



# REPORT

## Regional Consultation for the South Caucasus

Azerbaijan and Georgia: Co-operation opportunities for  
addressing the security implications of climate change

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## List of Abbreviations

<b>ADC</b>	Austrian Development Cooperation
<b>BMU</b>	Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)
<b>CENN</b>	Caucasus Environmental Non-Governmental Organizations Network
<b>DRR</b>	Disaster Risk Reduction
<b>EEA</b>	European Environment Agency
<b>ENVSEC</b>	Environment and Security initiative
<b>EU</b>	European Union
<b>EUWI+</b>	EU Water Initiative Plus for Eastern Partnership Countries
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>GCF</b>	Green Climate Fund
<b>GEF</b>	Global Environment Facility
<b>GFMC</b>	Global Fire Monitoring Center
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit (German development agency)
<b>IFAD</b>	International Fund for Agricultural Development
<b>IUCN</b>	International Union for Conservation of Nature
<b>IWRM</b>	Integrated water resources management
<b>LEDS</b>	Low-Emission Development Strategies
<b>LULUCF</b>	Land Use, Land-Use Change and Forestry
<b>NASA</b>	National Aeronautics and Space Administration
<b>NATO</b>	North Atlantic Treaty Organization
<b>NDC</b>	Nationally Determined Contribution to the Paris Agreement
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OSCE</b>	Organization for Security and Co-operation in Europe
<b>RCP</b>	Representative Concentration Pathway
<b>REC</b>	Regional Environmental Centre (for the Caucasus)
<b>SDC</b>	Swiss Agency for Development and Cooperation
<b>SDG</b>	Sustainable Development Goals
<b>TACIS</b>	EU Technical Assistance to the Commonwealth of Independent States
<b>UN</b>	United Nations
<b>UNDP</b>	United Nations Development Programme
<b>UNECE</b>	United Nations Economic Commission for Europe

<b>UNEP</b>	United Nations Environment Programme
<b>USAID</b>	United States Agency for International Development
<b>WWF</b>	World Wide Fund for Nature

## Executive Summary




Climate change can impact security in a number of ways. While it does not directly cause conflict, it interacts with other pressures including population growth, unequal economic development and resource constraints to influence security landscapes. In other words, climate change acts as a risk multiplier.

Against this backdrop, the OSCE, in partnership with adelphi, has embarked since 2020 on a new extra-budgetary financed project “Strengthening responses to security risks from climate change in South-Eastern Europe, Eastern Europe, the South Caucasus and Central Asia” (Project Number: 1102151). This project builds on the results of an earlier OSCE project “Climate Change and Security in Eastern Europe, Central Asia and the South Caucasus”, which was led by the OSCE and implemented together with the Environment and Security (ENVSEC) Initiative partners and with support of the European Union Instrument for Stability and the Austrian Development Agency.

The new project’s overall aims are to (1) identify and map potential climate-security hotspots, (2) develop and implement climate change and security risk reduction measures, (3) raise awareness of the linkages between climate change and security, and (4) conduct a gender analysis of climate security in the OSCE region.

This report presents the results of the bilateral consultation process on climate change and security between Azerbaijan and Georgia, involving stakeholders from governmental bodies, civil society organizations, and academia. The consultation process was part of the first phase of the project, which specifically aimed to identify co-operation opportunities to address the security implications of climate change. The outlined opportunities will serve as a starting point for the project’s second phase, which will involve the development of co-operation measures.

The consultation process included the following parts:

<b>LAUNCH EVENT</b>	<b>1 March 2021</b>
	<ul style="list-style-type: none"> <li>• 35 stakeholders (13 female, 22 male)</li> <li>• Discussion on shared hotspots, topics, and co-operation opportunities to address climate-related security risks</li> </ul>
<b>SURVEY</b>	<b>March-April 2021</b>
	<ul style="list-style-type: none"> <li>• Identification and prioritization of topics for co-operation opportunities and for the shared hotspot</li> </ul>
<b>CLOSING EVENT</b>	<b>1 June 2021</b>
	<ul style="list-style-type: none"> <li>• 44 stakeholders (19 female, 25 male)</li> <li>• Presentation of results of consultation process</li> <li>• Discussion of findings and next steps</li> </ul>



## Co-operation opportunities

During the consultation process, three topics emerged as top priorities for co-operation between Azerbaijan and Georgia; along with a shared hotspot whose priority was reconfirmed:

### 1. Sustainable and climate-resilient rural development and land management



Discussions on rural development and land management in both Azerbaijan and Georgia are inextricably linked to other important sectors such as agriculture, pasture management, forests, and mountain ecosystems. These sectors in turn are key to food and livelihood security, especially for agriculturally dependent rural communities in both countries.



Underlining the multitude of interconnected issues, stakeholders proposed a range of co-operation measures related to sustainable agriculture, pasture, forest, and mountain management, focusing specifically on information exchange and joint development of land management plans.

### 2. Disaster risk reduction (DRR)



Both countries are subject to extreme hydrometeorological events and forest fires, which can undermine human security. Azerbaijan and Georgia have co-operated in DRR- and wildfire management-related activities in the past, and their hydrometeorological agencies have a long tradition of working together. As noted by stakeholders, these shared risks and history of co-operation provide favourable grounds to deepen co-operation on DRR.



Therefore, stakeholders suggested that future co-operation measures could involve jointly developing and expanding DRR-related infrastructure and services, including early warning systems, hydrometeorological observation networks, and modelling capacities. DRR-related measures could also involve fostering cross-border collaboration between local communities from Azerbaijan and Georgia, developing joint action plans, and harmonizing policies.



### 3. Integrated water resources management (IWRM)



The Kura River Basin and its tributaries such as the Alazani/Ganykh River are important transboundary water resources that are shared by Azerbaijan and Georgia. Stakeholders emphasized the need to increase information-exchange regarding each country's water resource management reforms and related measures.



In addition, stakeholders frequently cited the need to develop, formalize, and implement a transboundary basin-level management plan and governance mechanism to oversee and co-ordinate IWRM measures. Subsequently, such IWRM measures would include joint monitoring and status assessment programs, information and data exchange, and co-operation on hydropower and fisheries. According to stakeholders, the Alazani/Ganykh River Basin would particularly benefit from such a transboundary IWRM plan.

### North-west Azerbaijan and North-east Georgia



Identified as a shared climate change and security hotspot in the 2017 OSCE-led ENVSEC study, North-west Azerbaijan and North-east Georgia was reaffirmed as a shared hotspot during the consultation process. Additionally, stakeholders placed DRR and joint water management as top priorities for co-operation between the two countries for this hotspot.



The shared hotspot hosts important transboundary forest and alpine ecosystems, with relatively dense populations on both sides of the border, thereby making DRR a salient issue, particularly on forest fires. DRR-related measures for this hotspot can draw from nationwide measures as suggested by stakeholders.



Furthermore, the shared hotspot hosts the Alazani/Ganykh River Basin, which, in addition to a transboundary water management plan, would also benefit from joint water balance assessments for the watershed, an update of hydrological models, and exchange of such data. These additional measures would not only help to develop the transboundary water management plan, but also drought forecasting and hydrological modelling of the river basin.

