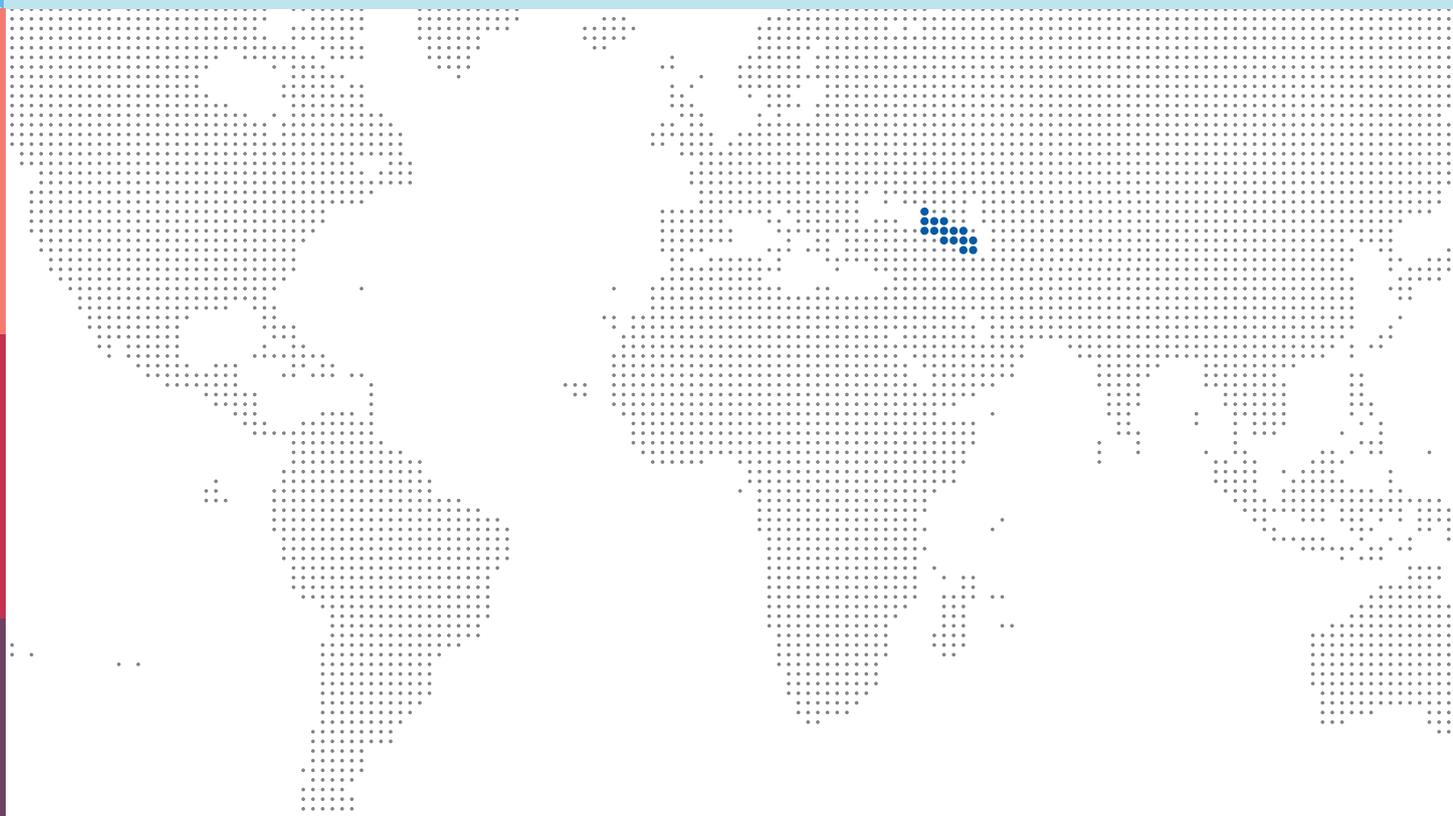


CLIMATE CHANGE AND SECURITY SOUTH CAUCASUS



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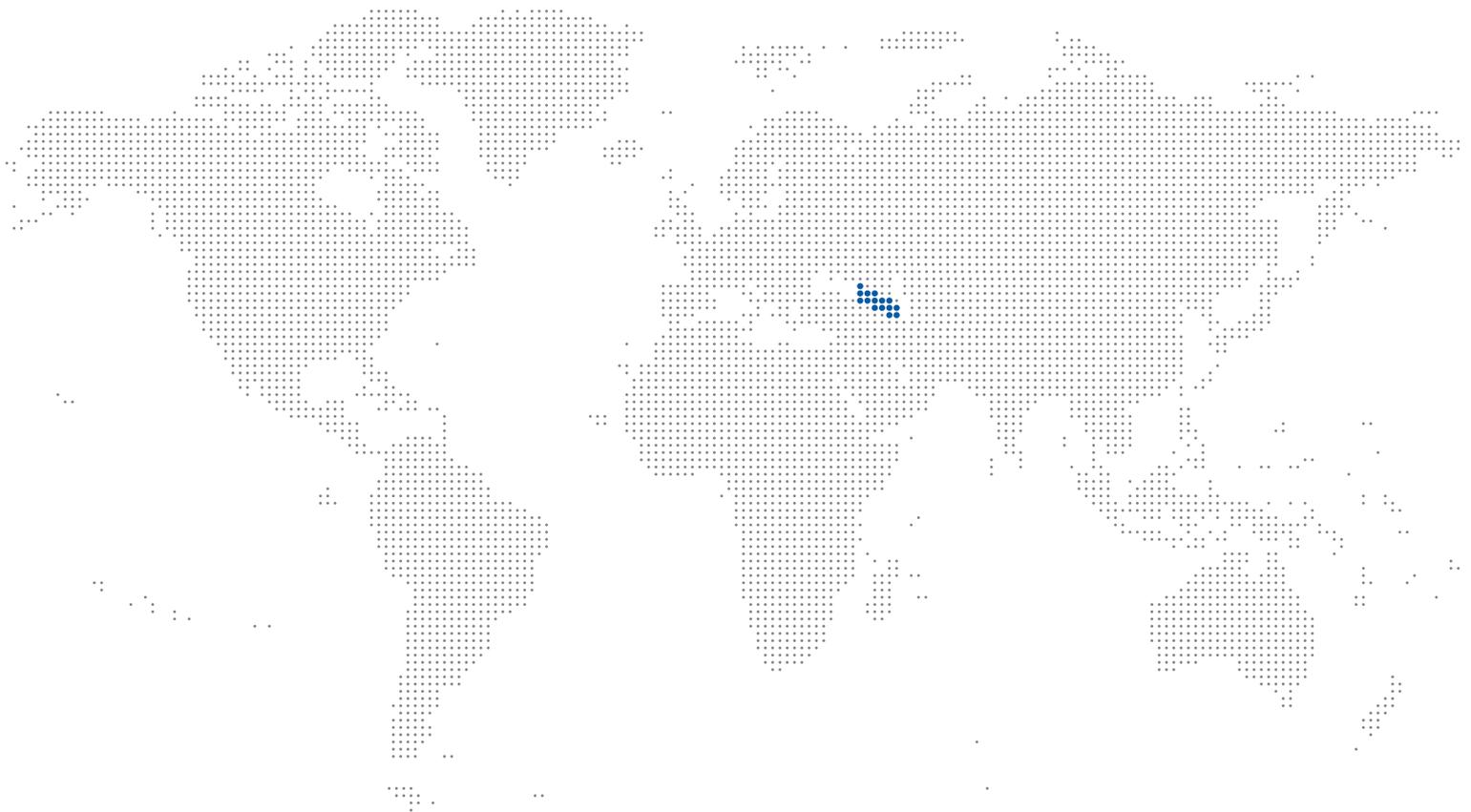
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The Environment and Security (ENVSEC) Initiative – comprising the Organization for Security and Co-operation in Europe (OSCE), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the United Nations Economic Commission for Europe (UNECE) and the Regional Environmental Center for Central and Eastern Europe (REC) – was launched in 2003 at the Fifth Environment for Europe Ministerial Conference in Kiev, Ukraine to jointly strengthen national capacities, regional co-ordination mechanisms and international co-operation for environment and security risk reduction. Since then, the Initiative has developed into a unique multi-agency programme operating in four regions: Eastern Europe, South Eastern Europe, the South Caucasus and Central Asia. The ENVSEC Initiative provides holistic solutions to environmental challenges including to security challenges induced by climate change.

