

CLIMATE RISK COUNTRY PROFILE

ALBANIA

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This profile is part of a series of Climate Risk Country Profiles developed by the World Bank Group (WBG). The country profile synthesizes most relevant data and information on climate change, disaster risk reduction, and adaptation actions and policies at the country level. The country profile series are designed as a quick reference source for development practitioners to better integrate climate resilience in development planning and policy making. This effort is managed and led by Veronique Morin (Senior Climate Change Specialist, WBG) and Ana E. Bucher (Senior Climate Change Specialist, WBG).

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Climate and climate-related information is largely drawn from the [Climate Change Knowledge Portal \(CCKP\)](#), a WBG online platform with available global climate data and analysis based on the latest [Intergovernmental Panel on Climate Change \(IPCC\)](#) reports and datasets. The team is grateful for all comments and suggestions received from the sector, regional, and country development specialists, as well as climate research scientists and institutions for their advice and guidance on use of climate related datasets.

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FOREWORD

Climate change is a major risk to good development outcomes, and the World Bank Group is committed to playing an important role in helping countries integrate climate action into their core development agendas. The World Bank Group is committed to supporting client countries to invest in and build a low-carbon, climate-resilient future, helping them to be better prepared to adapt to current and future climate impacts.

The World Bank Group is investing in incorporating and systematically managing climate risks in development operations through its individual corporate commitments.

A key aspect of the World Bank Group's Action Plan on Adaptation and Resilience (2019) is to help countries shift from addressing adaptation as an incremental cost and isolated investment to systematically incorporating climate risks and opportunities at every phase of policy planning, investment design, implementation and evaluation of development outcomes. For all IDA and IBRD operations, climate and disaster risk screening is one of the mandatory corporate climate commitments. This is supported by the Bank Group's Climate and Disaster Risk Screening Tool which enables all Bank staff to assess short- and long-term climate and disaster risks in operations and national or sectoral planning processes. This screening tool draws up-to-date and relevant information from the World Bank's Climate Change Knowledge Portal, a comprehensive online 'one-stop shop' for global, regional, and country data related to climate change and development.

Recognizing the value of consistent, easy-to-use technical resources for client countries as well as to support respective internal climate risk assessment and adaptation planning processes, the World Bank Group's Climate Change Group has developed this content. Standardizing and pooling expertise facilitates the World Bank Group in conducting initial assessments of climate risks and opportunities across sectors within a country, within institutional portfolios across regions, and acts as a global resource for development practitioners.

For developing countries, the climate risk profiles are intended to serve as public goods to facilitate upstream country diagnostics, policy dialogue, and strategic planning by providing comprehensive overviews of trends and projected changes in key climate parameters, sector-specific implications, relevant policies and programs, adaptation priorities and opportunities for further actions.

It is my hope that these efforts will spur deepening of long-term risk management in developing countries and our engagement in supporting climate change adaptation planning at operational levels.



Bernice Van Bronkhorst

Global Director

Climate Change Group (CCG)

The World Bank Group (WBG)

COUNTRY OVERVIEW

Albania is a small mountainous country on the western side of the Balkan peninsula in Southeastern Europe, with a land area of 28,748 square kilometers (km²). Albania shares borders with Montenegro to the northwest, Kosovo to the northeast, North Macedonia to the east and Greece to the south. The country has a long coastline along the Adriatic and Ionian Seas which forms the majority of its western border. 70% of Albania's territory is mountainous with an average altitude of 700 meters (m) above sea level; in the east, Mount Korab is the maximum altitude at 2,753 m. Mountainous and hilly areas are located in three regions: Northern, Central, and Southern, while the plains occur to the West along the Adriatic coast, between Hani Hoti in the North and Vlorë in the South. Albania enjoys a Mediterranean climate, with mild and humid winters followed by hot and dry summers. The country experiences rainfall primarily during the second half of the year, however, climate conditions differ considerably between agro-ecological zones. The coastal plains experience a strong maritime influence, causing a gradient of lower temperatures and reduced precipitation eastwards from the coast.¹

Albania is classified as a middle-income country and became an official candidate for accession to the European Union in 2014. Albania has a population of 2.9 million people (2019) with an annual population growth rate at -0.4% (2018). Albania's is projected to reach 2.7 million people by 2030 and 2.3 million people by 2050 (**Table 1**). An estimated 69.5% of the country's population currently resides in urban areas, which is expected to increase to 78.2% by 2050.² The country has a Gross Domestic Product (GDP) of \$15.2 billion (2019), growing at a rate of 2.2% annually, as of 2019³ (**Table 1**). Following the dissolution of the Socialist Republic in the early 1990s, free market reforms began to open Albania to foreign investment.⁴

The country has realized strong economic growth performance over the last 30 years, growing from the poorest nation in Europe in the early 1990s to middle income status in 2008; poverty declined by half during that period. However, Albania has experienced two significant shocks that have hit the country: the 2019 earthquake and the COVID-19 pandemic, resulting in the economy experiencing a sharp contraction of 10.2% in the second quarter of 2020. Poverty (at \$5.5 per day) is estimated to have increased in 2020 by 1%, equivalent to 28,000 new poor. Albania is implementing important structural reforms that will support equitable growth, and is expected to raise productivity and competitiveness in the economy, create more jobs, and improve governance and public service delivery. Enhanced regional connectivity and access to regional and global markets, coupled with export and market diversification, can also help promote faster growth. Prior to the Pandemic, the Government of Albania had been working on a broad-based reform program focused on macroeconomic and fiscal sustainability, financial sector stabilization, energy reform, social assistance and disability reform, and territorial decentralization.⁵

¹ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

² World Bank Open Data (2020). Data Retrieved October 2020. Data Bank: Population Estimates and Projections, Albania. URL: <https://databank.worldbank.org/data/reports.aspx?source=health-nutrition-and-population-statistics:-population-estimates-and-projections>

³ World Bank Data Bank (2019). World Development Indicators, Albania. URL: <https://databank.worldbank.org/data/source/world-development-indicators>

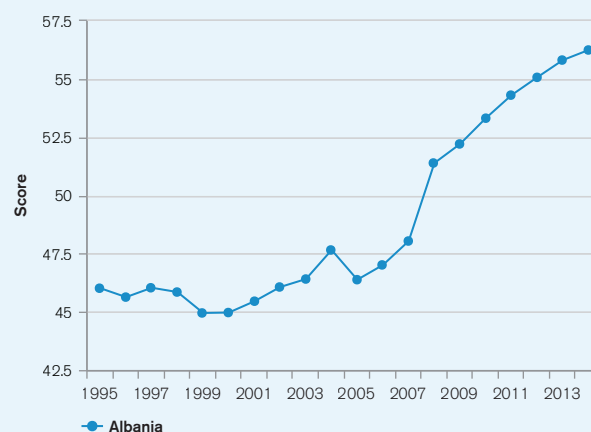
⁴ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

⁵ The World Bank (2021). Albania – Overview. URL: <https://www.worldbank.org/en/country/albania/overview>

TABLE 1. Data snapshot: key development indicators⁶

Indicator	
Life expectancy at birth, total (years) (2019)	78.6
Population density (people per sq. km land area) (2018)	104.6
% of Population with access to electricity (2018)	100%
GDP per capita (current US\$) (2019)	\$5,353.20

The ND-GAIN Index⁷ ranks 181 countries using a score which calculates a country's vulnerability to climate change and other global challenges as well as their readiness to improve resilience. This Index aims to help businesses and the public sector better identify vulnerability and readiness in order to better prioritize investment for more efficient responses to global challenges. Due to a combination of political, geographic, and social factors, Albania is recognized as vulnerable to climate change impacts, ranked 75 out of 181 countries in the 2020 ND-GAIN Index. The more vulnerable a country is the lower their score, while the more ready a country is to improve its resilience the higher it will be. Norway has the highest score and is ranked 1st. **Figure 1** is a time-series plot of the ND-GAIN Index showing Albania's progress.

FIGURE 1. ND-GAIN Index for Albania

Albania submitted its [Nationally-Determined Contribution \(NDC\)](#) to the UNFCCC in 2016. Through its NDC commitments, Albania is working to support its wider development goals, which are geared to increase resilience to climate change impacts. Focus is in on key sectors such as energy, industrial development, agriculture, public health, and biodiversity.⁸ Albania is addressing the vulnerability of key sectors and prioritizing adaptation efforts through integrated policy, research and investment in key areas such as the protection of coastal zones and urban planning, increasing awareness of the agricultural and health communities to climate change risks.⁹ Strategic review and policy integration is currently led through the country's National Adaptation Planning, which started

⁶ World Bank (2020). DataBank – World Development Indicators. URL: <https://databank.worldbank.org/source/world-development-indicators>

⁷ University of Notre Dame (2020). Notre Dame Global Adaptation Initiative. URL: <https://gain.nd.edu/our-work/country-index/>

⁸ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

⁹ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

in 2015¹⁰ was approved by the Government in July 2019. Albania's climate change action is also defined through its [Third National Communication](#) (NC3), which it published in 2016. Albania remains committed to developing a long-term, low carbon development strategy as well as reducing its current greenhouse gas emissions, which are comprised from Energy and Transport (44.85%), Land Use Change and Forestry (19.35%), Agriculture (15.83%), Industrial (12.61%), and Waste (7.37%).¹¹ At the time of writing, Albania's Biennial Update Report on Greenhouse gas (GHG) inventories and its Fourth National Communication was under development. In further support of its mitigation commitments, Albania ratified the Kigali Amendment to the Montreal Protocol in January 2019, to its reduce usage of hydrofluorocarbons.¹²

Green, Inclusive and Resilient Recovery

The coronavirus disease (COVID-19) pandemic has led to unprecedented adverse social and economic impacts. Further, the pandemic has demonstrated the compounding impacts of adding yet another shock on top of the multiple challenges that vulnerable populations already face in day-to-day life, with the potential to create devastating health, social, economic and environmental crises that can leave a deep, long-lasting mark. However, as governments take urgent action and lay the foundations for their financial, economic, and social recovery, they have a unique opportunity to create economies that are more sustainable, inclusive and resilient. Short and long-term recovery efforts should prioritize investments that boost jobs and economic activity; have positive impacts on human, social and natural capital; protect biodiversity and ecosystems services; boost resilience; and advance the decarbonization of economies.

CLIMATOLOGY

Climate Baseline

Overview

Albania's topography is dominated by its mountains, hills, and coastline and the country's geologic and climatic characteristics result in an extensive network of rivers and lakes. As such, the country's mostly mountainous landscape is endowed with abundant water resources, diverse flora and fauna, and an extensive coastline on the Adriatic and Ionian Seas.¹³ Average annual temperatures vary from 17.6°C (in Saranda to the South) to

¹⁰ NAP Global Network (2018). Albania – National Adaptation Plan Approach. URL: <http://napglobalnetwork.org/wp-content/uploads/2018/02/Albania-NAP-process-country-poster-Feb2018.pdf>

¹¹ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹² UNIDO (2019). Albania steps up fight against climate change. [18 January 2019]. URL: <https://www.unido.org/news/albania-steps-fight-against-climate-change>

¹³ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

7°C (in Vermosh in the North). Lowland areas are characterized by a stable mean temperature of 14°C–16°C. Maximum temperatures can reach up to 11.3°C in mountain areas and 21.8°C in lowland and coastal zones. The lowest recorded temperatures were observed in Sheqeras (–25.8°C), Voskopojë (–25.6°C), and Bize (–34.7°C). The highest recorded temperatures were observed in Kuçovë (43.9°C), Roskovec (42.8°C), and Çiflig (42.4°C).