### Outlook

Based on the consultation process' findings, the project's next phase will develop a pre-feasibility study and concepts for one or two measures for a selected topic or at the hotspot. The selection and development of the studies will be participatory in nature. The scope of stakeholders will be broadened to include additional experts and relevant national and local government stakeholders, civil society, academia, private sector, as well as regional and international stakeholders. This will not only leverage existing knowledge and expertise, but also strengthen ownership of the proposed measures as well as enhance synergies with other regional initiatives.

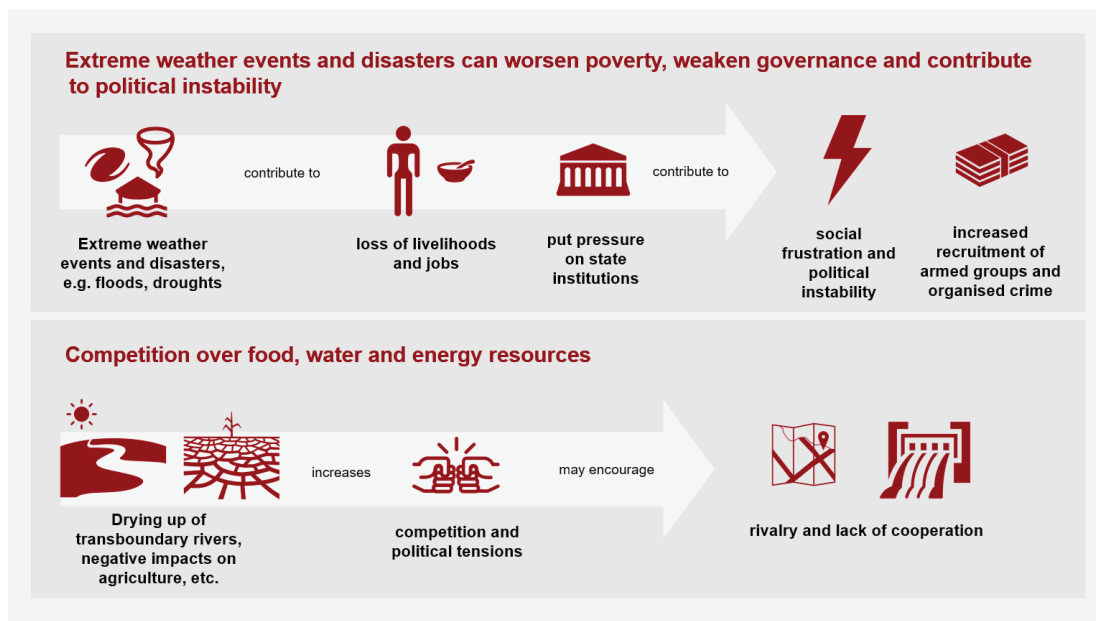
# 1 Introduction

## 1.1 Climate change as a security risk

Climate change can impact security in a number of ways. While it does not directly cause conflict, it interacts with other pressures including population growth, unequal economic development and resource constraints to influence security landscapes.

In other words, climate change acts as a risk multiplier. For example, it can change the access to or availability of natural resources, which can increase competition both within and across borders. At the same time, reduced efficiency of energy production, caused by both higher temperatures and lower precipitation, as well as threats to energy production and transmission infrastructure from extreme weather events, puts supply chains and energy security at risk. Increasing demand for water and an unreliable supply puts pressure on existing water governance arrangements and can complicate political relations, particularly in transboundary basins that lack co-operation frameworks.

**Figure 1: Examples of climate-related security risks.**



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Climate-induced extreme weather events and disasters, meanwhile, can aggravate political instability and put livelihoods at risk, which can be a push factor for people to migrate or turn to illegal sources of income. Finally, climate change can also affect food production and increase food price volatility. Rapidly rising food prices in turn can act as catalysts for social instability, violent protests and civil unrest.

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## 1.2 Project

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Against this backdrop, OSCE, in partnership with adelphi, has embarked since 2020 on a new extra-budgetary financed project “Strengthening responses to security risks from climate change in South-Eastern Europe, Eastern Europe, the South Caucasus and Central Asia” (Project Number: 1102151). This project builds on the results of an earlier OSCE project “Climate Change and Security in Eastern Europe, Central Asia, and the South Caucasus”, which was led by the OSCE, implemented together with the Environment and Security (ENVSEC) Initiative partners (UNEP, UNDP, UNECE and REC) and funded by the European Union Instrument for Stability and the Austrian Development Agency.

The new project aims to achieve the following:

1. To identify and map potential climate-security hotspots in the South-Eastern Europe region using a participatory methodology
2. To develop and implement climate change and security risk reduction measures and risk management strategies for selected transboundary hotspot areas in South-Eastern Europe, Eastern Europe, the South Caucasus, and Central Asia
3. To raise awareness on the linkages between climate change and security, especially by targeting policy makers, parliamentarians, civil society and the media
4. To conduct a gender analysis of climate security in the OSCE region

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## 1.3 Report and process

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This report presents the results of the bilateral consultation process on climate change and security between Azerbaijan and Georgia. Building on earlier work in the context of the predecessor project, the first phase of the current project aims to identify co-operation opportunities to address the security implications of climate change. The outlined opportunities will serve as a starting point for the second phase, which will involve the development and implementation of co-operation measures.

The consultation process took place in a virtual format between March and June 2021 and involved stakeholders from governmental bodies, civil society organizations, and academia. It consisted of a launch event, a survey and a closing event, which concluded the first phase of the project’s work in Azerbaijan and Georgia:

- **Launch event:** 35 stakeholders (13 female and 22 male) from Azerbaijan and Georgia attended the launch event on 1 March 2021. The main focus of the discussions during the event was to identify opportunities for transboundary co-operation between the two countries to address the security implications of climate change. Specifically, the discussions aimed to revisit the shared hotspot (i.e. North-west Azerbaijan and North-east Georgia) and co-operation topics that were identified in the 2017 OSCE-led ENVSEC study “Climate Change and Security in the South Caucasus”, and to identify new ones.

- **Survey:** After the launch event, an online survey was used to prioritize and explore in more detail each topic and hotspot. Participants were asked to specify, for each priority topic, transboundary activities or measures that could be used to address climate and security risks, why they prioritized certain topics, and what existing initiatives or new projects these measures could build on or have synergies with. These questions were also posed more specifically for the shared hotspot of North-west Azerbaijan and North-east Georgia. The survey was intended to elucidate experts' views on these topics in more depth and should not be seen as a representative sample. Priority rankings of each topic were assessed based on two factors: (1) the number of respondents who confirmed the topic as a priority, and (2) the distribution of respondents across both countries, such that a more balanced number of respondents from both countries would indicate that both countries collectively consider the topic as a priority.
- **Closing event:** 44 stakeholders (19 female and 25 male) attended the closing event of the first phase of the consultation process on 1 June 2021. The outcomes of the consultation process were presented during the event, along with a discussion of the findings and next steps. Input by stakeholders was taken into consideration during the preparation of the final version of the report.

Regional experts played a key role in the consultation process and the writing of this report. The OSCE and adelphi contracted local experts from Azerbaijan and Georgia to assist in the process and the preparation of this report.

