

# CLIMATE CHANGE AND SECURITY EASTERN EUROPE



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# CLIMATE CHANGE AND SECURITY IN EASTERN EUROPE

## LINKAGES BETWEEN CLIMATE CHANGE AND SECURITY

Once only considered as an "environmental issue", climate change is increasingly being included as an inherent element of national and international security agendas. It is seen as a "threat multiplier", exacerbating existing threats to security and increasing environmental stress, adding to pressures that can push the responsive capacities of governments to their limits.

Climate change can impact security in a number of ways. Increasing competition over access to natural resources can lead to conflict situations if no effective dispute resolution mechanisms are in place. Increasing frequency of climate-induced extreme weather events and disasters can aggravate political instability and put livelihoods at risk, which in turn can push people to migrate on a large scale or to turn to illegal sources of income. Disruption of food production and increasing food prices can lead to social instability, violent protests and civil unrest. Impacts on energy production caused by higher temperatures and lower precipitation, as well as threats to energy production and transmission infrastructure from extreme weather events put supply chains and energy security at risk. Increasing demand for water and an unreliable supply increase pressure on existing water governance arrangements and can complicate political relations, in particular at transboundary basins already affected by tensions.

# CO-OPERATION ON CLIMATE CHANGE ADAPTATION AS A CONTRIBUTOR TO STRENGTHENING SECURITY

Addressing the security risks induced by climate change is important and calls for continued and proactive risk management. Climate change co-operation and climate diplomacy are good entry points for contributing to preventing tensions and strengthening trust. They can also have significant benefits for broader relations between countries.

## REGIONAL PARTICIPATORY ASSESSMENT OF CLIMATE CHANGE AND SECURITY RISKS

This brief offers insights on the security implications and most vulnerable geographic areas (climate change and security hotspots). They were identified during a regional participatory assessment process on Climate Change and Security in Eastern Europe conducted by the ENVSEC Initiative in partnership with the European Union Instrument for Stability and the Austrian Development Agency from late 2013 to 2016. The participatory assessment was conducted in the framework of the ENVSEC project "Climate Change and Security in Eastern Europe, Central Asia and the Southern Caucasus" with the overall goal to identify and explain how climate change may exacerbate threats to security, and to propose effective measures in response. The project countries in Eastern Europe include the Republic of Belarus, the Republic of Moldova, and Ukraine.

The assessment was conducted as a combination of desk research and analysis and through extensive multi-stakeholder consultations and considers the perception of 210 national stakeholders (86 women, 124 men) who took part in national and regional consultations.

The climate change induced security implications that were identified together with stakeholders are also a result of analysis of political, socioeconomic and environmental conditions as well as governance issues as underlying factors. The assessment considers a broad range of perceived risks and context-specific security concerns including:

- Livelihood insecurity (urban and rural)
- Human and economic losses
- Additional pressure and competition over scarce natural resources
- Seasonal or persistent water shortages and possible energy and water insecurity
- Damage to infrastructure; industrial safety concerns, including stability of tailings
- Diminished ecosystem services
- Biodiversity losses and possible loss of fish stocks, pastures and genetic resources
- Increased social tensions and conflicts
- Changes in trade patterns and economic impacts
- Increased rates and wider geographic spread of diseases, and declines in human health
- Loss of sources of income and increased poverty or diminished well-being
- Decreased physical security and possible growth in crime
- Displacement and increased migration
- Land degradation and loss of arable land
- Implications for cultural and natural heritage

## ASSESSMENT OF CLIMATE CHANGE AND SECURITY HOTSPOTS

Climate change and security hotspots are identifiable in geographic terms, and are characterized by ongoing tensions, environmental concerns or both. In each of these hotspots, climate change through one or more pathways is expected to undermine social or economic patterns, threaten infrastructure or livelihoods, or compromise security by exacerbating political or social tensions, conflicts or instability. Areas with weak institutions or lacking the effective mechanisms for transboundary environmental and security co-operation are especially vulnerable.

