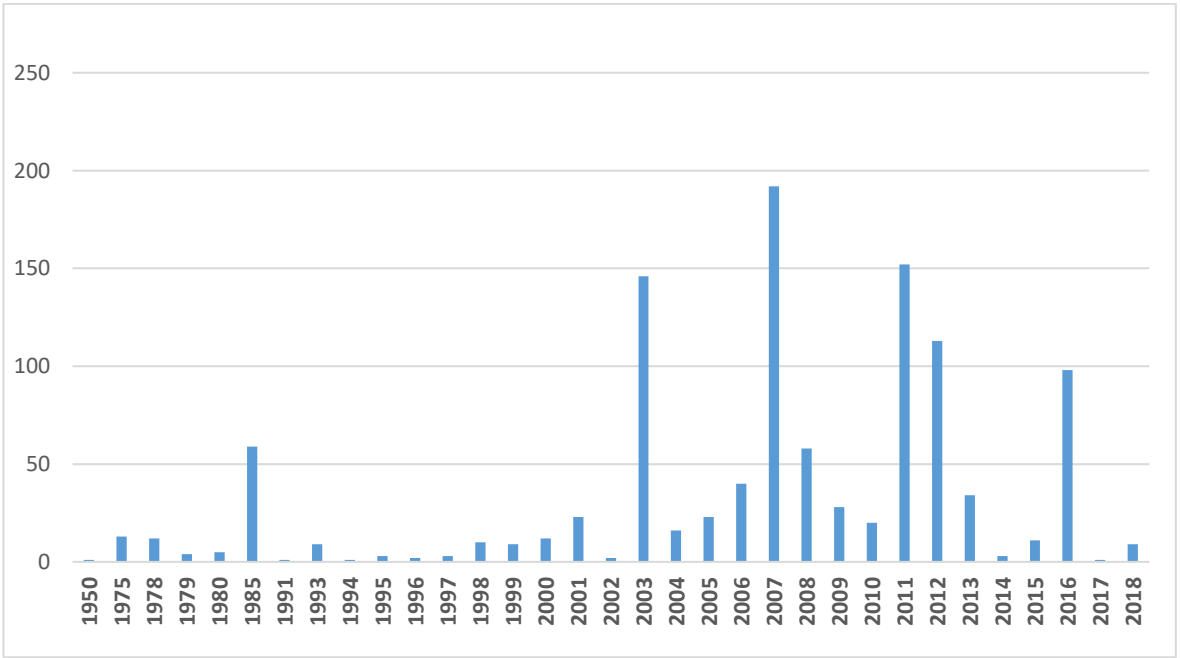

Figure 13. Forest fire frequency in Albania from 1950 to 2018 (*Source: UNDRR, 2020, see footnote 69)*

Forest fires are highly seasonal, with more than 90 per cent of forest fires occur during the summer period from July to September. Compared to other hazards, forest fires have a lower impact on mortality and infrastructure destruction, yet this is still significant. Economic losses due to forest fires reached nearly ALL 1 million per year with a maximum of ALL 7 million (USD 51,000) in the summer of 1999. These figures, however, do not account for the huge impact of fires on agriculture and environment. There are 29 events recorded with an agriculture damage of 100 or more hectares, causing a total loss of 8,172 hectares, or 62 per cent of the total agricultural losses during that period.[71]

[71] Toto, E. and Masabo, M. (2014). *Historical Collection of Disaster Loss Data in Albania*. CIMA Research Foundation, International Centre on Environmental Monitoring.
https://www.cimafoundation.org/docs/reports/Historical_collection_of_Disaster_Loss_Data_In_Albania.pdf

4. Stakeholder analysis

NbS is a new concept for Albania and consequently, defining the institutions that deal directly with this issue is somewhat difficult. Competencies to address climate change and DRR are distributed among several institutions at different levels of government, divided between institutions at the central and local levels.

4.1. Main institutions

The main institutions involved in developing and implementing environmental and climate change policies are listed and described below. Annex V provides a full list of stakeholders and their respective roles.

4.1.1. Ministries

The Ministry of Tourism and Environment is responsible for the development of environmental policies, including air quality, climate change, waste management, biodiversity, nature protection, sustainable management of forests and pastures, industrial pollution prevention and chemicals. The Ministry is also responsible for water monitoring. It coordinates the integration of environmental and climate change issues into agriculture, tourism, health, energy, transport, forestry, and water policies.

The State Inspectorate of Environment, Forestry and Water is responsible for verifying legal compliance and enforcing the Environment, Forestry, Water and Tourism legislation. Other relevant institutions at a central level are the Ministry of Transport and Infrastructure, Ministry of Health, Ministry of Energy and Industry, Ministry of Agriculture and Rural Development, and Ministry of Defence.

4.1.2. State agencies

The National Agency of Protected Areas manages protected areas. This includes the drafting and implementation of management plans, monitoring and environmental education.

The National Environment Agency is a regulatory authority in the environmental sector and the main institution responsible for monitoring and reporting on the environment. It operates through 12 regional environment agencies.

The National Civil Protection Agency is a body responsible for reducing the risk of natural disasters and civil protection. This Agency exercises its duties in coordination, management, technical, supervisory and control activities in the field of DRR and civil protection.

4.1.3. Municipalities

The Law on Local Government, no. 139/2015, defined the functions of local government units and transferred certain functions from the central to local level. Municipal environmental competences are: drinking water supply, wastewater treatment, collection and disposal of rainwater and flood protection in residential areas; local public transport; parks, gardens and public green spaces; collection, disposal and treatment of municipal solid waste (MSW); construction and management of social housing; implementation at the local level of air, soil and water protection measures; implementation at the local level of measures for noise pollution protection; management of the public forest and pasture fund; protection of nature and biodiversity; educational activities at the local level on environmental protection, and management of forests and pastures.

As of early 2017, according to the State Inspectorate of Environment and Forestry, 42 municipalities have established forest management entities, 12 municipalities were in the process of forming forest management entities, five municipalities have not started this work, and for the remaining two municipalities the situation was not clear.

The role of municipalities in agriculture is one of incentivising, while land management remains centralised at the regional level.

The municipalities, along with the central government, are jointly responsible for enforcement of the Law on the Moratorium on Forests, no. 5/2016. While municipalities have their own environmental inspectors who deal primarily with waste and noise issues, the inspectors may not be able to cope with the expanded responsibilities in larger areas.[72]

Figure 14 depicts the environmental regulatory chain in Albania:[73]

[72] UNECE (2018). *Environmental Performance Review Albania: Third Review Synopsis*. UNECE. https://unece.org/DAM/env/epr/epr_studies/Synopsis/Albania_ECE.CEP.183_Synopsis.pdf
[73] *Ibid.*

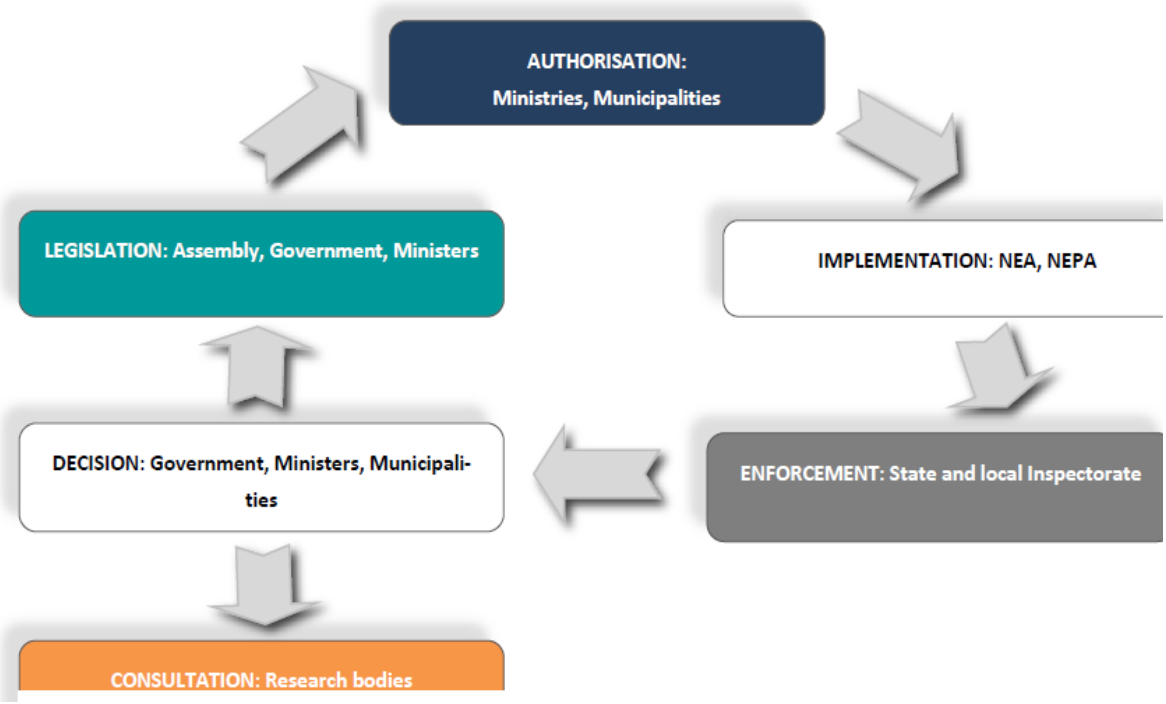

Figure 14. Environmental regulatory chain in Albania. (*Source: UNECE, 2018, see footnote 73*)

4.1.4. Civil society organisations and academia

The involvement of civil society organisations (CSO) and academia in national strategic planning is both weak and non-transparent. The consultation of CSOs and academia is generally foreseen in national and local public policy planning and budgeting, including in the area of climate change.[74]

Specifically, academia has the responsibility for provision of and assistance in climate change data measurement, reporting and verification, pursuant to Law on Climate Change, no. 155/2020. Select CSOs are part of the National Council on Gender Equality, as established in Law on Gender Equality, no. 9970/2008. However, the direct contribution to these decision-making processes remains undocumented and, consequently, unclear, and needs to be further regulated.

4.2. Interest and influence assessment

For the purpose of this study, an assessment was carried out of the interest and influence of the institutions and stakeholders identified in relation to CCA and DRR (Table 2). Annex V gives a complete list of these stakeholders and their relevant responsibilities, with a rated level

[74] Law on Climate Change, Republic of Albania No. 155/2020. https://climate-laws.org/documents/law-no-155-2020-on-climate-change_8c21?id=law-no-155-2020-on-climate-change_1817; Order of the Prime Minister on the establishment and functioning of the intergovernmental working group in the area of climate change, No. 155 of 25 April 2014.

of interest and influence that each may have in CCA and DRR. The assessment is based on the knowledge that Urban Research Institute experts have on the sector and based on the scope of work of each of the listed stakeholders; it may be object of further consultation and validation.

Table 2. List of stakeholders. Score: 1 = very low interest or influence, 5 = very high interest or influence *(Source: Table created by the author of this study)*

Stakeholders	**Interest**	**Influence**
	Score 1-5*	Score 1-5*
Council of Ministers	5	5
Department of Strategy and Donor Coordination	5	4
Ministry of Tourism and Environment	5	5
National Environment Agency	5	5
Interministerial Working Group on Climate Change	4	4
National Forestry Agency	4	4
National Agency for Protected Areas	5	5
Ministry of Finance and Economic	3	3
General Budget Department	3	3
Central Finance and Contracting Unit	3	3
Ministry of Agriculture, Rural Development, and Water	4	4
Centres of Agricultural Technology Transfer	4	2
Directorate of Irrigation and Drainage	3	2
Ministry of Education, Youth, and Sports	2	2
Academy of Sciences	3	4
Institute of Geosciences, Energy, Water, and Environment	3	1
Ministry of Energy and Industry	2	2
National Territorial Planning Agency	3	4
Ministry of Internal Affairs	4	2
Directorate of Fire Protection and Rescue	1	1
National Civil Protection Agency	5	5
Water Resource Management Agency	5	5
River basin council	4	4
Water administration bodies at the catchment level	3	2
Local governmental units	5	4
Agricultural University of Tirana	4	2
Polis University	4	2
University of Natural Sciences	4	2
CSOs	3	4
Donors	5	5

5. Policy and institutional framework in relation to ecosystem services, climate change and DRR

NbS are a relatively new approach, mainly representing actions that work with ecosystems in addressing various societal challenges. There is a combination of international and regional frameworks and conventions that influence and provides provisions for NbS globally, while guiding national actions. The past five years in particular have seen the adoption of major global agreements that recognise the importance of ecosystems in DRR and CCA, that also provide entry points to upscale such approaches.

In Albania, there are policies linked specifically to either the environment, climate change or DRR. However, the responsibilities for these policies remain heavily siloed; for example, climate change issues are not sufficiently integrated into sectorial policies, and this remains a challenge. The UNDP Report on land degradation neutrality (LDN) identified some obstacles that need to be overcome to adapt to these policy challenges, including a lack of a legal framework to adapt to climate change. This has prevented the implementation of sustainable long-term measures, a lack of capacities to the impacts of climate change and identify opportunities for sustainable development.[75]

5.1. Global policies

NbS are not explicitly recognised in the existing state policy framework in Albania. However, the country has ratified many international agreements that promote approaches falling under the NbS umbrella, without specifically identifying the actions as NbS.