This report outlines the results of the consultation process and is composed of the following parts:

- **Chapter 2** provides a brief overview of the security implications of climate change in the South Caucasus, based on the 2017 OSCE-led ENVSEC study 'Climate Change and Security in the South Caucasus', along with updates from desktop research and stakeholder input during the consultation process.
- **Chapter 3** outlines the top three priority topics for co-operation as well as the priority shared hotspot and related topics for Azerbaijan and Georgia. The selection of these topics, hotspot and co-operation opportunities are based on findings from the 2017 OSCE-led ENVSEC study and results of the consultation process, supplemented with additional input from project experts and desktop research.
- **Chapter 4** concludes the report by reviewing the results of the consultation process and reiterating the motivation and possible impact of the project. It then looks ahead to next steps of the project.
- The **Annex** provides more details about the consultation process and the methodology used.

## 2 Regional climate context

This chapter provides a brief overview of the potential security implications of climate change in Azerbaijan and Georgia, based on the 2017 OSCE-led ENVSEC study 'Climate Change and Security in the South Caucasus' (ENVSEC, 2017), along with updates from desktop research and stakeholder input during the consultation process.<sup>1</sup>

### 2.1 Climate trends and projections

The South Caucasus is subject to extreme hydrometeorological events, which have been increasing in frequency and intensity, and are often associated with flooding, mudflows, landslides and soil erosion. The region is also prone to droughts and heatwaves, as well as extreme weather events such as hailstorms, frosts and strong winds. Because the region is located between two major water bodies (e.g. the Black Sea and Caspian Sea), sea-level rise and coastal flooding pose an additional threat to coastal areas.

These climate trends are reflected in the latest climate projections for both Azerbaijan and Georgia, which predict a continued warming of air temperatures. In Azerbaijan, according to different models, temperatures are expected to rise by 2-6°C by 2098,<sup>2</sup> along with the probability of heat waves and severe drought (Ministry of Ecology and Natural Resources (Azerbaijan), 2021). In Georgia, average annual temperatures are projected to rise by 2.1-3.7°C by the end of the century,<sup>3</sup> along with an increase in the number of hot days and decrease in the number of frost days (Ministry of Environmental Protection and Agriculture (Georgia), 2021).

Precipitation projections, however, are more variable in both countries and should be viewed with caution due to significant levels of uncertainties associated with their estimations. Precipitation is projected to increase by 10-20% in the eastern regions, and decrease by 10-20% in other areas in Azerbaijan by 2071-2098.<sup>4</sup> At the same time, precipitation is only marginally more likely to fall during summer months and to rise during winter months, relative to the baseline period (Ministry of Ecology and Natural Resources (Azerbaijan), 2021). In Georgia, annual precipitation is expected to decline: by 2041-2070, the projected average decrease in Eastern Georgia is 9%, while in Western Georgia, the decrease will range between 3.6 and 15.3%,<sup>5</sup> although some areas such as in Zugdidi and Poti will see an increase in precipitation (Ministry of Environmental Protection and Agriculture (Georgia), 2021).

<sup>1</sup> This chapter is based on the 2017 report, unless referenced otherwise.

<sup>2</sup> Based on RCP8.5 scenario and baseline period of 1986-2005.

<sup>3</sup> Based on RCP4.5 scenario and baseline period of 1971-2000.

<sup>4</sup> Based on RCP8.5 scenario and baseline period of 1971-2000, using the Geophysical Fluid Dynamics Laboratory (GFDL) model.

<sup>5</sup> Based on RCP4.5 scenario and baseline period of 1971-2000.

Under these climate change scenarios, both Azerbaijan and Georgia could see a shrinking of water resources. In Azerbaijan, the observed decline in winter precipitation and snow water resources have already led to an overall decrease in surface and ground water resources throughout the country (Ministry of Ecology and Natural Resources (Azerbaijan), 2015). Meanwhile, Georgia could see a reduction in annual river flows: the Rioni River in western Georgia, for example, could experience a drop in annual mean discharge of 3-5% by 2071-2100 compared to the period 1971-2000 (Ministry of Environmental Protection and Agriculture (Georgia), 2021). Evidence suggests that glaciers, which play a key role in Georgia's water regime, have been shrinking in area and numbers in the past 50 years, with a particularly pronounced effect in Eastern Georgia (Ministry of Environmental Protection and Agriculture (Georgia), 2021).

Natural hazards could also become more frequent and intense in both countries under these climate projections, with severe consequences for forest and mountain ecosystems. In Azerbaijan, the growing frequency and intensity of floods and droughts could threaten forest cover, while warmer temperatures and stronger winds could lead to more forest fires (Ministry of Ecology and Natural Resources (Azerbaijan), 2015). Similarly, drought and desertification may affect arid and semi-arid landscapes in Eastern Georgia, as well as sub-alpine and alpine zones in the mountainous regions, if temperatures continue to rise (Ministry of Environmental Protection and Agriculture (Georgia), 2021).

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## **2.2 Climate-related security risks**

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The climate trends and projections outlined in Section 2.1 will impact the region's economy, infrastructure and livelihoods. The 2017 OSCE-led ENVSEC study identified agriculture as one of the region's most sensitive economic sectors to climate change, thus posing risks for livelihoods and food security. In Azerbaijan, the main threats of climate change to agricultural productivity include irrigation water shortages, droughts, soil degradation, and salinization, with wheat and cotton production, viticulture, and pastures being the most affected sectors (Ministry of Ecology and Natural Resources (Azerbaijan), 2015). Georgia's livestock farming and viticulture are especially vulnerable to climate change impacts, either directly through heat stress, or indirectly through the spread of pathogens (Ministry of Environmental Protection and Agriculture (Georgia), 2021).

The region also has important (and transboundary) energy, industrial and transportation infrastructure, many of which are concentrated in densely populated urban areas. These infrastructure and urban centers are often located in mountainous areas or along coastlines, and are thus particularly exposed to climate change impacts.

Azerbaijan and Georgia also share a number of important transboundary natural resources. The Kura River Basin is the main river basin and water source shared between both countries. This river basin, along with its tributaries such as the Alazani/Ganykh River which is also shared by both countries, offers opportunities for water-related co-operation between the two countries.

In addition, the area between North-west Azerbaijan and North-east Georgia is home to ecologically and socio-economically important forest and alpine ecosystems. These shared natural resources are threatened not only by climate change impacts (e.g. decreases in precipitation and increases in drought severity), but also by human activities (e.g. deforestation and overgrazing).

From a security-perspective, climate-related impacts could increase competition over natural resources and undermine socio-economic stability and livelihood security across the region. In addition, climate change impacts can have direct and indirect consequences to human health, and add to existing gender inequalities, for example by exacerbating livelihood insecurity of women who are disadvantaged in terms of adaptive capacities such as financial resources or education compared to men. The role that climate change has in driving migration is also an emerging concern in the South Caucasus, as disasters and natural hazards have driven large-scale movements of people in the past, mostly within the region. Georgia's Fourth National Communication to the UNFCCC, for example, has identified migration as an important sector to consider in terms of climate change mitigation and adaptation (Ministry of Environmental Protection and Agriculture (Georgia), 2021).



## 3 Co-operation opportunities

This chapter presents the top three topics for co-operation between Azerbaijan and Georgia, along with the priority shared hotspot and related topics. The selection of these topics, hotspots and co-operation opportunities are based on findings from both the 2017 OSCE-led ENVSEC study as well as results of the consultation process which began in March 2021, supplemented with additional input from project experts and desktop research.