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CLIMATE CHANGE AND SECURITY IN THE SOUTH CAUCASUS

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 the Southern Caucasus 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 the South Caucasus include the Republic of Armenia, the Republic of Azerbaijan, and Georgia.

The assessment was conducted as a combination of desk research and analysis and through extensive multi-stakeholder consultations and considers the perception of about 152 national stakeholders (66 women, 86 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

ASSESSMENT OF CLIMATE CHANGE AND SECURITY HOTSPOTS¹

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:

¹ This assessment does not cover areas with protracted conflicts

- 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 the South Caucasus 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 the South Caucasus to address the identified security implications.

REGIONAL OUTLOOK ON CLIMATE CHANGE AND SECURITY FOR THE SOUTH CAUCASUS: MAIN TRENDS

In the **South Caucasus** region climate change is clearly evident and the region is prone to a range of hazards including landslides and floods, which are exacerbated by climate change, and which can result in serious damage to infrastructure, casualties and economic losses.

Armenia, Azerbaijan and Georgia have all developed national security strategies and although none of them considers climate change as an explicit threat to national security, protection against natural and man-made disasters as well as the implementation of sound environmental practices are recognized as important factors in ensuring people's safety and, on a larger scale, national security. Food security, the loss of biodiversity and the vulnerability of water resources are concerns across the region. Climate change disruptions in the hydrologic system can lead to tensions between upstream and downstream water users if these prospects are not taken into account in water management practices. The water-agriculture-energy nexus in the South Caucasus is critical, particularly in co-ordinating the use of water resources between sectors at the national level and between upstream and downstream countries. Currently there are no water treaties signed between any of the three neighboring countries, but significant progress has been achieved in the preparation of a bilateral agreement between Azerbaijan and Georgia for the Kura River. Climate change also affects extensive mountain ecosystems and remote coastal zones in the region.

All three countries have submitted their Intended Nationally Determined Contributions (INDCs) to the UNFCCC prior to the COP21, setting concrete emission reduction targets and committing to adaptation plans. The INDCs for Armenia and Georgia highlight the importance of the agricultural sector for the countries' economies as well as the climate change impacts on agriculture and food security.

Climate change is gaining increasing attention among decision makers in the region in the development of national

strategies and programmes related to poverty, sustainable development and renewable energy. None of the countries has yet established a specific national climate change policy, however all three countries have declared the need for developing national adaptation plans.

The South Caucasus countries have achieved progress in the implementation of structural governance reforms – a critical step in addressing climate change commitments. However, considering the multitude of other national priorities and the implications of climate change across the social, economic and environmental sectors, current financial allocations for climate change adaptation are largely insufficient. The economies of the South Caucasus countries remain fragile, and most of the climate change adaptation activities to date have been supported by external donors. Some national adaptation measures were implemented in Azerbaijan, where the Government invested in flood prevention activities, remediation and reforestation, but such measures remain few.