The north, west and southwest regions in Albania experience the highest amounts of rainfall. Annual average rainfall is 1,430 mm; however, the spatial and seasonal distribution varies, with the majority of rainfall occurring during the winter months. 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). The highest amount of precipitation is experienced in November and the lowest amounts during July to August. Snowfall occurs in the Albanian Alps, in the central and southern areas. Average snowfall depth in mountainous areas is 60–120 cm, with the highest snowfall reaching 2–3 m depth in Vermosh, Boga, Theth, Valbona, Curraj and Lure. In the West Plains lowlands to the southwestern coast, snow is rare.¹⁴

Albania's climate follows the country's topography, with temperatures and precipitation varying by altitude and distance from the sea. The majority of the country's rainfall occurs between November and March, with lower amounts during the June to September growing season.¹⁵ Analysis of data from the World Bank Group's Climate Change Knowledge Portal (CCKP) (**Table 2**) provides historical information for 1901–2020. Mean annual temperature for Albania is 11.6°C and average monthly temperatures ranging between 21°C (July–August) and 1°C (December–January) and mean annual precipitation is 1,019.8 mm, with steady rainfall occurring throughout the year¹⁶; the latest climatology (1991–2020) is shown in **Figure 2**. **Figure 3** presents the spatial variation of observed average annual precipitation and temperature for 1991–2020.

TABLE 2. Data snapshot: Summary statistics

Climate Variables	1991–2020
Mean Annual Temperature (°C)	11.6°C
Mean Annual Precipitation (mm)	1,019.8 mm
Mean Maximum Annual Temperature (°C)	16.7°C
Mean Minimum Annual Temperature (°C)	6.5°C

¹⁴ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹⁵ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

¹⁶ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Historical Data. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-data-historical>

FIGURE 2. Average monthly temperature and rainfall for Albania, 1991–2020¹⁷

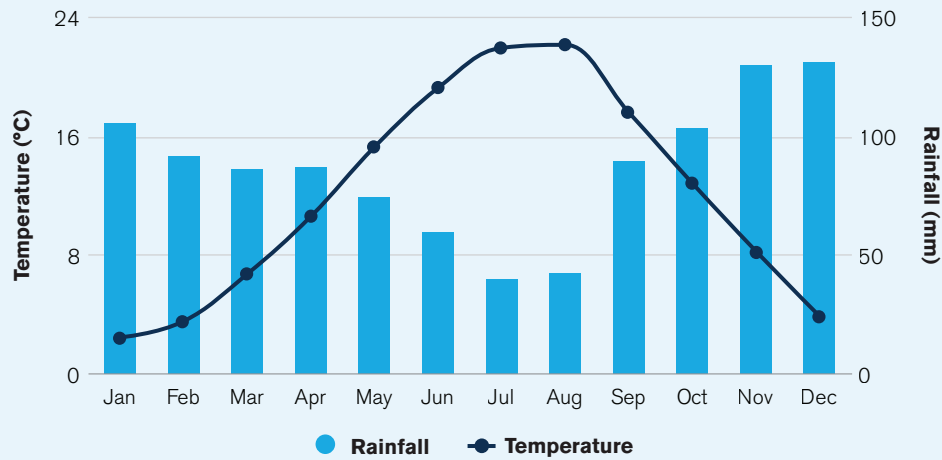
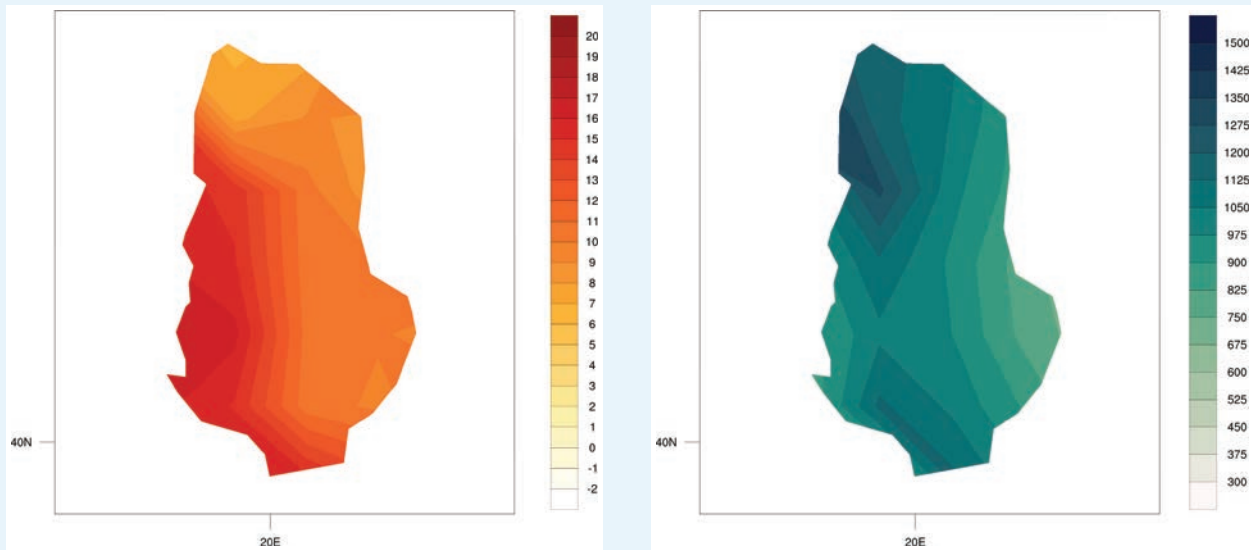


FIGURE 3. Map of average annual temperature (°C) (left); annual precipitation (mm) (right) of Albania, 1991–2020¹⁸



¹⁷ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Historical Data. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-data-historical>

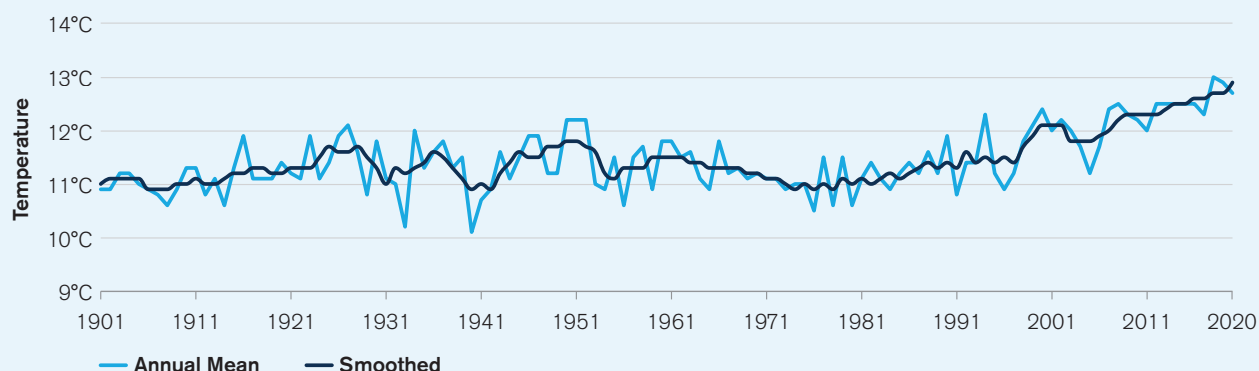
¹⁸ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-data-historical>

Key Trends

Temperature

As shown in **Figure 4**, Albania has experienced an increase in mean annual temperature of 1°C since the 1960s. Temperature increases have been observed to be higher in the summer months. Heat waves, across the eastern Mediterranean, are expected to increase in intensity, duration and frequency, possibly by as much as six-to-eight times, per year.¹⁹ Albania's northern part of the coastal zone typically has lower temperatures in the winter season compared to the middle and southern zones, but summer temperatures are similar across all coastal regions. Additionally, a number of cold waves have been observed to have decreased since 1960.²⁰ As Albania has continued to develop, rapid urbanization and population increases have also been observed to experience increasing Urban Heat Island (UHI) impacts during summer seasons and high-heat days. Key urban and economic zones, such as Tirana, are coming under increasing pressure from UHI and related heat-stress experienced.²¹

FIGURE 4. Observed temperature for Albania, 1901–2020²²



¹⁹ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

²⁰ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

²¹ Picari, V. and Dervishi, S. (2019). Analysis of Urban Heat Island Phenomenon and Mitigation Strategies for Tirana, Albania. International Building Performance Simulation Association. DOI: <https://doi.org/10.26868/25222708.2019.211334>

²² WB Climate Change Knowledge Portal (CCKP, 2020). Albania URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-data-historical>

Precipitation

Albania has received the majority of its precipitation in its western zones, and primarily in the northwest. While precipitation for Albania has a high degree of intra-season variability, since the 1960s, a slight (but statistically insignificant) decrease in mean annual precipitation has been observed.²³ However, the northern part of the coastal zone has experienced an increase in the number of rainy days per year.²⁴ While overall, seasonal precipitation patterns reveal no significant change, rainfall intensity has increased. The increased intensity of rainfall has an impact on flood events as well as the degree of maintenance and preparation of infrastructure that is required to manage flood waters.²⁵

Climate Future

Overview

The main data source for the World Bank Group's CCKP is the CMIP5 (Coupled Inter-comparison Project Phase 5) data ensemble, which builds the database for the global climate change projections presented in the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC). Four Representative Concentration Pathways (i.e. RCP2.6, RCP4.5, RCP6.0, and RCP8.5) were selected and defined by their total radiative forcing (cumulative measure of GHG emissions from all sources) pathway and level by 2100. The RCP2.6 for example represents a very strong mitigation scenario, whereas the RCP8.5 assumes business-as-usual scenario. For more information, please refer to [RCP Database](#). For simplification, these scenarios are referred to as a low (RCP2.6); a medium (RCP4.5) and a high (RCP8.5) emission scenario in this profile. **Table 3** below provides CMIP5 projections for essential climate variables under high emission scenario (RCP 8.5) over 4 different time horizons. **Figure 5** presents the multi-model (CMIP5) ensemble of 32 Global Circulation Models (GCMs) showing the projected changes in annual precipitation and temperature for the periods 2040–2059 and 2080–2099.