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### 3.1 Sustainable and climate-resilient rural development and land management

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Rural development and land management are highly interrelated, partly because of the relevance of agriculture and specifically pasture management for both topics. Agriculture and animal husbandry are important economic activities in the rural areas of both countries (ENVSEC, 2017). At the same time, these activities are a major contributing factor to land degradation and soil erosion. For example, Georgia's 2014 National Action Programme to Combat Desertification identified overgrazing and unsustainable agricultural practices as some of the key factors contributing to land degradation and desertification (Ministry of Environment and Natural Resources Protection (Georgia) et al., 2014). Both topics are also key to food and livelihood security for people relying on agriculture and animal husbandry.

Relatedly, rural development and land management are inextricably linked to forest and mountain ecosystems. Forests are an important source of fuel, wood, and livelihoods for rural communities, while also offering protection against soil erosion (FAO and UNECE, 2019). Mountain regions are naturally prone to landslides and mudslides, and the combination of climate change and anthropogenic factors could increase the frequency and intensity of these events, with detrimental impacts on rural mountain communities (ENVSEC, 2017).

Considering the multitude of interconnected issues at hand, the topic of rural development and land management is a top priority for co-operation between Azerbaijan and Georgia. Each country has implemented several projects at the national level – with some at the bilateral and regional levels as well – that address issues related to rural development, land degradation, forest management, and mountain regions (see below).

### Measures and activities

Co-operation between Azerbaijan and Georgia to address rural development and land management could include measures related to sustainable agriculture, pasture, forest, and mountain management. These include:

- Exchange of knowledge, experiences, and best practices in climate-resilient agricultural practices and infrastructure, sustainable irrigation systems, and sustainable pasture management in cross-border areas
- Joint development of sustainable land management plans (which could include, for example, measures to improve land fertility and reduce soil erosion and landslides), as well as capacity-building aimed at supporting the introduction of such plans
- Reforestation, afforestation, and sustainable use of forest resources
- Co-operation on land use management in mountainous areas

### Recent initiatives and projects

There are numerous government and civil society initiatives and co-operation projects that focus specifically on rural development and/or land management in both countries, at the national, bilateral, and regional levels. These can provide important entry points for future collaboration:<sup>6</sup>

#### Initiatives and projects in Azerbaijan:

- FAO/GCF Readiness Programme “Strengthening country capacities for NDC implementation in the Agriculture and LULUCF Sectors and supporting the identification of potential direct access entities from different sectors relevant for the implementation of the Country Work Programme in Azerbaijan” (2019-ongoing). The programme aims to “leverage private sector participation into climate investments”, focusing on the agriculture and land use, land-use change and forestry (LULUCF) sectors, and following a gender-balanced and participatory approach, to help Azerbaijan implement its NDCs (GCF, 2019).

#### Initiatives and projects in Georgia:

- Georgia has signed an Association Agreement with the EU, which includes provisions for EU-Georgia co-operation on promoting agricultural and rural development, and to ensure “respect for the integrity and interests of local communities, particularly rural areas, bearing in mind local development needs and priorities” in all co-operations at bilateral and European level (EU, 2020).
- GEF project “Achieving Land Degradation Neutrality Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands” (2020-ongoing). The project supports the implementation of Georgia’s Land Degradation Neutrality targets through the restoration and sustainable management of degraded pasture lands, focusing on the municipalities of Dmanisi, Gurjaani, and Kazbegi (GEF, 2020).

<sup>6</sup> This overview includes projects and initiatives highlighted by stakeholders and project experts during the consultation process, as well as projects that were implemented and/or funded by the OSCE and ENVSEC.

- EU-supported “European Neighbourhood Programme for Agriculture and Rural Development (ENPARD)” (2013-ongoing). The programme’s objective is three-fold: (1) to build capacity and support government institutions in the reform of the agriculture and rural development sector, (2) to improve employment and living conditions of rural populations by strengthening farmers’ co-operation skills and access to resources, and (3) to promote diversified social and economic opportunities in rural areas, particularly for women and youth, with due respect for the environment and cultural heritage (EU, n.d.).
- REC Caucasus/UNEP/GEF project “Generating Economic and Environmental Benefits from Sustainable Land Management for Vulnerable Rural Communities of Georgia” (2018-2021). The project aims to support sustainable land management practices and land rehabilitation to improve ecosystem functions and services and avoid land degradation, focusing on the municipalities of Sagarejo, Kvareli, Kareli, and Gori (REC Caucasus, 2018).
- REC Caucasus project “Land Restoration Measures to Prevent Land Erosion and to Maintain the Fertility of about 650 ha of Arable Land in Vulnerable Municipalities of Shida Kartli and Kakheti Regions” (2018-2020). The project aimed to secure the productivity of about 650 ha of arable land and reduce land degradation caused by wind erosion through re-establishment and/or rehabilitation of windbreak systems in the Gori and Kareli municipalities (REC Caucasus, 2020).

#### **Initiatives and projects at bilateral/regional level:**

- GIZ project “Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus (ECOserve)” (2018-2021). The project’s main objective is to improve “the preconditions for the sustainable and biodiversity-friendly use of natural resources in the prevailing land-use systems”, using a context-specific approach and focusing on land-use, natural resource use efficiency, and rural livelihoods (GIZ, n.d).
- NASA project “Long-Term Land Degradation in the Caucasus” (2018-2021). The project focuses on developing remote sensing approaches to monitor land degradation in the region, and to assess the effects of economic cores on land use across the region. Part of the project’s work is also to advance land use science via collaboration with remote sensing specialists, economists, and experts from the region (NASA, n.d.).

As rural development and land management are closely related to other topics such as forests, mountains, and agriculture, the following projects are also important to note:

#### **Initiatives and projects in Azerbaijan:**

- UNECE/FAO-supported “National Forest Programme on the protection and sustainable development of forests in the Republic of Azerbaijan” (2021-2030). Drafted in accordance with the “Strategic Roadmap for the production and processing of agricultural products in the Republic of Azerbaijan”, the draft programme covers climate change adaptation and rural development in the context of sustainable forest management (UNECE and FAO, 2019).
- FAO/GEF-supported project “Forest Resources Assessment and Monitoring to Strengthen Forest Knowledge Framework in Azerbaijan” (2018-ongoing). The aim of this project is to “introduce sustainable forest management into Azerbaijan in order to increase social and economic benefits from forests, to improve the quality of existing forest and to increase carbon sequestration.” It also aims to create suitable conditions for large-scale rehabilitation and restoration of degraded forest areas (FAO and GEF, 2017).

**Initiatives and projects in Georgia:**

- ADC/CENN project “Promoting Sustainable Forest Management for Climate Resilient Rural Development in Georgia” (2018-ongoing). The project aims to reduce rural poverty and help Georgia deliver its commitments under the SDGs, NDC, and EU Association Agreement with regard to sustainable green growth. Particularly, the project’s main outcome is to “create an enabling environment and effective interagency coordination for improved forest and watershed management, sustainable rural energy solutions, and diversification of rural income opportunities” (ADC, n.d.).
- Adaptation Fund/IFAD project “Dairy Modernization and Market Access: Adaptation Component (DiMMAadapt)”. The project’s overall objective is to “enhance the resilience to climate change of vulnerable dairy producers”, through two components: (1) climate-proofing pastoral ecosystem services (water management, pasture regeneration, and DRR), and (2) supporting the climate resilience of market-vulnerable smallholders. (Adaptation Fund, 2019).