Recent years have seen the adoption of major global agreements that recognise the importance of ecosystems in DRR, and provide entry points to upscale such approaches, for example:

- In 2014, the 12th Conference of the Parties (COP) of the Convention on Biological Diversity (CBD) adopted Decision XII/20: "*Biodiversity and Climate Change and Disaster Risk Reduction*", which encourages Parties to promote and implement ecosystem-based approaches to climate change and DRR. The post-2020 framework will integrate NbS;

[75] UNDP (2019). *Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards*. UNDP. https://www.al.undp.org/content/albania/en/home/library/environment_energy/land-degradation-neutrality-target-for-albania-and-soil-erosion-.html

- 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 capacity development and knowledge transfers for risk management. Albania has endorsed the Sendai framework for DRR 2015–2030, reflecting the country's commitment to reduce disaster risks and build the people's resilience;
- In June 2015, the Ramsar Convention Decision XXII.13 was adopted, which recognises the role of wetlands in DRR;
- In September 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development. In 2018, the Albanian Government affirmed its full commitment to Agenda 2030;
- In December 2015, at the UNFCCC COP21, the Paris Agreement was adopted by 195 countries, including Albania;
- In April 2000, Albania ratified the UNCCD. Albania is among the countries that have committed to set a national voluntary LDN target, establish a LDN baseline, and formulate associated measures.[76]

The Partnership for Environment and Disaster Risk Reduction highlights SDGs 2, 6, 11, 14 and 15, in particular, as providing instruments to integrate ecosystem management, climate change and DRR. As for the implementation of the Sendai Framework, the Partnership for Environment and Disaster Risk Reduction also provides some practical guidelines under each of the priority actions that need to be taken into account for integration of ecosystem management in implementation (Table 3. Recommended steps to implement the Sendai Framework at the national level *(Source: The Partnership for Environment and Disaster Risk Reduction, 2016, see footnote 77)*.[77]

However, the global frameworks are not sufficiently supported by the national policies. The Law on Civil Protection, no. 45/2019, includes some aspects of DRR management but the law needs to be completed by the drafting and adoption of its accompanying bylaws. Specifically, Albania has not drafted a National Strategy on Civil Protection and Disaster Risk Reduction which will support the accomplishment of objectives and target set by the Sendai Framework,

[76] UNDP (2019). *Land Degradation Neutrality Target for Albania and Soil Erosion Measurement Norms and Standards*. UNDP. https://www.al.undp.org/content/albania/en/home/library/environment_energy/land-degradation-neutrality-target-for-albania-and-soil-erosion-.html

[77] Partnership for Environment and Disaster Risk Reduction (2016). *Advancing implementation of the Sendai Framework for Disaster Risk Reduction (2015–2030) through Ecosystem Solutions*. PEDRR. https://www.wetlands.org/publication/ecosystem-solutions/

while clarifying the role and responsibilities of stakeholders related to DRR.

In relation to CBD, National Biodiversity Strategies and Action Plans constitute the principal instruments for implementing the Convention at the national level. Several main reporting and policy documents have been prepared under the framework of the Convention, and the most recent one is the 2015 Strategic Policy for the Protection of Biodiversity in Albania. Climate change effects on biodiversity and ecosystem services are the subject of the document, and it includes the term of disaster risk considerations, but with no further details.[78]

Several aspects of global policies have been transposed into the Albanian legislation, but their implementation is at an initial stage. The lack of an approved National Strategy for DRR and Civil Protection remains the main issue for progressing in line with the priority actions recommended for the implementation of the Sendai Framework.

Table 3. Recommended steps to implement the Sendai Framework at the national level *(Source: The Partnership for Environment and Disaster Risk Reduction, 2016, see footnote 77)*

Priority Actions	Recommended steps
1: Understanding disaster risk	Incorporate ecosystems in risk assessments at the appropriate levels and timescales
2: Strengthening disaster risk governance to manage disaster risk	Strengthen multi-stakeholder processes for planning and implementation of Eco-DRR/CCA interventions
	Create an enabling public and private policy environment for Eco-DRR/CCA
	Develop Eco-DRR/CCA indicators to support monitoring of the implementation of the Sendai Framework on Disaster Risk Reduction – SFDRR (2015–2030)
3: Investing in DRR for resilience	Include ecosystem-based approaches in risk-informed, land-use planning
	Develop national and local capacities for Eco-DRR/CCA
	Identify Eco-DRR/CCA ambassadors
4: Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation and reconstruction	Consider the environmental impacts of disasters and incorporate ecosystem rehabilitation as part of recovery and reconstruction plans
	Ensure disaster response, recovery and reconstruction activities do not have adverse environmental impacts

[78] Ministry of Environment of Albania (2015). *Document of Strategic Policies for the Protection of Biodiversity in Albania*. Ministry of Environment of Albania. https://www.cbd.int/doc/world/al/al-nbsap-v2-en.pdf

Albania has adopted different global frameworks and agreement of relevance for Eco-DRR and EbA (Table 4). In addition, Albania ratified in 1991 the ESPOO Convention (Finland) on Environmental Impact Assessment in a Transboundary Context, and in 1994 the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki).

Table 4. Global policies adopted by Albania that provide instruments for the implementation of Eco-DRR and EbA (*Source: Table created by the author of this study*)

Policy Agreement	Description	Agreement Status
Sendai Framework on Disaster Risk Reduction – SFDRR (2015–2030)	SFDRR is the global framework on DRR, with seven targets and four priorities. It seeks to prevent new and reduce existing disaster risk through the mainstreaming of DRR across all development sectors, programmes and policies. While the SFDRR is a voluntary, non-binding agreement, it calls for an all-of-society engagement, with governments having the primary role of reducing disaster risk	Adopted (2015)
2030 Agenda for Sustainable Development Agenda	With a total of 17 goals and 169 targets, the 2030 Agenda focuses on three main areas: (i) eradication of poverty; (ii) protecting the planet from degradation, while ensuring that economic, social and technological progress occurs in harmony with nature; and (iii) promoting universal peace and just and inclusive societies. While the 2030 Agenda is not legally binding, governments are expected to take ownership and establish national frameworks for the achievement of the 17 goals.	Adopted (2015)
United Nations Framework Convention on Climate Change (UNFCCC)	UNFCCC provides the global framework to cope with the adverse effects of climate change. The ultimate objective is to stabilise GHG concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system.	Ratified (1994)
United Nations Convention to Combat Desertification (UNCCD)	UNCCD promotes practices in the world that avoid, reduce and reverse land degradation, contributing to the Sustainable Development Goal 15 and LDN	Ratified (2000)
Convention on Biological Diversity (CBD)	The Convention on Biological Diversity is dedicated to promoting sustainable development through biological diversity, contributing to people and the need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in the world	Ratified (1994)
Ramsar Convention	The mission is the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world	Ratified (1996)
UNFCCC 21st Conference of the Parties – Paris Agreement on Climate Change	The Paris Agreement seeks to significantly scale-up climate actions and deal more comprehensively with climate change impacts to safeguard development and eliminate poverty. Countries are committed to hold the global average temperature to well below 2°C above pre-industrial.	Adopted and ratified (2015 and 2016)

5.2. Regional policies

In addition to global policies, Albania has adopted various regional frameworks and

agreements in the field of environment and nature conservation, including:

- Barcelona Convention "For the Protection of the Mediterranean Sea against Pollution", joined by accession in 1990;
- Bern Convention 1979 "For the Protection of Flora and Wildlife Fauna of the Natural Environment in Europe", ratified in 1998.

In addition, Albania has been a contracting party of the Energy Community, since 2006. Albania is working towards alignment of its policy and legal framework with the EU *Acquis communautaire*. Albania has been, and continues to be, a participant in European and regional initiatives related with the CBD, especially in the PAN-European Strategy on Biological and Landscape Diversity.[79, 80]

Albanian legislation for the protection of nature is approximated to a considerable degree with the main EU Directives on nature protection. According to the Fifth National Report of Albania to the United Nations Convention on Biological Diversity, the Habitats Directive (92/43/EEC) is 80 per cent implemented, while the Birds Directive (2009/147/EC, OJ EU L 20/7, 26.1.2010) is 85 per cent implemented. Based on the representative network of protected areas established by the Law on Protected Areas, it is possible to identify and create the ecological network NATURA 2000. However, no advancements have been made until present, as proposals for Natura 2000 sites for Albania in the format required by the European Commission under the Instrument for Pre-accession Assistance (IPA III) have yet to be prepared. EU legislation for nature protection is also implemented nationally through the Law on Protected Areas, the Law on Protection of Wild Fauna, the Law on Hunting, and the Law on the Rules and Procedures for International Trade of Endangered Species of Wild Fauna and Flora.[8180]

It is worth noting that in April 2017, following a thorough evaluation of the Birds and Habitats Directives, the European Commission adopted the Action Plan for nature, people and the economy[82] to improve the implementation and contribution of Member States in achieving the

[79] Council of Europe (1996). *Pan-European Biological and Landscape Diversity Strategy*. Council of Europe Press. https://www.cbd.int/doc/nbsap/rbsap/peblds-rbsap.pdf
[80] Ministry of Environment of Albania (2014). *Fifth National Report of Albania to the United Nations Convention on Biological Diversity (CBD)*. Ministry of Environment of Albania. https://www.cbd.int/doc/world/al/al-nr-05-en.pdf
[81] *Ibid.*
[82] European Commission (2017). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: An Action Plan for nature, people and the economy*. Publications Office of the European Union. https://op.europa.eu/en/publication-detail/-/publication/bb26e7d1-2b26-11e7-9412-01aa75ed71a1

EU's biodiversity targets for 2020. There is no information on initiations from Albania in this regard.

Albania is also in the process of implementing regional frameworks and directives in the field of disaster risk management at the national level. For instance, the EU Flood Directive (2007/60/EC) and EU Water Framework Directive (2000/60/EC) are two water policies aiming at protecting the water quality of rivers, lakes, ground water, and the sea. An assessment of implementation of the EU Flood Directive, conducted by the European Commission in 2015, revealed that Albania met the basic requirements for establishing an institutional and legal framework for the implementation of the Directive, which is 73 per cent implemented. A national strategy on water management is in place with regulations on flood management, and the new Law on Irrigation and Drainage includes flood management tools. Full implementation of the Directive is foreseen to be completed by 2023,[83] and a Road Map for the WB has been developed by the IPA Floods Consortium in 2016, including country-specific recommendations for Albania in order to fulfil the EU's requirements.[84, 85]

In addition, Albania is a member of the Disaster Preparedness and Prevention Initiative (DPPI) for South Eastern Europe[86], which was launched in November 2000 by the Stability Pact for South Eastern Europe. In an effort to contribute to the development of a cohesive regional strategy for disaster preparedness and prevention for its 12 Member States (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, North Macedonia, Greece, Romania, Serbia, Montenegro, Slovenia, and Turkey), DPPI has been conceived as a framework for Southeast European nations to develop programmes and projects leading to strengthened capabilities in preventing and responding to natural and human-made disasters.

Albania is also impacted by the Green Agenda for the Western Balkans, and the South East Europe 2020 Strategy's (SEE) environment division. More information about these policies can be found in Annex 2.

[83] European Commission (2015). *Flood Prevention and Management: Gap analysis and needs assessment in the context of implementing the EU Floods Directive*. European Commission. https://www.mvp.gov.ba/Baneri-Linkovi/FLOOD%20PREVENTION%20AND%20MANAGEMENT%20GAP%20ANALYSIS.pdf
[84] IPA Floods implementing Consortium (2016). *Programme for Prevention, Preparedness and Response to Floods in the Western Balkans and Turkey: Roadmap for future regional action in disaster risk management with focus on flood risk management and aspects with a multi-beneficiary dimension*. IPA Floods implementing Consortium.
[85] IPA Floods implementing Consortium (2016). *Programme for Prevention, Preparedness and Response to Floods in the Western Balkans and Turkey: Findings and Recommendations – Albania*. IPA Floods implementing Consortium.
[86] Disaster Preparedness and Prevention Initiative for South Eastern Europe (n.d). *About us*. DPPI Info. Retrieved 2020 from http://www.dppi.info/dppi-see/about

5.3. National strategic framework

National policies were reviewed with the purpose of giving a general overview of the strategies and policies currently being implemented by Albanian institutions related to CCA and DRR. The analysis outlines the main strategic objectives that can potentially include the implementation of NbS approaches in different areas such as agriculture, urban development, and environment.

5.3.1. National Strategy for Development and Integration 2015–2020

The Albanian Government developed its programme to translate its vision to action through the identification and adoption of six key priorities for the government as a whole, with action plans for 2015-2020. These priorities are: (i) innovative and citizen-centred public services (good governance); (ii) recovery and financial consolidation of the energy sector (energy); (iii) fostering innovation and competitiveness (FDIs and domestic investments); (iv) integrated water management; (v) integrated land management; and (vi) financial structural reform. Albania's aspirations for national development and European integration can best be met through the articulation of specific priorities and policies and their broad acceptance among all segments of governance and society, with the consent of Albania's closest development partners.

One of its outcomes:

- Sustainable economic, environment friendly growth throughout 2015–2020, ensured through increasing macro-economic stability, a more competitive and innovative business environment, and through the more sustainable use of resources, all of which build on Albania's long record of strong growth over the last two decades.

Strategic objectives related to NbS in the National Strategy have included integrated land and water management, and agriculture and rural development. While they mention NbS related aspects, the NbS term is not defined and no specific measures are defined to enable transformation into actions.

Integrated Land Management

This is a mid- to long-term priority of the government. Strategic objectives pertaining to land and property are many, and include:

- increasing the productivity, availability and sustainability of land needed to promote development (especially in priority sectors such as tourism, agriculture, manufacturing);

- establishing a land market and land management systems (including addressing aspects of informality);
- using land as a productive asset against which credit might be accessed (thus strengthening overall land and related capital / credit / mortgage markets), and
- addressing equity aspects between men and women regarding land property aspects.