The identified hotspots reflect the judgement of the authors of the assessment and the stakeholders as well as the outcomes of the national and regional consultations conducted in 2014 and 2016. Following aspects have been considered:

- Existing or prospective vulnerability to climate change
- Existing instability or security risks
- Analytical conclusions regarding the connections between climate change and security
- Other existing political, socioeconomic and environmental factors

The main findings of the assessment for Eastern Europe are presented below and offer insights on the identified security implications and most vulnerable geographic areas (climate change and security hotspots) and necessary measures for Eastern Europe to address the identified security implications in the future.

## REGIONAL OUTLOOK ON CLIMATE CHANGE AND SECURITY FOR EASTERN EUROPE: MAIN TRENDS

In Eastern Europe, climate change may exacerbate environmental, economic, political and social challenges, and additional climate stress on water resources and on the agriculture and energy sectors is likely to have consequences for individual countries and for the region as a whole. In many cases, for example, when regional climate risks such as low-water years and droughts disproportionately affect densely populated areas that are already marginalized, security concerns may ensue. The countries of Eastern Europe will not face the severe climate changes that high mountain countries or islands will face, but the changes are nevertheless likely to carry implications for all areas of daily life. Ultimately, climate change may weaken security in such sectors as agriculture, energy and water, and may pose challenges to national security. The climate change implications for human security are likely to become more prevalent over time.

The three countries in Eastern Europe took an active part in preparation of the new global climate agreement and contributed to it by submitting Intended Nationally Determined Contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC). Belarus and Ukraine ratified the Paris Agreement in September 2016. Moldova's Cabinet of Ministers approved a draft law on its ratification in January 2017.

The Republic of Belarus has developed a number of legal and policy frameworks for addressing issues related to climate change and a wider set of the sustainable development agenda (e.g. the State Programme on Mitigation Actions in 2013-2020, the National Strategy for Sustainable Development in the Republic of Belarus until 2030, and the Concept of the Law on Climate Protection). A strategy on adaptation to climate change in the forest sector and in 2015 the Concept of the Strategy on adaptation to climate change in the agricultural sector of Belarus were elaborated within the EU Clima East project. The elaboration of a National Strategy on adaptation to climate change is under discussion. Climate change adaptation activities in Belarus include water management projects on the Dnieper, Neman and Pripyat rivers. The Republic of Moldova has developed and adopted a National Climate Change Adaptation Strategy, and is initiating the integration of climate change issues into other existing sectoral strategies. After the Cancun Climate Change Conference, the Republic of Moldova formulated national adaptation plans that identify the country's medium- and long-term adaptation needs, and is working on their implementation. Additionally, the Association Agreement between the Republic of Moldova and the EU, ratified in 2014, may strengthen the co-operation on environmental matters, including on climate change. The Republic of Moldova Environmental Strategy 2014-2023 pays special attention to mitigation and adaptation to climate change in all sectors of the national economy.

According to the Law on National Security of Ukraine, the environment is a part of national security. Ukraine's National Council of Security and Defense has held several special sessions on environment, climate change and security and it continues to monitor impacts of processes related to climate change and national security.

As the most recent milestone amongst some 70 legal acts related to climate change and security, the State Climate Policy Concept by 2030 was adopted by the Ukrainian Parliament in late 2016. It outlines several plans for development and implementation of a mid-term strategy of low-carbon development of Ukraine, a state risk management system and a mid-term strategy for adaptation to climate change.

Two drafts of the National Adaptation Plan were prepared in Ukraine, but the lack of financial resources for implementation remains an obstacle to its follow-up. In 2012 the Plan of Urgent Adaptation Actions was adopted and some of the measures were implemented. Like in Moldova, the Association Agreement with the EU provides opportunities for Ukraine to strengthen climate action both in terms of mitigation and adaptation.

# CLIMATE CHANGE AND SECURITY HOTSPOTS IN EASTERN EUROPE

The climate change and security hotspots were identified during the participatory assessment process for Eastern Europe which included relevant stakeholders from government agencies, non-governmental organizations, experts and representatives from academia. Regional hotspots have regional security implications, and may extend across ecosystems in more than one country.