**Initiatives and projects at bilateral/regional level:**

- GEF/UNEP project “Upscaling of Global Forest Watch in Caucasus Region” (2018-ongoing). The project aims to “empower decision-makers in government and civil society with technology and information to help reduce deforestation, facilitate commitments to restoration and conserve forest biodiversity by developing innovative user-friendly tools that easily share information (and) provide on-the-fly analyses” (GEF, n.d.). Specifically, it focuses on addressing barriers that prevent the availability of up-to-date information, developing an interactive forest and land-use web-based portal to share information, and enabling legal and political conditions for forest restoration across sectors.
- SDC project “Adaptation at Altitude: Taking Action in the Mountains” (2020-ongoing). Launched and co-supported by SDC, this collaborative programme aims “to increase the resilience and adaptive capacity of mountain communities and ecosystems to climate change by: (1) improving the knowledge of appropriate climate change adaptation strategies in the mountains, and (2) transferring that knowledge through science–policy platforms to inform decision-making in national, regional and global policy processes” (Adaptation at Altitude, n.d.).
- IUCN/BMU-supported “Bonn Challenge” (2011-ongoing). The Bonn Challenge is a global initiative to restore degraded and deforested land, with the aim of restoring 350 million hectares by 2030 globally (IUCN, 2020). For the region of Europe, the Caucasus, and Central Asia specifically, the ECCA30 is a regional initiative to accelerate the implementation of the Bonn Challenge, as well as achievement of targets related to the Paris Agreement and Land Degradation Neutrality (InfoFLR, 2018). Both Azerbaijan and Georgia have committed to the Bonn Challenge (UNECE, 2019).
- “Emerald Network”, launched in 1989 by the Council of Europe under the Bern Convention on the Conservation of European Wildlife and Natural Habitats. The aim of this ecological network is to ensure “the long term survival of the species and habitats of the Bern Convention requiring specific protection measures”. Georgia has officially adopted Emerald Network sites in its territory, whereas Azerbaijan has officially nominated candidate Emerald Network sites (Council of Europe, 2021).

- SDC project “Strengthening the Climate Adaptation Capacities in the South Caucasus: Enhancing regional cooperative action for the benefit of the Caucasus mountain region (SCAC)” (2014-2018). The main goal of the project is “reducing the vulnerability of populations to climate-induced natural hazards and strengthening regional cooperation on climate adaptation and sustainable mountain development” (Sustainable Caucasus, 2018).

The following project does not specifically address rural development and land management, but as it supports broader climate action and low-emission development strategies, it could influence each country’s overall strategies in addressing these topics:

- EU/UNDP project “EU4Climate” (2018-ongoing). The project aims to support six EU Eastern Partner countries in implementing the Paris Agreement and improving climate policies and legislations. These include, for example, supporting partner countries’ Nationally Determined Contributions (NDCs), low-emission development strategies (LEDS), and alignment with the EU acquis (EU4Climate, n.d.).

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### **3.2 Disaster risk reduction**

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The South Caucasus region is subject to extreme hydrometeorological events, which have been increasing in frequency and intensity, and are often associated with flooding, mudflows, landslides and soil erosion (ENVSEC, 2017). In addition, forest fires constitute another threat: in Azerbaijan, record temperatures in the summer of 2014 led to droughts and subsequent forest fires that burned a total of 58.8 hectares of forests, according to the State Statistics Committee (Ministry of Ecology and Natural Resources (Azerbaijan), 2015). Similarly, in Georgia, large-scale fires in the Borjomi Gorge in 2017 coincided with a very hot summer and drying of vegetation cover in the same year (Ministry of Environmental Protection and Agriculture (Georgia), 2021). These climate-related disasters pose direct risks to lives and livelihoods of the population in both countries.

Both countries have co-operated in the past on disaster risk reduction (DRR)- and wildfire management-related activities. For example, most recently, during the 2017 fires in the Borjomi Gorge in Georgia, Azerbaijan supplied firefighting equipment to Georgia to help the country combat the fires (Agenda, 2017). Furthermore, stakeholders of the consultation process pointed out the long tradition of exchange and co-operation between each country’s hydrometeorological agencies within the frameworks of regional projects, which has established good working relations between the countries.

Against this backdrop, DRR emerged as a priority topic for co-operation between Azerbaijan and Georgia, particularly with regards to forest fires and wildfires. As noted by stakeholders, the shared concerns and past collaborations between both countries regarding DRR and fires provide favorable grounds to deepen co-operation on the topic.

### Measures and activities

Given the history of co-operation in fire management between Azerbaijan and Georgia, future co-operation measures on DRR could involve jointly developing and expanding DRR-related infrastructure and services. Stakeholders of the consultation process thereby suggested the following measures to jointly address fire management and DRR more broadly:

- Establishment of early warning systems
- Expansion of hydrometeorological observation networks and modelling capacities to provide reliable information on climate-induced hazards
- Organization of joint trainings and seminars on DRR practices
- Exchange of hydrometeorological data and early warning systems analysis, particularly in cases where disasters are anticipated to affect border areas
- Fostering cross-border collaboration between local communities
- Development of joint action plans and harmonization of policies

### Recent initiatives and projects

In addition to past collaborative efforts between Azerbaijan and Georgia in the area of fire management described previously, there are several projects and initiatives at the national and bilateral/regional levels that address fire management as well as DRR more broadly, particularly on enhancing early warning systems and wildfire management:<sup>7</sup>

#### Initiatives and projects in Georgia:

- Georgia has signed an Association Agreement with the EU, which includes provisions for EU-Georgia co-operation on DRR and in “improving the prevention of, preparation for and response to natural and man-made disasters” (EU, 2020).
- Ministry of Environmental Protection and Agriculture of Georgia/GCF/UNDP/SDC project “Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia” (2018-ongoing). The project aims to “reduce exposure of Georgia’s communities, livelihoods and infrastructure to climate-induced natural hazards”, by focusing on a nationwide scaling-up of several projects and initiatives related to multi-hazard early warning systems and risk-informed local action (UNDP, n.d.).

#### Initiatives and projects at bilateral/regional level:

- EU project “PPRD East – Prevention, Preparedness and Response to Natural and Man-made Disasters in the Eastern Partnership Countries” (Phase 1: 2010-2014; Phase 2: 2014-2019; Phase 3: 2020-ongoing). The project aims to “strengthen disaster risk reduction and crises management in the Eastern Partnership countries and to promote regional cooperation with the EU Civil Protection Mechanism” (EU Neighbours, n.d.a; PPRD East 3, 2020).

<sup>7</sup> This overview includes projects and initiatives highlighted by stakeholders and project experts during the consultation process, as well as projects that were implemented and/or funded by the OSCE and ENVSEC.

- OSCE/GFMC project “Enhancing National Capacities on Fire Management and Wildfire Disaster Risk Reduction in the South Caucasus” (2009-2017). The project aims to “assist the South Caucasus countries in enhancing their fire management capacities”, and has undergone three phases which focused on: (1) national and regional trainings, (2) wildfire risk assessments and analysis of legal and institutional framework for wildfire management at country level, and (3) support for development and implementation of national fire management policies in each partner country (GFMC, 2017).