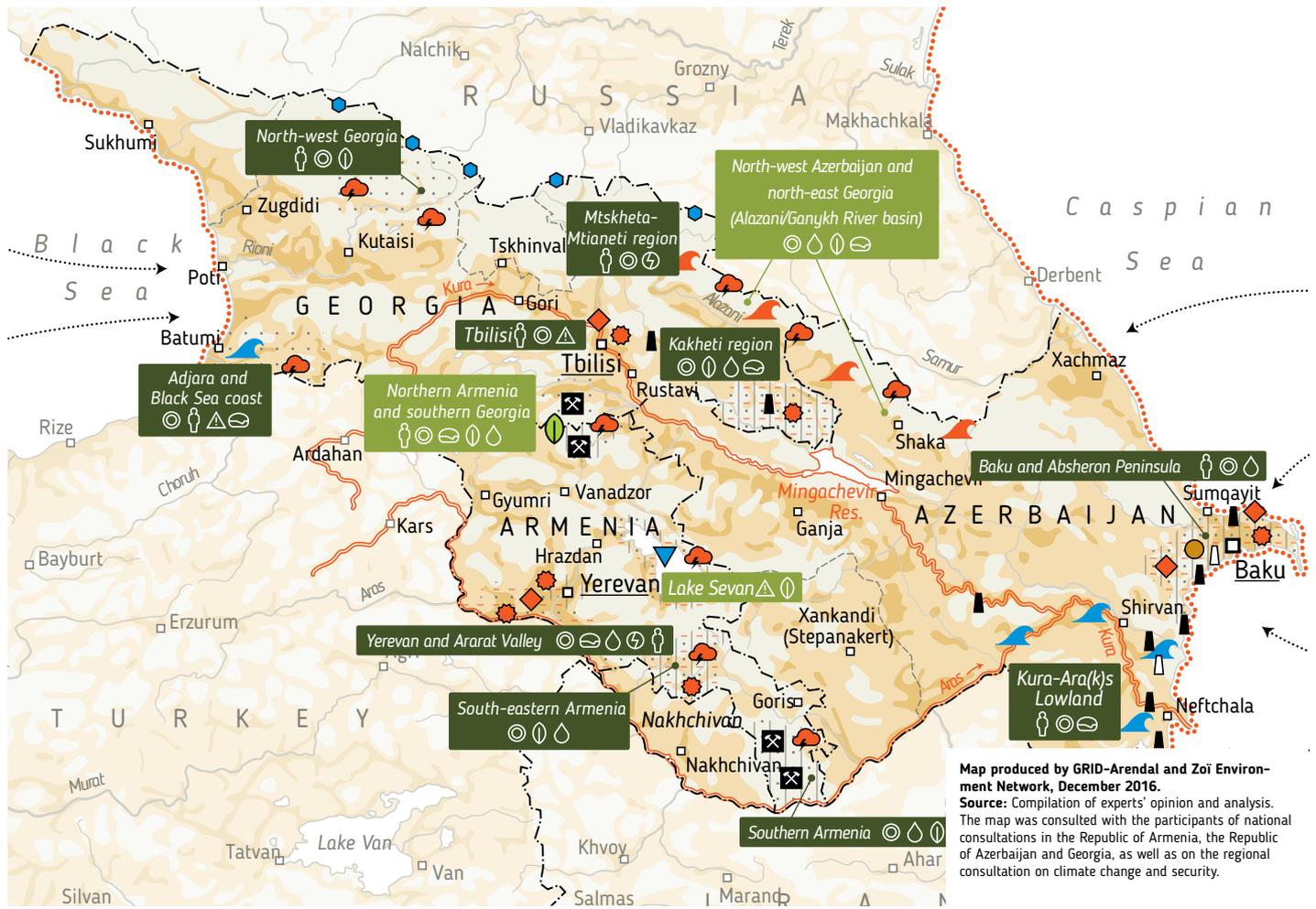
Recent political developments in the region are likely to influence the implementation of activities on adaptation. Georgia ratified an Association Agreement with the EU, which requires co-operation across a number of sectoral policies, including on climate change adaptation. Furthermore the Eurasian Economic Union, of which Armenia is a signatory, primarily aims at economic integration of its member states² by providing the framework for common transport, agriculture and energy policies but not necessarily directly addressing co-operation on climate change aspects of these policies.

Ongoing institutional and municipal reforms may provide possibilities for climate change adaptation measures, but a lack of co-ordination between central administrative bodies and local municipalities and a gap in the knowledge and resources needed for climate change adaptation are challenges to progress.

2 The Eurasian Economic Union is made up of the Republic of Armenia, the Republic of Belarus, the Republic of Kazakhstan, the Kyrgyz Republic and the Russian Federation.

