



**FRIEDRICH NAUMANN  
STIFTUNG** Für die Freiheit.

**POLICY PAPER**

# **CLIMATE CHANGE AND SECURITY DYNAMICS IN SOUTHEASTERN EUROPE**

Mariana Trifonova and Anita Dangova

**ANALYSIS**

# Imprint

## Publisher

Friedrich-Naumann-Stiftung für die Freiheit  
Truman-Haus  
Karl-Marx-Straße 2  
14482 Potsdam-Babelsberg

 /freiheit.org

 /FriedrichNaumannStiftungFreiheit

 /FNFreiheit

## Author

Economic Policy Institute – Sofia:  
Mariana Trifonova, Anita Dangova

## Acknowledgments:

This policy paper benefited significantly from the expert local insight of Mr. Andrei Covatariu (Romania), Dr. Nenad Stekić (Serbia) and Mrs. Lira Hakani (Albania). The authors are also grateful to Dr. Monika Panayotova for the review of the EU and NATO strategic outlook on climate change and security as well as to Mr. Yordan Bozhilov for the initial conceptualization of the project.

## Editor

Yasen Georgiev

## Contact

Phone: +49 30 22 01 26 34  
Fax: +49 30 69 08 81 02  
email: [service@freiheit.org](mailto:service@freiheit.org)

## Date

May 2023

## Notes on using this publication

This publication is an information offer of the Friedrich Naumann Foundation for Freedom. It is available free of charge and not intended for sale. It may not be used by parties or election workers for the purpose of election advertising during election campaigns (federal, state or local government elections, or European Parliament elections).

## Licence

Creative Commons (CC BY-NC-ND 4.0)

# Table of contents

<b>1. CLIMATE CHANGE AND SECURITY NEXUS IN SOUTHEASTERN EUROPE</b>	<b>4</b>
1.1 Why Tackle the Interdependence of Climate Change and Security Policy?	4
1.2 Strategic Foresight Approach and Regional Dimension	4
<b>2. CLIMATE CHANGE AND CLIMATE-RELATED RISKS IN SOUTHEASTERN EUROPE</b>	<b>5</b>
2.1 Climate Change in Southeastern Europe – an Overview	5
2.1.1 Specific Climate Change Vulnerabilities of SEE Countries	6
2.1.2 Key Natural Hazards and Climate-related Risks in Southeastern Europe	7
2.2 Climate Change and Human Security Implications	10
2.2.1 Energy Security and Supply Resilience in Southeastern Europe	10
<b>3. CLIMATE CHANGE AND SECURITY INTERACTION</b>	<b>11</b>
3.1 “Securitization” of the Climate Change Response	14
3.1.1 Humanitarian Assistance and Disaster Response	14
3.1.2 Adaptation of Military Operations to New Climate-induced Risks and Vulnerabilities	16
3.1.3 Defense and the Security Sector’s Contribution to Climate Change Mitigation	16
3.2 Pros and Cons of the Climate Security Approach	17
<b>4. SCENARIOS FOR THE FUTURE: CLIMATE-RELATED SECURITY DYNAMICS IN SOUTHEASTERN EUROPE</b>	<b>18</b>
4.1 First scenario: Southeastern Europe living on Borrowed Time	19
4.2 Second scenario: “So, thanks for making me a fighter”	19
4.3 Third scenario: Crises here, there and Everywhere	20
4.4 Fourth scenario: Exogenous Discrimine	20
<b>5. MAIN TAKEAWAYS FOR POLICY-MAKING: THREE LEVELS OF ANALYSIS</b>	<b>21</b>
5.1 National Level: Observations and Recommendations	21
5.2 Regional Level: the Inevitability of Cross-border Cooperation on Climate Adaptation	21
5.3 The Role of the EU and of NATO in the SEE Region	22
<b>ABOUT THE AUTHORS</b>	<b>23</b>

# 1. Climate change and security nexus in Southeastern Europe (SEE)

## 1.1 Why Tackle the Interdependence of Climate Change and Security Policy?

In recent years, climate change has increasingly come to the forefront of public discourse and has climbed policy agendas across the globe. Yet, its direct impact and implications for the security sector remain a relatively novel area of policy-oriented research, expanding the scope of defence and security policy beyond traditional military operations. Climate-related risks not only pose new challenges but also aggravate existing threats to security. They can change the dynamics and response strategies in existing conflicts or lead to breakouts of instability, especially in regions marked by significant diversity, latent insurgency and competing geopolitical forces. Southeastern Europe (SEE) is one such region often described as the contact point between East and West, North and South. It also serves as a gateway to Europe from regions such as North Africa and the Middle East. Furthermore, its geopolitical significance has turned it into the playground of global competition where the transatlantic activity of the European Union (EU) and NATO meets the economic interests as well as security aspirations of Russia, and increasingly China.

## 1.2 Strategic Foresight Approach and Regional Dimension

This paper aims at examining to what extent (if at all) climate change impacts security in the region of Southeastern Europe, to map climate-related risks with particular relevance to SEE and analyse their implications on security. It also strives to provide food for thought to policy-makers by adopting a strategic foresight approach and developing four distinct scenarios for future climate-related security dynamics in SEE within two time horizons: until 2030 and 2050, respectively.

The mid-term horizon of reflection (by 2030) focuses on incorporating the intervening variables of post-COVID recovery as well as the war in Ukraine, thus highlighting issues such as supply chain resilience and energy security. This is to examine the response readiness and policy agility of the EU, NATO and the countries in Southeastern Europe, especially with regard to the intensification of regional activity by external actors such as Russia and China.

The long-term horizon (by 2050), on the other hand, allows for the assessment of action plans and strategic responses centred on adaptability and climate change mitigation. It frees the analysis from external influences to focus exclusively on the climate-related risks that the SEE region is expected to face with regard to human security: increased pressure from migration due to natural disasters and climate catastrophes; deteriorating conditions in human habitats and socio-economic asymmetries in climate change adaptation for countries and communities in the SEE. The long-term perspective sheds light on transforming defence and security dynamics as a result of competition for scarce resources, clean air and water as well as (rare) earth minerals needed for sustainable and irreversible implementation of the green transition and digital transformation agendas.

These distinct scenarios are a result of a small regional expert panel constructing plausible futures and steering the policy discourse toward resilience and adaptability. Only through the lens of anticipatory policy-making can the SEE region and major players such as the EU and NATO assess whether their response capacity is fit for purpose.

- By engaging a small yet diverse pool of regional experts in a strategic foresight exploration;
- by presenting concise, easy-to-understand and intellectually stimulating scenarios, and
- by providing actionable policy recommendations,

This paper strives to contribute towards raising awareness, better preparedness and agile response to changing climate-related security dynamics in the SEE region.

## 2. Climate change and climate-related risks in Southeastern Europe

### 2.1 Climate change in SEE – an overview

Climate change, as a result of human activity, is a far-reaching phenomenon affecting essentially all continents and regions of the world. Globally, extreme weather events have registered increased frequency and severity. According to the EASAC study<sup>1</sup>, “floods and other hydrological events have quadrupled since 1980 and have doubled since 2004”. Additionally, “extreme temperatures, droughts, and forest fires, have more than doubled since 1980. Meteorological events, such as storms, have doubled since 1980.”

The European Environmental Agency (EEA) acknowledges that all parts of Europe are affected in various degrees but highlights that “Southern and south-eastern Europe is projected to be a climate change hotspot as it is expected to face the highest number of adverse impacts. This region is already experiencing large increases in heat extremes and decreases in precipitation and river flows, which have heightened the risk of more severe droughts, lower crop yields, biodiversity loss and forest fires.”<sup>2</sup>

This observation echoes the belief that the region of Southeastern Europe is particularly vulnerable to climate change and the negative effects of global warming. SEE’s susceptibility to climate change stems from its geographic position and topography, which also makes it climatically diverse. The region encompasses the Balkan peninsula and its vicinity, thus bearing some similarities to Southern Europe and the Mediterranean, while its northernmost parts share the characteristics of the continental climate observed in Central Europe. Although there is no universally established boundary for the SEE region, it is widely considered to comprise three EU member states (**Bulgaria, Romania, Croatia**) as well as the Western Balkan countries. **Albania, North Macedonia, Serbia, Montenegro and more recently Bosnia**

**and Herzegovina** have the status of EU candidate countries, while **Kosovo**<sup>3</sup> is considered a potential candidate. Out of all of them only Serbia, Bosnia and Herzegovina and Kosovo are not NATO members. Broader definitions of the SEE region may also include other EU members such as Slovenia to the west and Greece to the south, together with long-term EU candidate status holder Türkiye. However, for the purpose of this paper, the authors adopted a narrower concentration on the three newest EU members and the Western Balkans due to socio-economic and developmental similarities. A special focus is placed on Bulgaria and Romania as both are EU and NATO members with close proximity to the ongoing security crisis that is unfolding due to the war in Ukraine. Also, the Western Balkan countries Serbia and Albania, are examined more closely, since they illustrate two vastly different foreign policy and security orientations.

The political diversity in the region poses an inherent challenge to analysing the climate change implications for the region as the majority of studies and databases differentiate between the Western Balkans as a sub-region, while Bulgaria, Romania and Croatia are often examined in a comparative EU-wide perspective or grouped with other countries from Central and Eastern Europe.

Nevertheless, several overarching observations can be made for the region of Southeastern Europe as a whole. Despite the observed regional variations in temperature and precipitation levels, the average temperature is clearly increasing. In the Western Balkans sub-region it has increased by 1.2 °C within two decades.<sup>4</sup>

Extreme weather events have become more frequent across the region, showcasing the need for efficient and timely climate adaptation strategies.

1 EASAC, “Extreme weather events in Europe: Preparing for climate change adaptation: an update on EASAC’s 2013 study”, available at [https://easac.eu/fileadmin/PDF\\_s/reports\\_statements/Extreme\\_Weather/EASAC\\_Statement\\_Extreme\\_Weather\\_Events\\_March\\_2018\\_FINAL.pdf](https://easac.eu/fileadmin/PDF_s/reports_statements/Extreme_Weather/EASAC_Statement_Extreme_Weather_Events_March_2018_FINAL.pdf) (last accessed 29 September 2022)

2 EEA Report No 1/2017, Climate change, impacts and vulnerability in Europe 2016, available at <https://www.eea.europa.eu/publications/climate-change-impacts-and-vulnerability-2016> (last accessed 25 January 2023)

3 This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

4 Regional Cooperation Council Secretariat, “Study on Climate Change in the Western Balkans Region (2018)”, available at <https://www.rcc.int/download/docs/2018-05-Study-on-Climate-Change-in-WB-2a-lowres.pdf/06af8f7432484a6ce384ebcb8c05e8d7.pdf> (last accessed 29 September 2022)

Figure 1 | Climate Change in the Western Balkans: key findings, trends and projections

	ALBANIA <sup>1</sup>	BOSNIA AND HERZEGOVINA	CROATIA	THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA	MONTENEGRO	SERBIA
Air temperature change (last half century)	↑	↑ <sup>2</sup>	↑	↑	↑	↑
Precipitation change (last half century)	↓	↔ <sup>3</sup>	↓	↓	↔	↔
Extreme weather events and climate-related hazards (1990–2009)	↑	↑	↗	↑	↑	↑
Water resources availability in the future (forecast period until 2100)	↓	↓ <sup>4</sup>	↓ <sup>5</sup>	↓	↓	↓
Health infectious and vector-borne diseases <sup>6</sup>	↑	↑	↑	↑	↑	↑
Greenhouse gas emissions (in CO <sub>2</sub> eq) for period observed	↓	n.a. <sup>7</sup>	↗	↓	↓	↓
Policy instruments, actions and awareness	↑	↗ <sup>8</sup>	↑	↑	↑	↑
Climate observation and weather services (1990–2009)	↗	↗	↑	↗	↗	↑

<sup>1</sup> Information related to vulnerability assessment and adaptation options is based on the study focused on the Drini River Cascade (area from Kukes up to the Lezha Plain).