Furthermore, several projects related to rural development and land management have elements of DRR (see Section 3.1). However, it should be noted that these projects have largely been implemented at the national level, with several stakeholders during the consultation process pointing out that there have not been sufficient initiatives to address DRR specifically at the bilateral scale.

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### 3.3 Integrated water resources management

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The Kura River Basin and its tributaries such as the Alazani/Ganykh River are important transboundary water resources that are shared by Azerbaijan and Georgia. These shared resources present common challenges, but also opportunities for both countries to work together to ensure sustainable water use and management, which could be achieved by jointly implementing the principles of integrated water resources management (IWRM).

In addressing this topic, stakeholders pointed out the need to consider Georgia’s ongoing engagement with the EU. Georgia is currently undertaking systemic reforms of its management of water resources in order to align its policies with the EU acquis. These reforms, which include the introduction of river basin management plans, are part of Georgia’s commitments under its EU Association Agreement<sup>8</sup> (EU, 2020). Hence, stakeholders outlined the need to increase information-exchange regarding water resource management reforms and measures that are currently taking place in both countries as an important first step in jointly addressing IWRM.

In addition, water is and will continue to be a pressing issue for both Azerbaijan and Georgia, particularly as climate change projections indicate a further warming of temperatures and decrease in precipitations and stream flows (see Section 2.1). Furthermore, there are several past and ongoing initiatives and projects addressing transboundary water management between both countries (see below). Therefore, IWRM remains a priority topic for future co-operation.

<sup>8</sup> The EU and Azerbaijan have adopted the recommendations of the EU-Azerbaijan Partnership Priorities in 2018, which outlines sustainable forest management and water basin management as main priorities in the fields of environmental governance and climate action (EU, 2018).

### Measures and activities

An important step in addressing IWRM that was frequently cited during the consultation process is the development, formalization, and implementation of a transboundary basin-level management plan and a governance mechanism, such as a council or commission, which would oversee and co-ordinate measures in line with the principles of IWRM. Such measures could include:

- Co-ordination of each country's respective river basin management plans
- Joint monitoring and status assessment programs to improve water quality and sustainable water use
- Regular exchange of hydrometeorological data and information (e.g. precipitation, water discharge), water pollution monitoring data, and other information and experiences on planned activities and water-related issues
- Co-operation on hydropower construction and management
- Co-operation on fisheries conservation and management

According to stakeholders during the consultation process, one example of a river basin that would benefit from such a transboundary plan or council/commission was the **Alazani/Ganykh River Basin**, which is a sub-basin of the Kura River Basin. For more details, see Section 3.4.

### Recent initiatives and projects

Discussions over IWRM during the consultation process frequently cited the **Kura River Basin** as an important point for co-operation between Azerbaijan and Georgia. Stakeholders referred to the draft agreement on “**Co-operation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin**”, which was developed and negotiated through six rounds of bilateral consultations between Azerbaijan and Georgia, organized and facilitated by the OSCE and UNECE. The draft agreement provides a framework for co-operation between two countries on water pollution prevention and control, conservation of biodiversity, emergency situations, data and information sharing, and public participation. It also envisages the establishment of a Joint Commission for protection and rational use of water resources of the Kura River Basin.

Within this draft agreement, which is yet to be finalized, stakeholders underscored the need to establish the transboundary water basin commission as envisaged, as well as other IWRM-related measures, including:

- Joint management of an optimal monitoring network of surface and groundwater
- Development of a transboundary water allocation plan based on IWRM principles
- Exchange of knowledge regarding river management practices



In this regard, one important project between Azerbaijan and Georgia that aims to advance IWRM principles in the Kura River Basin is the UNDP/GEF project “Advancing Integrated Water Resource Management (IWRM) across the Kura river basin through implementation of the transboundary agreed actions and national plans” (2017-2021). Also known as the **Kura River II Project**, the project aims to strengthen and harmonize co-ordinated conjunctive transboundary ground and surface water management for the Kura River Basin (IW:LEARN, 2021). This project builds on its previous phase “Reducing Transboundary Degradation in the Kura-Aras Basin” (2011-2014), which focused on the preparation of transboundary diagnostic analysis to identify issues in the Kura-Ara(k)s River Basin, namely (1) variation and reduction of hydrological flow, (2) deterioration of water quality, (3) ecosystem degradation in the river basin, and (4) increased flooding and bank erosion (IW:LEARN, n.d.). One key outcome of this project was the development of a Strategic Action Programme for the basin, endorsed in June 2014 by the relevant ministries of both countries and whose implementation would lead to basin-wide harmonized IWRM efforts (UNDP, 2016).

Another notable project that is helping all countries in the South Caucasus with regards to IWRM is the EU-funded project “**EU Water Initiative Plus for Eastern Partnership Countries**” (EUWI+). The project aims to support partner countries in improving the management of water resources, particularly transboundary rivers, to enable them to bring their national policies in line with EU acquis, specifically the EU Water Framework Directive (International Office for Water, n.d.a).

Under the EUWI+, several river basin management plans at the national level have been or are currently being developed for a number of river basins in both countries, some of which, like the Alazani-Iori River Basin, are transboundary (EU et al., 2016; International Office for Water, n.d.b; International Office for Water, n.d.c). However, stakeholders of the consultation process underscored the need to bring river basin management plans into legislation, as well as to go beyond the national level and develop transboundary river basin management plans. This would especially be pertinent for the Alazani/Ganykh River Basin (see Section 3.4).

Under the EU-funded “**Shared Environmental Information System (SEIS) II East**” project, Azerbaijan<sup>9</sup> and Georgia<sup>10</sup> have developed their respective information and knowledge platforms on water data and water resources management. These platforms were developed based on new information technologies and methodologies used in EEA member countries, including flexible content management systems, and are intended to support knowledge-based policymaking in both countries (ENI SEIS II, 2016a; ENI SEIS II, 2016b).

<sup>9</sup> Azerbaijan’s Water Information System (EcoPortal) is available at: <https://meteo.az/su>.

<sup>10</sup> Georgia’s Water Information System is available at: <http://wis.mepa.gov.ge/>.

Other projects and government initiatives that are relevant for consideration with regards to potential IWRM co-operation include:<sup>11</sup>

#### **Initiatives and projects in Azerbaijan:**

- Azerbaijan has developed a National Water Strategy and Action Plan, which envisages a step-by-step implementation of river basin management principles, including where possible, transboundary ones. Adoption of this Strategy will be a significant step towards application of IWRM and EU Water Framework Directive principles.
- Azerbaijan has an Action Plan for 2020-2022 to ensure efficient use of water resources, which includes water use for irrigation.
- FAO/Ministry of Agriculture (Azerbaijan) project “Improved Water Governance: Towards Sustainable Agricultural Development” (2021-ongoing). The project aims to improve agricultural productivity, food security, conservation of land and water resources, and resilience of agriculture to climate change impacts, with the ultimate goal of strengthening national capacity in analysis, planning, and co-ordination for water resources management (UN, 2021).
- EU-funded project “Designing Green Public Investment Programme and Conducting Training in Azerbaijan” (2021-ongoing). The project will “contribute to the overall objective of diversifying water supply sources by using an increased mix of surface water and groundwater to ensure that water supply does not fall below water demand in future (taking into account the predictions of climate change impacts on the water resources)” (EU, 2021).

#### **Initiatives and projects in Georgia:**

- Georgia has signed an Association Agreement with the EU, which includes reforms to the country’s water legislation as well as plans to adopt river basin management principles at national level (EU, 2020).