Integrated Water Management

The main principles that run through this new approach are the following:

- Water resource protection and sustainable water use, while meeting basic needs, and preserving resources for the next generations;
- Promoting equitable access to water;
- Creating opportunities for the use of water in the economic and social development of the country;
- Water use cost recovery, and
- Protection of ecosystems and equilibrium of biodiversity.

For the implementation of the new approach a National Water Council was established, together with Water Resources Management Agency.

Agriculture and Rural Development

- Promoting sustainable food production and quality by developing a competitive and innovative agro-food sector that is able to cope with competitive pressures.
- Ensuring the overall sustainable management of natural and agricultural resources through the development of applicable national Good Agricultural Practices that take into account the specifics of landscape, soils and climate in Albania.
- Ensuring sustainable management of natural resources and undertaking climate actions through better management of forests and water, and the application of agricultural production methods in environmental protection and mitigation of climate change.
- Balancing territorial development in rural areas by promoting diversification of economic activities, creation of employment, social inclusion and improvement of living conditions by 2020 by pursuing development of the sector, and ensuring sustainable management of living resources of marine and internal waters through the development of a multi-year plan for sustainable management of living resources of marine waters and inland waters.

One of the main findings of a 2013 World Bank Report[87] was that a clear plan is needed for aligning agricultural policies with climate change, building capacities of agricultural institutions and driving investment into infrastructure, support services and on-farm improvements. Only with this plan, and with the consultation with key stakeholders such as farmers and local agricultural experts, can Albania effectively deal with the risks of climate change to agriculture. At the time of drafting this study, no such plan has been prepared. On the other hand, the Cross-Sectorial Strategy on Agriculture and Rural Development 2014-2020 recognises its interrelationship with climate change, and includes strategic objectives and measures related to climate change.[88] The implementation of such objectives and measures has not been the object of specific monitoring so far; the lack of a climate change cross-sectorial monitoring system is the main factor hindering the evaluation of the state of implementation in this regard.

There are currently no monitoring reports of the implementation of the NSDI 2015–2020.

5.3.2. General National Plan (GNP) Albania 2030

The General National Plan "Albania 2030" represents the harmonisation of the integrated approach of urban development with other strategic sectors of the country such as tourism, agriculture, energy, transport, housing and others aspects, which are intertwined within the goal of the sustainable and long-term development of the country.

The GNP is the highest physical planning instrument in Albania, and it addresses planning issues in an integrated manner, seeing the Albanian territory as a whole. Based on its principles, objectives and specifications, the plans of the lower levels such as the National Sectoral Plans, Detailed Plans for areas of national importance, Regional Development Plans, General Local Plans and other physical planning instruments, arising as a result of development needs. GNP provides the strategic reference framework for sustainable development of the territory for the next 15 years.

Specific objectives related to NbS:

- Determination of principles and directions for sustainable and balanced territorial development;
- Creating conditions for the preservation of ecosystems, biodiversity, natural resources above and below ground, and natural and cultural wealth, balancing the effects of

[87] Sutton, W. R., Srivastava, J. P., Neumann, J. E., Strzepek, K. M. and Droogers, P. (2013). *Reducing the Vulnerability of Albania's Agricultural Systems to Climate Change: Impact Assessment and Adaptation Options*. World Bank. http://doi.org/10.1596/978-1-4648-0047-4

[88] Ministria e Bujqësisë dhe Zhvillimit Rural (2014). *Strategjia Ndërsektoriale për Zhvillimin Rural dhe Bujqësor 2014-2020 [The Cross-Sectorial Strategy on Rural and Agricultural Development 2014–2020]*. https://bujqesia.gov.al/wp-content/uploads/2018/02/STRATEGJIA_NDERSEKTORIALE.pdf

housing systems and economic activities. Protection and development of green areas and other cultivable areas;

- Compliance with the guidelines of the European Spatial Development Perspective document.

Policies related to NbS:

- Intelligent management of natural resources and cultural heritage, ensuring the preservation of identity and cultural diversity in the face of growth and globalisation, contributing to the economic growth of the country by reactivating them as assets, improving and enhancing access to them;
- Integrated planning and development of distribution and interconnection flows of communication, transport, food and energy that ensures cohesive, efficient and high quality development.

Measures for the management of disaster risk management and climate change have been considered for the identification and establishment of the national priorities of the Plan.

5.3.3. National Biodiversity Strategies and Action Plans

National Biodiversity Strategies and Action Plans (NBSAP) are the principal instruments for implementing the CBD at the national level. The CBD requires countries to prepare a national biodiversity strategy (or equivalent instrument) and to ensure that this strategy is mainstreamed into the planning and activities of all sectors whose activities can have an impact (positive or negative) on biodiversity.[89] National reporting to CBD provides information on measures taken for the implementation of the Convention (as per the NBSAP), and the effectiveness of these measures.

In Albania, two documents are currently available that set the biodiversity conservation principles in the country:

- The Fifth National Report of Albania to the UN CBD Convention, May 2014;
- NBSAP, reviewed in December 2015.

Although there is no direct mention of EbA or Eco-DRR in these two documents, Albania's NBSAP highlights nine national biodiversity objectives translated into 38 specific targets

[89] Convention on Biological Diversity (n.d.). *National Biodiversity Strategies and Action Plans (NBSAPs) – What's New?*. CBD. Retrieved 2020 from https://www.cbd.int/nbsap/

towards achieving the 2020 objectives. Among these objectives and targets are the following:

- Objective I "Integration of biodiversity in cross-sector policies", including specific targets on "*Strengthening integration of biodiversity aspects into the relevant sector policies*" and "*Ensuring sufficient financial resources for biodiversity*";
- Objective III "Review and monitoring of threatening effects and activities", including a specific target in "*Review and monitoring of climate change effects on biodiversity and ecosystem services*".
- Objective IV "Strengthening conservation of biodiversity and promoting sustainable use of ecosystems" with a national objective for "*Protection and conservation of biodiversity and ecosystem services in Albania*";
- Objective V "Increasing participation of the community through communication, education, awareness raising and training", including a specific target for "*Fostering the understanding of the importance of improving biodiversity, knowledge on biodiversity and ecosystem services in Albania".*

Other sector objectives related to nature protection include:

- Addressing causes of biodiversity loss;
- Reducing direct pressure on biodiversity and promoting sustainable development;
- Improving implementation through participatory planning, knowledge management, and capacity building;
- Increasing benefits for all from biodiversity and ecosystem services, and
- Improving biodiversity status, while preserving the ecosystems, species and genetic diversity.

Although these seem to reflect awareness both on climate changes impacts on biodiversity and on the need to preserve ecosystem services and protected areas, no concrete measures have been proposed for ecosystems.

5.3.4. National Adaptation Planning to Climate Change

With regards to the implementation of UNFCCC, National Adaptation Planning (NAP) to Climate Change is a key document that identifies priority activities responding to the urgent and immediate needs of countries to adapt to climate change. The main aim of the NAP is to identify priority adaptation activities and project profiles to facilitate the development of proposals for NAP implementation. In parallel to developing adaptation plans, parties of the UNFCCC are required to provide 'National Communications' every four years so as to provide information on GHG inventories, measures to mitigate and to facilitate adequate adaptation to

climate change, and any other information relevant to the achievement of the objective of the Convention.[90]

Albania developed its first NAP in 2002, together with its First National Communication to UNFCCC. The Second National Communication was issued in 2009. The most recent documents setting CCA priorities in Albania are:

- NAP updated in 2016;
- Third National Communication to UNFCCC (2016), and
- Intended Nationally Determined Contribution (NDC) of the Republic of Albania (2015).

As a developing country, Albania is listed as a non-Annex 1 country by UNFCCC and, as such, is not subject to any mandatory reduction of GHG emissions. However, Albania "is aiming to take its fair share from the efforts to avoid dangerous climate change",[91] and submitted its NDC to the UNFCCC in September 2015. In its NDC, Albania has committed to reducing its CO_2 emissions by 11.5 per cent as compared to the baseline scenario in the period 2016 to 2030. This reduction is equivalent to a CO_2 emission reduction of 708 Gg by 2030. Albania's NDC focuses on the energy and industrial processing sectors as they are defined in the GHG inventory. However, it recommends expanding the NDC to other economic sectors and GHG before 2020, if data quality for the inventory and projections improve.[92]

Albania's Third Communication to UNFCCC and NAP both acknowledge the importance of ecosystem services for CCA, and propose EbA options. In its Third Communication to UNFCCC Albania proposes 67 adaptation measures including 27 gray, 21 soft, 18 green, and one fiscal measures. Green measures aim to raise the resilience of ecosystems and their services, and include:[93]

- Protection of existing forest/vegetation, reforestation (measure 8);
- Maintaining/restoring coastal wetlands (measure 60);
- Reforesting of riversides (measure 35);

[90] United Nations Framework Convention on Climate Change (n.d.). *Nationally Appropriate Mitigation Actions (NAMAs)*. UNFCCC. Retrieved 2020 from http://unfccc.int/national_reports/items/1408.php
[91] Republic of Albania (2015). *Intended Nationally Determined Contribution (INDC) of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20*. United Nations Framework Convention on Climate Change. https://unfccc.int/files/adaptation/application/pdf/all__parties_indc.pdf
[92] *Ibid*.
[93] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

- Adaptation for coastal protection through management of coastal erosion (measure 55);
- Flood protective ecosystem based constructions along coasts and continental shelf (measure 36);
- Measures in protected areas (measure 10).

Albania's NAP defines 15 Priority Actions to guide its implementation, including:[94]

- Priority Action 7 - Initiative for capacity development on climate change adaptation;
- Priority Action 8 - Climate Resilient Irrigation, Drainage and Flood protection;
- Priority Action 9 - Integrated Water Resources Management;
- Priority Action 10 - Adapted farm production;
- Priority Action 12 - Pilots for Integrated Coastal Zone Management;
- Priority Action 15 - Upgrading civil defence preparedness and disaster risk reduction.

Both documents highlight the need to mainstream CCA into other policy sectors (including DRR), which is an overarching principle for the NAP process since effective adaptation "is not an 'add-on' activity but has to be integrated into sector policies". This is reflected in the NAP Priority Action 2 "Overarching mainstreaming initiative", and will be realised through the development of a national climate change strategy (under preparation). However, many challenges have been identified for implementing integrated CCA-DRR approaches, including:[79]

- Incorporate DRR concerns into future planning and development;
- Develop effective national early warning systems for emergency plans for climate change risks;
- Raise awareness of all the risks from extreme weather and climate change;
- Enact and enforce legislation;
- Increase the capacity of adaptation and protection systems;
- Improve coordination between government ministries responsible for CCA and DRR;
- Develop a comprehensive national adaptation plan for climate change and ensure its integration in national, local and crosscutting strategies;
- Bring DRR and CCA into the educational system at all levels (awareness-raising and engaging the media);
- Mainstream climate change considerations into all activities;
- Strengthen regional and international cooperation on the DRM and CCA initiatives.

[94] Republic of Albania (2016). *National Adaptation Planning (NAP) to Climate Change in Albania: Framework for the Country Process*. UNFCCC. https://unfccc.int/sites/default/files/resource/National_Adaptation_Plan_Albania.pdf

5.3.5. National Climate Change Strategy and Plan

The National Climate Change Strategy and Plan[95] (NCCSP) has been developed to support alignment with the EU Environmental and Climate *Acquis*, aiming at reinforcing Albania's inter-sectoral coordination for climate action, environmental protection, and sustainable development. The NCCSP focuses on climate change mitigation and adaptation.

The NAP provides the framework elements such as principles, goals, indicators, priority actions and process elements. Moreover, it provides a framework for targeted mainstreaming and establishes an implementation framework, mainly through priority actions supported through access mechanisms to finances, outreach and involvement, capacity development and monitoring. However, NbS is not defined in this document.

Strategic priorities relevant for NbS

- Ensure sustainable economic growth consistent with GHG emission pathways defined in the NDC, and move towards an economy-wide target to which all sectors contribute;
- Establish a GHG monitoring, reporting and verification system in line with EU requirements;
- Strengthen the capacity of relevant institutions and inter-institution cooperation to address climate change issues;
- Streamline climate change across sectoral strategic planning;
- Reinforce the capacity and awareness on climate change issues;
- Align to the EU Climate Change framework across sectors.

The ultimate long-term results of the adaptation process will aim to:

- Reduce damages caused by floods;
- Enhance agricultural resilience against floods, and
- Secure drinking water quality despite impacts from climate change.

Relevant objectives to NbS

- Growth Through Sustainable Use of Resources, aiming to:
  - Promote sustainable food production and quality by developing a competitive and innovative agro-food sector able to cope with competitive pressures;
  - Ensure the sustainable management of natural resources and undertake climate action through:

[95] Republika e Shqipërisë (2019). *Strategjia e Ndryshimeve Klimatike dhe Planet e Veprimit 2019-2030*. Ministria e Turizmit dhe Mjedisit. https://turizmi.gov.al/wp-content/uploads/2021/10/2.-Strategjia-e-Ndryshimeve-Klimatike-dhe-Planet-e-Veprimit_Qershor-2019_-1.pdf

    - better management of forests and water, and the application of agricultural production methods in environmental protection and mitigation of climate changes,
    - a targeted increase in the number of certified organic farms by 2020,
    - an increase in the number of farmers benefitting from irrigation infrastructure to 300,000 by 2020.