### Climate Change and Security Hotspots in Eastern Europe

Republic of Belarus, Republic of Moldova and Ukraine

Map produced by GRID-Arendal and Zoï Environment Network, December 2016. Sources: Compilation of materials of European Environment Agency; ENVSEC projects on the Dniester and the Neman rivers; "Climate Change in Eastern Europe"; experts' opinion and analyses. The map was consulted with the participants of national consultations in the Republic of Belarus, the Republic of Moldova and Ukraine, as well as on the regional consultation on climate change and security.

## Areas with climate change and security risks by 2030



## 1 URBAN AREAS (HIGH SECURITY RISK BY 2030)

With the rapid rate of urbanization in Eastern Europe where more than two thirds of the population already live in cities, urban areas in the region are often more vulnerable to climate change than other areas. Their potentially higher vulnerability to insecurities arising from climate-related extreme weather events, in particular, heatwaves and floods makes urban areas a climate change and security hotspot.



- Adapt leading sectors to climate change to avoid economic losses and to increase resilience
- Identify and monitor urban environmental threats, and assess the costs of non-action
- Review and update technical documents, regulations and permits for buildings and construction in light of climate change
- Take projected climate change conditions into consideration in urban development plans
- Promote and provide state and private insurance schemes for climate-related risks
- Provide training and capacity-building for decision makers and staff in local administrations and other relevant authorities on climate change in all related areas

- Develop and implement comprehensive public awareness campaigns on climate change and security and adaptation measures
- Establish and expand urban green spaces that will help people deal with heatwaves
- Renovate and modernize industrial facilities and processes in light of low-carbon economy developments
- Further strengthen monitoring and maintenance of centralized water supply and sewer systems to ensure rational water use, and sufficient water quality to protect public health
- Diversify, control and optimize energy use, and promote energy-efficiency and low-carbon processes

## 2 THE CARPATHIAN MOUNTAINS (HIGH SECURITY RISK BY 2030)

The Carpathian Mountains have been identified as a climate change and security hotspot due to their vulnerability to floods and other extreme weather events as well as their high sensitivity to environmental, social and economic factors. A co-operative framework established by the Framework Convention on the Protection and Sustainable Development of the Carpathians (Carpathian Convention) implemented by seven countries, including Ukraine, contributes to building mechanisms for addressing climate change issues in this transboundary region.

## KEY RECOMMENDATIONS

- Develop modelling, mapping, monitoring and forecasting of hydrometeorological and hazardous events to support preparedness and to provide a system of timely early warning
- Protect and increase the area of forests for flood prevention and mitigation
- Continue efforts to conserve biological diversity and maintain ecological corridors to increase ecological resilience, and apply ecosystems-based approaches to respond to climate change and security implications
- Promote and provide state and private insurance schemes for climate-related risks
- Promote green tourism and maintain local culture while strengthening adaptive capacity

- Develop and implement comprehensive public awareness campaigns on potential climate change and security implications and adaptation measures
- Ensure inventory and monitor active and dormant industrial facilities, and create protected zones around them
- Assess the regulatory frameworks for small hydropower stations in light of the impacts on water resources, biodiversity and tourism
- Conduct water availability forecasts for the Carpathian rivers for effective water management and planning

# **3** POLESIE AND CHORNOBYL (HIGH SECURITY RISK BY 2030)

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Polesie, with significant parts of this region in both Belarus and Ukraine affected by radioactive contamination from Chornobyl, is already vulnerable to floods, droughts and forest fires. Aggravated by climate change, such events increase the risk of spreading radioactive contamination over larger areas with implications for human health, economy, and environment.