<sup>2</sup> Air temperature change covers only 11-year period 1990–2000 compared to reference period (1961–1990).

<sup>3</sup> Precipitation change covers only period 1999–2008 compared to reference period (1961–1990).

<sup>4</sup> Lower river flows are expected although scenarios are to be introduced in Second National Communication; "water managers are still using historical climate data to design water infrastructure and guide management decisions".

<sup>5</sup> Decrease is expected, although further studies are required.

<sup>6</sup> In West Balkan countries reliable health statistics on the impacts of climate change on population health, illness and mortality do not exist, since mandatory health records do not contain information such a complex evaluation. According to National Communications under the UNFCCC, estimated data indicate an increase in the number of strokes and mortalities, mostly as a result of higher temperatures.

<sup>7</sup> Greenhouse gas emissions are available only for the base year (1990).

<sup>8</sup> Basic systems providing information on water resources were never rebuilt after the breakdown of the former Bosnia and Herzegovina Hydrometeorological Service during the early 1990s. One of proposed adaptation measures is the development of a Hydrological Information System.

Sources: Most recent National Communications to the United Nations Framework Convention on Climate Change.

Produced by ZOI Environment Network, 2012.

NOTE: The figure is reproduced from the original sources without changes, thus the current Republic of North Macedonia is listed as the Former Yugoslav Republic of Macedonia.

Source: Reproduced from ENVSEC, UNEP "Climate Change Adaptation in Southeastern Europe, A Background report", p.29

## 2.1.1 Specific climate change vulnerabilities of SEE countries

**Albania** is reliant on hydropower for a significant portion of its energy needs, and further climate change could lead to changes in precipitation patterns, either causing water shortages or flooding. Additionally, agriculture is an important sector of the Albanian economy, and climate change could lead to changes in temperature and rainfall patterns that could affect crop yields. Besides, Albania has a long coastline, and sea level rise and more intense storms associated with climate change could lead to flooding and erosion of coastal areas.

Very similarly, **North Macedonia and Serbia** are also reliant on hydropower for a significant portion of their energy needs and are thus exposed to the same hazards as Albania.

**Montenegro and Bosnia and Herzegovina** are vulnerable to the impacts of climate change due to several factors, including their topography and heavy reliance on natural resources for their economies. Particularly vulnerable to climate change-induced extreme weather events are the sectors of forestry, agriculture and tourism.

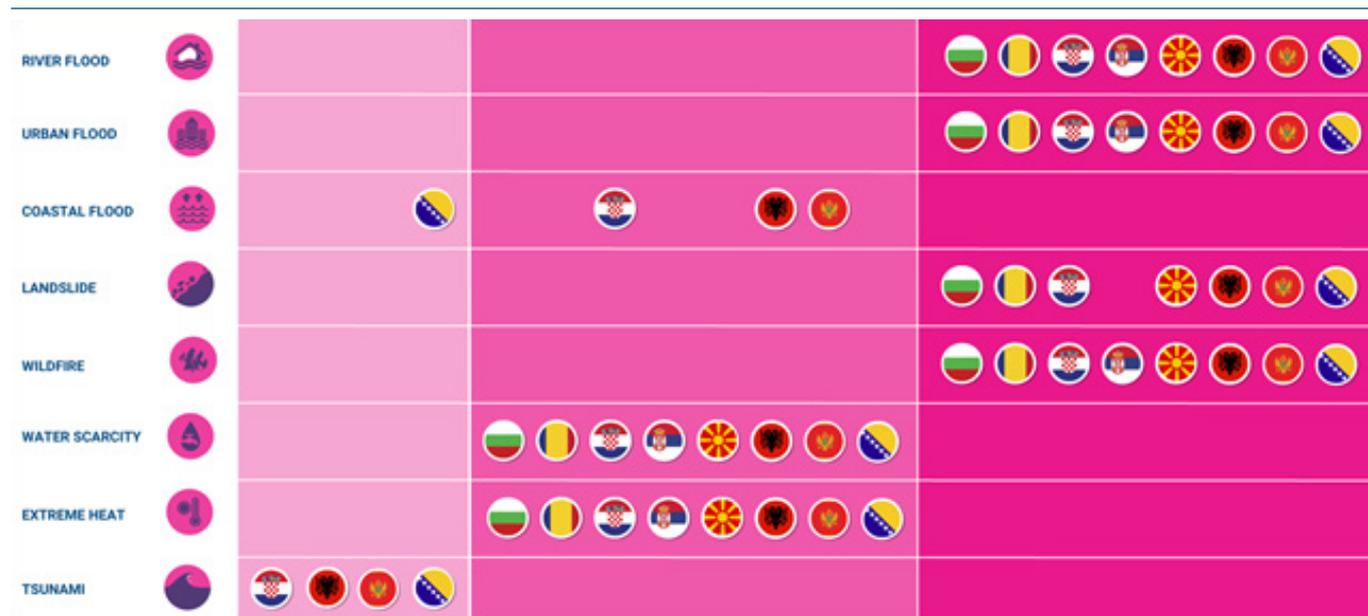
Likewise, **Bulgaria, Romania and Croatia's** economies show similar dependencies and exposure to natural hazards. Furt-

hermore, the three newest EU member states experience further impacts of climate change due to the age and condition of their infrastructure, such as roads, buildings, and water systems. The energy generators of Romania depend to a very large extent on the availability of constant water flows. Hydropower plays an important role also within Bulgarian energy production, and is the most used energy production source in Croatia, which further raises the vulnerability of these countries to climate change.

### 2.1.2 Key natural hazards and climate-related risks in Southeastern Europe

A literature review<sup>5</sup> as well as consultations with a regional expert panel<sup>6</sup> reveal that despite climate variations among SEE countries, there is a clear region-wide trend when it comes to the most common natural hazards and disasters plaguing Southeastern Europe. Floods, droughts and wildfires appear to be the top 3 concerns.

**Figure 2 | Risk Classification of Selected Natural Hazards in SEE (Low – Medium – High)**



Source: Visualisation by EPI based on data from ThinkHazard by GFDRR

**Floods**, in particular, have a huge impact in terms of human life, economy, agriculture and environment. They have the potential to cause severe disruption to infrastructure and property damage in a region that is already lagging behind in connectivity. River floods specifically are considered to be a high risk factor for virtually all countries in the region

with the same high rank attributed to urban floods due to the usual proximity of river beds to human settlements. Also high is the estimated risk from coastal floods in countries like Albania and Croatia, while Montenegro as well as Bosnia and Herzegovina are moderately threatened by them. See figure 2 for details.

#### INFOBOX 1 | Floods vulnerability in Albania

The most problematic area in Albania that is highly susceptible to floods is the Shkodra region (north of Albania). River floods are the prevalent type in the country. The flooding is affecting the agriculture sector, which is the main source of income within the Shkoder region. There was a main peak of floods in 2010 in Albania in which the losses reached nearly 0.15 % of the GDP of the country. 2018 was another example of a year with severe flooding.

Coastal floods are also considered a significant risk. Most vulnerable to coastal floods are usually the beaches in the areas affected by land subsidence (Shëngjin, Kune-Vain, Tale, Patok, Ishëm). Also, the floods have partially affected the beaches situated in the territories undergoing elevation (those of Durrës, Golem, Divjakë, Himarë, Borsh etc.), in addition to the tourism infrastructure.

5 Ana Vuković, PhD and Mirjam Vujadinović Mandić, PhD, 'STUDY ON CLIMATE CHANGE IN THE WESTERN BALKANS REGION' (2022) Regional Cooperation Council (last accessed 20 December 2022).  
 See also: Lukas Rüttinger, Pia van Ackern, Noah Gordon and Adrian Foong, 'Regional Assessment for South-Eastern Europe: Security implications of climate change Report' (2021) The Organization for Security and Co-operation in Europe (OSCE) and Adelphi research gemeinnützige GmbH (last accessed 20 December 2022).  
 6 ENVSEC, UNEP, 'CLIMATE CHANGE ADAPTATION IN SOUTH EASTERN EUROPE A BACKGROUND REPORT' (last accessed 20 December 2022).  
 Conducted via online workshop on October 18th, 2022 and individual semi-structured interviews.

Taking into account projected temperature increases in the following decades, Albania's coastal area is expected to become warmer due to climate change, which could trigger an alternating chain between flood and drought disasters with extremely negative impact on not only tourism but also agriculture.

### INFOBOX 2 | Flood Disaster in Karavelovo, Bulgaria

The 2022 flood disaster in Karavelovo, Bulgaria began in early September, when a combination of heavy rains and melting snow caused the rivers to overflow their banks and inundate parts of Karavelovo. The flood affected over 500 families, including many farmers whose livelihoods were completely devastated by the disaster. Many homes, businesses, and community buildings in the area were destroyed or heavily damaged by the floodwaters. Over 1,000 hectares of farmland were also impacted, making it difficult for those living in the region to recover economically. The effects of the severe flooding were felt all the way to the capital city of Sofia, some 50 kilometres from Karavelovo.

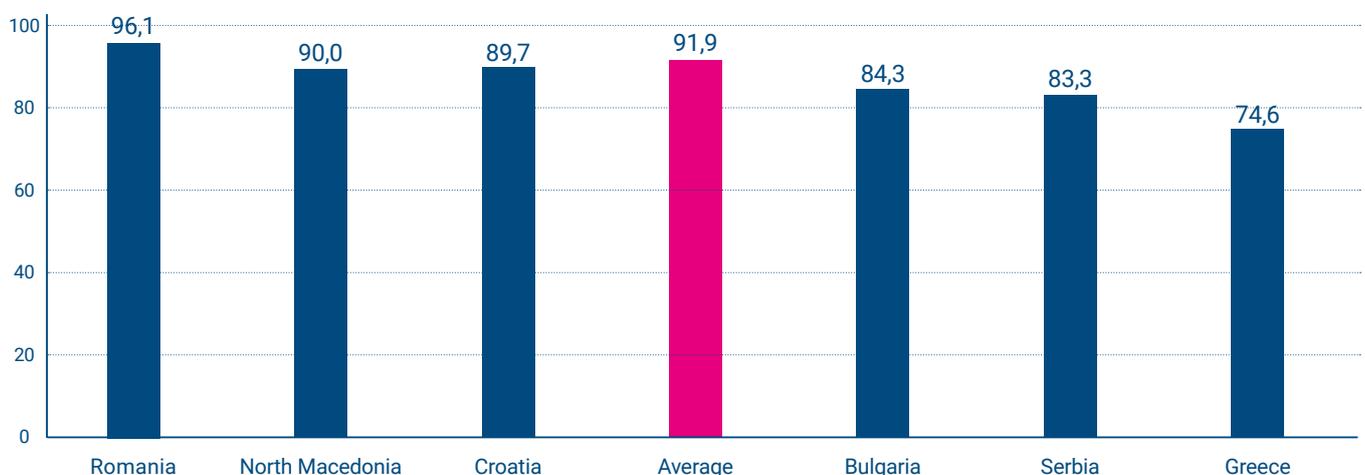
In addition to giving food, medicine, and temporary accommodation for those left homeless, the Bulgarian Red Cross and other national and international charity organisations helped people impacted by the flood. In the area, the government has issued a state of emergency and allocated cash for the restoration of homes, bridges, and other infrastructure. The government has also started an aid program to assist families impacted by the flood in rebuilding their houses and regaining their means of support. Nevertheless, the repercussions persisted and as of January 2023, the region continues to suffer significant economic and agricultural losses. Karavelovo is still in the recovery phase.