#### **Initiatives and projects at bilateral/regional level:**

- OECD-supported “GREEN Action Task Force”. Established in 1993, the Task Force aims to “guide improvement of environmental policies in transition economies of Eastern Europe, Caucasus, and Central Asia (EECCA) by promoting the integration of environmental considerations into the processes of economic, social and political reform.” Part of its focus is on water, specifically on water resources management (OECD, n.d.).
- EU/UNDP project “EU4Climate” (2018-ongoing). The project aims to support six EU Eastern Partner countries in implementing the Paris Agreement and improving climate policies and legislations (EU4Climate, n.d.). Although this project does not specifically address IWRM, it could influence both countries’ overall strategies in addressing the topic.
- EU project “Environmental Protection of International River Basins (EPIRB)” (2012-2016). The project aimed to “improve water quality and its management in the trans-boundary river basins” of the EU Eastern Partnership countries. Among its focus areas, the project supported countries in developing river basin management plans for selected river basins according to the requirements of the EU Water Framework Directive (Leonte, 2015).
- EU project “Transboundary River Management for the Kura River Basin Phase III” (2012-2013). Building on from the results of the previous phase of the project “Transboundary River Management for the Kura River Basin Phase II” (2008-2011), the project’s objective

<sup>11</sup> This overview includes projects and initiatives highlighted by stakeholders and project experts during the consultation process, as well as projects that were implemented and/or funded by the OSCE and ENVSEC.

is to “improve the water quality in the Kura River basin through transboundary cooperation and implementation of the integrated water resources management approach.” The project has helped the countries of the region build capacity to implement the requirements of the EU Water Framework Directive (EPTISA, n.d.; EU Neighbours, n.d.b; Pichugin, 2012).

- USAID project “South Caucasus Water Program” (2005-2008). Building on the previous USAID project “Water Management in South Caucasus” (2000-2004), the overall aim of this project was to “increase regional cooperation in the management of shared water resources that is effective and sustainable.” Two of its specific objectives were to “strengthen the institutional framework and capacity for transboundary basin management”, and to “promote regional, international discussion and cooperation in the region on the issues surrounding regional water management” (Jincharadze, n.d.).
- NATO/OSCE project “Science for Peace” (2002-2008). This project supported transboundary co-operation on river water quality and quantity monitoring and data sharing in the region (NATO, n.d.).
- BMU project “Transboundary Cooperation for Hazard Prevention in the Kura River Basin” (2003-2006). The main objectives of the project included, among others, supporting the preparation of warning and alarm systems in the countries of the region, and implementing international central warning centers for transboundary communication (Chikovani, 2005).
- EU project “Joint River Management Programme” (2002-2003). Funded by the EU through TACIS, the main aim of the project was to “test the application of the UNECE Guidelines on Monitoring and Assessment of Transboundary Rivers in four basins, of which the Kura was one, to suggest improvements to the Guidelines, to get agreement between the countries on the monitoring and assessment strategy as base for future cooperation in water management” (Warren, 2003).

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### 3.4 North-west Azerbaijan and North-east Georgia

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North-west Azerbaijan and North-east Georgia was identified in the 2017 ENVSEC study as a shared climate change and security hotspot, and this was confirmed during the consultations. It hosts the transboundary **Alazani/Ganykh River Basin**, as well as important transboundary forest and alpine ecosystems. Both sides of the border are relatively densely populated, with agriculture and animal husbandry playing a dominant role in the economy of the shared hotspot area (ENVSEC, 2017).

For this shared hotspot, two topics emerged as top priorities for co-operation between Azerbaijan and Georgia: **DRR** and **joint water management**. Measures and activities for both topics are largely similar as described previously in Sections 3.2 and 3.3. For joint water management, these measures would especially be relevant to the Alazani/Ganykh River Basin, particularly with regards to the development of a draft river basin management plan that is based on the EU Water Framework Directive.

Under the EU-funded project “**EU Water Initiative Plus for Eastern Partnership Countries**” (**EUWI+**), two national level river basin management plans have been or are currently being developed for this river basin. In Azerbaijan, a pilot river basin management plan was recently developed for the Kura River Basin district upstream of the Mingachevir Dam, which includes the Central Kura and Ganykh/Alazan<sup>12</sup> sub-basins (EUWI+, 2019). In Georgia, a draft river basin management plan for the Alazani-Iori River Basin has been developed and submitted to the Ministry of Environmental Protection and Agriculture of Georgia (EUWI+, 2020). According to stakeholders of the consultation process, these plans could be extended to develop a transboundary water management plan between both countries. Once a framework agreement is in place, such a plan could include, for example, a joint transboundary water allocation plan as well as measures to improve the river basin’s ecological status.

Furthermore, stakeholders of the consultation process highlighted that the Alazani/Ganykh River currently lacks sufficient water balance assessments (particularly on underground water resources) and hydrological monitoring, partly due to a lack of human and financial resources. This presents a major obstacle not only in terms of joint water management, but also for drought forecasting and hydrological modelling of the river basin. Hence, stakeholders recommended several specific measures for the river, including the development of water balance assessments for the watershed (especially on underground water resources), an update of the river’s hydrological models, and above all, exchange and sharing of such data and information. These measures would subsequently form the basis for the development of a transboundary management plan for the Alazani/Ganykh River Basin.

Measures at the Alazani/Ganykh River Basin can draw on recommendations that were identified in the 2015 UNECE assessment of the water-food-energy-ecosystems nexus in the basin, which touched on solutions related to institutions, information, instruments, investments, and international co-operation and co-ordination (UNECE, 2017).

<sup>12</sup> The document refers to the basin as “Ganikh/Alazan”.

## 4 Conclusions

Climate change impacts across the South Caucasus are increasing. These impacts are affecting shared natural resources, thereby exacerbating risks for human security, livelihoods, and economic development. As these risks are shared across the region, they also provide entry points for co-operation.

The consultation process between Azerbaijan and Georgia has shown that there is great potential for transboundary co-operation to address climate-related security risks in the region. In each of the identified priority areas (sustainable and climate-resilient rural development and land management, DRR, and IWRM) and for the transboundary hotspot (North-west Azerbaijan and North-east Georgia), a number of initiatives and projects already exist. However, many of these activities are currently focused on the national level, and there is space to complement and expand these to the bilateral level.

For Azerbaijan and Georgia, this could start with the exchange of data, information, experiences, and best practices relevant to each priority area. This could, for example, include exchanging information on sustainable agriculture, pasture, forest, and mountain management, and jointly engaging in reforestation activities. Regarding DRR, both countries could jointly develop and expand DRR-related infrastructure and services. On the topic of IWRM, both countries could expand from national level basin management plans towards developing and implementing transboundary ones, building on from the experiences and co-operation in developing the draft agreement on the Kura River Basin. And for the hotspot of North-west Azerbaijan and North-east Georgia, home to the Alazani/Ganykh River Basin, both countries could specifically focus on jointly addressing transboundary water management and DRR-related issues.

Based on these findings, the project's next phase will develop a pre-feasibility study and concepts for one or two measures for a selected topic or at the hotspot, all of which will be participatory in nature. The scope of stakeholders will also be broadened to include other experts and relevant national and local governmental stakeholders, civil society, academia, private sector, as well as regional and international stakeholders. This will not only leverage existing knowledge and expertise, but also strengthen ownership of the proposed measures as well as enhance synergies with other regional initiatives.