CLIMATE CHANGE AND SECURITY HOTSPOTS IN THE SOUTH CAUCASUS

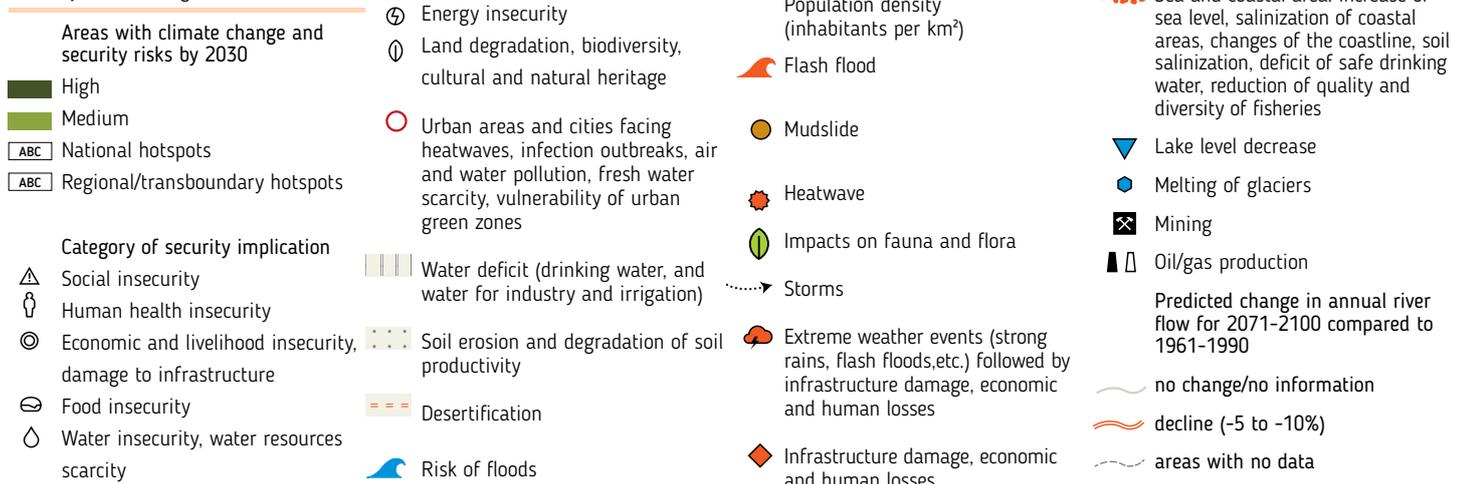
The climate change and security hotspots were identified during the participatory assessment process for the South Caucasus which included relevant stakeholders from government agencies, non-governmental organizations, experts and representatives from academia. Regional hotspots have regional security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



Map produced by GRID-Arendal and Zoi Environment Network, December 2016.
 Source: Compilation of experts' opinion and analysis. The map was consulted with the participants of national consultations in the Republic of Armenia, the Republic of Azerbaijan and Georgia, as well as on the regional consultation on climate change and security.

Climate change and security hotspots in the South Caucasus

Republic of Armenia, Republic of Azerbaijan and Georgia



1 NORTHERN ARMENIA AND SOUTHERN GEORGIA

(MEDIUM SECURITY RISK BY 2030)



The northern Armenia and southern Georgia border region is of strategic importance for both countries in terms of economic development (agriculture, mining) and cross border trade. Climate change through its impacts on agricultural production and increased risks of natural disasters is likely to have security implications for this region. Furthermore, projected decline in stream flow in the transboundary Debed-Khrami river can lead to tensions due to deterioration of water quality.