TABLE 3. Data snapshot: CMIP5 ensemble projection

CMIP5 Ensemble Projection	2020–2039	2040–2059	2060–2079	2080–2099
Annual Temperature Anomaly (°C)	+0.4 to +2.3 (+1.3°C)	+1.1 to +3.6 (+2.2°C)	+1.8 to +5.0 (+3.3°C)	+2.7 to +6.9 (+4.4°C)
Annual Precipitation Anomaly (mm)	-18.0 to +10.5 (-2.8 mm)	-23.0 to +10.0 (-4.3 mm)	-27.5 to +8.6 (-8.5 mm)	-33.2 to +5.8 (-12.2 mm)

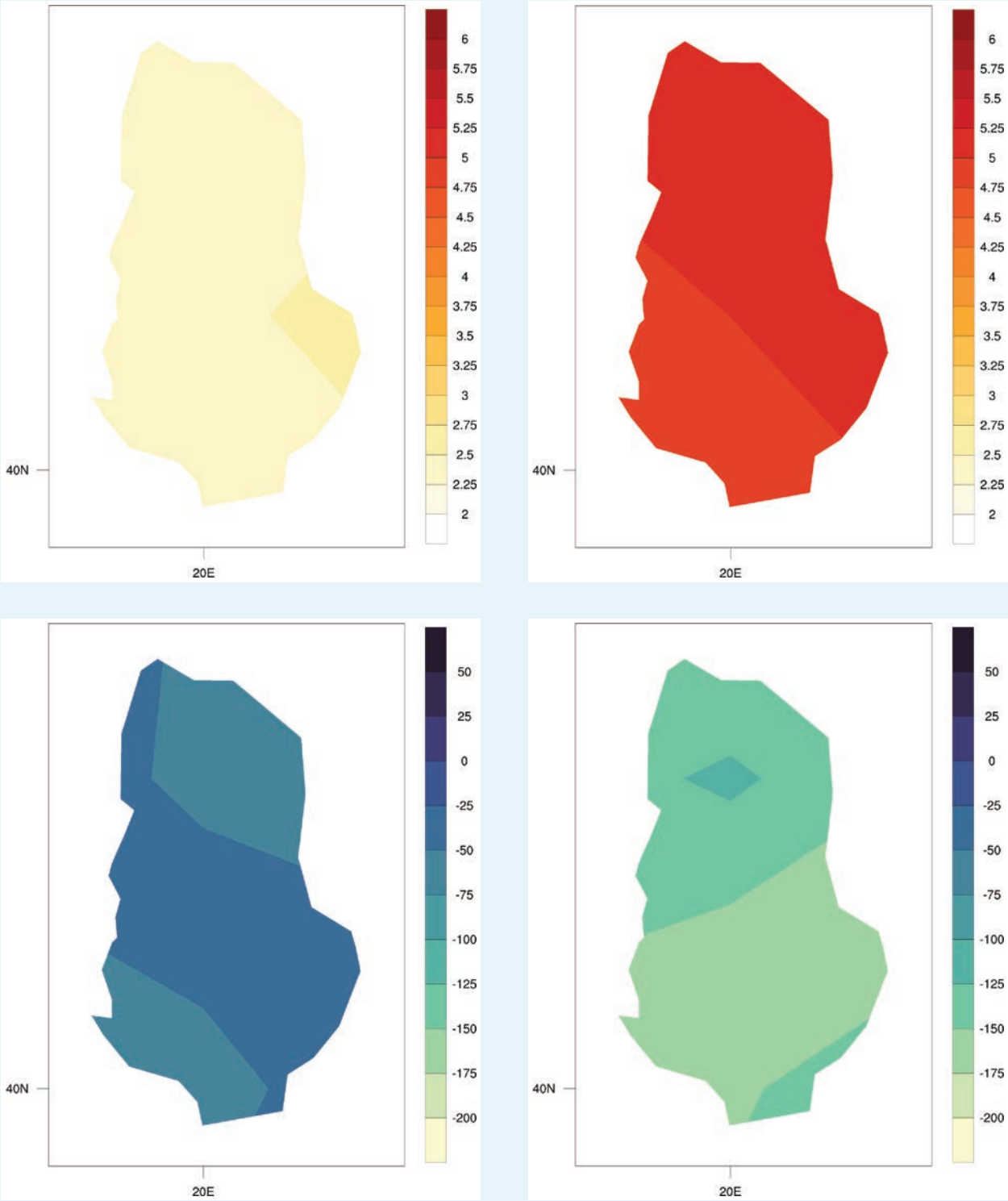
Note: The table shows CMIP5 ensemble projection under RCP8.5. Bold value is the range (10th–90th Percentile) and values in parentheses show the median (or 50th Percentile).

²³ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climate-links.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

²⁴ Hodenbrog, L. et al. (2019). Intensification of summer precipitation with shorter time-scales in Europe. Environmental Research Letters. URL: <https://iopscience.iop.org/article/10.1088/1748-9326/ab549c/meta>

²⁵ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

FIGURE 5. CMIP5 ensemble projected change (32 GCMs) in annual temperature (top) and precipitation (bottom) by 2040–2059 (left) and by 2080–2099 (right), relative to 1986–2005 baseline under RCP8.5²⁶



²⁶ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Projected Future Climate. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-data-projections>

Key Trends

Temperature

Temperatures are projected to continue to increase across South Eastern Europe and Albania's summers are expected to experience the greatest degrees of warming, with an increase of 2.4°C to 3.1°C during June to August. Increased temperatures and extreme heat also pose great health risks for the population. Countrywide projected warming trends, coupled with decreased rainfall, are likely lead to water stress for the country's drier areas.²⁷ Temperature rise as well as the increase in the frequency and intensity of extreme droughts and floods is likely to reduce crop yields; important for both domestic consumption and export cash crops.²⁸ Projected temperature changes indicate that more hot days and heat waves will occur over the coastal areas, which also increases risks of drought and greater fire risks. With increased temperatures, snow pack and frost are also expected to reduce and this is likely to result in an increase in the probability of extreme events and a higher intra-annual variability of minimum temperatures. Seasonal temperature variations for Albania, predict a lengthening in the growing season by 37 to 22 days from north to south.²⁹

Across all emission scenarios, temperatures will continue to increase for Albania throughout the end of the century. As seen in **Figure 6**, under a high-emission scenario, average temperatures will increase rapidly by mid-century. Across the seasonal cycle (**Figure 7**), temperature increases will spike will be felt from April to June and again from late August to early October with daily temperatures greater than 25°C.

FIGURE 6. Historical and projected average temperature for Albania from 1986 to 2099³⁰

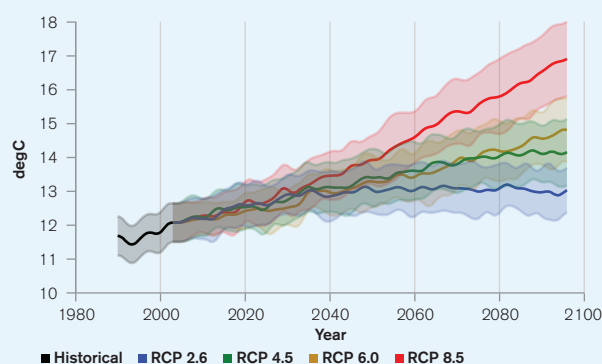
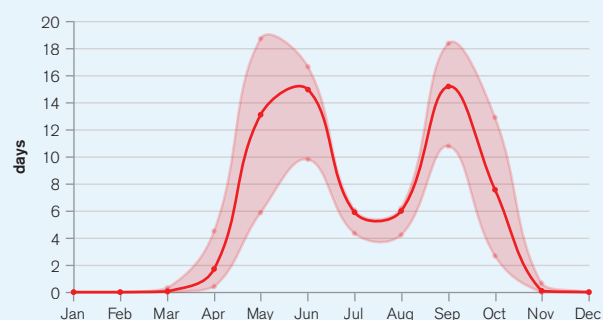


FIGURE 7. Projected change in summer days (Tmax > 25°C)³¹



²⁷ Ciardini, V. et al. (2016). Global and Mediterranean climate change: a short summary. *Annali*. 52(3). URL: <https://annali-iss.eu/index.php/anna/article/view/471>

²⁸ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

²⁹ FAO (2018). Comprehensive analysis of disaster risk reduction and management system for agriculture in Albania. URL: <http://www.fao.org/3/i8866en/i8866en.pdf>

³⁰ WBG Climate Change Knowledge Portal (CCKP, 2020). Interactive Climate Indicator Dashboard - Agriculture. Albania. URL: <https://climatedata.worldbank.org/CRMePortal/web/agriculture/crops-and-land-management?country=ALB&period=2080-2099>

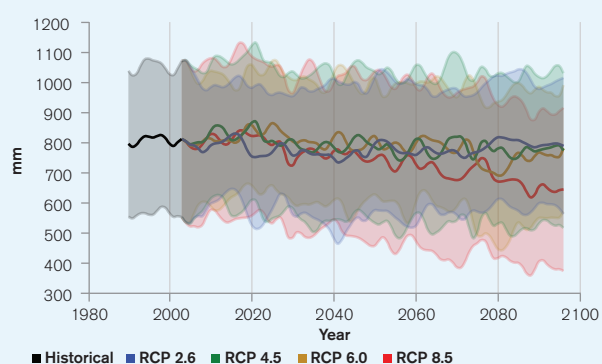
³¹ WBG Climate Change Knowledge Portal (CCKP, 2020). Interactive Climate Indicator Dashboard - Agriculture. Albania. URL: <https://climatedata.worldbank.org/CRMePortal/web/agriculture/crops-and-land-management?country=ALB&period=2080-2099>

Precipitation

Albania will continue to experience a high degree of inter-annual rainfall variability. A decrease in precipitation is expected (<10%), with the largest decreases occurring from June to September.³² There may also be a change in the type of precipitation, as precipitation which would normally fall as snow, is likely to fall as rain given the higher temperatures; with potential to reduce the country's snowpack as well as reduce the size of Albania's 'small glaciers' of Prokletije.³³ Intense rainfall is expected as well as impacts from an increase of flooding along the coastline due to expected sea level rise of 48 to 60 cm by end of the century.³⁴ Changes to precipitation patterns and intensity can also lead to more frequent flooding in certain areas and to more droughts, landslides, or erosion along embankments and mountainous areas.³⁵

Changes to precipitation patterns caused by climate change not only have the potential to hugely impact key sectors such as agriculture, but also increase natural hazards, flooding, and drought.³⁶ The timing of water availability and lack of access due to changing precipitation patterns will impact agriculture, human and livestock health, and the country's water quality supply.³⁷ The changing dynamics of rainfall in Albania, remain somewhat uncertain. However, projected trends suggest a tendency towards milder winters, warmer springs and hotter and drier summers and autumns.³⁸ **Figure 8**, shows the change in the projected annual average precipitation for Albania. Water routing, storage and other management options can be highly varied depending if the precipitation input comes frequently or with longer periods of aridity in between rainfall.³⁹ As seen below, annual average precipitation is low and is expected to decrease slightly by the of the century under a high emissions scenario of RCP8.5.