The Bulgarian military forces also got involved in the rescue operations of Karavelovo. More than 100 soldiers from the Bulgarian Land Forces and 50 from the Air Forces took part in overcoming the consequences of the major floods in the municipality of Karlovo, part of which is the village of Karavelovo.<sup>7</sup> Military helicopters evacuated people in distress in the Karlovo region. The military therefore played a crucial role in the flood disaster adaptation measures.

With the increased frequency and scale of natural disasters befalling urban areas and human infrastructure come heavy economic losses and damages to property. Despite the relatively high home ownership rates in many countries within the SEE region (see Figure 3.1), property insurance is not widespread, which significantly complicates recovery efforts and disproportionately burdens vulnerable groups and communities. Data provided by Insurance Europe shows that total property insurance premiums to GDP ratio in the

EU member states from the region as well as Türkiye is substantially below the average for Europe (see Figure 3.2). Although EU and national funding for disaster relief is available, governance deficiencies often prevent the funding from reaching the affected communities in a timely manner. Mainstreaming the practice of property insurance against natural hazards could be a market-based avenue for overcoming such public sector inefficiency.

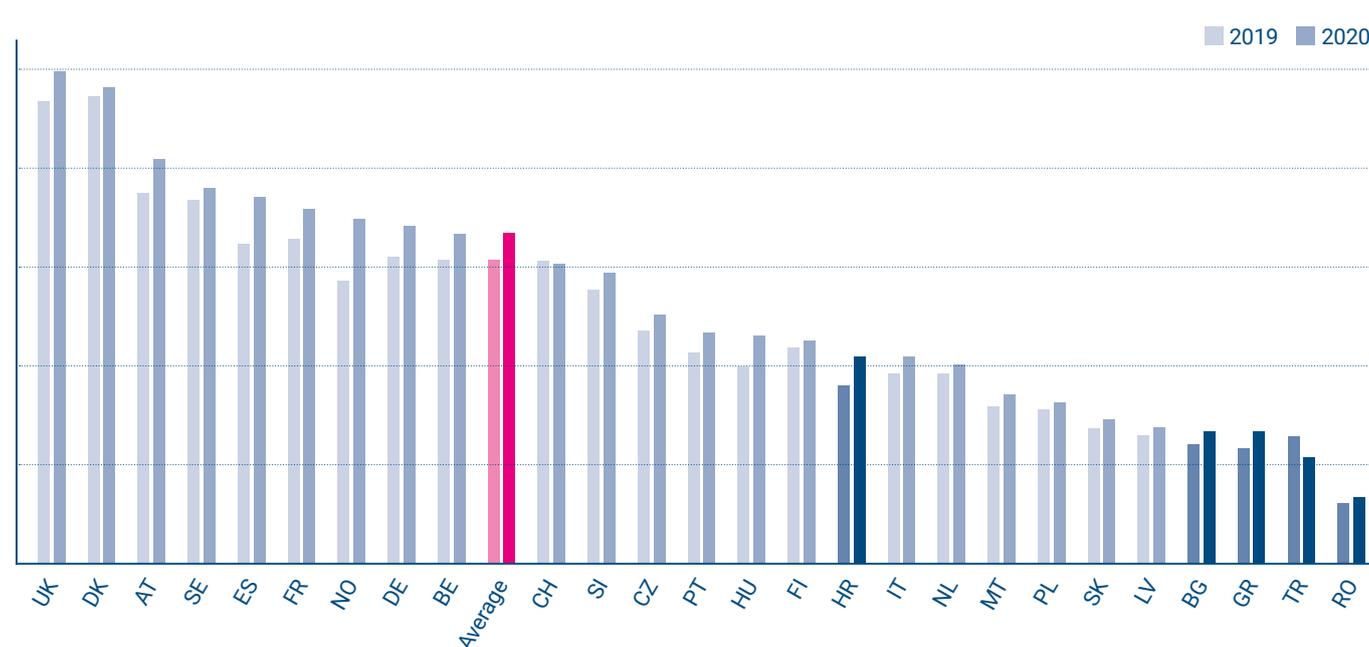
**Figure 3.1 | Home ownership rates in selected SEE countries** (data in percent)



Source: Eurostat for RO, HR, RS (2019) and BG, GR (2020); Statista for MK (2016)

<sup>7</sup> Radio Bulgaria, "Доброволци и военни помагат в пострадалите от наводненията села в Карловско" [Volunteers and military help in flood-hit villages in Karlovo region], (4 September 2022), available at <https://bnr.bg/radiobulgaria/post/101700256/dobrovolci-i-voenni-pomagat-v-postradalite-ot-navodneniata-sela-v-karlovsko> (last accessed 29 September 2022)

Figure 3.2 | Penetration of property insurance in selected SEE countries (total premiums to GDP)



Source: Reproduced by EPI from Insurance Europe, European Insurance industry database, P&C Insurance (as of 5 August 2021)

**Wildfires** are another form of natural disasters that devastate forests and crop fields during the summer months due to the combined effects of drought and high temperatures. They are considered another high-impact, high-risk factor for virtually

all countries in the region. Wildfires lead to massive deforestation, loss of biodiversity and devastating damages to the agricultural sector which also affects food security.

### INFOBOX 3 | The 2021 wildfires crisis in Albania

Around mid-July 2021, several parts of the Albanian territory, primarily in the southern and central regions of the country, were heavily affected by a series of wildfires. The wildfires sustained for weeks. Around that time, similar occurrences were recorded also in Croatia, North Macedonia and Türkiye.

The cause of the fires was a combination of high temperatures, low humidity, and strong winds, which hampered the firefighting efforts to contain the spread of the flames. As a result, the wildfires destroyed large areas of forest and brush, as well as several homes and other buildings. They led not only to the injury of several people, but also to the decease of at least one person. Further to declaring a state of emergency, the Albanian government commenced the search for assistance from other countries to help fight the fires and provide aid to affected communities. The wildfires' extinguishment and rescue operations were executed by 521 military forces, fire and civil emergency forces. The wildfire adaptation activities reveal not only the important role of the military in climate change disasters, but also the impact that such disasters could have on national security, as exemplified by a major 2022 Albanian wildfire example below.

In 2022, a similar wildfire crisis occurred again, destroying hundreds of hectares of forests, pasture land and thousands of olive trees. Military forces again played an important role: 122 members of the Armed Forces, nine vehicles and two ships engaged in the fire extinguishment operations.<sup>8</sup> In addition, the Albanian island of Sazan was heavily affected by the forest fire and it was feared that the fire could spread to the ammunition stored on the island.<sup>9</sup> Therefore, the wildfire could have potentially led to negative consequences in the national security sector. Thus, national military forces are an important player in providing support in the aftermath of a climate-change disaster, while on another, their operational capability and readiness could be jeopardised by the dangers of climate change.

8 POLITIKO, "Four days on fire, Ministry of Defense: Fires on Sazan Island neutralized", (7 June 2022), available at <https://politiko.al/english/e-tjera/kater-dite-ne-flake-ministria-e-mbrojtjes-neutralizohen-vatrat-e-zjarrit-i461370> (last accessed 30 September 2022)

9 Intelinews, "Albania's first major 2022 wildfire rages for days on Sazan Island" (7 June 2022), available at <https://www.intelinews.com/albania-s-first-major-2022-wildfire-rages-for-days-on-sazan-island-246675/#:~:text=This%20is%20the%20first%20major,biggest%20wildfires%20in%20recorded%20history> (last accessed 30 September 2022)

*Droughts* are a result of increasing temperatures and reduced precipitation. According to the ThinkHazard database, extreme heat and water scarcity are moderate risk factors in Bulgaria, Romania, Croatia, North Macedonia, Serbia, Bosnia

and Herzegovina. They have deep environmental and socio-economic implications, demonstrating the close connection between climate change and human security.

#### INFOBOX 4 | Water Crisis in Pernik, Bulgaria

The city of Pernik was hit by a severe water crisis in 2019 due to exceptionally dry weather, a broken water system and an inadequate response by the authorities. Tens of thousands of people experienced inadequate or no access to water during this water crisis for weeks at a time. The town's inhabitants were forced to restrict their water usage and rely on volunteer and non-profit groups for assistance with basic necessities.

Because of the severe water shortages, a state of emergency was declared in June 2019. The problem with the water supply had an impact on people's health and daily activities, and further caused economic losses to businesses. Since then, the Bulgarian government has invested in rebuilding projects, including the setting up of new water infrastructure. A new water resource management plan that the government has devised also calls for the implementation of new water-saving initiatives and water-saving measures.

The water crisis in Pernik reveals another important corollary that needs consideration. Certain climate-related risks can potentially aggravate emerging or already existing crises of other nature. For instance, if the drought in Pernik had happened just a few months or a year later, in 2020, it would have coincided with the start of the COVID-19 pandemic. With no or very limited access to clean water, all disinfection, sanitation and hygiene protocols to prevent the spread of the virus would have been undermined, thus increasing the risk of uncontrolled community spread or intrahospital outbreaks. In this sense, climate-related hazards can act as risk multipliers in a public health crisis. In a similar manner, military operations can be affected when problems with water supply impede preventive measures and lead to infectious outbreaks in the barracks or within military units stationed in the affected area.

## 2.2 Climate change and human security implications

Human security is an approach to understanding and addressing global challenges, while focusing on the well-being and safety of individuals and communities. It is an inclusive concept, recognizing that the lives of people are interconnected and a wide range of factors contribute to their security, including political, economic, environmental, and social factors.<sup>10</sup>

Climate change can affect military security from a human security perspective, as it has the potential to exacerbate existing social and political tensions. Climate change-induced disasters such as droughts, floods and rising sea levels naturally displace people and disrupt food and water supplies. They could therefore lead to increased competition among affected communities for resources, which in turn may lead to conflicts that require military intervention. Additionally, with the rising temperatures and changing precipitation patterns, certain areas are vulnerable to becoming uninhabitable, which would cause population migration and increase the potential for social unrest. The likelihood of humanitarian crises that require military intervention to protect civilians and stabilise affected areas may also be increased by climate change. The frequency of climate change disasters could lead to an increased need for disaster relief and military resources for

humanitarian aid, which in turn could have a negative impact on the operational capability of the military forces and their involvement in other national security matters.