- Strengthen the management and preservation of forestry and pasture resources through:
    - Aim to reduce illegal logging by 40 per cent by 2020;
    - Achieve 100 per cent coverage with breeding plans for all forest economies nationwide;
    - Successful rehabilitation of 25 per cent of degraded areas;
    - Develop sustainable tourism in Albania, which indirectly contributes positively to climate change adaptation and mitigation as this will preserve natural ecosystems.
- Strengthen the management of water use to reduce floods, erosion and soil loss, through:
    - Rehabilitation and modernisation of existing infrastructure related to irrigation, drainage and flood protection;
    - Development and implementation of mechanisms for the sustainable management of irrigation, drainage and flood protection systems (qualitatively improve the functionality of the drainage system);
    - Preparation and implementation of river basin management plans.

The NCCSP is a cross-cutting document interrelated with several strategic development documents, most importantly on energy, energy efficiency, transport, and agriculture. It is also interrelated with the NDC of Albania to the reduction of the GHG emissions, prepared for the first time in 2015 and currently in effect. However, the adoption of the Strategy itself has been delayed and implementation has not yet begun. Meanwhile, the process of drafting the update of the NDC has been initiated and is expected to be aligned with the Strategy and support the advancement of the latter's implementation.

5.3.6. Other relevant national policies

5.3.6.1. Disaster risk management

The most recent documents, at the time of drafting this study, setting DRR priorities in Albania are:

- Albanian HFA Monitoring Report 2011–2013;
- National Civil Emergency Plan;

- Draft National Strategy for Disaster Risk Reduction and Civil Protection 2014–2018

An analysis of these documents reveals that while Albania is currently reviewing several legal and policy frameworks, it is encouraging alignment of DRR, climate change and environmental policies. According to the Albanian HFA Monitoring Report 2011–2013, Albania's strategic approach for DRR is "an integrated approach of the DRR, addressing the main risks that are likely to affect our country, in line with climate change adaptions".[96] Similarly, the first Strategic Components of the National Strategy for Disaster Risk Reduction and Civil Protection 2014–2018 includes a priority activity on "ensuring other key new laws and by-laws, on, inter-alia, water, land-use planning and communication, as well as Albania's Climate Change Adaptation National Strategy are consistent and contribute to reducing disaster risk".[97]

More practically, the National Civil Emergency Plan of Albania 2004 recognises that "factors related to the misuse of forests, natural sources of water and environmental pollution, increases vulnerability of the population and the economy in general". Hence, it provides practical solutions for risk prevention, such as those entitled "Involving community in restoring, developing and maintaining a safer environment" and "Advocating for and promoting public and private works on schemes, including reforestation and fire-breaks".[98]

5.3.6.2. Environment

The Strategic Goals of the Republic of Albania in the field of environment are defined in the Cross-Cutting Environment Strategy, adopted by Decree of the Council of Ministers as an integral part of the NSDI 2007–2013. The aim of the strategy is the "*reduction of greenhouse gas emission and ozone-depleting substances with the aim to contributing to prevention of climate changes*" and proposed measures for balanced development including the protection of habitats and species.[99] Policy guidelines and goals for the energy, forestry, agriculture, fisheries, waste management, tourism, industry and transport sectors were established, though no specific emission reduction or carbon uptake targets were defined for any of these sectors. While this strategy is not tailored specifically for climate change concerns and does not contain the necessary actions for mitigating the adverse effects of climate change, the

[96] General Directorate of Civil Emergencies of Albania (2014). *Albanian HFA Monitoring Report 2011–2013*. UNISDR. https://www.preventionweb.net/files/32375_albaniareporthfa20112013unisdr.pdf
[97] Republic of Albania (2014). National Strategy for Disaster Risk Reduction and Civil Protection 2014-2018. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fchange-albania.org%2Fsites%2Faic-vlore.org%2Ffiles%2Fdok%2FNational-Strategy-for-Disaster-Risk-Reduction-and-Civil-Protection_draft-1-.10.doc&wdOrigin=BROWSELINK
[98] Ministry of Local Government and Decentralisation of Albania (2004). *National Civil Emergency Plan (NCEP) of Albania*. Ministry of Local Government and Decentralisation of Albania.
[99] Ministry of Environment of Albania (2014). *Fifth National Report of Albania to the United Nations Convention on Biological Diversity (CBD)*. Ministry of Environment of Albania. https://www.cbd.int/doc/world/al/al-nr-05-en.pdf

updated 2016–2020 Cross-Cutting Environment Strategy (not yet endorsed) includes climate change indicators, which are to be further strengthened by the National Climate Change Strategy (under preparation).[100]

Another relevant environmental policy is the Integrated Water Resources Management Strategy, developed by the Ministry of Agriculture, Rural Development and Water Administration in 2016. This strategy focuses on sustaining water resources for future generations while incorporating requirements of the European water and environment related policies and regulations. It integrates existing Albanian policy objectives, taking into account the expected risks related to climate change based on four strategic pillars: Water for People; Water for Food, Water for Industry, and Water for Environment.[101]

The strategic objectives of this strategy include:

1. "Water Quantity: fair and sustainable use of all water resources is secured, serving all interests, applying the EU Directives", including defining climate change resilience measures;
2. "Water Quality: the quality of all water resources is secured, achieving good status by 2027, applying the EU Directives", including protecting and enhancing the status of aquatic ecosystems, and promoting sustainable water use;
3. "Water Risks: the risks emerging from water (floods and droughts) are contained through management and investments, serving all interests, applying the EU Directives".

5.3.6.3. Agriculture

Intersectoral Strategy for the Rural and Agricultural Development 2014-2020

The Intersectoral Strategy for the Rural and Agricultural Development 2014-2020 is designed according to the "Europe 2020" strategic framework for rapid, sustainable and inclusive growth and the general strategic objective of Albania for EU membership, in line with the EU strategic planning approach for the Common Agriculture Policy 2014–2020, while focusing on the specific needs for the development of agriculture, agro-processing and rural areas in Albania.

[100] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

[101] Ministry of Agriculture, Rural Development and Water Administration of Albania (2016). *National Strategy for Integrated Water Resources Management, 2018–2027 [in Albanian].* Ministry of Agriculture, Rural Development and Water Administration of Albania. https://www.erru.al/doc/Strategjia_Kombetare_e_Menaxhimit_te_Burimeve_Ujore.pdf

The main objective of this policy is to define the strategic framework to treat the challenges faced by the agriculture and agro-processing sectors, and the development of rural areas in a sustainable economic, environmental and social manner, proposing similar policy instruments to the Common Agriculture Policy, paying special attention to the preparation of sectors, policy instruments and institutional approximation for EU membership, to achieve a sustainable improvement of competition in Albania.

Objectives related to NbS:

- Improving farm productivity and of agricultural competitiveness and agro-processing, while aligning raising the standards to meet EU levels.
- Investments in physical assets for processing and marketing of agricultural and fisheries products.
- Specific renewal objectives, preserving and improving dependent ecosystems from agriculture and forestry.

As of the time of drafting of this study, the revision of the Strategy has not yet begun.

Strategy for irrigation, drainage and flood protection

This strategy identifies the main strengths, weaknesses, opportunities and threats to irrigation, drainage, dams and reservoirs, and flood control. The Strategy suggests a mission statement for the irrigation and drainage sub-sectors within the Ministry of Agriculture and Rural Development, which states that it is necessary to optimise investments in irrigation, drainage and flood control in order to expand and improve sustainability of all irrigation systems, to meet the needs for drainage, and to protect the Albanian people and property from flooding. This includes ensuring productive and sustainable management of irrigation and drainage systems, improving water use efficiency and equitable distribution, while reducing the risks of flooding and dam failure. A suggested vision of these four sub-sectors for the next 10 to 20 years is given.

5.4. National legislation

5.4.1. Environment

Nature protection principles are guaranteed through the Law on Environmental Protection adopted in 2011. The defined objectives of environmental protection are: i) prevention, control and reduction of water, air, soil and other pollution of any kind; ii) conservation, protection and improvement of nature and biodiversity; iii) preservation, protection and improvement of public

participatory environmental sustainability; iv) prudent and rational use of nature and its resources, and, iv) protection and improvement of environmental conditions.

There are several legal acts guaranteeing nature protection in the Republic of Albania including:

- **Law on Biodiversity Protection**, no. 9587/2006, and amendments in 2013 and 2014; defines measures for species conservation, including the management of invasive species.
- **Law on Protected Areas**, no. 81/2017. The defined purpose of this law is to declare, preserve, administer, manage, and ensure the sustainable use of environmental protected areas and their natural and biological resources, based on the principle of sustainable development, to guarantee the fulfilment of environmental and economic functions, social and cultural, in the interest of society as a whole, and defining the responsibilities of public institutions and private natural/legal persons for their preservation and sustainable administration, through: i) identification, definition and addition of environmental protected areas or expansion of existing ones; ii) provision, conservation, rehabilitation and renewal of ecosystems of natural habitats, species, reserves and natural landscapes within environmental protected areas; iii) sustainable use of environmentally protected areas, integrating its elements in strategies, plans, programs and decision-making at all levels.
- **Law on Integrated Management of Water Resources,** no. 111/2012, and amendments in 2018, aims at protecting and improving the aquatic environment and water resources, ensuring their rational exploitation, fair distribution, protection from pollution, and establishment of central and local institutional frameworks required to implement national policies of management and administration. The law is currently under revision and is foreseen that within 2022 a new law fully transposing the EU Water Framework Directive and the relevant directive related to waters such as Flood Risk Management Directive will be adopted.
- **Law on Forestry**, no 57/2020, aims to the protection of forests, for the great and irreplaceable values in the protection of climate, land, preservation and improvement of productive potentials, balances of natural environment, biodiversity, genetic resources and hydric regime.

5.4.2. Disaster risk reduction

Civil emergency planning is established under the Law on Civil Protection, no. 45/2019. The purpose of this law is DRR and the implementation of civil protection to guarantee the protection of human life, living things, property, cultural heritage and the environment, through

strengthening of the civil protection system. This law and the Law on Integrated Management of Water Resources are the most climate change relevant laws, largely covering the necessary measures for adaptation to climate change, according to the Ministry of Environment of Albania. The law covers all kinds of civil emergencies, including situations caused by natural, ecological and other factors that bring immediate serious damage to life, public health, livestock, property, cultural heritage, and the environment. Given that natural disasters are enhanced by climate change, this law indirectly addresses the planning and facing of civil emergencies caused by climate risks, and part of the prevention and protection measures are dedicated to adaptation to climate change.[102]

Other laws pertaining to DRR activities are the Law on Fire Protection and Rescue Services, no. 152/2015. The mission of the services is inspection, prevention, with fire protection measures, intervention for extinguishing fires, saving lives, living things, property, environment, forests and pastures in various accidents, natural disasters as well as those caused by humans. The Law on Local Government, which includes legal provisions dealing with environmental protection, environmental impact assessments, protection and development of forests and pasture, agriculture and rural area development, safety of dams and dykes, public health protection, urban planning and construction, etc., is equally relevant.

Regarding the problem of forest fires, the government has issued extensive legislation that defines compulsory prevention measures for the protection of forests, such as the construction of fire prevention barriers, biological/silviculture measures, the construction of forest monitoring towers, strengthening the seasonal forest patrol system, ban on open fires in forests, etc. Apart from the Law on Forests and Forestry Service and the Law on Protection from Fire and Rescue, the following regulations/guidelines are in place:[103]

- Regulation on Forest Protection against Fires, Pests and Diseases, and Related Financial Means (no. 25 of 8 February 1993);
- Act of the Council of Ministers on Determining and Taking Measures against Fire and on the Rescue of Objects of Special Importance, Including Watersheds, National Parks etc., (no. 288 of 27 June 2002);
- Guidelines on Determining and Taking Measures against Fire and on the Rescue of Objects of Economic and State Importance (implementing Act no. 288 of 27 June 2002) (no. 1 of 30 July 2002).

[102] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

[103] Regional Fire Monitoring Center (2015). *Forest Fires Country Study: Republic of Albania*. Regional Environmental Center for Central and Eastern Europe. http://www.rfmc.mk/pdf/project2/Forest%20Fires_ALBANIA-final.pdf

Overall, even though DRR is addressed in some policies, strategies or action plans, it is not yet fully integrated into sectorial and multi-sectorial plans. It is worth noting that the new Law on Civil Protection has defined the adoption of a national DRR national strategy, local DRR strategies for each municipality and a new National Civil Emergency Plan within 2021. Also, a draft Law on Climate Change was approved in 2020.[104]

5.5. Opportunities for mainstreaming NbS into sectoral policies

Mainstreaming NbS into relevant sectoral policies would provide opportunities to take advantage of the benefits nature provides for CCA, DRR, water access and food security in Albania. This can be done in two ways:

- through integrating environmental principles and ecosystem-based strategies into relevant sector policies (including climate change, DRR and civil protection), and
- through integrating climate change and DRR principles into major environmental policies (such as water and forest).

In Albania, substantial efforts have been made in recent years to mainstream CCA into relevant sector plans and policies, which is a key principle for the NAP process. Mainstreaming activities have already been launched for several sectors and for the overarching NSDI, including through the Cross-Cutting Environment Strategy.

However, several other laws offer good opportunities for integrating NbS and other environmental subjects, CCA and DRR. Indeed, various sectors partially or indirectly relate to these three areas, including water, tourism, energy, agriculture, biodiversity, health and emergency response.

Table 5**Error! Reference source not found.** indicates recent examples of laws, plans and strategies that present good opportunities for mainstreaming NbS. The mainstreaming activities as suggested should be also understood as pilots, demonstrating the potential and strategies for mainstreaming.