FIGURE 8. Annual average precipitation in Albania for 1986 to 2099⁴⁰



³² Hodenbrog, L. et al. (2019). Intensification of summer precipitation with shorter time-scales in Europe. Environmental Research Letters. URL: <https://iopscience.iop.org/article/10.1088/1748-9326/ab549c/meta>

³³ Grunewald, K. and Scheithauer, J. (2010). Europe's southernmost glaciers: response and adaptation to climate change. Journal of Glaciology, 56(195). URL: <https://www.igsoc.org/journal/56/195/j09j048.pdf>

³⁴ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

³⁵ FAO (2018). Comprehensive analysis of disaster risk reduction and management system for agriculture in Albania. URL: <http://www.fao.org/3/i8866en/i8866EN.pdf>

³⁶ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

³⁷ FAO (2018). Comprehensive analysis of disaster risk reduction and management system for agriculture in Albania. URL: <http://www.fao.org/3/i8866en/i8866EN.pdf>

³⁸ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

³⁹ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Water Dashboard. Data Description. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-sector-water>

⁴⁰ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Agriculture Dashboard. Albania. URL: <https://climatedata.worldbank.org/CRMePortal/web/agriculture/crops-and-land-management?country=ALB&period=2080-2099>

Overview

Albania is vulnerable to the impacts of climate change, with increased vulnerability due to its infrastructure needs, and poverty in rural areas.⁴¹ The country is prone to numerous natural hazards, including, hydro-meteorological hazards: floods, droughts, forest fires, and landslides. The country is also at high-risk to geophysical hazards such as earthquakes. Changes to Albania's climate, specifically the frequency of extreme weather events and temperature variations, are expected to have the most significant impacts to the country's key sectors, its economy and population. Natural hazards also have the potential to adversely impact crop and livestock production among others, as well as cause significant amounts of damage to critical infrastructure, such as irrigation systems, livestock shelters, and storage facilities.⁴²

Floods present the most dangerous natural disaster for Albania as the country is highly exposed as its river and stream systems are a major threat to the floods that are generally originate from smaller rain events. Floods in the lower flow can cause great damage as they are more frequent and catch larger surfaces. These are formed by heavy rainfall and high intensity rainfall, which fill the soils with water and cause leakage out of the riverbed. Albania's hydrographic profile makes riverine flooding highly dangerous and damaging. The country has a long history of flooding, specifically in its western lowlands. Historical records show that flooding has occurred in all major catchment basins of the country.⁴³ The projected increase of more intense precipitation and higher rainfall events, is expected to increase the likelihood of floods.⁴⁴ The total exposure from private assets is greater than from public assets, although the exact ratio of private to public asset exposure is unknown. The evaluation of the 2019 earthquake suggested around 23 percent of the damages were in relation to public assets; with a concentration of exposed assets are in larger cities. Average damages from earthquakes and flooding is estimated at US\$147 million per year, with a catastrophic event, such as a 1-in-100-year earthquake for example causing over US\$2 billion in damages.⁴⁵

Albania's coastal area is at high risk to sea level rise as well as flooding from rivers, storm surges and coastal inundation due to sea level rise. The likely increase in frequency and intensity of heavy rains could make the coastal region even more vulnerable.⁴⁶

Data from the Emergency Events Database: EM-Dat, presented in **Table 4**, shows the country has endured various natural hazards, including floods, landslides, epidemic diseases, and storms.

A multi-hazard risk profile depicting the many types of hazards and impacts for Albania can also be investigated through the UNDRR [DesInventar](#) portal.

⁴¹ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁴² FAO (2018). Comprehensive analysis of disaster risk reduction and management system for agriculture in Albania. URL: <http://www.fao.org/3/i88666en/i88666EN.pdf>

⁴³ Urci, R. (2018). Flooding Intervals in Albania. Natural Sciences Knowledge in Practice. 28(40). DOI: <https://doi.org/10.35120/kij28041421R>

⁴⁴ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁴⁵ GFDRR (2020). Disaster Risk Finance Diagnostic – Albania. December 2020.

⁴⁶ GFDRR (2017). Albania. URL: https://www.gfdr.org/sites/default/files/publication/drp_albania.pdf

TABLE 4. Natural disasters in Albania, 1900–2020⁴⁷

Natural Hazard 1900–2020	Subtype	Events Count	Total Deaths	Total Affected	Total Damage ('000 USD)
Drought	Drought	1	0	3,200,000	0
Earthquake	Ground Movement	6	47	8,429	0
Epidemic	Viral Disease	1	7	66	0
Extreme Temperature	Heat Wave	2	3	150	0
	Severe Winter Condition	3	79	237,085	0
Flood	Coastal Flood	1	0	8,000	0
	Flash Flood	2	12	56,002	15,900
	Riverine Flood	8	4	134,484	17,673
Landslide	Avalanche	1	57	26	0
Storm	Convective Storm	2	8	525,000	0
Wildfire	Forest Fire	1	0	75	0

Key Trends

Natural hazards in Albania such as intense storms, floods, heatwaves and wildfires are becoming more frequent, unpredictable and severe due to projected climate change trends. Additionally, the Western Balkan region is exposed to seismic hazards clustered around fault lines, with the possibility to create additional and new geophysical hazards as well as economic implications throughout the region following more intense earthquakes.⁴⁸ Climate change is expected to increase the risk and intensity of flood and rainfall events leading to the heightened risks of loss of life and damage to property and infrastructure from direct floods and/or landslides and soil erosion. Intense rainfall and flooding may also result in soil erosion and water logging of crops, decreasing yields and increasing food insecurity. Higher temperatures and increased aridity may also lead to livestock stress and reduced crop yields. This may result in significant economic losses, damage to agricultural lands and infrastructure as well as human casualties. Furthermore, land degradation and soil erosion, exacerbated by recurrent flood and drought adversely impacts agricultural production, coastal zones, water resources and is likely to further adversely affect livelihoods of the rural poor.⁴⁹

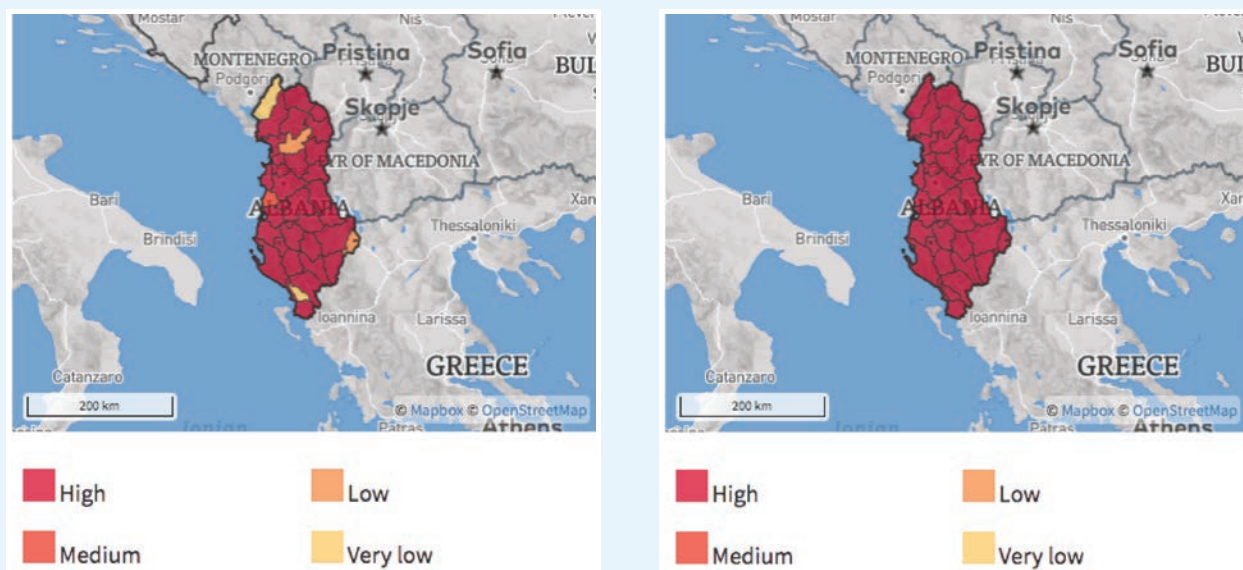
⁴⁷ EM-DAT: The Emergency Events Database - Universite catholique de Louvain (UCL) - CRED, D. Guha-Sapir, Brussels, Belgium. (Data accessed April 20 2019) URL: http://emdat.be/emdat_db/

⁴⁸ UNDP (2016). Risk-Proofing the Western Balkans: Empowering People to Prevent Disasters. Human Development Report 2016. URL: http://hdr.undp.org/sites/default/files/risk_proofing_the_western_balkans.pdf

⁴⁹ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

Albania's significant vulnerability to floods contributes to a profile of the country as particularly disaster-prone. The country's increasing urbanization has increased flood risk locations due to the absence of functioning water drainage systems and settlement in flood-prone areas. Combination of increased temperatures, longer periods of aridity and the country's high forest coverage make Albania exceedingly vulnerable to forest fires. **Figure 9** shows the risks of river flooding and wildfires for Albania.

FIGURE 9. Risk of river flood (L)⁵⁰; Risk of wildfire (R)⁵¹



Implications for DRM

Albania is working towards the inclusion of Disaster Risk Management (DRM) approaches in its legal and institutional frameworks. The country is working towards developing more proactive responses to natural hazards by taking a more proactive disaster risk reduction-orientated (DRR) approach. Across sectors, the country is working to strengthen its DRR capacities at the institutional level and to identify and address existing institutional gaps. To meet these needs, Albania has developed and adopted a national Civil Emergency plan (2004), drafted the National Strategy for Disaster Risk Reduction and Civil Protection 2014–2018. However, this DRR strategy has not yet been adopted. Mainstreaming DRR practices into agricultural plans, policies and strategies, has been reflected in the 2015 Integrated Cross-Sectoral Plan for the Coast and in the 2016 National Integrated Water Resources Management Strategy. However, in the Inter-Sectoral Strategy for Agriculture and Rural Development of 2014–2020, natural hazards and DRR are not included.⁵² Albania implemented a Law on Civil Protection in 2019 to regulate broader disaster risk management. The National Civil Protection Agency (NCPA) plays an important role

⁵⁰ ThinkHazard! (2020). Albania. River Flood. URL: <http://thinkhazard.org/en/report/3-albania/FL>

⁵¹ ThinkHazard! (2020). Albania. Wildfire. URL: <http://thinkhazard.org/en/report/3-albania/WF>

⁵² FAO (2018). Comprehensive analysis of disaster risk reduction and management system for agriculture in Albania. URL: <http://www.fao.org/3/i8866en/i8866EN.pdf>

in deciding on provision of financing after disasters.⁵³ An effective and efficient end-to-end early warning system depends on integration with response capability on the ground and in the communities. Achieving this will require a strong connection with the NCPA as well as development of communities' preparedness and response capabilities and resilience. Albania has additionally introduced a number of contingency funds, financing mechanisms and insurance measures to support disaster preparedness and recovery efforts.⁵⁴

Current adaptation approaches are designed to increase resilience to both natural hazards and climate change impacts, through the protection of key infrastructure (i.e. bridges), strengthening early warning capabilities, and the mainstreaming of DRR strategies into existing policies and planning. As such, the Albanian Government is focused on the recovery preparedness and resilience of its infrastructure to natural disasters and impacts from climate change, particularly flooding.⁵⁵

CLIMATE CHANGE IMPACTS TO KEY SECTORS

Albania remains highly vulnerable to climate variability and change, particularly for the country's water resources, agriculture sector, public health, energy, and coastal zones. Heavy rains, flooding, and soil erosion puts both urban and rural infrastructure at risk,⁵⁶ particularly for poor and vulnerable groups. Furthermore, increased occurrences of aridity and drought conditions will impact agriculture and increase risks of food insecurity, which may exacerbate conflict situations over scarce resources, settlements, expanding urbanization, and population/ livestock movements. The country faces increased challenges to agricultural viability, energy generation, and maintained population health. These are expected to be further compounded by climate stressors, environmental degradation, impacted water resources, and sea level rise presenting significant obstacles to the country's ongoing development and poverty reduction efforts.⁵⁷

Gender

An increasing body of research has shown that climate-related disasters have impacted human populations in many areas including agricultural production, food security, water management and public health. The level of impacts and coping strategies of populations depends heavily on their socio-economic status, socio-cultural norms, access to resources, poverty as well as gender. Research has also provided more evidence that the effects are not gender neutral, as women and children are among the highest risk groups. Key factors that account for the differences between women's and men's vulnerability to climate change risks include: gender-based differences in time use; access to assets and credit, treatment by formal institutions, which can constrain women's opportunities, limited access to policy discussions and decision making, and a lack of sex-disaggregated data for policy change.⁵⁸

⁵³ GFDRR (2020). Disaster Risk Finance Diagnostic – Albania. December 2020.

⁵⁴ GFDRR (2021). Diagnostic Report. Emergency Preparedness and Response Assessment. Ready2Respond.