- Develop modelling, mapping, monitoring and forecasting of hydrometeorological and hazardous events to support preparedness and to provide a system of timely early warning
- Conduct programmes on prevention of forest, agricultural and peat fires in contaminated areas, provide constant monitoring, and strengthen local capacities for responding to fires
- Conserve and restore water bodies and support biological diversity
- Conduct preventive measures and strengthen capacities to prevent peat fires

- Promote and provide state and private insurance for climate-related risks
- Provide training and capacity-building for decision-makers and staff in local administrations and other relevant authorities on climate change in all related areas
- Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures
- Consider appropriate measures within the health care sector with special attention to potential radiation risks and increasing temperatures

## 4 THE TISZA RIVER (MEDIUM TO HIGH SECURITY RISK BY 2030)

The Tisza, the longest tributary of the Danube, embraces Ukraine as one of the riparian countries within its basin. With some 14 million people living in its basin, including about 1.25 million people in Ukraine, the river is vulnerable to flooding, including flash floods, and landslides. The basin also faces risks of contamination from biogenic and household waste. While climate change affects the number and magnitude of floods in the basin, putting the livelihoods of people and infrastructure at risk at transboundary level, the long-term evolving co-operation among the riparian countries contributes to strengthening the adaptive capacity in the basin.

## KEY RECOMMENDATIONS

- Develop modelling, mapping, monitoring and forecasting of hydrometeorological and hazardous events to support preparedness and to provide a system of timely early warning
- Promote and provide state and private insurance schemes for climate-related risks
- Protect and increase the area of forests for flood prevention and mitigation
- Provide training and capacity-building for decision-makers and staff of local administrations and other relevant authorities on climate change in all related areas
- Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures
- Implement integrated water resources management, and further strengthen transboundary co-operation
- Prevent negative industrial impacts on water resources and ecosystems

# 5 THE PRIPYAT RIVER (MEDIUM SECURITY RISK BY 2030)

The Pripyat and its tributaries are characterized by a high frequency of flooding which translates into significant economic damages in the riparian countries Belarus and Ukraine. Aggravated by climate change, such extreme events have the capacity to affect agriculture and food security, infrastructure and economic security, and put the livelihoods and lives of people at risk, which in turn may have implications for security in the basin.

## KEY RECOMMENDATIONS

- Promote and provide state and private insurance schemes for climate-related risks
- Prevent negative industrial impacts on water resources and ecosystems
- Protect and increase the area of forests for flood prevention and mitigation
- Conserve and restore water bodies and support biological diversity
- Provide training and capacity-building for decision-makers and staff of local administrations and other relevant authorities on climate change in all related areas
- Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures
- Implement integrated water resources management, and strengthen transboundary co-operation
- Develop modelling, mapping, monitoring and forecasting of hydrometeorological and hazardous events to support preparedness and to provide a system of timely early warning

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Over the last 10 years natural disasters appear to have become more frequent in the Danube delta, part of which lies in Ukraine. Frequent floods, long periods of drought, water quality challenges, declining fish reserves and other changes in its unique biodiversity are the likely main impacts of climate change. The economic conditions in the area characterized by high unemployment, low average income and old infrastructure are likely to interact with climate change impacts, leading to increased security risks in this region.

- Increase monitoring and take preventive measures against wild reed fires
- Monitor invasive species of flora and fauna
- Conserve biological diversity and maintain ecological corridors to increase ecological resilience, and apply an ecosystems approach to respond to coming changes
- Conserve water bodies to maintain their role for flood
   prevention
- Plan for the installation of bank fortifications to protect infrastructure against sea level rise
- Promote and provide state and private insurance schemes for climate-related risks

- Protect and increase the area of forests for flood prevention and mitigation
- Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures
- Implement integrated water resources management, and strengthen transboundary co-operation
- Develop modelling, mapping, monitoring and forecasting of hydrometeorological and hazardous events to support preparedness and to provide a system of timely early warning
- Prevent negative industrial impacts on water resources and ecosystems



## 7 THE DNIESTER RIVER (HIGH SECURITY RISK BY 2030)

The Dniester supports economic activities in different sectors and is a vital source of drinking water for large cities in its riparian countries Moldova and Ukraine both within and outside its river basin. Climate change is anticipated to affect the volume and seasonal distribution of the river flow, to increase the frequency and intensity of floods and droughts and lead to the challenges associated with water scarcity. Future climate change is likely to have an impact both on the natural resources and ecosystems of the Dniester region and basin, and on the population and economy. Long-term transboundary co-operation between Moldova and Ukraine provides an opportunity to strengthen mechanisms for preventing or minimizing security risks related to climate change in the basin.