### 2.2.1 Energy security and supply resilience in SEE

The region of Southeastern Europe is home to some of the most energy intensive economies on the continent. Energy inefficiency also runs deep when it comes to both industrial and household consumption, although significant gains have been achieved in the recent decades.

Burning *coal and fossil fuels* remains the primary source for energy and electricity generation in the region. However, Albania's energy sector, in particular, is dominated by *hydropower*. In fact, the energy mix of most Western Balkan countries is heavily reliant on a combination of backbone coal facilities supplemented by hydropower.<sup>11</sup> Future investments in hydropower facilities in the Western Balkans are considered controversial<sup>12</sup> because of the expected scarcity and volatility of water supply in the coming decades due to climate change as well as the negative effects of hydropower plants and dams on biodiversity and natural habitats.

10 The 66/290/2012 UN General Assembly Resolution, available at <https://www.unocha.org/sites/dms/HSU/Publications%20and%20Products/GA%20Resolutions%20and%20Debate%20Summaries/GA%20Resolutions.pdf> (last accessed 1 December 2022).

11 Sonja Risteska, 'Southeast Europe' (Agora), available at <https://www.agora-energiawende.de/en/global/southeast-europe/> (last accessed 1 December 2022).

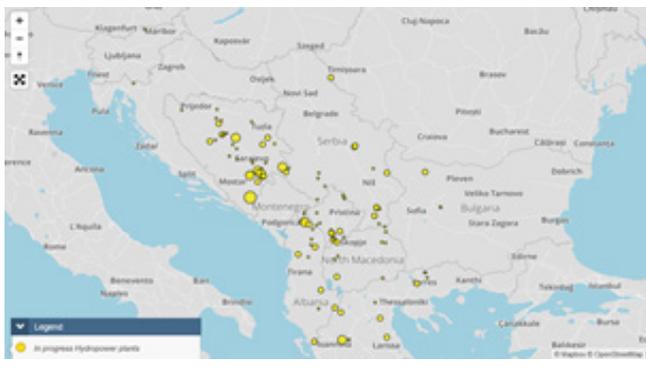
12 Nusrah Hadzic and Denis Tahiri, 'Why Balkan hydroelectricity is controversial' (DW, 14 December 2021), available at <https://www.dw.com/en/the-controversy-around-balka-hydroelectricity/a-59793414> (last accessed 1 December 2022).

## Figure 4 | Mapping Hydropower in Southeastern Europe

### 4.1 | Existing hydropower facilities



### 4.2 | In-progress hydropower projects



Source: RiverWatch, BalkanRivers project

### 4.3 | Planned hydropower projects



Source: RiverWatch, BalkanRivers project

Another challenge that climate change poses for the use of water resources in energy production is the fact that they are needed for the cooling and operation of other facilities such as *nuclear power plants*. Droughts and extreme heats, however, not only reduce the volume of flowing water, but also increase its temperature, jeopardising the normal, safe operation of such facilities. In 2022, for example, these consequences of climate change led to the nuclear power plant in Cernavoda in Romania almost reaching emergency level and being shut down.

## 3. Climate change and security interaction

The interaction between climate change and security is a complex and multifaceted issue that requires a holistic approach to address both the causes and impacts of climate change. The interaction between climate change and security refers to how climate change and climate policy can impact security, and in turn how security can impact climate change.

There is a strong interaction between climate change and national security. Climate change can affect military operations in a number of ways. Natural disasters and extreme weather events could, for example, disrupt military operations and compromise the safety and effectiveness of military personnel. The availability of resources, such as food and water, which can be critical for military operations, could also become vulnerable. Climate change can contribute to migration and displacement that are able to create security challenges for the military forces.

At the same time, military operations can also have an impact on climate change. These impacts result from military (training) activities that are not conducted using green practices. One such non-green practice could be the usage of fossil fuels, which contributes to greenhouse gas emissions and climate change overall.

In 2017, NATO expanded its military presence in Central and Eastern Europe with four multinational battalion-size battlegroups in Estonia, Latvia, Lithuania and Poland, led by the United Kingdom, Canada, Germany and the United States respectively.<sup>13</sup> After Russia's invasion of Ukraine in February 2022, "[a]llies reinforced the existing battlegroups and agreed to establish four more multinational battlegroups in Bulgaria, Hungary, Romania and Slovakia. This has brought the total number of multinational battlegroups to eight, effectively doubled the number of troops on the ground and extended NATO's forward presence along the Alliance's eastern flank – from the Baltic Sea in the north to the Black Sea in the south."<sup>14</sup>

13 Army Recognition, 'NATO multinational battlegroup in Bulgaria reaches full capability' (15 December 2022), available at [https://www.armyrecognition.com/defense\\_news\\_december\\_2022\\_global\\_security\\_army\\_industry/nato\\_multinational\\_battlegroup\\_in\\_bulgaria\\_reaches\\_full\\_capability.html](https://www.armyrecognition.com/defense_news_december_2022_global_security_army_industry/nato_multinational_battlegroup_in_bulgaria_reaches_full_capability.html) (last accessed: 9 January 2023)

14 Ibid.

Figure 5 | NATO's Eastern Flank: Stronger Defense and Deterrence Map (July 2022)



While there is no question that the current geopolitical environment requires an increase in military troop presence, these military movements undoubtedly affect other critical sectors, including energy security. For example, the largest share of electricity generation in Romania is in the area of Dobrogea, at Kogalniceanu, where most of the solar and wind capacities are located, as well as the nuclear power plant. There are also plans to increase the energy production capacity in this area with two additional nuclear units, some onshore wind and solar, and significant capacities of offshore wind. In addition, the Dobrogea region is also home to the main NATO operations in Romania. Given that the grid in the area is already congested, security of supply could be jeopardised if certain additional grid investments are not initiated. Thus, the potential expansion of NATO troops in Romania could lead to further exacerbation of the already existing technical limitations.

Given these concerns about energy supply and resilience in the context of expanding military operations, several potential solutions in different directions can be put forward for discussion. These solutions are presented below.

*Firstly, achieving greater autonomy of own energy sources for national and allied military operations in SEE region in order to avoid further congestion of the local electricity grid.*

There are different ways in which greater autonomy of own energy sources could be achieved, such as developing and utilising renewable energy sources, including solar, wind, and hydroelectric power, that do not require a constant supply of fossil fuels. Batteries, fuel cells and other energy storage technologies could serve as tools for storing energy, generated by renewable sources for later use. Another opportunity is the development and utilisation of portable and mobile power generators that are easily transported to remote locations, as well as the implementation of hybrid systems that combine multiple energy sources to secure increased flexibility and reliability.<sup>16</sup>

An example of the practical application of this solution is the equipment of Greek troops with a photovoltaic power plant from the company Intracom Defense Electronics-IDE, an “autonomous, hybrid power system consisting of six PV panels with a total power of 3 kWp placed in transport boxes and a generator with a power of 20 kW.” The system was specifically designed to “power Greek military units located in places with no access to power grids.”<sup>17</sup> Another example is the equipment of British troops with a compact photovoltaic power plant by Renovagen Roll-Array of the RAPID Roll system, intended to power small military bases.<sup>18</sup>

<sup>15</sup> NATO, Factsheet: NATO's Forward Presence (November 2022), available at [https://www.nato.int/nato\\_static\\_fl2014/assets/pdf/2022/3/pdf/2203-map-det-def-east.pdf](https://www.nato.int/nato_static_fl2014/assets/pdf/2022/3/pdf/2203-map-det-def-east.pdf)

<sup>16</sup> Mariusz Frączek, Krzysztof Górski and Leszek Wolaniuk, 'Possibilities of Powering Military Equipment Based on Renewable Energy Sources' (2022) 12(2) Applied Sciences, available at: <https://www.mdpi.com/2076-3417/12/2/843> (last accessed 3 December 2022).

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

*Secondly, substituting fossil fuel-powered vehicles and military equipment with electric ones, or adopting personal RES-powered solutions to reduce carbon footprint.*

In 2021, the British Army reportedly had been testing an “innovative hybrid technology that could offer multiple technical and operational enhancements to military vehicles whilst reducing reliance on fossil fuel.”<sup>19</sup> US President Joe Biden has also included the introduction of electric military vehicles in his Agenda.<sup>20</sup> In respect of the personal RES-powered solutions, those might include solar-powered backpacks, i.e. portable solar panels carried by soldiers on their backpacks for the purposes of charging personal electronics and communication devices. Another option is the usage of tents with built-in solar panels that generate electricity for lighting and other needs. Additionally, troops could use small, light-weight wind turbines for generating electricity in the field. When possible, troops could utilise biomass fuel sources, such as wood or waste, for generating electricity for military equipment. Other electricity production methods through human power, such as hand-cranked, could be a backup or emergency power source. Microgrids, “a self-sufficient energy system [that combines] one or more kinds of distributed energy (solar panels, wind turbines, combined heat and power, generators) that produce its power”<sup>21</sup> could also serve as an option for powering military equipment and facilities.

*Thirdly, increasing overall energy efficiency of military (training) operations*

The energy efficiency of military (training) operations is “critically important to improving military capabilities, unit autonomy and operational resilience on the battlefield,”<sup>22</sup> and also an important way forward to combating climate change. This energy could be secured in a variety of ways, including through

- investment in energy-efficient equipment, such as LED lighting and energy-efficient appliances;
- utilization of renewable energy sources, such as solar and wind power;
- implementation of an energy management system to help track and reduce energy consumption, while monitoring usage and identifying areas where energy efficiency can be improved;

- establishment of appropriate training activities on energy conservation and efficiency to make sure that the military personnel understand the importance of energy management; utilization of energy-efficient building design and construction methods;
- investment in battery storage technologies to allow military bases to store excess energy generated by renewable sources for later use, which would also increase energy security;

and, as mentioned above,

- utilising energy-efficient transportation methods, such as electric vehicles.<sup>23</sup>

Albeit controversial, another option is the utilisation of advanced small modular reactors (SMRs) with power capacity of up to 300 MW(e) per unit, which forms around one-third of the generating capacity of traditional nuclear power reactors. These are generally perceived as safe, clean, and affordable nuclear power options because, even if the reactor is damaged or destroyed, the environmental impact would potentially be significantly smaller than the devastation from a classic nuclear power plant. A classic nuclear power plant could cause significant damage to not only the surrounding area and the lives of its inhabitants. The release of radioactive materials also contaminates air, water, and soil, making it unsafe for people and wildlife. There are a variety of long-term health effects of radiation, including cancer, birth defects, and other illnesses. A recent example of potential nuclear disaster is the Zaporizhzhia station, a large nuclear power plant located in Ukraine. The concerns around Zaporizhzhia station were that its explosion would have equaled „six Chernobyls,” as stated by the Ukrainian President Volodymyr Zelensky.<sup>24</sup> Zaporizhzhia station is the largest power station in Europe as well as one of the largest in the world. It is also a key electricity source for the Ukrainian community, thus playing an important role in the country’s energy security.