⁵⁵ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁵⁶ Ciardini, V. et al. (2016). Global and Mediterranean climate change: a short summary. *Annali*. 52(3). URL: <https://annali-iss.eu/index.php/anna/article/view/471>

⁵⁷ SEEFCCA (2012). Regional Climate Vulnerability Assessment. Synthesis Report- Croatia, FYR Macedonia, Montenegro, Serbia. URL: http://d2ouvy59p0dg6k.cloudfront.net/downloads/regional_cva_synthesis_report.pdf

⁵⁸ World Bank Group (2016). Gender Equality, Poverty Reduction, and Inclusive Growth. URL: <http://documents1.worldbank.org/curated/en/820851467992505410/pdf/102114-REVISED-PUBLIC-WBG-Gender-Strategy.pdf>

Agriculture

Overview

Agriculture, a highly climate-sensitive sector in Albania, contributes 22.6% to its GDP and is the main source of employment for the country's rural population.⁵⁹ Albania is divided into four main agro-ecological areas, with the largest amount used by the agricultural sector. While the sector has experienced moderate growth over the past decade, structural challenges, such as underdeveloped infrastructure and lack of effective irrigation networks, have undermined its wider development. Additionally, agricultural land fragmentation has further hindered the effective organization of production, reduced productivity and increased the cost of using agricultural mechanics. As such, agricultural land is not currently utilized at full capacity due to limited investment in the agricultural sector.⁶⁰ In Albania, farming predominantly remains at a subsistence-level and is dedicated to livestock, accounting for over 50% of production value, field crops such as wheat and maize accounting for 30%, and fruit production accounting for 20%. The topography of the landscape largely limits mechanization potential, and land reclamation and pasture conversion have accelerated deforestation and erosion, exacerbating risks from floods and landslides.⁶¹

Climate Change Impacts

Projected trends indicate increases for temperature as well as the variability of precipitation. The increase in extreme weather events is also likely to pose a serious threat to agriculture production, water availability, food security and economic growth for the majority of the rural population who depend either directly or indirectly on agriculture; the rural poor is most likely to be disproportionately affected. In particular, those areas that are already under marginal rain-fed production will be increasingly at risk. Direct impacts on agricultural production are also combined with the effects on soil characteristics, seed genetics, pests and disease and continued inefficient agronomic practices, which ultimately impact crop yield.⁶²

Increased temperatures and heightened precipitation variability are expected to have an adverse impact on the agriculture sector and overall economy. Additionally, an increase in extreme weather events pose a serious threat to agriculture production, water availability, food security and economic growth for the majority of the rural population who depend either directly or indirectly on the agricultural sector. The rural poor will be disproportionately affected and in particular, those areas that are already under marginal rain-fed production will be increasingly at risk. Changes in the mean values of precipitation parameters can have far-reaching consequences into the country's ecosystems and biodiversity, food production, water resources and rivers. Changes to precipitation patterns and intensity can lead to more frequent flooding in key agricultural zones as well as landslides or erosion along embankments and mountainous areas.⁶³

⁵⁹ FAO (2020). Agriculture and Agricultural Policy in Albania. URL: <http://www.fao.org/family-farming/detail/en/c/337280/>

⁶⁰ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁶¹ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

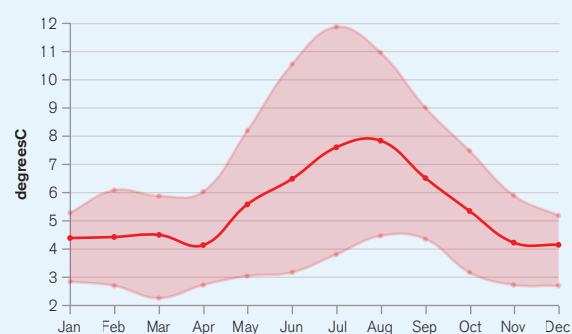
⁶² Teqja, Z., Kopali, A., Libohova, Z. and Owens, P. (2017). A study of the Impacts of climate change scenarios on the plant hardiness zones of Albania. *J. of Appl. Meteorology and Climatology*, 56(3): 615–631. DOI: <https://doi.org/10.1175/JAMC-D-16-0108.1>

⁶³ FAO (2018). Comprehensive analysis of disaster risk reduction and management system for agriculture in Albania. URL: <http://www.fao.org/3/i8866en/i8866EN.pdf>

However, increased temperatures for the country may also present positive scenarios for some crops. Seasonal temperature variations predict a lengthening in the growing season by 37 to 22 days from north to south respectively, by end of the century as compared to 1990 levels. The largest increases in temperature are expected to occur during summer and spring, coinciding with the primary period of plant growth and fructification for the majority of crops.⁶⁴ The periods of maximum number of consecutive days without precipitation is also expected to occur during three quarters of the development of crops. Maize, spring wheat, barley, beans (white beans), tomatoes, cabbage, millet, onion, sorghum, pepper, sunflower, and watermelon are expected to be largely affected by seasonal temperature variations. In addition, it is likely that for the majority of the agricultural crops, the annual amount of effective rainfall will not be enough to meet their water requirements and these crops will thus require additional irrigation.⁶⁵

Increased temperatures and the threat of waterlogging of fields due to intense rainfall and or flooding may also result in an increased presence of pests and diseases harmful to yield production and quality. **Figure 10** shows the average daily max-temperature across the seasonal cycle; these max temps significantly increase in Albania over May through October. These higher temperatures have implications for impacts to soil moisture and crop growth and as seen in the graph below, summer spikes in temperature occur for traditional harvest seasons.

FIGURE 10. Average daily max temperature for Albania⁶⁶



Adaptation Options

Both the sensitivity of the agricultural sector to the climate and the high reliance of this sector on rainfall and water resources have broad implications for Albania. Making Albania's agricultural sector more resilient to climate change will require additional investments to increase technology access and use by farmers as well as the dissemination of hydrometeorological information. Improvements should be made concerning soil and water conservation and water storage as well as investments in irrigation structures throughout the country for agricultural areas. The collection and dissemination on soil types, drainage potential and crop sustainability would support farmer information and resilience actions and the development of policy measures.⁶⁷

Albania has committed to improvements regarding conservation agriculture, watershed management, and nutrient and crop management as well as the improved diversification of crops.⁶⁸ Market development can be enhanced to better support changing harvest timeframes. Education for farmers can be supported by extension services and

⁶⁴ Teja, Z., Kopali, A., Libohova, Z. and Owens, P. (2017). A study of the Impacts of climate change scenarios on the plant hardiness zones of Albania. *J. of Appl. Meteorology and Climatology*, 56(3): 615–631. DOI: <https://doi.org/10.1175/JAMC-D-16-0108.1>

⁶⁵ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁶⁶ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Agriculture. Dashboard URL: <https://climatedata.worldbank.org/CRMePortal/web/agriculture/crops-and-land-management?country=ALB&period=2080-2099>

⁶⁷ World Bank (2013). Reducing the Vulnerability of Albania's Agricultural Systems to Climate Change. URL: <http://documents.worldbank.org/curated/en/265291468193511436/pdf/815920PUB0Redu00Box379836B00PUBLIC0.pdf>

⁶⁸ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

training programs can increase awareness of risk and adaptation options for farmers.⁶⁹ Improvements can also be made to the weather monitoring network and associated weather information systems, including the publication and distribution of agriculture-specific weather forecasts on a frequent basis (e.g. short-term and seasonal forecasts, monitoring of heavy rainfall, etc.).

Water

Overview

Albania has relatively large amounts of freshwater resources, however, these are vulnerable due to seasonal variations and water use inefficiencies that projected trends can magnify. Albania's hydrographic basin includes an area of 43 305 km², in which 14 557 km² belongs to the Drin River catchment and the River Vjosa, which surrounds parts of Greece, North Macedonia and Kosovo. The eight main rivers of Albania (Drini, Buna, Mati, Ishmi, Erzeni, Shkumbini, Vjosa and Semani) are grouped into 6 watersheds that cross the country from east to west.⁷⁰ The country's major river systems can be highly erosive, and seasonal flooding is common, with the highest risk in the western and southern plains.⁷¹ Albania's seven primary rivers and their tributaries drain towards the Adriatic Sea. Rivers are an important source of hydro power and several artificial lakes were built for the production of electricity, specifically those constructed on Drin River (Fierza, Vau Deja, Koman) and Mat River (Ulza and Shkopeti). Artificial lakes are also used for irrigation of agricultural lands, specifically lakes located in Gjani, Thane, Kurjani and Bezhani. Along the Adriatic-Ionian coastal zone there are a series of lagoons, including: Viluni, Kune-Vain Patoku, Bishtaraka, Karavasta, Narta, Orikumi, which are important for tourism, ecosystem protection, and fish production.⁷²

Albania has improved its water sector both in terms of legal and regulatory frameworks. The Government approved a National Strategy on Water Resources in Integrated Management (2018–2027) in February of 2018. The National Strategy is built on five strategic objectives, which include the sustainable use of water resources, the attainment of good water quality in all water resources by the year 2027, disaster risk reduction and management for drought and floods, increase of sound scientific knowledge on water and climate issues, and the application of inclusive and sustainable water management practices that yield equitable profits to all involved stakeholders.⁷³ The challenges the country is forced to contend with regarding water quality are exacerbated by a growing demand for water resources in some parts of the country where inland waters are the most scarce. The capacity of public water companies to manage essential services in delivering drinking water and waste water treatment remains low. Management plans for Drin-Buna and Semani River Basins were approved by the Nation Water Council in

⁶⁹ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁷⁰ Uruci, R. (2018). Flooding Intervals in Albania. Natural Sciences Knowledge in Practice. 28(40). DOI: <https://doi.org/10.35120/kij28041421R>

⁷¹ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

⁷² Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁷³ Albania (2018). National Strategy of Water Resources Integrated Management 2018–2027. URL: <http://extwprlegs1.fao.org/docs/pdf/alb181221.pdf>

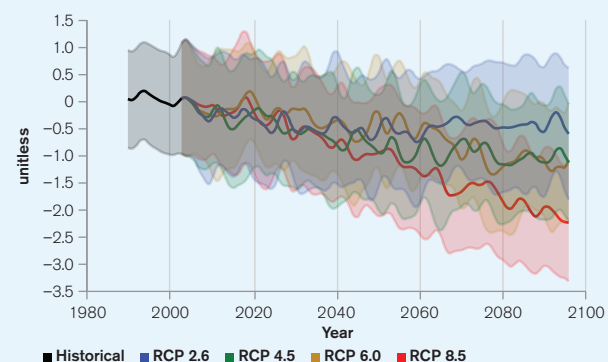
February, 2020.⁷⁴ A lack of investment in flood protection, irrigation and drainage infrastructure has exacerbated the damage and losses from heavy rainfall; this was especially pronounced in 2014, 2015, and 2016 floods.⁷⁵

Climate Change Impacts

Climate change impacts for Albania, include the expected reduction in precipitation and shift from snow to rain is likely to result in altered or lowered river flows, particularly in summer months (May to September). Groundwater is also likely to be affected due to a decrease in water percolation and the loss of soil moisture. Projected trends for more frequent droughts and floods are also expected to shift water runoff patterns resulting in potential spring decrease and winter increase; which will have additional implications for agriculture and water management. More intense rains, river erosion and flooding are also likely to damage infrastructure and water management utilities.⁷⁶

Temperature increases have the potential to result in increased soil moisture deficits even under conditions of increasing rainfall. The figure below shows the projected annual Standardized Precipitation Evapotranspiration Index (SPEI), an index which represents the measure of the given water deficit in a specific location, accounting for contributions of temperature-dependent evapotranspiration and providing insight into increasing or decreasing pressure on water resources. Negative values for SPEI represent dry conditions, with values below -2 indicating severe drought conditions, likewise positive values indicate increased wet conditions. This is an important understanding for the water sector in regards to quantity and quality of supply for human consumption and agriculture use as well as for the energy sector as reductions in water availability impacts river flow and the hydropower generating capabilities. The significant decline in SPEI, by more than 2 points from the baseline period to end of century, as in **Figure 11**, shows a strong increased likelihood of reduced rainfall, increased aridity, and drought probability by the end of the century. While Figure 11 shows the nationally aggregated trend for SPEI for Albania through the end of the century, **Figure 12** shows the spatial variation for SPEI across Albania for the periods 2040–2059 and 2080–2099, for the highest emissions pathway, RCP8.5. As shown, Albania will experience water stress by the 2050s and pronounced water stress by the 2090s, with most severe drought experienced in the central and southern areas.