[104] Law on Climate Change of Republic of Albania, no. 155/2020. https://faolex.fao.org/docs/pdf/alb210157.pdf

Table 5. Selection of planning processes with entry points for Nature-based Solutions mainstreaming. (*Source: Table created by the author of this study*)

Plan or law relevance for mainstreaming	Date	Planning or review time (expected)	Strategic direction of mainstreaming
DRR national strategy	2019	2021	Integrate NbS at the national level
Local DRR strategies for each municipality	2019	2021	Integrate NbS at the local level
National Civil Emergency Plan within 2021	2019	2021	Integrate environmental aspects in intervention processes
Flood Risk Management Plan	2012	N/A	Integrate NbS at the national level
River Basin Management Plans. Approvals and Reviews	2012	N/A	Integrate NbS at the local level and catchment level
Law on Climate Change	2020	2020	Emphasise the role of ecosystems for mitigation and ensure EbA options
National and sectorial development plans	following the revision plan at the national and sectorial level		National prioritisation of NbS, harmonisation of the term and the concept with existing ones, cross-institutional and cross-governmental cooperation

6. Experiences with NbS

In accordance with the methodology, a thorough desk-analysis was performed to identify potential NbS interventions and NbS case studies in Albania. Regarding the former, listed below are projects that hold the potential to be either an NbS or contribute towards a larger NbS. Further data gathering and consultation is required to list these as full case studies of NbS in Albania. It is important to note that currently the potential examples identified in Table 6 are lacking in terms of accessible documentation or further consultation. This means that there is not a strong link identifiable for CCA or DRR (although they likely contribute towards these via added benefits) and that no clear links have yet been identified to the principles of NbS. These would need to be screened using the IUCN Global Standard for NbS to assess their complementarity to NbS.

Table 6. Projects with potential to be complementary to NbS. (*Source: Table created by the author of this study*)

Project	Description	Link
Identification and Implementation of Adaptation Response Measures in the Drini-Mati River Deltas	Assisting Albania in establishing a mechanism to enhance, develop and implement strategies to moderate and cope with the consequences of climate change	https://www.adaptation-undp.org/projects/identification-and-implementation-adaptation-response-measures-drini-mati-river-deltas
Protecting Albania's Marine and Coastal Biodiversity	UNDP and the Global Environment Facility support the government's plans to double Marine Protected Areas, and improve their overall management. In close cooperation with national partners, this includes: - improving the legal and regulatory framework that supports setup and management of protected areas; - preparing a strategic plan for marine and coastal protected areas; - assisting protected area administrations with management and business plans of protected areas, including cost-effective management, conservation approaches, participation with conservationists and local communities; - demonstrating management and business planning at the marine protected area of Karaburuni-Sazani - identifying and marking buffer zones for existing coastal protected areas followed by appropriate management scenarios.	https://networknature.eu/nbs-resource/24840
Integrated climate-resilient transboundary flood risk management in the Drin River Basin in the Western Balkans	The objective of the project is to assist the riparian countries in the implementation of an integrated climate-resilient river basin flood risk management approach to improve their existing capacity to manage flood risk at the regional, national and local levels, and to enhance the resilience of vulnerable communities in the catchment to	https://www.adaptation-undp.org/projects/integrated-climate-resilient-transboundary-

	climate-induced floods.	flood-risk-management-drin-river-basin-western
Protecting Albania's Marine and Coastal Biodiversity	The specific project objective is to develop marine and coastal protected areas network which aims to maintain healthy, productive and resilient ecosystems, providing required ecosystem services for communities, while enabling recovery and maintenance of the marine biodiversity of Albania. Phase 2 running from November 2017 - November 2020.	https://www.al.undp.org/content/albania/en/home/operations/projects/environment_and_energy/protecting-albania-s-marine-and-coastal-biodiversity-phase-2-.html

In addition to potential NbS, a number of initiatives (listed below) that directly link with Eco-DRR and are likely to be strong NbS have been implemented in Albania, and lessons and future opportunities for up scaling or replication can be derived from them.

6.1. Improved transboundary flood risk management for the Drin River Basin and better exchange of information across borders

Website: https://www.giz.de/en/worldwide/29000.html

Commissioned by: German Federal Ministry for Economic Cooperation and Development

Organisation: GIZ through the project "Adaptation to Climate Change through Transboundary Flood Risk Management in the Western Balkans"

Implementers: National hydro-meteorological services, Ministry of Tourism and Environment, local government units.

Beneficiaries: Population of the flood risk areas in the Drin River Basin, Population of WB countries, professionals working in the field of flood risk management, students and professors

Brief summary of the initiative: The project entitled "Adaptation to Climate Change through Transboundary Flood Risk Management in the Western Balkans" implemented by GIZ supports the Drin Basin Riparian countries in strengthening their capacities for CCA and improved flood risk management. The project:

- supports hydro-meteorological services of the four countries (Albania, Kosovo, Montenegro, North Macedonia) to establish a regional flood forecasting system, including the increased availability and exchange of hydrological and meteorological data across borders;
- assists local authorities in the risk areas of the basin to implement adaptation measures as part of their flood risk management plans;
- supports Drin Riparian countries to strengthen and intensify cross-border cooperation for a proper flood risk management (implementing EU Floods Directive 2007/60/EC);

- prepares national CCA strategies;
- integrates CCA strategies in urban planning (Belgrade, Podgorica, Tirana);
- formulates and implements flood and drought management plans at the municipal level (flood risk management in the Shkodra Region, Montenegro, and drought management plans in Kosovo and Montenegro);
- minimises the adverse impacts of floods in the region through implementing adaptation measures, such as clearing drainage channels;
- drafts emergency management plans for schools in the flood prone areas of Shkodra in Albania;
- delivers a community awareness campaign on flood risk reduction with different target communities.

Problems addressed: flood, drought, erosion, landslide, degradation, deforestation.

Socio-economic problems addressed: Population density/demographic pressure, human health, unemployment, management practices.

Specific NbS applied:

- Restoration of degraded and deforested landscapes;
- Drin River Basin management;
- Increased community resilience (including an awareness campaign);
- Supporting the adaptive capacity of the local population.

Scale of implementation: transboundary/cross-border

Main environmental ecosystem benefits achieved:

- Flood regulating, ecosystem functions and services;
- Habitats and biodiversity.

Societal benefits achieved: increased community resilience, flood prevention, job creation, water security, landslide risk reductions.

6.2. Promoting sustainable land management (SLM) in Albania through integrated restoration of ecosystems

Website: http://www.uri.org.al//?s=SLM

Implementers: UN Environment implements the project in collaboration with the Ministry of Tourism and Environment, Municipality of Kolonja, and the local partner Urban Research Institute. The project is financed by GEF.

Beneficiaries: Ministry of Tourism and Environment; Municipality of Kolonja; Community of Kolonja.

Brief summary of the initiative: The Government of Albania, through the Ministry of Tourism and Environment, received GEF funds and UNEP support to implement the project entitled "Promoting sustainable land management (SLM) in Albania through integrated restoration of ecosystems". The aim is to remove existing barriers and strengthen skills and capacities of national and local stakeholders in Albania to undertake SLM approaches. It is expected that through this project, Albania will enjoy an enhanced institutional and legislative environment to effectively mitigate the causes and negative impacts of land degradation through SLM practices.

This project aims to achieve its objective through two main components: 1. Strengthened legal and institutional framework and capacity building for SLM, and 2. Demonstrating and Scaling-up of SLM Best Practices.

Overall, the project activities will enable Albania to:

1) shift from unsustainable to sustainable land use practices in the agriculture and forestry sectors;
2) strengthen capacities and support SLM at the both local and national levels including training for farming households and development of legal and economic instruments to stimulate investments in land productivity;
3) reduce pressures on natural resources through the application of SLM practices and increase of vegetative land cover at least on 120 ha of degraded areas.

Problems addressed: erosion, landslide, degradation, deforestation.

Socio-economic problems addressed: management practices.

Specific NbS applied: The project will identify degraded areas in the territory of the municipality through a set of degradation indicators. The sites will be mapped and a report will be drafted which will contain typology of degradation, such as deforestation, landslides, erosion, loss of biodiversity, overgrazing, etc. A chapter of possible measures for rehabilitation of these degraded areas will be included in the report. The project will select 120 ha of degraded forests and pasture lands, draw up three rehabilitation plans and rehabilitate these areas. Based on the causes of degradation identified and the measures described in the rehabilitation plans, trees will be planted, the area will be fenced off to eliminate the possibility of grazing for a certain period of time, small river dams can be built to reduce the rate of water flow during the rainy season, drainage canals can be opened, etc. These actions will lead to the landscape restoration, forest and pastureland rehabilitation, and lower the possibility of erosion, and will influence increasing biodiversity of the areas.

Scale of implementation: Local.

Main environmental ecosystem benefits achieved: The project intends to benefit the Kolonja municipality, which has a large surface of forest and pasturelands in the Albanian forest, and pasture management and ecosystem. In particular, it contributes to the following ideal management objectives of the forest area:

- Improving environmental conditions of farmers and the community in the Kolonja municipality;
- Preventing deforestation and biodiversity loss;
- Improving living conditions of communities through sustainable use of natural resources;
- Restoring highly degraded forest, pasture lands in the Kolonja Municipality with SLM demonstrations;
- Raising awareness among stakeholders nationally and in the Kolonja Municipality on land degradation issues and the importance of SLM approaches.

Main societal benefits achieved:

- increased community resilience;
- landslide reduction;
- other economic benefits.

Organisation: UNEP

6.3. Flood planting Erzeni River

Website: https://brigaid.eu/ and http://planifikimi.gov.al/index.php?id=57

Implementer: This initiative is supported by the Brigaid project under the Horizon2020 program. The beneficiaries were a private university, and a company. https://climateinnovationwindow.eu/innovations/flood-planting-at-erzeni-river/

Beneficiaries: Polis University, local residents, Agency of Park and Recreations of Tirana

Brief summary of the initiative: Greenfix - GREENFIX f³ Fire Free Fibres Blankets is an Albanian innovation, supported for testing by BRIGAID. The most important contribution that BRIGAID gave to the company is the market development. The company Al-Geosystem has more than 10 years of experience on Albanian market implementing new, environmentally friendly technologies. Throughout the BRIGAID project, implementation was facilitated. The installation of fire blankets proved to have a good impact on a new entertainment park in Tirana on an artificial lake. Collaboration was increased, with company products procured for the Agency of Park and Recreation in Tirana and indirectly to the Municipality of Tirana. Testing this innovation enabled stakeholders to evaluate people's reactions, evaluate the frequency of park visits in the kid zone, and monitor the performance of the innovation in extreme heavy rainfall in Tirana. The innovation was implemented in an operation test site and can be

considered a NbS, and seed growth was evaluated after implementation. BRIGAID has supported the innovation of Polis University entitled “Flood planting at Erzeni River”, by financing product testing. Advantages for the innovator and the university included developing a new innovative and environmentally-friendly technique to handle flood events. This new technique began as a pilot case, and plans are in place to develop case studies with students, not only in the Erzeni River, but also in other rivers in Albania. The support of Brigaid was primarily financial, with support also in terminology, education and collaboration with stakeholders and authorities.

Problems addressed: flood, drought, erosion, landslide, deforestation.

Socio-economic problems addressed: Human health, management practices.

Specific NbS applied: Flood control through the installation of Coir-logs and protection against fires through the installation of fire blankets.

Scale of implementation: Local.

Main environmental ecosystem benefits achieved: Protection of the areas, vegetation improvements.

Main societal benefits achieved: increased community resilience, flood prevention, landslide risk reduction, other economic benefits.

Organisation: National Territorial Planning Agency

6.4. Transboundary biosphere reserve Prespa

Implementers: GFA Consulting Group & Institute for Nature Conservation in Albania (financed by KfW Development Bank)

Beneficiaries: Regional Agency of Protected Areas Korce, Municipality of Pustec, Municipality of Korce, Municipality of Pogradec

Brief summary of the initiative: The project “Transboundary biosphere reserve Prespa” is a development project financed by the Federal Republic of Germany through the KfW Development Bank. The Phase II of this project (May 2018 to April 2021) aimed to reduce the pressure on natural resources and to contribute to poverty reduction in the Albanian part of the Prespa Biosphere Reserve. This will contribute to conserve the biodiversity and to improve the living conditions of the population in Prespa National Park and in the Albanian part of the Biosphere Reserve. The project objectives reflected on insight that improvements and success in nature conservation and environmental protection can only be achieved by considering and strongly addressing the socio-economic development dimension in the Prespa region. The project focused on Prespa National Park and its adjacent communities and in a wider scope, the area of the Ohrid-Prespa transboundary biosphere reserve. Taking this into account, Phase II focuses on two interrelated group of activities: 1) conservation of

biological diversity and reduction of the pressure on natural resources, and 2) support for socio-economic development and improvement of the living conditions of the local population.

Problems addressed: erosion, degradation, deforestation.

Socio-economic problems addressed: poverty, unemployment, management practices.

Specific NbS applied: Supporting sustainable land and forestry management activities will reduce the need for firewood. Provision of ecosystems services and goods (non-timber forest products such as honey) increases resilience to the expected effects of climate change (increased drought and limited agriculture). Improved forest management increased the forest capacity as a carbon sink providing for more carbon sequestration (nature-based climate change mitigation).

Scale of implementation: transboundary / cross-border.

Main environmental ecosystem benefits achieved: A number of activities under this project contributed to improving local community resilience to climate change effects. Supporting sustainable land and forestry management activities reduce the need for firewood. Additionally, provision of ecosystems services and goods (non-timber forest products such as honey) not only supports diversification of income generation activities but also increases resilience to expected effects of climate change (increased drought and limited agriculture). Improved forest management increases the forest capacity as a carbon sink providing for more carbon sequestration (nature-based climate change mitigation).

The project also supported various research activities contributing to knowledge building and providing education and awareness among local communities. Better knowledge on ecosystem values and the services they provide increase awareness on the importance of conservation, and ensure better adaptation to climate change.