However, many nuclear scientists criticise the usage of nuclear micro reactors, arguing that there could be potential contamination if the reactor or its fuel is damaged by an attack, stolen or experiences a catastrophic failure.<sup>25</sup> Further, there is a number of practical and regulatory challenges, as well as SMRs drawbacks, such as the high initial costs, their more limited energy production capacity and questioned ability to meet the energy needs of large populations, plus the safety concerns caused by less operating experience with SMRs

19 ARMY Be the Best, ‘Army hybrid vehicles power forward’, (21 July 2021), available at: <https://www.army.mod.uk/news-and-events/news/2021/07/army-hybrid-vehicles-power-forward/> (last accessed 4 December 2022).

20 Military.com, ‘Electric Military Vehicles Are Part of Biden Climate Agenda, Pentagon Says’, (9 November 2021), available at: <https://www.military.com/daily-news/2021/11/09/electric-military-vehicles-are-part-of-biden-climate-agenda-pentagon-says.html> (last accessed 4 December 2022).

21 Microgrid Knowledge, ‘What is a microgrid?’, (28 March 2020), available at: <https://www.microgridknowledge.com/about-microgrids/article/11429017/what-is-a-microgrid> (last accessed 4 December 2022).

22 European Defence Matters, ‘SUSTAINING EUROPE’S ARMED FORCES’, available at <https://eda.europa.eu/webzine/issue11/in-the-field/sustaining-europe-s-armed-forces> (last accessed 4 December 2022).

23 Ibid.

24 CBS News, ‘What’s at stake with Ukraine’s Zaporizhzhia nuclear power plant, and how does it compare to Chernobyl?’, (14 September 2022), available at: <https://www.cbsnews.com/news/ukraine-zaporizhzhia-nuclear-power-plant-risks-chernobyl-comparison/> (last accessed 7 December 2022).

25 Todd South, ‘Pentagon to build nuclear microreactors to power far-flung bases’, (Military Times, 15 April 2022), available at: <https://www.militarytimes.com/news/your-military/2022/04/15/pentagon-to-build-nuclear-microreactor-to-power-far-flung-bases/> (last accessed 7 December 2022).

than with traditional reactors.<sup>26</sup> There could also be a proliferation risk because countries with illicit nuclear ambitions could be attracted by the small size of SMRs.<sup>27</sup>

### 3.1 “Securitization” of the Climate Change Response

From the *global discourse* perspective, there is a growing recognition that climate change and defence are interconnected, and addressing the security implications of climate change will require the engagement and cooperation of the defence sector as well as other sectors of society. Governments, international organizations and civil society groups increasingly recognise the important role of the defence sector in addressing the climate change-induced threats to global security. The defence sector is seen as an “actor”, able to provide the necessary support towards the efforts to adapt to the impacts of climate change. The defence sector is able to provide assistance to affected and vulnerable communities, help build resilience to the impacts of extreme weather events and other climate-related hazards, and support the development of efficient early warning systems and emergency response plans.

*The EU and NATO* have both recognized that climate change is a significant security threat and have included it in their respective agendas, being committed to achieving net zero emissions by 2050 and reducing military-related emissions.

In the EU, climate change is considered a threat multiplier that can exacerbate existing conflicts and contribute to new ones. The EU has therefore included climate change in its security strategy and has taken a number of steps to address it. For example, the European Defence Fund<sup>28</sup> and the Coordinated Annual Review on Defence (CARD) both include initiatives to counter climate change.<sup>29</sup> The EU has undertaken or is planning to undertake a variety of activities, such as the investment in environmentally sustainable dual-use transport infrastructure projects, facilitating military mobility. Sustainable mobility forms part also of the NATO agenda.

NATO has also recognized the potential security implications of climate change, and has included it in its policy documents and strategies.<sup>30</sup> NATO has emphasized the importance of addressing the issue through both military and non-military means, and has supported the integration of climate-related

considerations into its planning and operations.<sup>31</sup> In addition, NATO has supported the development of resilience and adaptation measures to help mitigate the impacts of climate change on its member states.<sup>32</sup>

Both the EU and NATO aspire to work on the adaptation to and mitigation of the negative impacts of climate change, while fostering climate resilience. To this end, the EU has adopted a Climate Adaptation Strategy.<sup>33</sup> Following its 2050 climate-neutrality goal, the EU plans to increase the energy efficiency and reduce environmental footprint of the security and defence sector and engagements within the Common Security and Defence Policy (CSDP) through the utilisation of green technology and sustainable digitalisation within the aforementioned. The EU is focusing its efforts on ensuring the integration of climate security concerns in a range of areas. Thus, the EU and NATO share common values and should reinforce the reconciliation and unification of their climate change efforts.

At the same time, playing catch-up when it comes to building defence capacity and achieving technological modernization of the military have been the two primary objectives of the countries of the *SEE region*, while climate-related issues have so far taken the backseat. That is why governments in the SEE countries need to shift their attention to finding a healthy balance between strengthening their military capacity in the face of the changing geopolitical and security reality in the region and adopting appropriate decarbonisation approaches. At the same time, the political leadership of SEE countries should try to reach a higher degree of regional partnership and cooperation, especially in the field of climate issues in the security domain.

#### 3.1.1 Humanitarian Assistance and Disaster Response

National forces, including military and paramilitary organizations, can play an important role in assisting civilian responders during disasters and other emergencies. National forces are often well equipped to search for and rescue people who are trapped or injured during a disaster. They often have sophisticated communication systems that can be used to help coordinate response efforts. They can assist with logistics and transportation. National forces can also help in providing training and planning for disaster response to both civilian and military personnel.

26 Lukas Trakimavičius, Nuclear: Does the West’s military need Small Modular Reactors?, (Energy Post, 7 December 2020), available at: <https://energypost.eu/nuclear-does-the-west-s-military-need-small-modular-reactors/> (last accessed 8 December 2022).

27 Thomas E. Shea, ‘PROLIFERATION ASPECTS OF SMRS’, Department of Safeguards, IAEA, available at [https://inis.iaea.org/collection/NCLCollectionStore/\\_Public/32/027/32027339.pdf](https://inis.iaea.org/collection/NCLCollectionStore/_Public/32/027/32027339.pdf) (last accessed 7 December 2022).

28 The European Commission, ‘The European Defence Fund’ (2021), available at [https://defence-industry-space.ec.europa.eu/eu-defence-industry/european-defence-fund-edf\\_en](https://defence-industry-space.ec.europa.eu/eu-defence-industry/european-defence-fund-edf_en) (last accessed 20 January 2020)

29 European Defence Agency, ‘Coordinated Annual Review on Defence’ (2022), available at [https://eda.europa.eu/what-we-do/EU-defence-initiatives/coordinated-annual-review-on-defence-\(card\)](https://eda.europa.eu/what-we-do/EU-defence-initiatives/coordinated-annual-review-on-defence-(card)) (last accessed 20 January 2023).

30 NATO, Climate Change and Security Impact Assessment, (2022) available at [https://www.nato.int/nato\\_static\\_fl2014/assets/pdf/2022/6/pdf/280622-climate-impact-assessment.pdf](https://www.nato.int/nato_static_fl2014/assets/pdf/2022/6/pdf/280622-climate-impact-assessment.pdf) (last accessed 15 January 2023).

31 NATO 2021 Climate Change and Security Action Plan, available at [https://www.nato.int/cps/en/natohq/official\\_texts\\_185174.htm](https://www.nato.int/cps/en/natohq/official_texts_185174.htm) (last accessed 10 January 2023).

32 NATO 2022 Resilience Symposium Report, available at [https://www.act.nato.int/application/files/8816/6621/3657/20221018\\_resilience\\_symposium\\_report.pdf](https://www.act.nato.int/application/files/8816/6621/3657/20221018_resilience_symposium_report.pdf) (last accessed 10 January 2023).

33 Climate ADAPT, EU Adaptation Strategy’ (2021) available at [https://climate-adapt.eea.europa.eu/en/eu-adaptation-policy/strategy/index\\_html#:~:text=The%20Strategy%20aims%20to%20build,to%20strengthen%20climate%20resilience%20globally](https://climate-adapt.eea.europa.eu/en/eu-adaptation-policy/strategy/index_html#:~:text=The%20Strategy%20aims%20to%20build,to%20strengthen%20climate%20resilience%20globally) (last accessed 20 January 2023)

National and EU/NATO forces are expected to play a greater role in supporting civilian responders. **NATO's allied forces in particular could play an important role in promoting**

**regional SEE-level cooperation on disaster response by building capacity through joint exercises, encouraging interoperability and region-wide early warning systems.**

### INFOBOX 5 | NATO disaster response exercises in the Western Balkans

Between October 8 to 11, 2018, Serbia hosted a NATO emergency exercise in Mladenovac for the purposes of improving interoperability in international disaster response operations. Over 1000 people from 30 nations took part. The exercise *“provided an opportunity to practice international cooperation and strengthen the ability of teams from different nations to work effectively together across a wide range of relief operations.”*<sup>34</sup>

*“North Macedonia 2021”* is another recent example of NATO's continued efforts in this domain. It took place between September, 20 and 23, 2021 around the cities of Ohrid and Struga, involving 27 Allies and partners as well as 16 regional and international organisations who simulated rescue missions during high-intensity natural disasters.<sup>35</sup> *“The exercise aimed to improve national and collective preparedness, interoperability and resilience in disaster emergency situations. It also provided the opportunity to test the use of NATO's Next-Generation Incident Command System (NICS), a web-based collaborative platform that facilitates real-time coordination of disaster responses, among nations from the Western Balkans region.”*<sup>36</sup>

**Another aspect is the shared use of limited disaster response technical capacity amongst SEE countries.** For example, the firefighters' division of **Romania** is considered one of the best prepared units in Europe for wildfire crises, frequently assisting in such emergency activities in Greece and other southern European areas.<sup>37</sup> However, the increasing frequency and larger scale of wildfires in SEE might result in such national forces being increasingly engaged at home to a point where assisting neighbouring countries becomes impossible due to limited human and technical resources.

**As a positive sign for strategic planning and anticipatory policy-making, the SEE countries have started to explicitly regulate the contribution of their national forces to disaster response in national strategic documents.** For example, the 2022 Integrated Country Strategy of **Albania** outlines the goal that *“Albania becomes a more capable NATO ally and advances security and stability domestically and regionally.”* To this end, Albania commits to *“support efforts to increase the capacity of the Albanian military and national security services, including readiness for domestic contingencies.”* Further, the 2020 Defense Strategy of the Republic of **North Macedonia** recognizes that one of the defence objectives is *“dealing efficiently with natural disasters, man-made catastrophes, epidemics and climate changes,”* through supporting the *“civilian institutions by providing prevention capacities and a tailored*

*national response to emergency and crisis situations.”*<sup>39</sup> The 2021 National Security Strategy of **Serbia** likewise recognises the impact of climate change and outlines the *“monitoring, assessment and taking measures for mitigation of climate change effects”* as a *“primary importance.”*<sup>40</sup> The document describes natural disasters and climate change as threats to the security of the country, taking into account the main climate-related risks and vulnerabilities for Serbia, including *“extreme meteorological conditions, erosion, soil drainage and fire, due to high temperatures.”*<sup>41</sup> Recognising the specific vulnerabilities of the country helps ensure that military and paramilitary forces are well trained and equipped to address the most frequent or severe cases of extreme weather events.