## KEY RECOMMENDATIONS

- Further strengthen transboundary co-operation through the ratification of the 2012 Dniester Treaty (Treaty between the Government of the Republic of Moldova and the Cabinet of Ministers of Ukraine on Co-operation in the field of Protection and Sustainable Development of the Dniester River Basin) by Ukraine, and establish a river basin commission to implement the Treaty, including the development, adoption and implementation of a joint Dniester River basin management plan
- Prepare for the implementation of the Strategic Framework for Adaptation to Climate Change in the Dniester River Basin (endorsed by Moldova and Ukraine in 2015) and proceed with putting the Strategic Framework into action based on its Implementation Plan (2017)
- Adapt leading sectors (in the basin) to climate change to avoid economic losses and to increase resilience
- Promote and provide state and private insurance schemes for climate-related risks
- Manage ecosystems to increase the area of forest cover, prevent forest destruction and illegal logging, restore and protect small rivers, prevent soil erosion and create a network of protected natural areas

 Provide training and capacity-building for relevant staff and decision makers on climate change in all related areas

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- Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures
- Develop and extend the network of automated monitoring for providing online monitoring data, including for flood forecasting, preparedness and prevention of possible negative consequences, and provisions for early warning
- Forecast and assess water availability, and install an automated system for transboundary management of the cascade of reservoirs to meet the needs of water and near-water ecosystems
- Prevent negative industrial impacts on water resources and ecosystems

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Heavy rains, droughts, late frosts and floods are projected as the main climate change impacts in the Neman basin where Belarus is one of the riparian countries. These impacts may affect the water-agriculture-energy nexus, as well as infrastructure leading to economic losses including the loss of livelihoods.



### KEY RECOMMENDATIONS

- Promote and provide state and private insurance schemes for climate-related risks
- Protect and increase the area of forests for flood prevention and mitigation
- Conserve and restore water bodies and support biological diversity
- Provide training and capacity-building for staff and decision makers on climate change in all related areas
- Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures

- Implement integrated water resources management, and further strengthen transboundary co-operation
- Develop modelling, mapping, monitoring and forecasting of hydro-meteorological and hazardous events to support preparedness and to provide a system of timely early warning
- Prevent negative industrial impacts on water resources and ecosystems

## 9 EASTERN UKRAINE (HIGH SECURITY RISK BY 2030)

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Developments in the Donetsk and Luhansk regions pose the risk of significantly affecting the environment in these regions. They hinder the implementation of climate change mitigation activities and affect the capacity for climate change adaptation. In combination with the climate change impacts, the aftermath of these developments can increase migration and exacerbate the socioeconomic situation in these regions and beyond them.

## KEY RECOMMENDATIONS

- Support and strengthen monitoring of environmental threats in the region, including economic, political, and migration aspects
- Conduct risk analysis and environmental risk assessments, and mitigate the effects of the developments in the Donetsk and Luhansk regions and climate change on natural resources
- Implement preventive measures for forest and steppe fires and illegal cutting of forest plantations

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- Implement measures to improve access to drinking water
- Repair and modernize industrial plants and processes in conformity with the principles of an eco-friendly and low-carbon economy; introduce new sustainable technologies and practices

# 10 THE STEPPE ZONE OF UKRAINE (HIGH SECURITY RISK BY 2030)

The Ukrainian steppes suffer from faster and more severe climate change than other areas. Continuation of the existing climate trends poses a grave threat to agriculture not only in the steppe zone, but also far beyond it. Significant losses of arable land due to climate change have the potential to affect food security and livelihood in this zone as well as prompt people to move to other parts of the country. Given the importance of agriculture in Ukraine, this is likely to affect its economy significantly.