KEY RECOMMENDATIONS

- Implement disaster risk prevention and preparedness measures including for flooding and forest fires
- Increase safety of existing industrial facilities and provide safety of abandoned mines
- Establish functional response protocols to climate-induced health emergencies
- Raise awareness among farmers on climate change implications and adaptation practices; develop and apply adaptation practices in the agriculture sector
- Develop/update construction guidelines and other relevant technical documents considering climate change conditions
- Promote and provide state and private insurance schemes for climate-related risks
- Build capacities of local governments on adaptation to climate change and security risks
- Develop joint ecosystem restoration including for forests
- Raise awareness among the general public about climate change and increase community resilience capacities

2 NORTH-WEST AZERBAIJAN AND NORTH-EAST GEORGIA (ALAZANI/GANYKH RIVER BASIN)

(MEDIUM SECURITY RISK BY 2030)



In the north-west Azerbaijan and the north-east Georgia agriculture plays a dominant role as an important source of income for local population and a major contributor to the national economies. Due to the projected decline in precipitation and increase in temperature, stream flow of the transboundary Alazani-Ganykh River is projected to decline. This may become a major limiting factor for agriculture and energy development in the region. Exposure to increased risks of natural disasters (flash floods, mudflows and landslides) is also likely to affect the security of this area.



KEY RECOMMENDATIONS

- Implement disaster risk prevention and preparedness measures including for flooding
- Raise awareness among farmers on climate change implications and adaptation practices and develop and apply adaptation practices in the agriculture sector
- Develop/update construction guidelines and other relevant technical documents considering climate change conditions
- Raise awareness on climate change concerns in the energy sector and integrate climate change considerations into planned hydropower projects
- Build capacities of local governments on adaptation to climate change and security risks
- Promote and provide state and private insurance schemes for climate-related risks
- Establish transboundary co-ordination mechanisms for management of water resources
- Raise awareness among the general public about climate change and increase resilience capacities



3 YEREVAN AND ARARAT VALLEY



(MEDIUM SECURITY RISK BY 2030)



The densely populated area of Yerevan and the Ararat Valley is a hub of diverse economic activities in Armenia, with a high concentration of critical transport and energy infrastructure. The area’s importance to the national economy, the rapidly increasing shortages in water resources, heatwaves and elevated temperatures and the high exposure to climate-induced hazards, – all these combine to increase the risks for security. For this reason, the central and western part of Armenia is identified as a climate change and security hotspot at national level.



KEY RECOMMENDATIONS

- Develop/incorporate climate change adaptation activities into existing action plans
- Build capacities of local governments on adaptation to climate change and security risks
- Establish early warning systems for extreme climate events and enhance water and, where relevant glacier, monitoring systems
- Raise awareness among farmers on climate change implications and adaptation practices and develop and apply adaptation practices in the agriculture sector
- Develop/update construction guidelines and other relevant technical documents considering climate change conditions
- Raise awareness on climate change concerns in the energy sector and integrate climate change considerations into hydropower projects
- Integrate climate change aspects into the health care system, and enhance emergency readiness and response
- Raise awareness among the general public about climate change and increase resilience capacities



4 LAKE SEVAN



(MEDIUM SECURITY RISK BY 2030)



Lake Sevan is regarded as a national treasure in Armenia. It also plays an important role in the national water management system for irrigation and hydropower generation. The area is characterized by relatively high poverty levels. Climate change scenarios project significant water shortages with an increasing vulnerability of the agriculture and energy sectors and affecting the entire ecosystem – all of which combined with social vulnerability of population residing in the area are likely to result in security implications at national level.



KEY RECOMMENDATIONS

- Raise awareness among farmers on climate change implications and adaptation practices and develop and apply adaptation practices in the agriculture sector
- Implement measures to increase the water level in the lake Sevan
- Co-ordinate sectoral policies to ensure sustainable use of water resources
- Raise awareness on climate change concerns in the energy sector and integrate climate change considerations into planned hydropower projects
- Enhance monitoring systems to allow further modelling of climate change implications for major economic activities
- Raise awareness on climate change concerns in the energy sector

5 SOUTHERN ARMENIA



 (HIGH SECURITY RISK BY 2030)

In southern Armenia economic activities are dominated by mining. The region's economy also relies on energy production and agriculture. Climate change will most likely result in an increased frequency and magnitude of natural hazards in the region and will put people and economic activities (particularly the mining sector) at risk - which in turn may have security implications for the country.