Moreover, the Law of **Bosnia and Herzegovina** on the Protection and Rescue of People and Property in the Event of Natural or Other Disasters explicitly states in Article 3(4) that *“[t]he Armed Forces of Bosnia and Herzegovina shall provide assistance to civil bodies in natural and other disaster response activities in line with the Law on Defence of Bosnia and Herzegovina.”*<sup>42</sup> **Bulgaria** has even established ‘The Programme for the Development of the Defence Capabilities of the Bulgarian Armed Forces 2032’ (Programme 2032) in light of various trends, among which *“the growing occurrence of devastating natural disasters due to climate change.”*<sup>43</sup> The programme provides that the land forces will introduce capabilities to

34 NATO, EADRCC consequence management field exercise “SRBIJA 2018”, (5 February 2019), available at [https://www.nato.int/cps/en/natohq/news\\_152120.htm](https://www.nato.int/cps/en/natohq/news_152120.htm)

35 NATO, “NATO, Allies and partners train to save lives during natural disasters”, (27 September 2021), available at [https://www.nato.int/cps/en/natohq/news\\_186805.htm](https://www.nato.int/cps/en/natohq/news_186805.htm) (last accessed 10 December 2022).

36 Ibid.

37 Stella Mazonakis, Romanian firefighters arrive in Greece ahead of fire season, Greek City News (4 July 2022), available at <https://greekcitytimes.com/2022/07/04/romanian-firefighters-arrive-in-greece-ahead-of-fire-season/> (last accessed 10 December 2022).

38 Integrated Country Strategy of Albania 2022, available at [https://www.state.gov/wp-content/uploads/2022/06/ICS\\_EUR\\_Albania\\_Public.pdf](https://www.state.gov/wp-content/uploads/2022/06/ICS_EUR_Albania_Public.pdf) (last accessed 12 December 2022).

39 Ministry of Defence, Defence Strategy of the Republic of North Macedonia 2020, available at <https://mod.gov.mk/storage/2021/06/Defence-Strategy-of-the-Republic-of-North-Macedonia.pdf> (last accessed 14 December 2022).

40 Ministry of Defence, NATIONAL SECURITY STRATEGY OF THE REPUBLIC OF SERBIA 2021, available at [https://www.mod.gov.rs/multimedia/file/staticki\\_sadrzaj/dokumenta/strategije/2021/Prilog2-StrategijaNacionalneBezbednostiRS-ENG.pdf](https://www.mod.gov.rs/multimedia/file/staticki_sadrzaj/dokumenta/strategije/2021/Prilog2-StrategijaNacionalneBezbednostiRS-ENG.pdf) (last accessed 14 December 2022).

41 Ibid.

42 IFRC, Framework Law on the Protection and Rescue of People and Property in the Event of Natural or Other Disasters in Bosnia and Herzegovina, 2008, available at [https://disasterlaw.ifrc.org/media/3432?language\\_content\\_entity=en](https://disasterlaw.ifrc.org/media/3432?language_content_entity=en) (last accessed 14 December 2022).

43 Ministry of Defence, PROGRAMME FOR THE DEVELOPMENT OF THE DEFENCE CAPABILITIES OF THE BULGARIAN ARMED FORCES 2032, available at [https://www.mod.bg/en/doc/cooperation/20210427\\_Program\\_2032.pdf](https://www.mod.bg/en/doc/cooperation/20210427_Program_2032.pdf) (last accessed 14 December 2022).

“provide assistance in the event of natural disasters and crises of a non-military nature.” In the case of **Romania**, the 2021 Military Strategy outlines that one of the Romanian Armed Forces’ mission is to “intervene in support of the civil authorities to eliminate the consequences of natural disasters and technological accidents,”<sup>44</sup> i.e. adaptation measures. Likewise, one of the essential elements of the **Croatian Armed Forces’** mission is “to assist the local communities and the civilian institutions of the Republic of Croatia in the event of natural and man-made disasters.”<sup>45</sup> (emphasis added)

Against this backdrop, the need to establish an appropriate balance of the regulation or implementation of climate change adaptation policies by the national military forces is important.

### 3.1.2 Adaptation of military operations to new climate-induced risks and vulnerabilities

*There is a need to adapt military operations to changes in terrain, extreme weather events and supply chain disruptions.*

Ways in which military operations can adapt to climate change include:

- Incorporating climate change into military planning and training, such as training for extreme weather conditions like heat waves, flooding and desertification;
- building climate resilience into military infrastructure, including military bases, airports and other facilities, by building dams and flood protection, elevating buildings and other infrastructure, and designing for greater energy efficiency;
- developing new technologies and equipment, operational in extreme weather conditions and changing environments.

The latter can include the utilisation of more fuel-efficient vehicles, developing drought-resistant crops for field rations, and designing aircrafts and ships that can operate in higher temperatures and more intense storms. Investments in the enhancement of intelligence, surveillance and reconnaissance capabilities could also benefit the adaptation process.<sup>46</sup>

The aforementioned adaptation activities would require significant investments and cooperation among different departments and military branches. In the context of the SEE region, this could pose a particularly sensitive challenge for at least three reasons. First, most countries in the region are already struggling to modernise their armies by upgrading military equipment and improving military personnel’s operational capacity through training. Further stretching existing national

budgets to incorporate infrastructure investments may not be feasible. Second, increasing military spending requires a broader political and public consensus. Thus, infrastructure and other investments in climate-change adaptation of military operations should be examined in the broader scope of interaction between national security and development. Raising awareness of decision-makers about the role of climate change in an evolving security environment is a prerequisite to a meaningful discourse and targeted policy action. Third, SEE-wide corruption concerns and governance deficiencies could hamper the timely and cost-efficient implementation of large-scale public infrastructure projects. The issue could be particularly hard to tackle with regard to facilities for military use where public oversight may be limited due to the national security label attached to them. In light of these considerations, in-depth analysis of critical vulnerabilities with regard to current operational capacities is essential when prioritising budget allocations. Here, the EU and NATO could play an important role by providing economies-of-scale opportunities for member states and allies, as well as candidate/partner countries from the SEE region.

### 3.1.3 Defence and security sector’s contribution to climate change mitigation

*There is a need for the defence and security sector’s operations to be adapted and restructured in order to contribute to climate change mitigation.* Military operations should consider the environmental impact of their activities and implement sustainable practices, including energy efficiency, waste management, as well as conservation of natural resources. Defence facilities, including military bases, can reduce their greenhouse gas emissions by resorting to energy-efficient technologies, and transitioning to utilisation of renewable energy sources like solar, wind, and geothermal. Further actions could be the procurement of goods and services that have a lower environmental footprint; the usage of more fuel-efficient vehicles, reduction of the use of heavy equipment, and re-evaluation of the supply chain of materials to be used in operational efforts. Certain EU member states have already initiated carbon-neutrality activities and green initiatives in respect of their defence sector. According to the Climate Change and the Defence Security Report of the European Organisation of Military Associations and Trade Unions, the Armed Forces of Germany “have continuously reduced their greenhouse gas emissions over the past 30 years.” Furthermore, “in the period 2005-2019, annual CO<sub>2</sub> emissions in military mobility fell from 1.18 million tonnes to 0.63 million tonnes, a decrease to 46.6 per cent. By the end of 2019, the Bundeswehr was able to install 162 electric charging stations in its properties.” Germany has additionally introduced free rail travel for its soldiers.

44 Ministry of National Defence, MILITARY STRATEGY OF ROMANIA 2021, available at <https://www.mapn.ro/legislatie/documente/STRATEGIA-MILITARA-A-ROMANIEI-ENG.pdf> (last accessed 14 December 2022).

45 CROMIL, ‘25 YEARS OF THE CROATIAN ARMED FORCES’, (2016), available at [https://www.morh.hr/wp-content/uploads/2017/10/cromil\\_16.pdf](https://www.morh.hr/wp-content/uploads/2017/10/cromil_16.pdf) (last accessed 16 December 2022).

46 CMDR COE Proceedings 2020, NATO Crisis Management and Disaster Response Centre of Excellence (6 November 2020), available at [https://cmdrcoe.org/files/pubs/2020\\_Proceedings.pdf](https://cmdrcoe.org/files/pubs/2020_Proceedings.pdf) (last accessed 16 December 2022).

47 EUROMIL, 2022 CLIMATE CHANGE AND THE DEFENCE SECTOR SURVEY REPORT, available at [https://euromil.org/wp-content/uploads/2022/01/2201\\_Climate\\_Survey\\_Report.pdf](https://euromil.org/wp-content/uploads/2022/01/2201_Climate_Survey_Report.pdf) (last accessed 17 December 2022).

### 3.2 Pros and Cons of the Climate Security Approach

*The militarisation of the climate crisis response could attract criticism if it is not implemented in the appropriate way.*<sup>48</sup>

As illustrated above, the military could play a significant role both in the climate change adaptation and mitigation efforts. In the adaptation context, the involvement of the national armed forces is expected to increase in scale and frequency, particularly when it comes to disaster response capacity and civil protection. To this end, the appropriate co-ordination between civil forces and the military is also an important subject to consider. However, it is vital that the necessary balance is established in the involvement of the armed forces in regulation or implementation of climate change adaptation policies as militarization of the approach harbours the risk of top down response paradigms. Besides, the SEE region is still in the process of establishing stable good governance practices, entrenching transparency, accountability and multifaceted stakeholder inclusivity in decision-making. For example, corruption in Bulgaria is still a significant issue, while the Transparency International's Corruption Perception Index consistently ranks the country as one of the worst performers in the European Union (see Table 1 for SEE countries' ranking). This is why it is extremely important that public-private partnerships and private sector's involvement in particular are heavily stimulated so that the latter plays a corrective role in the behaviour of public institutions. The private funding could be of particular help in the implementation of mitigation policies, as otherwise there is a risk that public investment is not used for its intended purposes.

*It is imperative to balance the long-term strategic security vision of the defence sector with just transition and communities-first approach.* That balance could be achieved through a variety of activities, including engagement with impacted and vulnerable communities and ensuring their involvement in the decision-making processes. Further, it is important to ensure effective social and economic impact assessments of the different policies. These assessments could utilise a diverse set of objects as their indicators, including employment, housing, and the environment of vulnerable areas. Further, the long-term strategic security vision should be a flexible and adaptive framework that is not implemented at the expense of community well-being. The collaboration between different sectors and stakeholders, including the government, military and civil protection forces, private sector, community groups and academics could play a positive role in ensuring that a just transition and a communities-first approach are integrated into defence and security policies and operations.