Main societal benefits achieved: increased community resilience, job creation, food security, water security, water retention for water supply, other economic benefits, gender equity.

Organisation: GFA

6.5. Building the resilience of Kune-Vaini (KV) Lagoon through ecosystem-based adaptation (EbA) in Albania

Website: https://kunevain.com/kune-vain/

Implementers: The project is implemented by UN Environment and executed by the Ministry of Tourism and Environment of Albania (initially at project start called the Ministry of Environment prior to national elections and changes in the government in September 2017).

Beneficiaries: Ministry of Tourism and Environment of Albania, National Agency for Protected Areas, Regional Agency for Protected Areas Lezha region, Lezha municipality, University of Tirana, CSOs and local communities.

Brief summary of the initiative: The Kune-Vaini lagoon system is confronted by a number of challenges that are likely to be exacerbated with climate change and to hinder the capacity of the system to provide the ecosystem goods and services that are crucial for local communities. Therefore, the Special Climate Change Fund-financed project aims to increase the capacity of government and local communities living nearby the lagoon system to adapt to climate change using an integrated suite of adaptation interventions, including EbA. The project has the three components:

- Component 1: Technical and institutional capacity to address climate change risks through EbA;
- Component 2: Climate resilience through demonstration of best practices and concrete EbA and other adaptation interventions in the Kune-Vaini lagoon system; and
- Component 3: Awareness and knowledge on effective EbA.

The project is implemented by UN Environment and executed by the Ministry of Tourism and Environment. The management structure of the project comprises a Project Steering Committee overseeing the project, a Project Director from the executing agency, and a Project Management Unit. The project team also collaborates with the National Agency for Protected Areas and the Regional Agency for Protected Areas both as implementing partners and training beneficiaries.

Problems addressed: flood, erosion, degradation.

Socio-economic problems addressed: poverty, management practices.

Specific NbS applied: The project has enabled the opening of the tidal channel, reforestation, and dune rehabilitation in the Kune-Vaini lagoon. These measures are aimed to help restore the degraded lagoon ecosystem and help the local population, whose livelihood directly depends on the lagoon's ecosystem services (fisheries, bird habitat for tourism, flood and storm protection, etc.), and resilience to better withstand the impacts of climate change. The project has reforested 7 ha, rehabilitated dunes on 1800 m2, and the opening of a tidal inlet channel to ensure water circulation between the sea and the lagoon. Vulnerability of physical assets and natural systems was reduced. The second component of the project focuses on the implementation of CCA options, including EbA interventions, in the lagoon system to reduce the vulnerability of natural systems and local communities. Institutional and technical capacities and human skills were strengthened to identify, prioritise, implement, monitor and evaluate adaptation strategies and measures. The first component of the project aimed to produce technical guidelines for CCA actions, develop a plan to mobilise funds for the large-

scale implementation of EbA and, together with Component 3, strengthen the capacity of local and national government to identify, implement and upscale adaptation in the Lezha region and in Albania as a whole.

Scale of implementation: subnational.

Main environmental ecosystem benefits achieved:

The project intends to benefit to the Kune-Vaini protected area and its ecosystem. Some of the protected area's priorities are well reflected in the project focus, such as the communication between wetland and sea, biodiversity and sustainable fisheries. In particular, it contributes to the following ideal management objectives of the protected area:

- Improve environmental conditions to levels that ensure the natural ecological equilibrium;
- Restore the biological diversity and the status of species with international, national and local importance to levels that guarantee the site to be considered among the most important Mediterranean wetlands and to upgrade its protection category to a national park (IUCN protected area Category II);
- Improve the living conditions of the communities through sustainable use of natural resources to build a positive case study for other similar Mediterranean protected areas.

The project also addressed the following factors affecting the implementation of Ideal management objectives for the protected area:

- Deforestation and reduction of biodiversity
- Coastal erosion
- Sedimentation in lagoon bodies and channels
- Changes to the hydrological and physico-chemical proprieties.

Main societal benefits achieved: increased community resilience, flood prevention, other economic benefits.

Organisation: The Resource Environmental Center Albania

7. Identification of possible sites for implementing NbS in Albania

In order to identify possible sites to apply NbS interventions that would limit disaster risk in the country, consultations were held between representatives of Ministry of Tourism and Environment of Albania, Water Resources Management Agency, IUCN and Urban Research Institute were organised. The proposed sites listed below were refined with regards to several criteria:

- potential for application of NbS,
- connectivity with protected areas,
- opportunity to build on existing projects.

7.1. NbS for flood risk management

Three regions were selected as most suitable areas to investigate application of NbS for DRR, and in general for increasing the resilience of local communities:

1. Seman River, its tributaries Devoll and Osum, and connected ecosystems including Tomorri Mountain National Park, and Divjake-Karavasta National Park;
2. Shkumbin River, its tributaries and connected ecosystems, including Shebenik Jabllanice National Park, Kuturman Nature Park, and Divjake-Karavasta National Park
3. Mat River, with the Kune-Vaini Nature Park

The following sections provide a brief overview of each pilot area and the proposed interventions at each site. It is worth noting, however, that the exact interventions at each site will be assessed locally at a further stage, through involvement and cooperation with various institutions at the national, subnational, regional and local levels through a participatory process, including consultations, meetings and workshops. The interventions need to consider the risk of disasters, the highest benefits for the population and country, and the sustainability of results over the long-term.

Pilot 1: Seman River

Seman River is the longest river of Albania (281 km long) and is also the largest river basin of the country with a catchment area of about 5,649 km^2. It is formed by two main tributaries: Devolli and Osumi Rivers with respective catchment areas of 3,130 km² and 2,073 km², which meet near the city of Kuçove. It flows west in meanders for 80 km to a delta near the Karavasta Lagoon on the Adriatic. Recent analysis showed that it is possibly the most polluted river in the country (due to oil extraction and chemical industry activities), which has already had

disastrous effects on the biodiversity in the lower reach of the Seman and nearby coastal areas.[105] The river basin is regularly impacted by floods, with a major flood that occurred in 1937.[106] Land erosion is also estimated to be particularly high along the river. For all these reasons, Seman River was considered a key area for implementing green measures under the Adaptation Plan developed by the Ministry of Environment of Albania.[107]

Of the 67 measures proposed, two directly involve the river basin:

- "Flood protective ecosystem based constructions along coasts and continental shelf" (#36), including infrastructure maintenance or restoration of wetlands, marshlands and dune systems in the Seman delta, and beach refilling to halt further erosion, and
- "Protect/adapt agriculture against sea-level rise" (#54), including restoration of agricultural areas and wetlands, and maintenance and upgrade of flood embankments both north and south of the river delta.

In addition, the tributaries, Osumi and Devolli Rivers, were targeted by the "EU Flood Protection Infrastructure" project (EU-funded), and a river basin management plan is being developed under the "Water Resource and Irrigation" Project (funded by World Bank and Sida).

Lastly, the Seman River has great potential for implementing NbS based on protected areas management. The river is surrounded by the Divjake-Karavasta National Park on the coast and the Tomorri Mountain National Park inland.

<u>Proposed interventions in the Seman River area:</u>

- Ecological restoration of degraded lands and riverbanks to prevent erosion and soil loss;
- Restoration of wetlands for flood prevention and water treatment;
- Improved management of the Divjake-Karavasta National Park for flood prevention;
- Restoration of the Karavasta Lagoon and dune system in the Seman delta and its beaches, to prevent coastal erosion and flooding.

[105] Lushaj, B., Hoxhaj, F., Ndini, M., Selenica, A., Pambuku, A., Dafa, I., Hasimi, Al., Zaimi, K., Marku, M., Çomo, E., Vako, E., Isufaj, S., Myrtaj, B. (2016). General Overview of the Transboundary Waters of Rivers, Lakes, Groundwater and Trend of them, in Albania. *Online International Interdisciplinary Research Journal, VI (I)*, 418-446. https://www.oiirj.org/oiirj/jan-feb2016/59.pdf
[106] UNDP and World Meteorological Organization (2011). *IPA Beneficiary Needs Assessment: Albania*. UNDP and WMO. https://www.scribd.com/document/259148651/Albania-Needs-Assessment-2011-09-09-pdf
[107] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

Pilot 2: Shkumbin River

Located in central Albania, the Shkumbini River is 181 km long with a catchment area of 2445 km². The river springs in the Valamara Mountains, and flows into the Adriatic Sea northwest of Divjakë. Along its course, it receives tributaries of secondary importance, such as the Rapuni, Gostima, and Zaranika Rivers. Chemical analyses taken from the Shkumbini showed high values for certain parameters (iron, nitrites, ammonium), likely due to mining areas upstream and the Elbasani metallurgical complex. As a consequence, the biodiversity in the estuary area is reported to have been seriously affected. Since the drastic reduction of activities of the complex, no complete analyses have been made available, but it is believed that the water quality has improved substantially.[108]

Floods regularly occur along the Shkumbini River, with a major flooding event in 1946.[109] Flooding also occurs in Divjake–Karavasta National Park from the Shkumbini and Semani Rivers. Like the Semani, the Shkumbini Basin experiences high levels of land erosion, with measures to prevent erosion lacking or insufficient. Consequently, the Shkumbini River was included as a key area for implementing the green measure to "Protect/adapt agriculture against sea-level rise" under the Adaptation Plan developed by the Ministry of Environment of Albania.[110] The measure includes the restoration of agricultural areas and wetlands, and the maintenance and upgrade of flood embankments both north and south of the Shkumbini River delta.

In addition, the Elbasan reforestation project has initiated activities for restoring degraded areas along Shkumbin River, which is a first step for reducing erosion and flood risk in this area.

Lastly, the river is surrounded by three protected areas (Divjake-Karavasta National Park on the coast, and Shebenik-Jabllanice National Park and Kuturman Nature Park inland), representing strong potential for implementing NbS based on protected area management.

[108] Lushaj, B., Hoxhaj, F., Ndini, M., Selenica, A., Pambuku, A., Dafa, I., Hasimi, Al., Zaimi, K., Marku, M., Çomo, E., Vako, E., Isufaj, S., Myrtaj, B. (2016). General Overview of the Transboundary Waters of Rivers, Lakes, Groundwater and Trend of them, in Albania. *Online International Interdisciplinary Research Journal, VI (I)*, 418-446. https://www.oiirj.org/oiirj/jan-feb2016/59.pdf

[109] UNDP and World Meteorological Organization (2011). *IPA Beneficiary Needs Assessment: Albania*. UNDP and WMO. https://www.scribd.com/document/259148651/Albania-Needs-Assessment-2011-09-09-pdf

[110] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

Proposed interventions in the Shkumbini River area:

- Ecological restoration of degraded lands and riverbanks to prevent erosion and soil loss;
- Green/Grey infrastructures to reduce erosion and prevent soil loss and landslides;
- Restoration of wetlands for flood prevention and water treatment;
- Restoration of agricultural areas, and development of agroforestry for food security;
- Improved flood control of Shebenik-Jabllanice National Park and Kuturman Nature Park.

Pilot 3: Mati River

Located in northern Albania, the Mati River runs over a total length of 115 km and has a catchment area of 2441 km^2, and in 2019 recorded a population of about 125,000 inhabitants.[111] The main tributary of the Mati is the Fani River that flows from the northeast, while the Mati River flows from the southwest to the confluence with the Fani River before flowing into the Adriatic Sea near Fushë-Kuqe. Chemical analyses of samples taken from the Mati River before 1990 showed a high metal contents (iron, manganese and copper), which is not surprising in an important mining area. While these characteristics do not cause problems for hydropower or industry use, their impact on irrigated agriculture is not fully assessed and the implications for marine coastal waters are also not clear.[112]

The vulnerability and adaptation assessment carried out under the UNDP-GEF project "Identification and Implementation of Adaptation Response Measures in the Drini-Mati River Deltas" found that Albania's northern low-lying coastal areas, bordering the Adriatic Sea and in particular around the Drini and Mati River Deltas is "critically vulnerable" to climate change and other extreme climatic events.[113] The population of the Drini-Mati Delta is around 405,000 inhabitants, or 14 per cent of the population.[114] Besides the permanent risk of inundation of low-lying coastal areas due to sea level rise and increased flooding, other expected climate change impacts include increased coastal erosion, and the consequent degradation of coastal ecosystems (particularly sand dunes, lagoons, wetlands and river deltas), and saltwater

[111] INSTAT (2019). *Population of Albania in 2019*. INSTAT. Retrieved in 2020 from https://www.instat.gov.al/media/5154/population-of-albania-first-january-2019.pdf
[112] Lushaj, B., Hoxhaj, F., Ndini, M., Selenica, A., Pambuku, A., Dafa, I., Hasimi, Al., Zaimi, K., Marku, M., Çomo, E., Vako, E., Isufaj, S., Myrtaj, B. (2016). General Overview of the Transboundary Waters of Rivers, Lakes, Groundwater and Trend of them, in Albania. *Online International Interdisciplinary Research Journal, VI (I)*, 418-446. https://www.oiirj.org/oiirj/jan-feb2016/59.pdf
[113] UNDP (n.d.). *Identification and Implementation of Adaptation Response Measures in the Drini – Mati River Deltas*. UNDP Climate Change Adaptation. Retrieved 2020 from https://www.adaptation-undp.org/projects/identification-and-implementation-adaptation-response-measures-drini-mati-river-deltas
[114] INSTAT (2019). *Population of Albania in 2019*. INSTAT. Retrieved in 2020 from https://www.instat.gov.al/media/5154/population-of-albania-first-january-2019.pdf

intrusion into freshwater systems. Sea level rise is also expected to have serious impacts on the saltmarsh ecosystems of the Drini-Mati Deltas area.[115]

For these reasons, the Mati River and its delta were considered as key areas for implementing green measures under the Adaptation Plan developed by the Ministry of Environment of Albania.[116] Of the 67 proposed measures, 17 directly involve the river basin, including seven green measures:

- "Measures in protected areas" (#10),[117] including improved management of coastal protected areas and water exchange in lagoons, and biodiversity restoration activities;
- "Protection of existing forest/vegetation, reforestation" (#8), including introducing agro-forestry practices in forest areas, supporting forest regeneration, plantation along river beds and coastal area, and plantation for dune stabilisation;
- "Maintaining/restoring coastal wetlands" (#60), including design and implementation of wetland restoration projects along the lowland coast, and promotion of wetland accretion;
- "Reforesting riversides" (#35), including reforesting with vegetation resistant to high temperatures and humidity, such as forest belts of poplar, sallow, acacia etc. along riversides, especially near embankments;
- "Limiting of the exploitation of river environments for pasture" (#34), including limiting the use of riversides for grazing in coastal areas along the Drini and Mati Deltas;
- "Adaptation for coastal protection through management of coastal erosion" (#55), including removal of breakwaters and beach nourishment to ameliorate erosion;
- "Management of coastline by increasing sediment release from hydropower dams" (#56), including in the Mati River.