FIGURE 11. Annual SPEI Drought Index, Albania⁷⁷



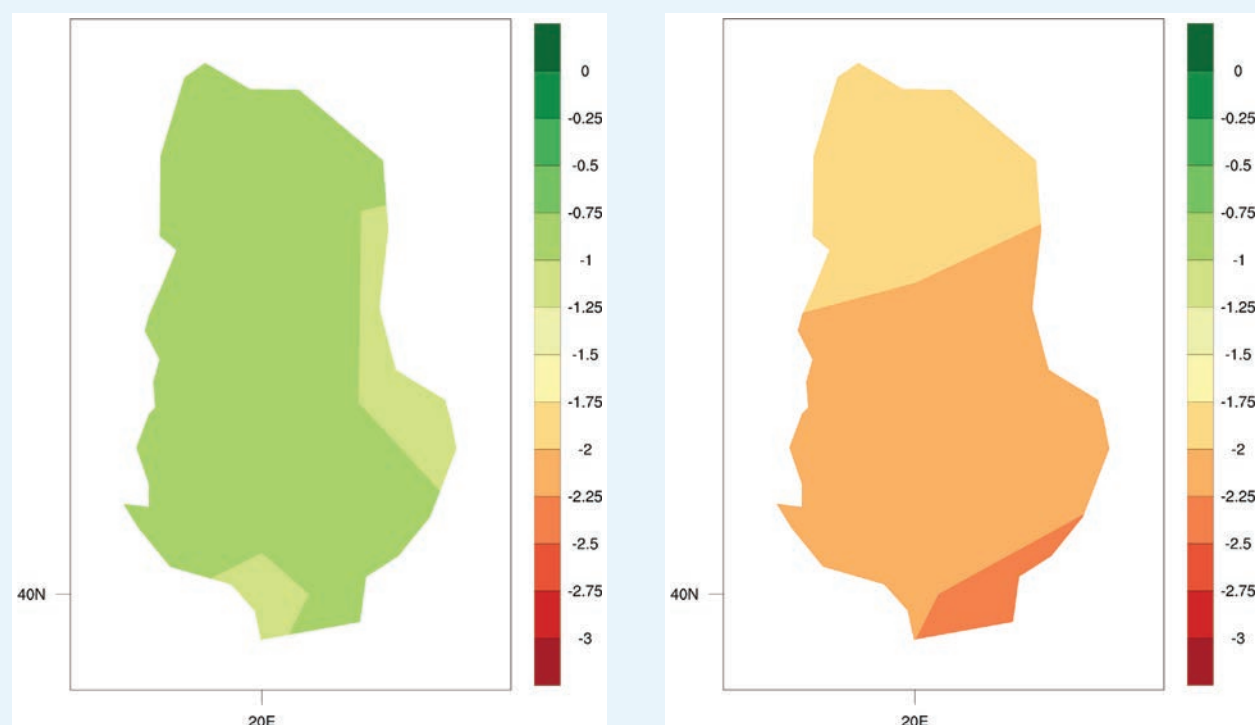
⁷⁴ Ministry of Agriculture and Rural Development (2018). Drini-Buna Final River Basin Management Plan – December 2018. [Contract Number MEFWA/CS/001].

⁷⁵ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

⁷⁶ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

⁷⁷ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania. Water Dashboard. URL: <https://climatedata.worldbank.org/CRMePortal/web/water/land-use/-/watershed-management?country=ALB&period=2080-2099>

FIGURE 12. Spatial representation of SPEI across Albania for the period 2040–2059 (left) and 2080–2099 (right), under RCP8.5



Adaptation Options

Albania has undertaken some hazard and risk mapping, in particular for floods to improve its resilience and overall water management capabilities.⁷⁸ However, the lack of appropriate modelling software, capacity building trainings, general funding issues and a limited number of qualified personnel continue to constrain progress. Overall, Albania would benefit from the repair, extension, and modernization of its water distribution networks and infrastructure to reduce loss and increase efficiency. This should include the rehabilitation of existing drainage functions, which should also extend into rural areas. The addition of new irrigation capacities can also improve agricultural stress related to water strain and increase efficiency of water usage in fields. Changing crop varieties to more drought resistant strains, may also be beneficial to more effective water use.⁷⁹ Albania approved its National Strategy on Irrigation, Drainage and Action Plan 2019–2031, which identifies the primary strengths, weaknesses, opportunities and threats to irrigation, drainage, dams and reservoirs, and flood protection across the country. This strategy supports the optimization of investments in irrigation, drainage and flood protection in order to expand and increase sustainability of all irrigation systems, in order to meet the needs for drainage, and to protect the Albanian people and their property from flooding. This includes ensuring productive and sustainable

⁷⁸ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

⁷⁹ The World Bank (2013). Looking Beyond the Horizon. How Climate Change Impacts and Adaptation Responses will reshape agriculture in Eastern Europe and Central Asia. URL: <http://documents.worldbank.org/curated/en/676601468249642651/pdf/Looking-beyond-the-horizon-how-climate-change-impacts-and-adaptation-responses-will-reshape-agriculture-in-Eastern-Europe-and-Central-Asia.pdf>

management of irrigation and drainage systems, improving water use efficiency and equitable distribution, while reducing the risks of flooding and dam failure.⁸⁰

Enhanced hydrological data collection and vulnerability mapping would help the country to become more aware and informed of its water resources, risks and opportunities. Development planning for urban expansion should be coordinated through the country's climate change adaptation strategies. Planning and adaptation strategies for water resources should also be included within development strategies for agriculture, infrastructure, and energy sectors.⁸¹

Energy

Overview

Albania is endowed with a wide variety of energy resources ranging from oil and gas, coal, hydropower, natural forest biomass and other renewable energy sources. The continued development of its energy sector is a key priority for the government. Oil accounts for the largest share of supply at 64%, followed by hydroelectricity generation (22%) and fuelwood (12%). The country's transportation, residential and industrial sectors consume the largest amounts of energy at 44%, 23%, and 13%, respectively. In 2010, total energy supply to equaled 2,105 Ktoe.⁸² Biomass remains the most widely used energy resource for rural areas predominantly via fuelwood and agri-biomass used for heating and cooking. Urban areas rely on electricity and liquid petroleum gas for heating and cooking. Hydropower remains the country's predominant source of renewable electricity generation.

Currently, the country relies on the Drini River Basin for more than 90% of its domestic hydropower supply. Given projections for reductions in precipitation, this river basin could see reduced flows that would affect energy generation and supply. Albania has significant potential for producing energy from renewable sources. In recent years, Albania has been working to change its energy efficiency policy to incentivize the use of renewable energy sources, making it a core element of the country's energy strategy.⁸³ However, local production of oil, gas and petroleum products currently fulfill 15% of the economy needs and play an important part in the local market due to an increase of domestic production that will also help to establish fair equilibrium in the supply sectors. The country is also vulnerable to an over-reliance on hydropower plants and despite the country's considerable water reserves, only 35 % of the country's hydro power potential has been utilized. This is in part due to the limited financial viability and limited cost-recovery schemes currently in place, which have resulted in limited investment into the sector.⁸⁴ Investment in solar-energy has continued to grow, with currently 10 small (2 megawatt (MW) capacity each) solar photovoltaic power plants. At the time of writing, a new powerplant is currently being installed in Banja lake, and work has begun for two additional centers, Karavasta (140MW capacity) and Spitalle (100MW capacity).

⁸⁰ Ministry of Agriculture and Rural Development (2019). National Strategy on Irrigation, Drainage and Action Plan 2019–2031. Albania.

⁸¹ UNDP (2016). Risk-Proofing the Western Balkans. URL: http://hdr.undp.org/sites/default/files/risk_proofing_the_western_balkans.pdf

⁸² IEA (2018). Albania, key energy statistics. URL: <https://www.iea.org/countries/albania>

⁸³ Alkholidi, A. and Hamam, H. (2019). Solar Energy Potentials in Southeastern European Countries: A case study. Intl. J. of Smart Grid. 3(2). URL: <https://www.ijsmartgrid-org.ijrer.org/index.php/ijsmartgridnew/article/view/51>

⁸⁴ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

Climate Change Impacts

Albania is already vulnerable to fluctuations in precipitation, evidenced by the 2007 drought that led to severe energy shortages. Along with the damages to coastal infrastructure, landslides and floods in the plains and lowlands caused extensive infrastructure damage in past years. Albania's urban congestion, aging vehicles and dust from gravel roads contribute to air pollution, which may be exacerbated by higher temperatures and longer periods without precipitation.⁸⁵

Increased temperatures in Albania are expected to lead to changes in seasonal demand for heating, cooling, and refrigeration as well as contribute to a reduction in hydropower potential. More frequent droughts will increase competition for water resources, especially between agricultural and irrigation needs and water resources. The likely increase in frequency and intensity of extreme weather events is also likely to reduce the efficiency or disrupt the transmission and distribution of energy supply, with flooding also expected to damage infrastructure.⁸⁶ As the country continues to develop, greater energy demand will come from both households, industry and the wider economy, with potential to overwhelm current energy generation as well as transmission infrastructure.⁸⁷ To meet this demand, Albania has already invested in the construction of at three additional solar photovoltaic power plants from 2020.

Cooling Degree Days shows the relationship between daily heat and cooling demand, typically sourced through a form of active cooling or an evaporative process. The change in cooling degree days provides insight into the potential for extended seasons of power demand or periods in which cooling demand (power demands) might increase. As seen in **Figure 13**, seasonal increases for cooling demands are expected to increase over an extended summer period (May to October). The Warm Spell Duration Index represents the number of days in a sequence of at least six days in which the daily maximum temperature is greater than the 90th percentile of daily maximum temperature. As shown in **Figure 14**, the change in the number of summer days is expected to sharply increase from mid-century projections.