**Table 1 | SEE countries' performance in the 2021 Corruption Perceptions Index**

COUNTRY	RANK	SCORE	TREND
Croatia	63	47	⊖
Montenegro	64	46	⬆️
Romania	66	45	⬆️
Bulgaria	78	42	⬇️
Kosovo	87	39	⬆️
North Macedonia	87	39	⬆️
Serbia	96	38	⊖
Albania	110	35	⬇️
Bosnia and Herzegovina	110	35	⊖

Source: Visualisation by EPI based on Transparency International's data

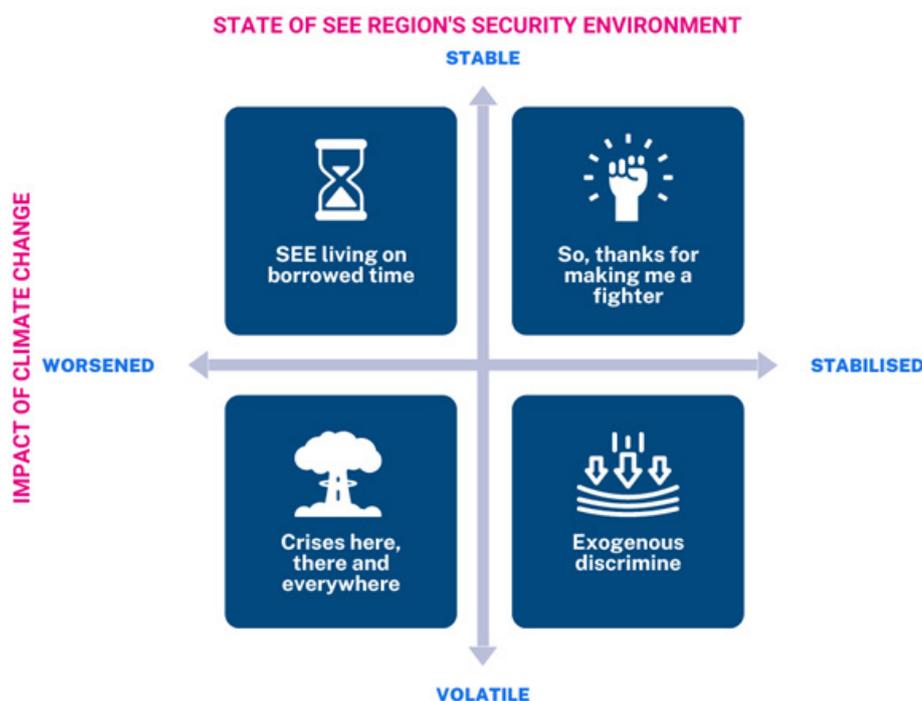
<sup>48</sup> Nick Buxton, 'A primer on climate security: The dangers of militarising the climate crisis' (2021) Transnational Institute, Amsterdam, (last accessed 18 December 2022).

## 4. Scenarios for the future: climate-related security dynamics in SEE

The development of scenario simulations for strategic planning is not new territory for security and defence practitioners. However, the current strategic foresight exercise differs in its objective and implementation as it focuses primarily on instigating an inclusive multi-stakeholder debate on the specific interaction between climate and security in the SEE region, mostly through the prism of human security. For this reason, the approach adopted<sup>49</sup> in this paper favours creative scenario co-creation for the benefit of building agile and resilient policy mechanisms instead of targeting an accurate and exhaustive forecasting of future trends. As a result, the foresight output of the exercise is directed primarily towards non-military public stakeholders and policy-makers who need to comprehend the complex and overarching implications that climate change has on national security and regional stability. Political leaders and civil policy experts need to be aware not only of the risks climate change poses to national development agendas but also to security dynamics and defence capabilities. At the same time, military practitioners are encouraged to view this as an opportunity to shift their perspective with regard to climate change. Instead of viewing it as an “operational hurdle”, defence and security experts could benefit from seeing it as an “opportunity to improve mission effectiveness”.<sup>50</sup>

Presented below are brief narrative overviews and policy implications of four distinct scenarios framed by a 2x2 matrix. The vertical axis represents the state of the regional security environment in Southeastern Europe, while the horizontal axis depicts the progression of climate change and its impact on countries, economies and communities in the SEE region. All four scenarios incorporate mid-term (by 2030) and long-term (by 2050) operationalization of these two drivers and their specific manifestations. The mid-term security dimension is dominated by the region’s direct proximity to the war in Ukraine and the growing concerns for spill over of conflict and instability. In the 2050 horizon, regional security is examined through the lens of global geopolitical confrontation between the United States and China, or more broadly between liberal democracies and illiberal regimes. As Southeastern Europe has historically been a gateway and a bridge between the “East” and the “West”, it is important to reflect on it as a potential contact point for confrontation. When discussing the impact of climate change, the mid-term perspective tackles supply chain resilience with an emphasis on energy security. The longer timeframe of 2050 though embodies the notions of climate change adaptation and mitigation.

**Figure 6 | Scenario Matrix for the SEE region: climate change & security**



Source: EPI

<sup>49</sup> Horizon scanning and megatrends identification was conducted in the period July-September 2022 by EPI. External contributors prepared country-specific or thematic briefs to serve as food for thought for the regional panel at an online workshop carried out on 18 October 2022. Main ideas were further developed by EPI into scenarios and policy recommendations.

<sup>50</sup> Beth McGrath, DELOITTE, Climate Change And The Military: Operational Hurdle Or Opportunity To Improve Mission Effectiveness, Forbes (12 July 2022), available at <https://www.forbes.com/sites/deloitte/2022/07/12/climate-change-and-the-military-operational-hurdle-or-opportunity-to-improve-mission-effectiveness/?sh=7b8300686ce2> (last accessed 16 December 2022)

## 4.1 First scenario: SEE living on borrowed time

### *Stable security environment and deterioration of climate conditions*

By 2030, the war in Ukraine has ended and the country is well on its way to recovery and reconstruction after the devastating impact of military activity and Russian attacks on physical and energy infrastructure. In the months and years prior to the resolution of the conflict and immediately after it, all efforts of key global and regional actors, including the EU and NATO, are focused on supporting Ukraine on its path to becoming a member state of both organisations. EU candidate and potential candidate states in the Western Balkans strengthen their advocacy in order to prevent the normalisation of 'dual standards' and 'speed tracking' of selected countries (Ukraine and potentially Moldova). They insist on equal treatment and exhilarated accession process for all candidates, arguing that European and regional security could only be guaranteed long-term by EU enlargement to the Western Balkans. However, such calls are not met with much enthusiasm from older member states, which leads to disillusionment and discontent in westernmost parts of the Balkan Peninsula.

Against this backdrop, SEE governments (except for Serbia) begrudgingly pledge their solidarity and assistance to Ukraine. However, most of these commitments are of opportunistic nature. SEE countries prioritise their economic development by trying to provide their construction and logistics companies with opportunities to participate in the large-scale post-war reconstruction efforts, generously funded by the United States and the European Union. The economies in the region, who benefitted short-term from the supply chain disruptions during the war due to the commodity-rich nature of their exports, remain determined to preserve their profit-making internationalisation activities. However, at the peak of the supply crises, all their efforts were focused on rapidly expanding production and export capacities instead of addressing the urgency of climate change adaptation. Their energy intensive goods with large carbon footprint encounter the regulatory constraints of EU's decarbonisation policy.

In other words, the public and private sector in these SEE countries miss the mark when it comes to future-proofing the economy. This creates climate change-induced vulnerabilities in all sectors as policy response and business strategy have not been prepared accordingly for the demands of climate adaptation. In the national security domain, the complicated security environment during the war has given the military a window of opportunity to make their demands and be heard by politicians and the public at large. Finally, in all EU and NATO members from the region political consensus swings towards increasing defence spending up to at least 2% of GDP, a commitment long overdue. The modernisation of national armed forces, however, is focused primarily on in-

creasing defence capabilities with only nominal concern for its impact on the environment. Even that minimal climate mitigation effort is just an afterthought in national strategic documents, placed there to appease EU partners and NATO allies.

By 2050, the illusionary stability of the end of the war and the period of economic development starts to crumble. It becomes clear that this trajectory is not sustainable long-term as frequent and severe weather events wreak havoc on civil and defence infrastructure. The expanded NATO operations in Kogalniceanu (Romania) and Novo selo (Bulgaria) experience energy supply disruptions as local electricity grids cannot meet the combined demand from the military facilities and the civilian settlements in the area. Locals start to protest against the stationing of the troops in their respective regions. Sporadic clashes with security forces spur additional public outrage and mistrust towards the national armed forces and Allied troops.

## 4.2 Second scenario: "So, thanks for making me a fighter"<sup>51</sup>

### *Stable security environment and managed, predictable climate change implications*

At the peak of the multiple and multifaceted crunches befalling the countries in the SEE region in the post-pandemic and Ukraine crisis period, political elites in these countries form broad coalitions of national unity in order to overcome the challenges. Both regional actors and important external players such as the EU and NATO realise the historic chance to use the complexity of the situation for a shift in mentality and governance approach.

In the mid-term scenario, the aftermath of the war in Ukraine finds leadership in the SEE countries as well as EU and NATO ready to incorporate climate-related risks not only into long-term strategic thinking on national security and defence but also into day-to-day operations. The scare of soaring energy and food prices during the war triggered a comprehensive policy response aimed at building agile and resilient civil and military systems. In the defence sector, climate change awareness has opened up new opportunities for increasing operational efficiency through energy-saving solutions, investments in green energy-powered vehicles and military equipment. Although the countries in Southeastern Europe have limited capacity for home-grown technological innovation for military purposes, they benefit from exposure to the latest EU and NATO achievements in the field by virtue of external support for their modernisation and interoperability.

The demonstrated preparedness and resilience to climate change-induced risks on national, regional and global level reaps long-term benefits by 2050. Although the damage to the Planet is irreversible, the speed and scale of global warming has been tamed. Despite Southeastern Europe's

<sup>51</sup> A quote from the song "Fighter" (2002) by Christina Aguilera. It emphasizes the successful transformation of an individual who has faced the adversary and external challenge only to come out stronger and more resilient.

inherently vast exposure to such vulnerabilities, national and regional institutions have put in place comprehensive early warning systems and disaster response protocols, perfected through enhanced regional cooperation and joint exercises. In the summer of 2028, an international cohort of firefighters from the region congratulated themselves on successfully containing dozens of wildfires in Greece, thus significantly reducing the damages to tourism and agriculture. By 2035, Albania and Montenegro have successfully diversified their energy mix, so that severe droughts could not disrupt the electricity supply. While some hydropower facilities are still operational, investments have shifted almost entirely to renewables, storage batteries and smart grid infrastructure. Coastal regions in Bosnia and Herzegovina, Albania, Croatia and Montenegro have been reinforced to prevent floods and landslides. This also benefits the naval forces who previously struggled with navigation and accessibility.