Lastly, the Mati River has strong potential for implementing NbS based on protected areas management in the Kune-Vaini Nature Park on the coast.

<u>Proposed interventions in the Mati River area:</u>

- Ecological restoration of degraded lands and riverbanks to prevent erosion and soil loss;
- Replanting along coastal areas and dune stabilisation to prevent coastal erosion and flooding;

[115] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf
[116] *Ibid.*
[117] *Ibid.*

- Restoration of wetlands for flood prevention and water treatment;
- Restoration of agricultural areas, and development of agroforestry for food security;
- Improved management of Kune-Vaini Nature Park, including improved water exchange for flood risk prevention;

7.2. NbS for forest fire risk management

Wild fires can occur anywhere in the country, though the hotspots are located in the mountainous forests, in the border area with Greece, and in the southern areas of the country. The mountainous areas are particularly vulnerable due to their important forest cover, south-facing exposure, and climatic conditions (with wind and regular droughts). Forest fires usually occur in September and October, after summer, when vegetation and ground substrates are dry. In addition to their ecological impact, wildfires have a detrimental effect on agriculture, forestry and tourism.[118]

The area between the Prefectures Lezha-Kukes-Diber-Tirana, in the north, is well known for risk of forest fires. With 47 events registered between 1946 and 2013, Diber is the most affected district in the north. This region is a hilly/mountainous area with very steep terrain and a fragmented topography. These conditions favour the rapid spread of forest fires. Meanwhile, fire-fighting access is limited to such areas, which is one of the main reasons for inefficient fire suppression and large burned areas.[119] The proposed pilot project for fire risk reduction is located in the Diber district.

Although the vulnerability and adaptation assessment developed by Ministry of Environment of Albania focuses on coastal areas, many defined measures involve fire risk management, demonstrating that fire risk is a great concern for CCA in the country.[120] Of the 67 proposed measures, six directly deal with fire risk management:

- “Public education on fire risks and protection” (#27);
- “Measures in the Protected Areas (PAs)” (#10), including forest fire prevention and warning systems;
- “Improve fire protection systems in building structures” (#26);
- “Reorganisation, strengthening, completion, and modernisation of fire protection (FP) units” (#25);

[118] Toto, E. and Masabo, M. (2014). *Historical Collection of Disaster Loss Data in Albania*. CIMA Research Foundation, International Centre on Environmental Monitoring. https://www.cimafoundation.org/docs/reports/Historical_collection_of_Disaster_Loss_Data_In_Albania.pdf
[119] Regional Fire Monitoring Center (2015). *Forest Fires Country Study: Republic of Albania*. Regional Environmental Center for Central and Eastern Europe. http://www.rfmc.mk/pdf/project2/Forest%20Fires_ALBANIA-final.pdf
[120] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

- “Pest and fire management in the agriculture sector” (#5);
- “Protection of existing forest/vegetation, reforestation” (#8), including fire prevention in forestry areas and integrated fire management.

In addition, the proposed pilot area located in the Diber district is surrounded by numerous protected areas, including the Bjeshka e Oroshit Resource Reserve, Lura National Park, Luzni-Bulaç Resource Reserve, and Korab-Koritnik Natural Park, which represent strong potential for nature-based fire management measures.

Proposed interventions in the Diber area:

- Reforestation using mosaic planting and drought-resistant species;
- Forest fire prevention in Bjeshka e Oroshit Resource Reserve, Lura National Park, Luzni-Bulaç Resource Reserve, and Korab-Koritnik Natural Park;
- Integrated fire management and prevention in forestry areas.

8. Challenges for mainstreaming NbS

Several challenges have been identified for advancing the opportunities for NbS implementation, as identified above.

First, the national and local integrated strategic planning needs to be improved. Climate change and natural disasters are cross-cutting areas and developed human resource capacities are needed to integrate strategic planning of the many line ministries and municipalities, in particular for coordinating action planning and implementation. The mid-term budget is a key instrument of the national and local integrated planning and public expenditure, requiring performance indicators at the overall and specific objective level, thereby requiring cross-institutional and cross-governmental cooperation. This cooperation requires advocacy for national prioritisation.

Second, the national environment data system has to be integrated and improved to allow for effective action planning. National or international funding needs to be raised for monitoring across sectors interrelated to the environment, climate change and natural disasters. A national climate change data measurement, reporting and verification system is an important component of an environmental data system, as regulated by the UNFCCC and the EU *Acquis*; however, such as system has not yet been established in Albania, and a Law on Climate Change is also lacking.

Third, the monitoring of implementation of the national and sectorial development strategies related to CCA and DRR is at both inaccurate and incomplete, limiting the analysis of the level of implementation of nature-based or ecosystem measures. This poses a challenge for general strategic planning and implementation in Albania, as the specific purpose of the study. National funding and human resource capacity building are needed for improvement, and for the promotion and advocacy for transparency and accountability.

9. Recommendations for next steps

Although NbS and related concepts (such as ecosystem-based DRR and EbA) are relatively new, many examples of ecosystem-based initiatives exist worldwide.[121] In fact, most conservation work (directly or indirectly) contributes to reducing disaster risk and climate change impacts, even though they may not be documented as such. As a result, the impacts of these interventions in terms of resilience to climate change and natural hazards are seldom assessed.

With ecosystem-based strategies becoming more acknowledged in global policies, countries are strongly encouraged to consider environmentally friendly and sustainable options for CCA, DRR, and development.

Albania is a country with a high disaster risk that is increasingly exposed to the impacts of climate change. This will lead to even more frequent and severe natural hazards, especially storms, floods, heat waves and forest fires.[122,123] It is also a country with a great potential for implementing NbS, having in mind its rich natural resources (forests and rivers in particular), and its well-developed protected areas network. In addition, the country has experience in implementing ecosystem-based strategies for DRR and CCA, as shown by the numerous existing or past projects relating to these issues (see Section 7).

Responding to the most pressing disaster risks identified in Albania (i.e., floods and forest fires) can be done through integrating EbA and Eco-DRR approaches.

While seeking to address similar issues, DRR and CCA approaches differ as they address different policy fora and involve different stakeholders and institutions. Climate change issues are traditionally covered by environmental bodies and policies, while disaster management relates to development, land use and security. Hence, the logical framework and the language used for both approaches differ significantly. Yet there is a growing awareness of the risk of poor project design and maladaptation if both long-term climate change and multiple hazards

[121] Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). *Nature-based Solutions to address global societal challenges*. IUCN. https://doi.org/10.2305/IUCN.CH.2016.13.en

[122] Comes, M., Dubbert, M., Garschagen, M., Hagenlocher, M., Sabelfeld, R., Lee, Y. I., Grunewald, L., Lanzendörfer, M., Mucke, P., Neuschäfer, O., Pott, S., Post, J., Schramm, S., Schumann-Bölsche, D., Vandemeulebroecke, B., Welle, T. and Birkmann, J. (2016). *World Risk Report 2016.* Alliance Development Works and United Nations University – Institute for Environment and Human Security. https://collections.unu.edu/eserv/UNU:5763/WorldRiskReport2016_small_meta.pdf

[123] Ministry of Environment of Albania (2016). *The Third National Communication of the Republic of Albania to the United Nations Framework Convention on Climate Change (UNFCCC)*. Tirana, Albania: Republic of Albania, Ministry of Environment. https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016_0.pdf

are not taken into account when designing activities. This calls for the strong integration of the two approaches.[124]

Hence, fostering integrated EbA/Eco-DRR strategies and working with multiple sectors (from conservation to risk management) will make NbS more successful.[125] EbA and Eco-DRR have many similarities given their focus on ecosystem management, restoration and conservation to increase resilience of people to climate change and disaster risk. Indeed, most methodologies and approaches used by both EbA and Eco-DRR are the same, since both seek to apply sustainable management, restoration and conservation of ecosystems. These ecosystem-based or environmental management approaches include land use planning and zoning, sustainable natural resource management, integrated water resource management, integrated coastal zone management, integrated watershed or river basin management, protected area management, and community-based action.[126]

The purpose of this section is to encourage the implementation of NbS in Albania through integrated EbA/Eco-DRR approaches, to ensure that the outcomes of future interventions are maximised, in terms of conservation, DRR and CCA.

Work across sectors and disciplines

Integrating Eco-DRR and EbA allows bringing together different actors and expertise across sectors (including environment, disaster risk management, development) and encourages multi-disciplinary approaches within project implementation and at a policy level. This would create greater coherence and effectiveness, avoid duplication and missed opportunities, and reduce the possibility of maladaptation.[127] This is possible through:

- Identifying policy and institutional entry points for promoting NbS principles, approaches and strategies;
- Working across sectors and disciplines and establishing an informal or formal inter-ministerial dialogue platform for actors to exchange and understand positions. Such platforms have been effective in facilitating the development of joint objectives that are

[124] Doswald, N. and Estrella, M. (2015). *Promoting ecosystems for disaster risk reduction and climate change adaptation: Opportunities for Integration*. UNEP. https://www.unep.org/resources/report/promoting-ecosystems-disaster-risk-reduction-and-climate-change-adaptation

[125] Cohen-Shacham, E., Walters, G., Janzen, C. and Maginnis, S. (eds.) (2016). *Nature-based Solutions to address global societal challenges*. IUCN. https://doi.org/10.2305/IUCN.CH.2016.13.en

[126] Doswald, N. and Estrella, M. (2015). *Promoting ecosystems for disaster risk reduction and climate change adaptation: Opportunities for Integration*. UNEP. https://www.unep.org/resources/report/promoting-ecosystems-disaster-risk-reduction-and-climate-change-adaptation

[127] *Ibid.*

mutually beneficial to the various ministries. Additionally, such a platform is especially necessary since the diverse range of actors do not naturally interact regularly.

- Strategically engage with both the Department of Civil Emergency Planning and Response and the Ministry responsible for climate change, due to the obvious links. Additionally, ministry sectors dealing with climate change often have better access to funding and decision-making compared to disaster management divisions, which are often only active post-disaster and heavily reliant on international humanitarian aid mobilisation.
- Developing partnerships that seek to achieve multiple priorities (i.e., sustainable development, CCA and DRR)

Encourage proactive disaster risk reduction

Many of the disaster management divisions of national governments work primarily with humanitarian aid agencies, since risk management remains largely focused on post-disaster response, relief and recovery. Encouraging proactive DRR is possible by:

- making a strong case for risk awareness, risk management and ownership, before introducing and positioning NbS for DRR, and
- engaging with disaster management national platforms, which are often only active post-disaster but may be interested in taking on Eco-DRR since it provides a strategy for continued actions (regardless of a disaster event) and empowers disaster managers to apply risk reduction steps/criteria.