⁸⁵ UNDP (2016). Risk-Proofing the Western Balkans. URL: http://hdr.undp.org/sites/default/files/risk_proofing_the_western_balkans.pdf

⁸⁶ UNDP (2016). Risk-Proofing the Western Balkans. URL: http://hdr.undp.org/sites/default/files/risk_proofing_the_western_balkans.pdf

⁸⁷ Alkholidi, A. and Hamam, H. (2019). Solar Energy Potentials in Southeastern European Countries: A case study. Intl. J. of Smart Grid. 3(2). URL: <https://www.ijsmartgrid-org.ijrer.org/index.php/ijsmartgridnew/article/view/51>

FIGURE 13. Change in Cooling Degree Days (65°F) in Albania for the period 2040–2059⁸⁸

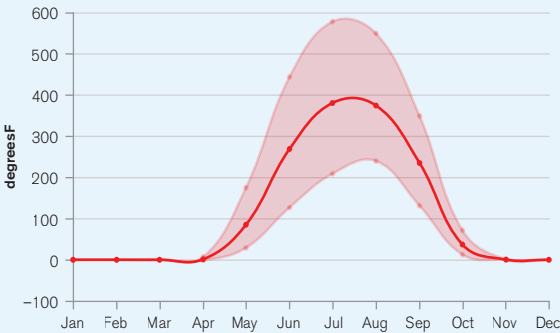
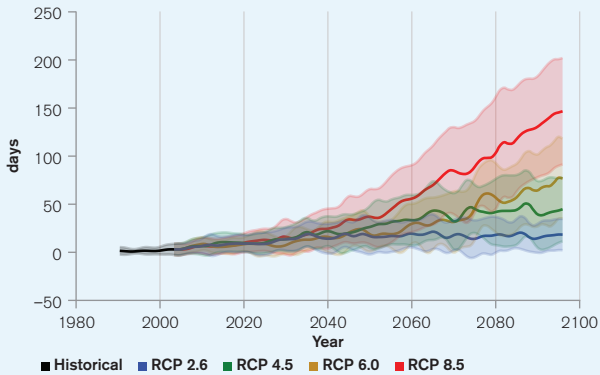


FIGURE 14. Warm Spell Duration Index in Albania for the period 1986 to 2099⁸⁹



Adaptation Options

Effective energy generation, transmission and expanded use is critical to the country’s overall development agenda and Albania is under pressure to develop its energy generating capabilities, specifically in pursuit of expanded hydro-power and renewable energies. High potential exists for hydro-power and solar to lead the country’s emerging clean energy generation.⁹⁰ Albania would also benefit from improved monitoring, forecasting, and dissemination of information on meteorological and hydro-meteorological conditions. Improvements to energy efficiencies can also be supported, in the short-term, through the diversification of energy supply, both domestically and through trade. Albania has already committed to reducing its greenhouse gas emissions and increasing investment and capability in renewable energy generation, specifically for use within industrial processes.⁹¹

Integrated and sustainable management and development of water resources should be promoted in collaboration with other primary sectors such as energy, agriculture, water supply and sanitation. However, comprehensive vulnerability assessments are necessary for a better understanding of existing energy infrastructure, needs and capacity to withstand expected impacts from climate change. Increased investments should be made into the electricity distribution network and to support its further decentralization and resilience to extreme weather events. Additional investigation into the reduction on the reliance of hydro-power is recommended for Albania due to the projected decrease in surface water and river flow and the country’s current high-reliance on hydro-power. Strengthened institutions and individual capacity still needs to be built in renewable energy technology and management, and policies should be designed to promote private investment in renewable energies.⁹²

⁸⁸ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania – Energy. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-sector-energy>
⁸⁹ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Energy Dashboard. URL: <https://climatedata.worldbank.org/CRMePortal/web/energy/oil-gas-and-coal-mining?country=ALB&period=2080-2099>
⁹⁰ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf
⁹¹ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>
⁹² ESMAP (2018). Energy and Climate Adaptation – Albania. URL: https://www.esmap.org/Climate_Change_Adaptation

Health

Overview

Health care services in Albania suffer from inefficiencies and disparities as well as the distribution of health centers across the country. Additionally, the poorest individuals are not part of the mandatory health insurance schemes, however are covered by social assistance benefits including free health services and the reimbursement of medicine.⁹³ Albania is expected to have significant adverse health effects caused by climate change, primarily in relation to the expected increasing incidence of rising temperatures, extreme events such as flooding and intense rainfall.⁹⁴ Extreme weather events, air quality and communicable diseases are identified as priority health risks under a changing climate. Heat-related deaths, especially among the elderly, present the most immediate threat for the Balkans. Albania is additionally vulnerable to climate-health impacts due to its current under-developed public health system. Primary healthcare lacks appropriate funding and human resources. The coverage of insurance-based care is low and the public hospital sector remains underdeveloped and the private sector is growing without proper regulation.⁹⁵

Climate Change Impacts

Challenges are compounded by the status and overall relatively limited investment into the country's healthcare systems and aging infrastructure. High-priority health issues include access to safe drinking water in rural areas, access to sanitation and adequate waste management systems, the uncontrolled use of chemicals and pesticides, and poor air quality. Increased temperatures are expected to result in increased mortality from heat stroke and the exacerbation of pre-existing conditions. More frequent, longer-lasting, and intense heatwaves will also adversely affect the concentration and dispersion of air pollutants.⁹⁶ Air pollution is also a serious health concern, however Albania was among the few countries which reported improved air quality. Under high-heat conditions, existing air pollution particulate will be exacerbated.⁹⁷

Heat waves have already caused significant numbers of deaths and morbidity in South East Europe during the past twenty years, particularly for the most vulnerable groups: elderly, chronically ill and disabled. Higher temperatures are also likely to lead to an increase in the number of water and food-borne diseases (e.g. salmonellosis and gastro-intestinal infections), to which children are vulnerable. Water quality may also suffer from algal contamination and concentration of pollutants.⁹⁸

⁹³ Kalaja, R. and Xhafa, H. (2016). Patient satisfaction with health care services in Albania. *Academic Journal of Interdisciplinary Studies*, 5(1). DOI: 10.5901/ajis.2016.v5n1p295

⁹⁴ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

⁹⁵ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

⁹⁶ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

⁹⁷ Ebi, K. and Otmani del Barrio, M. (2017). Lessons learned on health adaptation to climate variability and change: Experiences across low-and middle income countries. *Environmental Health Perspectives*, 125(6). DOI: <https://doi.org/10.1289/EHP405>

⁹⁸ World Bank Group (2015). Turn Down the Heat – Confronting the new climate normal. The Climate Challenge for the Western Balkans. URL: <http://documents.worldbank.org/curated/en/494741468189532505/pdf/98220-WP-P148173-PUBLIC-Box393168B-pdf.pdf>

Higher temperatures, heat waves and heat extremes are a major concern for Albania. Shown in **Figure 15**, the annual distribution of days with a high-heat index provides insight into the health hazard of heat. The first graph shows the expected Number of Days with a Heat Index $>35^{\circ}\text{C}$ for the 2090s. As seen in this figure, a sharp increase in very hot days starts to accelerate by mid-century and continuing to sharply increase under a high-emission scenario by end of the century, starting to accelerate by mid-century and continuing to increase under a high-emission scenario by end of the century. Night temperatures are also increasing for Albania, resulting in decreased opportunity for natural cooling. Increased health threats can be projected and monitored through the frequency of tropical nights ($>20^{\circ}\text{C}$). Tropical Nights (**Figure 16**) represents the projected increase in tropical nights for different emission scenarios (CMIP5 ensemble) to demonstrate the difference in expected numbers of tropical nights.

FIGURE 15. Days with a Heat Index $>35^{\circ}\text{C}$ ⁹⁹;

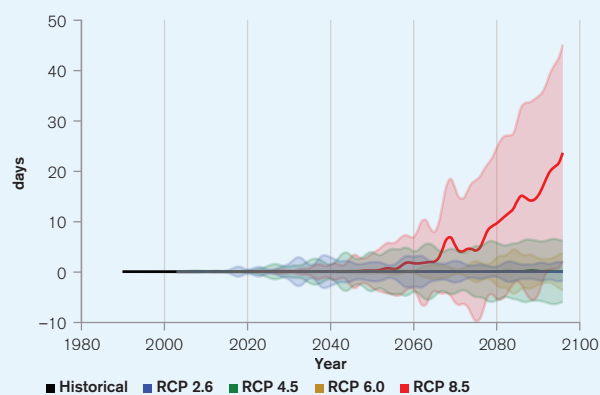
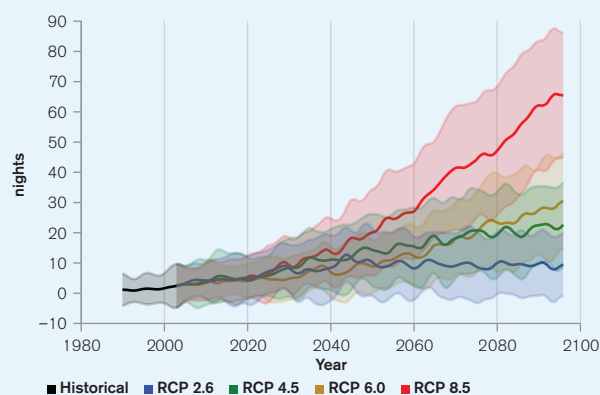


FIGURE 16. Tropical Nights ($T_{\text{min}} >20^{\circ}\text{C}$) (R)¹⁰⁰



Adaptation Options

Albania has committed to undertaking specific steps to improve its healthcare services and specifically to improve its ability to assess health impacts and health system adaptation. This includes the development of a national health adaptation strategy, which prioritizes the needed capacity building and training in early identification of potential infectious disease risks and outbreaks to improve disease surveillance systems.¹⁰¹ Improved air quality for major urban zones should be a priority and the implementation of air quality monitoring in areas like Tirana is recommended.¹⁰² Additionally, Albania's health-care infrastructure needs to be upgraded to support more systemic climate change resilience, and capacity also needs to be built to support the adaptation to extreme weather events and support the necessary response capacities. This is particularly important for the country's rural and poorer

⁹⁹ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Health Dashboard. URL: <https://climatedata.worldbank.org/CRMePortal/web/health/systems-and-service?country=ALB&period=2080-2099>

¹⁰⁰ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania Health Sector. URL: <https://climateknowledgeportal.worldbank.org/country/albania/climate-sector-health>

¹⁰¹ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

¹⁰² WHO – EU Office (2019). Albania. URL: <http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/country-work/protecting-health-from-climate-change-a-seven-country-initiative-in-the-eastern-part-of-the-who-european-region/the-project-in-each-of-the-seven-countries/albania2>

areas. Individuals with pre-existing diseases, especially cardiovascular and respiratory diseases, have a high risk of increased morbidity during heat-waves and special awareness and preparation should take place during the summer months. Health care system personnel have not been fully trained on the relationship between climate change, seasonal variability and health impacts. Increases in training and capacity can improve the level of knowledge and skills to prevent diseases connected with climatic factors, however this knowledge remains relatively limited among the general population.¹⁰³ Across policies, there is need to intensify intersectoral cooperation and provide a coordinated approach and functional cooperation in terms of effective and efficient carrying out of the activities.¹⁰⁴

Coastal Zones

Overview

The majority of Albania's coastline is along the Adriatic Sea, characterized by a flat and low-lying coastal area, which makes the coastal systems, including human settlements, particularly susceptible to climate change and vulnerable to sea-level rise and changes in intensity and frequency of flooding. The narrow coastal belt, which represents only 11.8% of the overall land area of Albania, however it is inhabited by 1/3 of the total population, and continues to grow. The biodiversity found on the coastal zone of Albania, and in areas such as Kune-Vain, Karavasta, Narta and Butrint, which are designated protected areas, is of global significance. Climate impacts are expected to affect much of the 97% of the population that lives within 100 km of the coast. Unregulated urban development up to the shoreline exposes infrastructure and the population to high risk of damages from storms, flooding and in the future sea level rise. Deforestation of coastal areas, agricultural development and use of gravel and sand for construction have contributed to coastal erosion, thereby increasing vulnerability.