KEY RECOMMENDATIONS

- Build capacities of local governments on adaptation to climate change and security risks
- Develop/update construction guidelines and other relevant technical documents considering climate change conditions
- Co-ordinate sectoral policies to ensure sustainable use of water resources
- Implement disaster prevention, preparedness and response measures including for flooding
- Integrate climate change considerations into the health care system
- Increase safety of existing industrial facilities, including mining tailings and waste sites
- Raise awareness among the general public about climate change and increase resilience capacities

6 SOUTH-EASTERN ARMENIA



 (HIGH SECURITY RISK BY 2030)

South-eastern Armenia is the least populated region in Armenia where agriculture, hydropower generation and tourism dominate the economic sector. The arid and semi-arid ecosystems of the region are highly exposed to temperature variations, flooding, heavy rains and droughts. Vayots Dzor marz is particularly vulnerable to climate change impacts. Given the high dependency of the region on irrigated agriculture, projected decline in water resources and climate change triggered land degradation are likely to have security implications at national level.



KEY RECOMMENDATIONS

- Build capacities of local governments on adaptation to climate change and security risks
- Develop and apply climate change adaptation practices in the agriculture sector and raise awareness among farmers on climate change implications
- Provide private and state insurance schemes for climate-related risks, including crop and livestock insurance
- Co-ordinate sectoral policies to ensure sustainable use of water resources
- Raise awareness on climate change concerns in the energy sector and integrate climate change considerations into planned hydropower projects
- Establish early warning systems for extreme climate events and enhance monitoring systems to allow further modelling of climate change implications for major economic activities
- Raise awareness among the general public about climate change and increase resilience capacities



7 BAKU AND ABSHERON PENINSULA



(HIGH SECURITY RISK BY 2030)

The Absheron Peninsula in Azerbaijan is a hub for economic activity, urbanization and energy and transport infrastructure. This densely populated region accommodates about 70 per cent of the country's industrial production. Given the importance of the region for the country's economic and social life and its high exposure to the impacts of climate change this region is considered vulnerable with probable security implications.



KEY RECOMMENDATIONS

- Develop/incorporate climate change adaptation activities into existing action plans, including for coastal zones
- Integrate climate change considerations into the health care system
- Enhance emergency response against extreme climate events and natural hazards and strengthen disaster preparedness and prevention
- Develop/update construction guidelines and other relevant technical documents considering climate change conditions
- Raise awareness among the general public about climate change



8 THE KURA-ARA(K)S LOWLAND



(HIGH SECURITY RISK BY 2030)

The Kura-Ara(k)s lowland is an important agricultural area in Azerbaijan which heavily relies on irrigation. Projected decline in the availability of water resources and high vulnerability of the region to floods and droughts might lead to economic and livelihood insecurity locally and at national level.



KEY RECOMMENDATIONS

- Strengthen monitoring systems to allow further modelling of climate change implications for major economic activities
- Enhance emergency response against extreme climate events and natural hazards and strengthen disaster preparedness and prevention
- Raise awareness among farmers on climate change implications and adaptation practices and develop and apply adaptation practices in the agriculture sector
- Promote and provide state and private insurance schemes for climate-related risks
- Integrate climate change considerations into the health care system
- Raise awareness among the general public about climate change

9 TBILISI



 (HIGH SECURITY RISK BY 2030)

The capital of Georgia is home for one third of Georgia's population. Economic activities of the city have a significant share in the national economy. Climate change projections indicate a drastic increase in the number of hot days and decrease in precipitation. It is likely that these unfavourable conditions induced by climate change will lead to an increase of health risks. Expected intensification of natural hazards will also put additional strain on the infrastructure and undermine human and livelihood security at national level.



KEY RECOMMENDATIONS

- Develop climate change adaptation strategies or incorporate climate change adaptation activities into existing action plans
- Integrate climate change considerations into the health care system
- Enhance emergency response against extreme climate events and natural hazards and strengthen disaster preparedness and prevention
- Develop/update construction guidelines and other relevant technical documents considering climate change conditions
- Raise awareness among the general public about climate change

10 THE MTSKHETA-MTIANETI REGION



 (HIGH SECURITY RISK BY 2030)

Mtskheta-Mtianeti is the northern region of Georgia and is an important transnational infrastructure hub for transportation and energy, and an increasingly important tourist destination. This region is threatened by high risks of natural hazards (landslides, mudflows and avalanches) due to climate change. The tourism and energy sectors are particularly sensitive to climate change in this region.