### 4.3 Third scenario: Crises here, there and everywhere

#### *Volatile security dynamics and aggravated climate crisis*

In the post-COVID period, compensatory consumption triggers inflation and poses a challenge to still developing supply chain resilience, as relocation of production capacities is not complete yet. The war in Ukraine has further aggravated the situation by disrupting food supply but Southeastern Europe is not heavily affected by the dwindling exports from war-ridden Ukraine to the rest of Europe and the world. In fact, SEE countries benefit from the increased demand for alternative suppliers of agricultural goods. Bulgaria and Romania, in particular, get a boost to their wheat exports. The region, however, is less resilient when it comes to facing the challenge of energy security. Soaring electricity prices due to the imposed sanctions on the import of Russian gas and oil<sup>52</sup> coupled with Brussels-enforced commitments to an ambitious decarbonisation agenda trigger downward spiral of stagflation. By 2030, energy-intensive industrial production in the region is also losing competitiveness due to the introduction of EU's Carbon Border Adjustment Mechanism and sophistication of the European Emissions Trading System.

Conventional economic policy fails to alleviate the crisis as all reconstruction efforts are undone by more frequent, large-scale and unpredictable natural disasters. Civil protection and national armed forces lack operational capacity to respond adequately to the climate-induced vulnerabilities. By 2038, all regional cooperation formats have failed or entered obscurity; numerous joint cross-border connectivity projects have either been frozen or experienced significant delays due to institutional mismanagement and corruption. Some countries in the region become increasingly weary of their neighbours with alternative foreign policy orientation as all SEE states are forced to (re)align themselves according to

the new geopolitical lines of division. Serbia's dealings with China and Russia have left her quite isolated in the region but its nominal adherence to an EU accession agenda and its remaining clout in several ex-Yugoslavia countries in the Western Balkans allows it to exercise its muscle and put a stop to important region-wide cooperation initiatives backed by NATO. Eventually, in 2049 yet another chaotic response to a preventable climate-induced region-wide emergency destroys all pretences of good neighbouring relations. SEE states enter a period of extremely volatile security dynamics over use and management of shared resources such as rivers and water basins crossing the territories of several countries in the region. Water supply from Ohrid and Prespa lakes becomes a point of contention between Skopje and Tirana, further aggravating the already strained relations due to the existing internal tensions in North Macedonia between ethnic and religious groups with polarised socio-economic standing and climate adaptation capacity. Increased migration pressure from North Africa and the Middle East due to water and food scarcity completes the crisis picture: Local communities who have not received adequate government support after natural disasters and who are left home- or jobless become violent towards these climate refugees. All in all, crises here, crises there, crises everywhere.

### 4.4 Fourth scenario: Exogenous discriminate<sup>53</sup>

#### *Volatile security dynamics and managed, predictable climate change implications*

In 2030, the war in Ukraine has turned into a protracted conflict with parts of Ukrainian sovereign territory still under Russian control. In order to avoid World War III, Western powers have chosen to show temporary tolerance towards the Russian occupation of these regions but NATO has further reinforced its Eastern flank. All members in Southeastern Europe have been supported in their efforts to modernise their military by adopting carbon-neutral and energy-efficient technologies. By 2050, they are expected to fully complete the transformation of their military forces thanks to the rapidly increasing military spending that reached on average 7% of GDP by 2045.

The need to show a unified front in the face of a continuous security threat has empowered SEE countries to explore new avenues of regional cooperation. The spillover of military technology into the civilian private sector has allowed for cutting-edge industrial innovations and has supported economic development. However, the unresolved conflict in the region's vicinity keeps foreign investors weary and does not allow for the region's full integration into the newly regionalized world economy. Forces of deglobalisation demand that countries in the region abandon any notion of strategic ambiguity and clearly state their geopolitical allegiance.

<sup>52</sup> Bulgaria is allowed to continue importing Russian oil by sea until the end of 2024.

<sup>53</sup> Latin for 'exogenous crises'

Despite the exogenous factors contributing to the volatile security environment in the region, the technological race between the United States and the West on the one hand, and China and several illiberal regimes on the other, has led to rapid advancement in critical areas such as energy production and energy efficiency by the end of the mid-term horizon of 2030. Although much more divided, the world has finally learned to reuse, reduce and recycle, so all natural

resources are treated and utilised in a much more sustainable manner. In this peculiar way, global geopolitical confrontation has promoted not only climate adaptation but also climate mitigation. Coupled with enhanced technological and operational capacities, this means that Southeastern Europe is able to adequately prepare for and respond to any extreme weather events that are not as severe or frequent as in scenarios 1 and 3.

## 5. Main takeaways for policy-making: three levels of analysis

The exercise in strategic foresight and scenario-formulation illustrated above, together with a targeted analysis of climate-related vulnerabilities and security challenges in Southeastern Europe, allow for several observations conducive to anticipatory policy-making, resilience building and response agility. They should serve as vehicles for an engaging and inclusive public discourse and future-proof strategy evaluation on behalf of governments in the SEE region or key external actors such as the EU institutions or NATO command.

### 5.1 National level: observations and recommendations

By highlighting the interconnectedness of climate change and the security sector, this publication opens up opportunities for broader inter-agency cooperation where the defence sector utilises its long-term strategic planning capacity to serve civilian policy-makers, while political elites and other domestic stakeholders better understand the importance of building robust defence capabilities. This is very important against the backdrop of **expectations for more frequent and devastating extreme weather events across the SEE region, which would challenge all public systems tasked with disaster response and civil protection. As the military is called upon to help in such situations, their expanded role in rescue missions and damage limitation efforts should be widely recognised and analysed more in-depth.**

However, the benefits of “militarising” the climate security discourse can only be fully realised if they are balanced by multi-stakeholder engagement and a communities-first approach. This is particularly relevant in the context of existing and well-studied governance deficiencies in the countries of Southeastern Europe, where an additional challenge emerges from the need to preserve transparency and accountability in all climate adaptation and mitigation efforts. For this reason, **the long-term strategic outlook of the defence and security sector, which often has a top down hierarchical logic, needs to complement other public and private response mechanisms.** In other words, national security doctrine should be aligned with **stakeholder inclusivity.**

**Additionally, as wide-spread corruption and difficult rule-of-law implementation continue to plague the region, favouring market-based solutions should come as a preferred option to counteract the public sector’s limited administrative capacity and democratic backsliding.** This could materialise in the form of public-private partnerships for the realisation of important climate change adaptation initiatives. Wherever possible, substantial public investments in centrally managed government projects should be reconsidered in favour of creating a business environment and market conditions for private sector’s proactive involvement in finding appropriate solutions. This could range from regulatory liberalisation of the green energy sector to tax cuts supporting industrial innovation and household transition to energy and resource efficiency.

### 5.2 Regional level: the inevitability of cross-border cooperation on climate adaptation

As the review of specific climate-related risks and vulnerabilities plaguing Southeastern Europe shows, despite some regional differences, a clear trend of common challenges in the form of floods, droughts and wildfires is emerging. All these natural disasters and extreme weather events have devastating effects on agriculture, military and civilian infrastructure, tourism and many other domains closely related to economic development and national security. Practical examples from the review show that even isolated and localised events of such devastating nature can affect the response capacity of an entire region. As projected temperature increases and changing precipitation patterns manifest across the region, regardless of current or future climate mitigation efforts, it is inevitable that resource scarcity will require effective joint management and use of these resources. **If the necessity for enhanced regional cooperation is not acknowledged and facilitated by the SEE countries, tackling climate-related vulnerabilities will not be possible. Solo efforts by individual countries to overcome specific climate-induced challenges could instead trigger a competitive approach by neighbours and threaten national security.**

### 5.3 The role of EU and NATO in the SEE region

The EU and NATO both have an important role to play in supporting resilience- and capacity-building in the SEE region to overcome emerging climate and security challenges. **The membership perspective remains a significant exogenous vehicle for boosting agile climate adaptation and mitigation response in the Western Balkans.** At the same time, bloc-wide rules, policies and high standards serve as corrective forces to national governance deficiencies in existing member states. Another aspect of this is the EU's and NATO's capacity to encourage regional cooperation through targeted support for decarbonisation efforts

or technological upgrades in the countries of the region. A specific application of this is the opportunity for Southeastern European states to engage in training and joint exercises conducted by NATO on disaster response preparedness and interoperability. **Last but not least, the strategic vision of the EU and NATO to integrate climate change into long-term defence planning and day-to-day operations may discourage SEE countries from focusing their investments in force modernisation solely on building defence capacity. Instead, they will get the chance to directly upgrade their arsenals and develop their personnel in line with the new paradigm that views climate change as an opportunity for improved operational effectiveness and not just as an additional hurdle to overcome.**

## About the Authors



### Mariana Trifonova

has been Program Director and Senior Analyst with the Economic Policy Institute – Sofia (EPI) since 2017. She first joined EPI back in 2009 holding various research positions until 2013. Since April 2019 she has also been serving as Co-Coordinator for Bulgaria of the Marshall Memorial Fellowship – a transatlantic leadership program by the German Marshall Fund of the United States.

In 2020, Mariana completed a course on “Leadership and Organizational Resilience in Times of Uncertainty” and since then has spearheaded EPI’s efforts to mainstream the use of strategic foresight in public policy formulation in Bulgaria and the wider region of Southeastern Europe. In September 2019, she was named among the 25 Young European Leaders joining the debate on “Europe, the Next Generation, Shared Values” by the Aspen Initiative for Europe. She is also 2018 Young Leaders Fellow of Aspen Institute Romania; 2015 Youth Ambassador with the KU-KIEP-SBS EU Center (Seoul, South Korea) and 2012 Black Sea NGO fellow with FOND Romania. Mariana was granted honorary membership for exceptional contribution by the International Relations Research Student Association (Sofia, Bulgaria) – a youth organization she led in 2009-2010.

She holds a BA in International Relations from the University of National and World Economy (Sofia) and an MA in International Studies from Korea University Graduate School of International Studies (Seoul). In the period 2016-2017, Mariana specialized at Fudan University School of Economics (Shanghai). She is currently in the process of completing her PhD in International Economics at her undergraduate alma mater.



### Anita Dangova

held the position of Junior Expert at the Economic Policy Institute – Sofia in the period July 2022 – February 2023 before continuing her professional development as an Associate at DGKV – one of Bulgaria’s largest legal practices. Between 2021 and 2022, she worked for the Council of the European Union at the Directorate for International Trade.

Anita has a broad research background in the area of EU and International Trade Law, sustainable development, decarbonization and green transition. Her Master’s thesis addressed the topic of the de minimis and Green Box exemptions of the WTO Agreement on Agriculture, and their counterproductive impact on the decrease of trade-distorting domestic support. She has graduated with Bachelor’s in European and International Law in Bristol, United Kingdom, and a Master’s in International Trade and Investment Law from the University of Amsterdam, the Netherlands.

She has been named a 2022-2023 Young Climate Professional by the CIVICS Innovation Hub, Stiftung WISSEN AM WERK and Sofia Platform. In 2021, Anita was selected for participation in the Next Generation Korea Fellows Incubator in Bulgaria where she developed a policy paper on the WTO compatibility of the EU Carbon Border Adjustment Mechanism (CBAM) its economic impact on the Republic of Korea and Bulgaria, as well as the role that the EU-Korea FTA could play in furthering policy cooperation and dialogue in decarbonizing international trade. In late 2022, she authored another paper on the impact of CBAM over the industrial sectors of Bulgaria and the countries in the Western Balkans.