## **KEY RECOMMENDATIONS**

- Conduct assessments of climate change impacts, and develop and implement adaptation measures in the agricultural sector
- Promote and provide state and private insurance schemes for climate-related risks
- Protect biodiversity to improve climate resilience
- Conserve and maintain the unique steppes and desert
- Increase capacities to control and prevent forest fires to avoid further desertification and dune development

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• Develop and implement comprehensive public awareness campaigns on climate change and security implications and adaptation measures

## 11 THE CRIMEAN PENINSULA (HIGH SECURITY RISK BY 2030)

The Crimean Peninsula is characterized by increasing high temperatures, water deficit, intensifying extreme events, desertification and salinization, as well as high levels of water and energy consumption.



- Develop modelling, mapping, monitoring and forecasting of hydrometeorological and hazardous events to support preparedness and to provide a system of timely early warning
- Conduct monitoring and implement adaptive measures for preventing degradation and salinization of land and soil
- Build fortifications for banks as preventive measures against sea level rise and bank erosion
- Protect marine and mountain ecosystems to increase their resilience and maintain their biological diversity

## LOOKING AHEAD - HOW TO STRENGTHEN THE RESILIENCE TO CLIMATE CHANGE AND SECURITY RISKS

Growing awareness about the security implications of climate change among policy-makers and the public could support the governments of the countries in Eastern Europe to take swift actions from the local to the regional level to tackle the impacts of climate change and its implications for security.

Some of the proposed areas of intervention, including those matching the priorities of the ENVSEC Initiative, call for strengthened regional co-operation as well as more consistent and targeted international support.

Key areas of engagement may include:

 Incorporate climate change and security considerations into policies and measures to strengthen security, in particular in the identified climate change and security hotspot areas

- Facilitate cross-border co-ordination and exchange of information in the preparation of climate change projections as well as impact and vulnerability assessments, and search for common approaches to adaptation and response measures
- Develop and implement comprehensive public awareness campaigns on climate change and security, adaptation measures and public as well as individual contributions

Technical interventions can support the improvement in water and land management by reducing stress on the socioeconomic and natural systems. The importance of transboundary water ecosystems suggests that basin-wide co-operation mechanisms, including water basin commissions, could help to better address existing water management challenges at transboundary and national levels which would also support addressing climate change and security challenges related to water.

## CONTINUED ENGAGEMENT OF ENVSEC IN ADDRESSING CLIMATE CHANGE AND SECURITY RISKS

The ENVSEC partner organizations with their specialized and complementary mandates and expertise in environment, development, economics and security can jointly assist countries to adapt to the effects of climate change within a broader context of environment, security, and sustainable development. ENVSEC's continued engagement will also support countries in implementation of their commitments under the Paris Agreement as well as the 2030 Agenda for Sustainable Development, in particular Goal 13.

The ENVSEC Initiative partners are committed to mobilize political interest and financial resources to continue their support to the countries of the region in addressing climate change and security risks in the following areas:

• Key area 1: Technical assistance to enhance the knowledge base on climate change impacts and their interrelation with security e.g. through cconducting in depth climate change and security risks assessments which take into account changing socio-economic, political and environmental circumstances.

• Key area 2: Support to regional dialogue and cooperation e.g. through facilitating cross-border co-ordination and exchange of information on climate change impacts, and joint risk reduction

• Key area 3: Strengthening relevant policies, institutions and capacities at national and regional levels to address climate change risks e.g. through developing regional/transboundary adaptation strategies, providing training and by sharing of experience and lessons learned on climate change and security risks reduction activities

• Key area 4: Facilitating communication and raising awareness on security impacts of climate change and potential adaptation measures: ENVSEC partners together with Aarhus Centres will continue to organize public information and awareness raising campaigns, media trainings and sharing of experience and lessons learned on climate change and security while promoting stakeholder engagement to participate in mitigation and adaptation activities as well as in the decision-making process.