Climate Change Impacts

The coastal zone of Albania has already shown itself to be sensitive to the nature of perturbations that are expected from climate change. It is already subject to considerable anthropogenic perturbation and alteration.¹⁰⁵ Climate change impacts to the mostly artisanal fishery sector have not been studied in detail, but the sector could be affected by projected sea surface temperature increases. Rising sea levels (**Figure 17**) will damage coastal, infrastructure including tourism facilities and agriculture land and result in increased flooding. An expected increased intensity of storm surges is likely to alter lagoon, wetland as well as coastal forest ecosystems. Increased sea surface temperature is expected to increase the salinity of coastal freshwater aquifers and thus negatively impact fresh water resources and water quality.¹⁰⁶

¹⁰³ WHO – EU Office (2019). Albania. URL: <http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/country-work/protecting-health-from-climate-change-a-seven-country-initiative-in-the-eastern-part-of-the-who-european-region/the-project-in-each-of-the-seven-countries/albania2>

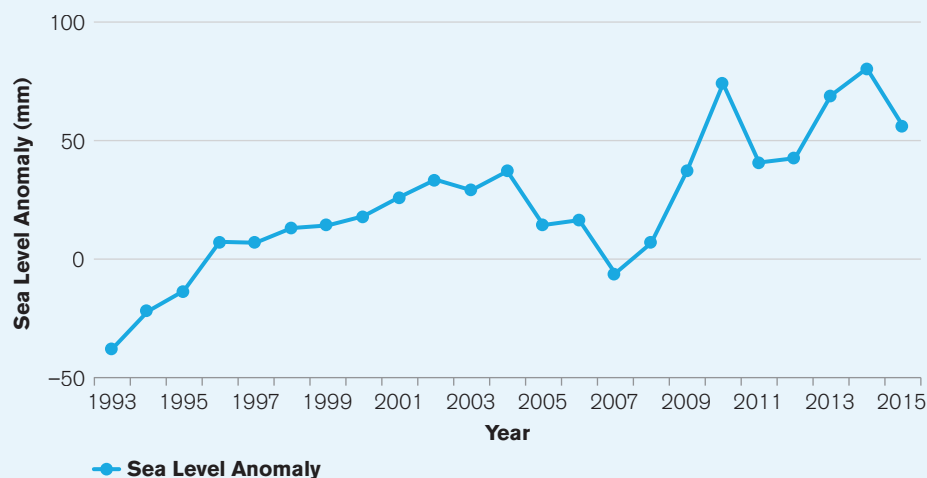
¹⁰⁴ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹⁰⁵ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹⁰⁶ USAID (2016). Climate Change Risk Profile – Albania. URL: <https://www.climatelinks.org/sites/default/files/asset/document/2016%20CRM%20Fact%20Sheet%20-%20Albania%20%28003%29.pdf>

Ongoing development of the area has yet to consider implications of climate change and the area is currently struggling with maladaptation practices. This is seen particularly through the construction of tourist infrastructure that has often been made without considering risks of extreme events such as: flooding, storms, shoreline erosion, and long-lasting drought expected to occur as a result of climate change. Road, water and electric energy supply infrastructure have suffered damages each year, especially due to sea surges (as a result of storms and high tides) and river flooding during periods when rainfalls are frequent and often intense.¹⁰⁷

FIGURE 17. Albania's change in sea level rise, 1993–2015¹⁰⁸



Adaptation Options

For Albania, the implementation of a coastal zone adaptation plan is likely to be difficult and costly, however it is expected to be less costly than attempting to manage devastating impacts from climate change on the country's coastal zone. In order to reverse these current maladaptive practices along the coast, the National Coastal Agency has been established to ensure the protection and sustainable development of future activities, coordination of projects and encourage donor investment in the coastal area.¹⁰⁹ Additionally, an Integrated Cross Sectorial Coastal Plan has been approved by the National Territory Council in June 2016. National Strategy on Sustainable Tourism Development Strategy approved in 2019. This plan is designed to take into account policies and directives of the European regional conventions for the integrated management of Mediterranean coastal areas, and focuses specifically on their definitions and references for the Albanian coastal region. The National Strategy for Development and Integration (NSDI) considers the tourism sector as one of the main engines of national economic growth.

¹⁰⁷ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹⁰⁸ WBG Climate Change Knowledge Portal (CCKP, 2020). Albania. Impacts- Sea Level Rise. URL: <https://climateknowledgeportal.worldbank.org/country/albania/impacts-sea-level-rise>

¹⁰⁹ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

Institutional Framework for Adaptation

The Ministry of Tourism and Environment, is responsible for Albania's climate change related activities, scientific evaluations, and leadership. The Ministry of Environment (MoE) is the highest governmental body responsible for environmental protection and formulation of environmental policy and legislation in the country. The Albanian Government has made climate change adaptation and development within the country a high priority. An inter-ministerial Working Group on Climate Change (iMWGCC) was established as a permanent coordinating body for climate change issues. It is headed by the Deputy Minister of Environment at the political level, and supported by nominated technical focal points in each and every related institution. Albania's Climate Change Unit (CCU) is the national UNFCCC focal point and collaborates with an interdisciplinary and inter-institutional technical team established to fulfill Albania's duties as a UNFCCC member.¹¹⁰ The State Environmental Inspectorate identifies and responds to issues related to environment and climate change. The responsibilities of the National Environmental Agency include permitting, environmental impact assessment, and public information and to support the retrofit and expansion of the country's the existing observational network of weather and hydro-met stations. The Albanian Government and its CCU are also responsible for supporting the country's actions in monitoring its GHG emissions and adhering to the country's establish Nationally Determined Contributions, which outlines the country's commitment to mitigate climate change. Additional institutions in Albania play significant roles in the implementation of environmental policy, including implementation of climate change and Climate Development Mechanisms(CDM), such as the Ministry of Industry, Ministry of Agriculture, Rural Development and Water Administration, Ministry of Infrastructure and Transport, and the Ministry of Urban Development and Tourism. These institutions provide contributions to the collection of necessary data for GHG emission's reporting, and also in developing appropriate actions in their respective sectors to mitigate the effects of climate change, including its impacts and adaptation options.¹¹¹

Policy Framework for Adaptation

Albania submitted its Third National Communication to the UNFCCC in 2016 and its Nationally-Determined Contributions in 2016. These strategies focus on the preparation and strengthening of institutional frameworks for responsible environmental management, improved management of climate change effects and economic development targets and the necessary resources to support strategic adaptation activities and to advance low emission and climate resilient development. Albania has also developed and adopted a number of primary and secondary pieces of legislation regarding the environment that have an impact on responses to climate change. Additionally, legislation regulating other sectors that have a considerable impact on climate change, such as energy, forest and other sectoral legislation, have also been enacted, and these often transpose a number of EU Environmental Directives.¹¹²

¹¹⁰ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹¹¹ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

¹¹² Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

National Frameworks and Plans

- [Albania Post-Disaster Needs Assessment \(2020\)](#)
- [Climate Resilient Road Assets in Albania \(2019\)](#)
- [National Strategy of Water Resources Integrated Management 2018–2027 \(2018\) Albanian](#)
- [Nationally-Determined Contributions \(2016\)](#)
- [Third National Communication on Climate Change \(2016\)](#)
- [National Strategy for Development and Integration \(2013\)](#)
- [Albania DRR Assessment Report \(2011\)](#)
- [Second National Communication \(2009\)](#)
- [Albania's Technology Needs Assessment \(2005\)](#)
- [First National Communication of Albania to the UNFCCC \(2002\)](#)

Recommendations

Research Gaps

- Conduct targeted research to define the economic and environmental impacts of Albania's carbon tax to determine effectiveness and scope for expansion
- Develop a risk transferring mechanisms for catastrophic events, which could be used to mobilize private-sector to address post-disaster costs or household recovery efforts
- Improve energy generating capabilities for hydropower by increased understanding of impacts to river flow due to precipitation reduction
- Enhance identification and validation of possible mitigation policies and measures in the target sectors in agreement with the sector policies and planning documents, as well as with the European Policy on Climate and Energy¹¹³
- Enhance Albania's adaptive capacity through continuing investment in weather stations and expanding the country's national hydro-meteorological and seismological monitoring system and improved networking for the measurement of climate parameters¹¹⁴
- Improve awareness and understanding of projected climate change impacts within key sectors and with policy makers, commission risk assessments, and expand early warning systems. Data collection, analysis and dissemination should be coordinated through the iMWGCC

Data and Information Gaps

- Increase Albania's observational data through the addition of weather stations and hydro-meteorological, seismological instrumentation and mapping
- Increase available data and modelling capabilities to support continued monitoring, reporting and verification of greenhouse gas reduction efforts and CDM activities
- Increase understanding of water resource threats and groundwater risks to improve water use efficiency in agriculture and for urban zones

¹¹³ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹¹⁴ The World Bank (2013). Looking Beyond the Horizon. How Climate Change Impacts and Adaptation Responses will reshape agriculture in Eastern Europe and Central Asia. URL: <http://documents.worldbank.org/curated/en/676601468249642651/pdf/Looking-beyond-the-horizon-how-climate-change-impacts-and-adaptation-responses-will-reshape-agriculture-in-Eastern-Europe-and-Central-Asia.pdf>

Institutional Gaps

- Ensure integration of National Environmental Strategy goals are developed within sectoral and regional plans¹¹⁵
- Integrate climate change concerns into relevant policies and planning processes at the state and national levels¹¹⁶
- Apply EU requirements to environmental management, delineate responsibilities, and subordination and coordination in the sphere of environmental management of central government units; regional government; regional branches of central government units; and local government (city, settlement, and village)¹¹⁷
- Implement regional-scale cooperation among countries in the Western Balkans to emphasize the benefits of collaboration and institution building in the region
- Support Albania's participation in the EU's Energy Community Treaty to establish a stable regulatory and market framework, which includes legislation to reduce greenhouse gas emissions¹¹⁸
- Well-trained observation and monitoring personnel are needed to support and build institutional capacity in early warning and early response¹¹⁹
- Development of a framework for the comprehensive management of water resources, in which all stakeholders, including the private sector, civil society and user communities, regardless of gender play an active role, should be provided¹²⁰

¹¹⁵ Republic of Albania (2016). Third National Communication of the Republic of Albania under the United Nations Framework Convention on Climate Change. URL: https://unfccc.int/sites/default/files/resource/Albania%20NC3_13%20October%202016.pdf

¹¹⁶ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

¹¹⁷ The World Bank (2013). Looking Beyond the Horizon. How Climate Change Impacts and Adaptation Responses will reshape agriculture in Eastern Europe and Central Asia. URL: <http://documents.worldbank.org/curated/en/676601468249642651/pdf/Looking-beyond-the-horizon-how-climate-change-impacts-and-adaptation-responses-will-reshape-agriculture-in-Eastern-Europe-and-Central-Asia.pdf>

¹¹⁸ Republic of Albania (2016). Nationally Determined Contribution of the Republic of Albania following decision 1/CP.19 and decision 1/CP.20. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Albania%20First/Albania%20First.pdf>

¹¹⁹ GFDRR (2021). Diagnostic Report. Emergency Preparedness and Response Assessment. Ready2Respond.

¹²⁰ Ministry of Agriculture and Rural Development (2018). Drini-Buna Final River Basin Management Plan – December 2018. [Contract Number MEFWA/CS/001].

CLIMATE RISK COUNTRY PROFILE

ALBANIA



WORLD BANK GROUP