Strategically engage with relevant stakeholders

Once relevant policy sectors and institutional entry points have been identified, NbS can be strategically promoted by:

- targeting upcoming policy reviews (National Strategy for Civil Protection, Law on Integrated Management of Water Resources, no. 111/2012) for including NbS as a response.
- organising joint capacity development amongst policy actors, such as protected area managers, disaster management planners, and climate change agencies. The Partnership for Environment and Disaster Risk Reduction provides comprehensive training material in this regard.[128]

[128] Partnership for Environment and Disaster Risk Reduction. Ecosystems for Disaster Risk Reduction and Adaptation (n.d.). *National Training*. PEDRR. Retrieved 2020 from http://pedrr.org/activities/national-training/

Annex I: Full list of key terms and definitions

Adaptation	Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Various types of adaptation exist, e.g., anticipatory and reactive, private and public, autonomous and planned.
Biodiversity	The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (Convention on Biological Diversity).
Climate change	Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity.
Climate change adaptation (CCA)	An adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Climate change impacts	The effect of climate change on natural and human systems. Depending on how adaptation is considered, it is possible to distinguish between potential impacts and residual impacts.
Climate hazard	The harmful effects of climate change on livelihoods and ecosystems. These hazards can be caused by gradual climate variability or extreme weather events. Some hazards are continuous phenomena that start slowly, such as the increasing unpredictability of temperatures and rainfall. Others are sudden but relatively discrete events, such as heat waves or floods.
Disaster	A serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses that exceed the ability of the affected community or society to cope using its own resources.
Disaster risk	The potential loss of life, injury, destroyed or damaged assets that could occur to a system, society or a community in a specific period of time, determined probabilistically as a function of hazards, exposure, vulnerability and capacity.
Disaster Risk Reduction (DRR)	Aims to reduce the damage caused by natural hazards, such as earthquakes, floods, droughts and cyclones, through an ethic of prevention.
Ecosystem	According to the Convention on Biological Diversity, an ecosystem is understood as a dynamic complex of plant, animal and microorganism communities and their non-living environment that interact as a functional unit. Ecosystems may be small and simple, like an isolated pond, or large and complex, like a forest or mangrove in a coastal area.
Ecosystem approach	A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.
Ecosystem benefits	Ecosystems provide benefits to communities that have economic value, including protection, food security, shelter and income.
Ecosystem restoration	The process of assisting the recovery of the structure, function and processes of an ecosystem that has been degraded, damaged or destroyed. See also: http://www.onebigrobot.com/IUCN/decade-landscape/
Ecosystem-based adaptation (EbA)	The use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people adapt to climate change, maintain and increase resilience, as well as to reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change. See also: https://www.iucn.org/theme/ecosystem-management/our-work/ecosystem-based-approaches-climate-change-adaptation

Ecosystem-based disaster risk reduction (Eco-DRR)	The sustainable management, conservation and restoration of ecosystems to provide services that reduce disaster risk by mitigating hazards and increasing livelihood resilience. See also: https://www.iucn.org/id/node/19177
Forest landscape restoration (FLR)	The ongoing process of regaining ecological functionality and enhancing human well-being across deforested or degraded forest landscapes. FLR is more than just planting trees – it is restoring a whole landscape to meet present and future needs and to offer multiple benefits and land uses over time. FLR can take many forms, such as new tree plantings, managed natural regeneration, agroforestry, or improved land management to accommodate a mosaic of land uses. See also: https://infoflr.org/index.php/what-flr/types-flr
Hazard	A potentially damaging physical event, phenomenon or human activity, which may cause the loss of life of injury, property damage, social and economic disruption or environmental degradation.
Nature-based Solutions (NbS)	Actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. See also: https://www.iucn.org/sites/dev/files/iucn_issues_brief_-_nbs_standard_eng.pdf
Resilience (of ecosystems)	The ability of ecosystems to function and provide critical ecosystem services under changing conditions.
Risk	Risk is the probability that a situation will produce harm under specified conditions. It is a combination of two factors: the probability that an adverse event will occur, and the consequences of the adverse event. Risk encompasses impacts on human and natural systems, and arises from exposure and hazard. Hazard is determined by whether a particular situation or event has the potential to cause harmful effects.
Sustainable management	Management through which the present potential of resources is used in the best possible way, and does not reduce the availability of resources.
Sustainable use	The use of an organism, ecosystem or any other renewable resource at a rate within the bounds of its capacity for renewal.
Vulnerability	A set of conditions and processes resulting from physical, social, economic and environmental factors, indicating the susceptibility of a community to the impact of hazards.

Annex II: List of online databases used for this study

Figures on the country economy and impacts of disasters were obtained from the following list of online databases:

Name of database	Description	Link or reference
World Bank DataBank	DataBank is an analysis and visualisation tool that contains collections of time series data on a variety of topics, including World Development Indicators, Global economic prospects, finance, and climate change.	http://databank.worldbank.org/data/home.aspx
UNDP Human Development Index (HDI)	The HDI was created to emphasise that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living.	http://hdr.undp.org/en/data
Albanian Institute of Statistics (INSTAT)	INSTAT is the major source of statistical information providing reliable and comparable statistical information on various themes (agriculture, forestry and fishery, education, energy, environment, population, household incomes, trade, tourism, etc.).	http://www.instat.gov.al/en/home.aspx
World Risk Index	The WorldRiskIndex calculates the relative disaster risk based on four components (exposure, susceptibility, coping capacity and adaptive capacity) and 28 indicators.	World Economic Forum (2016) Global Risk report http://reports.weforum.org/global-risks-2016/

Annex III: List of policy documents reviewed

Theme	Document	Date	Authors
Physical Planning	National Strategy for Development and Integration 2015–2020	2015	Council of Ministers
Physical Planning	The General National Plan Albania 2030	2015	Council of Ministers
Biodiversity	Sixth National Report of Albania to the United Nations Convention on Biological Diversity	2019	Ministry of Tourism and Environment
	Document of Strategic Policies for the Protection of Biodiversity in Albania	2015	Council of Ministers
Climate change	First National Communication of Albania to UNFCCC	2002	Ministry of Environment
	Third National Communication to UNFCCC	2016	Ministry of Tourism and Environment
	Intended Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20	2015	Council of Ministers
	National Adaptation Plan (NAP) to Climate Change (NAP)	2016	Council of Ministers
	The National Climate Change Strategy and Plan (NCCSP)	2019	Council of Ministers
	Inter-Sector Strategy for Rural and Agricultural Development	2014	Council of Ministers
Disaster management	Albanian HFA Monitoring Report 2011-2013	2014	Ministry of Interior Directorate of Civil Emergencies of Albania
	National Civil Emergency Plan of Albania	2004	Ministry of Local Government and Decentralization
	Draft National Strategy for DRR and Civil Protection 2014-2018	2014	Ministry of Interior
	Strategy for irrigation, drainage and flood protection	2015	Council of Ministers
Environment	Draft Cross-Cutting Environment Strategy	2015	Ministry of Environment
	Integrated Water Resources Management Strategy	2016	Council of Ministers

Annex IV: List of legislative documents reviewed

Name of legislation	Reference	Adoption date	Revision date
Law on Environmental Protection	No. 8934/2002	2002	2011
Law on Biodiversity Protection	No. 9587/2006	2006	2014
Law on Protected Areas	No. 81/2017	2017	N/A
Law on Integrated Management of Water Resources	No. 111/ 2012	2012	2018
Law on Forestry	No. 57/2020	2020	N/A
Law on Civil Protection	No. 45/2019	2019	N/A
Law on Fire Protection and Rescue Services	No. 152/2015	2015	N/A

Annex V: List of stakeholders and their potential roles

Stakeholders group	Potential Roles
Council of Ministers	Main body for approving policies and plans
Department of Strategy and Donor Coordination	Coordination of International funds
Ministry of Tourism and Environment	Designs and implements policies aimed at environmental protection, sustainable use of natural resources, protection of nature and biodiversity, sustainable development and management of forests and pastures, water quality monitoring, drafting and implementing tourism policies. The ministry exercises its activity in the following areas of state responsibility, in accordance with the relevant legislation: a) environmental sector, including policies, standards of waste treatment and the effects it brings in terms of air and environment, air quality, noise, industrial pollution, chemicals, climate change and monitoring of environmental and quality indicators, water, environmental impact assessment; b) nature and biodiversity, including flora and fauna, protection of soil from erosion and degradation, protection of the natural landscape, protection of wild fauna and endangered species and protected areas; c) forests and pastures; d) designs and implements policies for a sustainable development of tourism, through the promotion of investments in tourism, raising and monitoring the system of standards in tourism and continuing education of business in the field of tourism, product promotion and tourist destinations, coordination and cooperation with state structures, local government, subordinate institutions, the ministry bodies and its territorial branches.
National Environment Agency	Drafting the National Environmental Monitoring Program and monitoring the state of the environment, in accordance with the law; preparing and publishing annual reports on the state of the environment; performing environmental emission measurement services; provision of information to the public on the environmental decision-making process; ensuring the application of the principle of environmental liability to each operator; inspection and control of linking activities
Inter-ministerial Working Group on Climate Change	Advisory role on climate change.

State agency responsible for forests	The state agency responsible for forests has the following responsibilities: a) ensuring performance in the forest sector, assessing the state of forests and the impact of the sector by monitoring key indicators and the level of implementation of policies, programs and plans at the national level; b) protection and sustainable use of forest resources by optimising their use towards economic profitability in accordance with the priorities in use and needs of the country, as well as the criteria for forest management; c) submitting proposals to the Minister for setting norms, standards, basic prices and best practices unified in the field of forests, to orient and efficiency of structures and entities that have rights and obligations for the national forest fund, which are approved by the decision of the Council of Ministers; d) implementation of internationally accepted forest certification systems; e) guaranteeing the coordination, interaction and engagement of the structures responsible for forests, at central and local level, as well as other actors (CSOs, businesses, communities, etc.), considering the respect of gender equality; f) establishment and functioning of the integrated forest information system at the national level, as well as the harmonisation of scientific research in the field of forests; g) supervising the implementation of legal requirements and planning documents in forests, as well as advising and raising awareness of stakeholders regarding forest obligations; h) guaranteeing the functionality of the control system and inspection of the activities that take place in the national forest fund, intervening according to the definitions in this law. The rules for the organisation and functioning of the agency are determined by a decision of the Council of Ministers, upon the proposal of the Minister.
National Agency for Protected Areas	The central state institution responsible for protected areas, under the minister, entrusted with administering and controlling protected areas throughout the territory of the Republic of Albania.
Ministry of Finance and Economic	Responsible for designing and implementing policies and strategies in financial capital investments
General Budget Department	Allocation of funds
Central Finance and Contracting Unit	Allocation of funds
Ministry of Agriculture, Rural Development, and Water	Leading institution for irrigation management, drainage
Centres of Agricultural Technology Transfer	Provides knowledge and good agricultural practices
Directorate of Irrigation and Drainage	Manages tertiary irrigation and drainage infrastructure
Academy of Sciences	Institution responsible for proposing and conducting research and studies in various fields of science.

Institute of Geosciences, Energy, Water, and Environment	Responsible for monitoring surface water quality and quantity. The institute also conducts studies on water flow, atmospheric precipitation and flood prevention.
Ministry of Energy and Industry	Responsible for designing and implementing policies and strategies in the potable water and sanitation sector. This institution has a major role in hydropower operating through the National Agency of Natural Resources.
National Territorial Planning Agency	Responsible institution for drafting the General National Spatial Plan and coordinating the drafting of local development plans
Ministry of Internal Affairs	Policy making, coordination and supervision of the fire protection service
Directorate of Fire Protection and Rescue	Administrative duties
Ministry of Defence	Leading role in civil emergencies including flood emergencies. It is responsible for drafting the national civil emergency plan
Directorate for Civil Emergency Planning and Coordination	Draft National civil emergency plans
National Water Council	Adopts inter-regional and national plans and projects in the sector of agriculture, urban planning, industrial and territorial development. - Takes the necessary measures for the implementation of international agreements and conventions on water resources; - Provides permits and authorisations for water use and discharges, when the activity shall be performed outside the border of a single basin; - Adopts inter-regional and national plans and projects in the sector of agriculture, urban planning, industrial and territorial development, as regards water conservation and management
Water Resource Management Agency	Develops and implements policies, strategies, plans, programs and projects aimed at the integrated management of water resources, quantitative and qualitative conservation, and their further consolidation; - applies the provisions of international agreements and conventions on water and transboundary waters; - carries out the functions of the Technical Secretariat of the National Water Council; - proposes the concession of water resources; - proposes the issuance of permits and authorisations for the use of water and discharges when the activity is carried out outside the boundary of a single basin; - drafts the national inventory of water resources, both quantitatively and qualitatively; - designs and follows the implementation of water basin management plans; - designs and follows the implementation of transboundary water management plans; - responsible for the commercial activities involving water resources; - requests from public bodies and institutions, agencies and public entities information, technical data, analyses or

	technical-consultative support that serve the needs of management and management of water resources; - in cooperation with scientific research institutions, defines research and study areas for water resources as well as the relevant funds for them; - coordinates and controls the work of local water management bodies.
River Basin Councils	Ensures the conservation and more rational use of water resources within the borders of a specific river basin; - ensures the equitable distribution of water resources within the border of a specific river basin, ensuring they are properly used, and effectively managed; - ensures the protection of water resources from pollution, misuse and damages that impact their quality and quantity; - identifies the relevant water bodies in need of protection.
Water administration bodies at the basin level	Develops the water resources project plan for a specific river basin and shall submit it for approval to the river basin council; - develops the water resources inventory, both quantitative and qualitative, as well as its regular updating; - promotes the participation of water users in water resource management; - compile reports, provide opinions on water resources and submit them to the River Basin Council for deliberation; - develops materials for the River Basin Council meetings; - follows the implementation of the decisions of the National Water Council and River Basin Council.
Local governmental units	Manage and protect forests, land protection, floods in urban areas.
Civil society organisations CSOs	CSOs like INCA, PPNEA, Co-Plan and Rec Albania have worked in the sector of environment, urban development and biodiversity protection with different projects promoting CCA and DRR activities.
Affected communities	More information is needed to assess these groups.

Annex VI: Regional European 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 2050. In its Europe 2020 strategy, the EU committed to reducing its GHG emissions by 20 per cent compared with 1990, improving energy efficiency by 20 per cent, and increasing the share of renewables in final energy consumption to 20 per cent. 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 per cent (from 1990 levels), achieving a minimum 32 per cent share for renewable energy, and improving energy efficiency by at least 32.5 per cent (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 per cent and towards 55 per cent 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 (2014–2020) 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 (2021–2027) includes a 'greener, carbon free Europe' as one of its five main objections.

SEE 2020

During the COP 23 in Bonn, ministers from the Western Balkans responsible for the environment and climate change signed a Ministerial Declaration at the second High-Level Panel on Environment and Climate Action in the WB, under the framework for the implementation of the South East Europe 2020 Strategy (SEE 2020) and its Environment Dimension. The ministers re-affirmed their commitment to strengthen 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 WB 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 Regional Cooperation Council 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 CCA (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). Launched in 2000 to assist partners prevent and deal with the impacts of natural disasters, it has since 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 is a major regional processes on DRR and CCA. and serves as an umbrella regional network for developing programmes and projects to prevent and respond to natural and human-made disasters.

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