KEY RECOMMENDATIONS

- Co-ordinate sectoral policies to ensure sustainable use of water resources
- Strengthen water and, where relevant glacier, monitoring systems to allow further modelling of climate change implications for the major economic activities
- Enhance emergency response against extreme climate events and natural hazards and strengthen disaster preparedness and prevention
- Raise awareness on climate change concerns in the energy sector and integrate climate change considerations into planned hydropower projects
- Integrate climate change considerations into development plans for the tourism sector



11 THE KAKHETI REGION



(HIGH SECURITY RISK BY 2030)

Economic activities in the Kakheti region of Georgia are dominated by agriculture and wineries. Given the region's importance for national food production and the critical role of its water resources for the agriculture sector, as well as the high level of poverty in rural areas, climate change impacts will significantly affect the livelihoods of the local population and may even have implications for food security in the country.



KEY RECOMMENDATIONS

- Raise awareness among farmers on climate change implications and adaptation practices and develop and apply adaptation practices in the agriculture sector
- Improve efficiency of agriculture infrastructure
- Promote and provide state and private insurance schemes for climate related risks, including crop and livestock insurance
- Establish early warning systems for extreme climate events
- Strengthen forest fire management and regulate agricultural burning



12 NORTH-WEST GEORGIA



(HIGH SECURITY RISK BY 2030)

North-west Georgia is a mountainous area that hosts important national cultural and natural heritage sites. Energy, agriculture and a rapidly developing tourism sector are the main economic activities in the region. The region suffers from high poverty and less developed infrastructure. Exposure to natural hazards and glacial retreat that is expected to increase with time can become a major challenge for the livelihood of local population and economic development.



KEY RECOMMENDATIONS

- Co-ordinate sectoral policies to ensure sustainable use of water resources
- Enhance emergency response against extreme climate events and natural hazards and strengthen disaster preparedness and prevention
- Strengthen water and, where relevant, glacier monitoring systems to allow further modelling of climate change implications for major economic activities
- Raise awareness on climate change concerns in the energy sector and integrate climate change considerations into planned hydropower projects
- Develop and promote innovative projects in energy and agriculture to enhance the adaptive capacity
- Integrate climate change considerations into the health care system
- Integrate climate change considerations into development plans for the tourism sector
- Raise awareness among the general public about climate change

13 ADJARA AND THE BLACK SEA COAST



 (HIGH SECURITY RISK BY 2030)

The Black Sea coastal zone is of strategic importance for Georgia. It serves as a regional transportation corridor and is an important area for agriculture, energy, tourism and industry. Exposure of the economic sector to climate change impacts, coupled with social vulnerability of local population will limit development and contribute to potential insecurity in this area. The adaptation strategy that was recently developed for Adjara can minimize these risks provided that it will be implemented in a timely manner.



KEY RECOMMENDATIONS

- Adapt the energy, transport, tourism and industry sectors to climate change impacts to avoid economic losses and to increase resilience
- Raise awareness among farmers on climate change implications and adaptation practices and develop and apply adaptation practices in the agriculture sector
- Establish early warning systems for extreme climate events and natural disasters, and strengthen disaster preparedness, prevention and response
- Build capacities of local governments on adaptation to climate change and security risks
- Develop climate change adaptation action plans for the coastal zone and implement them
- Promote and provide state and private insurance schemes for climate related risks
- Integrate climate change considerations into the health care system
- Raise awareness among the general public about climate change

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 South Caucasus countries to take swift actions from the local to the regional level to tackle the impacts of climate change and the implications for security.

Some of the proposed areas of intervention, including those matching the priorities of the ENVSEC Initiative, call for strengthened 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 socio-economic 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 conducting in depth climate change and security risk assessments which take into account changing socioeconomic, political and environmental circumstances.

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