## 5 Annex: Consultation process and methodology

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### 5.1 First selection of topics and hotspots

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This section provides an overview of the shared topics and hotspots that served as the basis for the consultation process. The shared hotspots and topics are derived from the 2017 OSCE-led ENVSEC study (ENVSEC, 2017), and were discussed and consolidated during the launch event on 1 March 2021 (see Section 5.2).

#### Shared topics

- **Sustainable and climate-resilient urban development.** Relevant:
  - for the capital cities Baku and Tbilisi (particularly with regards to risks linked to heatwaves, landslides, and sustainable transport), and
  - in areas that experience rapid urbanization (e.g. along the Caspian Sea, and in the Siyazan Region, Azerbaijan)
- **Integrated river basin management, including hydropower management.** Relevant in:
  - the Alazani/Ganykh River Basin, which is shared by both countries,
  - the Kura-Aras Lowlands in Azerbaijan, and
  - the Mtskheta-Mtianeti region (e.g. with its Aragvi River and hydropower) in Georgia
- **Resilient mountain ecosystems.** Relevant in:
  - the shared hotspot (North-west Azerbaijan and North-east Georgia),
  - the districts of Ismailli and Shamakhi in Azerbaijan, and
  - most other hotspots in Georgia (i.e. the regions of North-West Georgia, Mtskheta-Mtianeti, and Kakheti)
- **Coastal adaptation.** Relevant for:
  - almost all hotspots in Azerbaijan as most of them are located along the Caspian Sea (i.e. Baku and Absheron Peninsula, Kura-Aras Lowlands, Siyazan Region, and Lankaran/Astara Region), and
  - Adjara and the Black Sea coast in Georgia
- **Sustainable and climate-resilient agriculture.** Relevant for:
  - the Kura-Aras Lowlands, Siyazan Region, Lankaran/Astara Region, and the districts of Ismaili and Shamakhi in Azerbaijan, and
  - the Kakheti Region and Adjara and the Black Sea Coast in Georgia
- **Responsible and climate-resilient industry.** Relevant for:
  - Baku and Absheron Peninsula in Azerbaijan, and
  - Adjara and Black Sea Coast in Georgia

- **Sustainable and climate-resilient forests.** Relevant in:
  - the shared hotspot (North-west Azerbaijan and North-east Georgia), and
  - Tbilisi, Georgia (particularly with regards to urbanization and building development in adjacent forests and on hillsides)
- **Climate-resilient infrastructure** (for energy and transport). Relevant for:
  - Baku and Absheron Peninsula in Azerbaijan, and
  - the Mtskheta-Mtianeti Region and Adjara and Black Sea Coast in Georgia
- **Disaster risk reduction.** Relevant for:
  - the shared hotspot (North-west Azerbaijan and North-east Georgia), and
  - all hotspots where natural hazards such as floods and mudslides are concerned (e.g. Kura-Aras Lowlands in Azerbaijan, and Adjara and Black Sea Coast in Georgia)
- **Sustainable and climate-resilient tourism.** Relevant:
  - for most hotspots in Georgia, particularly North-west Georgia, Mtskheta-Mtianeti Region, and Adjara and Black Sea Coast

### Shared hotspot

**North-west Azerbaijan and North-east Georgia:** This shared hotspot hosts the transboundary Alazani/Ganykh River Basin, as well as important transboundary forest and alpine ecosystems. Both sides of the border are relatively densely populated, with agriculture and animal husbandry playing a dominant role in the economy of the shared hotspot. In addition to pasture degradation due to overgrazing, the hotspot is also threatened by a decline in precipitation, increase in temperature, and decreasing stream flow, which could hamper hydropower development. Topics for co-operation at this hotspot include:

- Disaster risk prevention and preparedness measures
- Transboundary co-ordination mechanisms for water management
- Integrate climate change considerations into planned hydropower projects
- Adaptation in the agricultural sector

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## 5.2 Results of the launch event

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The following section summarizes the results of the discussions during the launch event. These results were later explored in more detail in the survey (see Section 5.3).

### Shared topics highlighted during the discussion

Two **shared topics** emerged as priorities for co-operation opportunities during the discussions:

- The first topic was **integrated river basin management**, which could include the establishment of water basin councils, co-operation on hydropower management, and a system of sharing and exchanging information on water usage and water management plans.
- The second topic was **sustainable and climate-resilient rural development and land management**, which participants saw as necessary for addressing livelihood security. This would entail, among other measures, drought modelling and ecosystem monitoring, both of which are especially important for sustainable pasture and land management.

The discussions also brought to light additional and related co-operation topics for consideration. These include:

- **Sustainable and climate-resilient forest management:** this could include co-operation on reforestation and afforestation measures
- **Disaster risk reduction and preparedness:** future co-operation could build on the ongoing co-operation between Azerbaijan and Georgia in disaster and hazard preparedness, prevention, and response, and could also include, among other topics, fire management
- **Resilient mountain ecosystems:** this topic, specifically regarding alpine ecosystem management, is interlinked with sustainable agriculture and pasture management
- **Mining sector:** co-operation on this topic could consider addressing the environmental risks associated with the mining sector
- **Health:** topics of particular concern are potable water supply, infectious diseases and the health risks in urban areas such as air pollution and heat island effects
- **Sustainable urban development and resilient cities:** partnership and exchange between cities could focus on urban climate change adaptation and disaster risk reduction regarding heat waves and landslides/mudslides, as well as on additional topics regarding resilient and sustainable urban areas

Regardless of the topic, participants stressed the need to consider economic structures and social impacts, especially near transboundary areas, when prioritizing and developing measures to address shared topics. This would be key to ensuring sustainable economic development in the affected areas.



### Shared hotspots highlighted during the discussion

Participants confirmed that **North-west Azerbaijan and North-east Georgia** remains an important shared hotspot, specifically the **Alazani/Ganykh River Basin**. In general, participants confirmed that the recommendations set out in the 2017 OSCE-led ENVSEC study remain valid. These include the implementation of measures for disaster risk prevention and preparedness (given that part of the hotspot's risk management tools such as early warning systems and meteorological stations have limited capacities). Other recommendations include transboundary co-ordination mechanisms for joint water management, and the development of adaptation measures for the hotspot's agricultural sector, as the push for mechanized agro-industry will likely add more pressure on water resources. Additionally, participants also brought to attention co-operation opportunities surrounding drought forecasting, hydrological monitoring and modelling of the Alazani/Ganykh River Basin, which is a sub-basin of the Kura River Basin. These recommendations reiterate and extend those that have been identified in the 2015 UNECE assessment of the water-food-energy-ecosystems nexus in the Alazani/Ganykh River Basin, which touched on solutions related to institutions, information, instruments, investments, and international co-operation and co-ordination.

Beyond the Alazani/Ganykh River Basin, the wider **Kura River Basin** could also provide opportunities for co-operation. Specifically, the joint development of climate change scenarios for the Kura River was seen as necessary to better plan for future adaptation measures. The ongoing preparatory process for the draft agreement on "Co-operation in the Field of Protection and Sustainable Use of the Water Resources of the Kura River Basin" between Azerbaijan and Georgia was highlighted as an important step towards enhancing co-operation at the basin level.

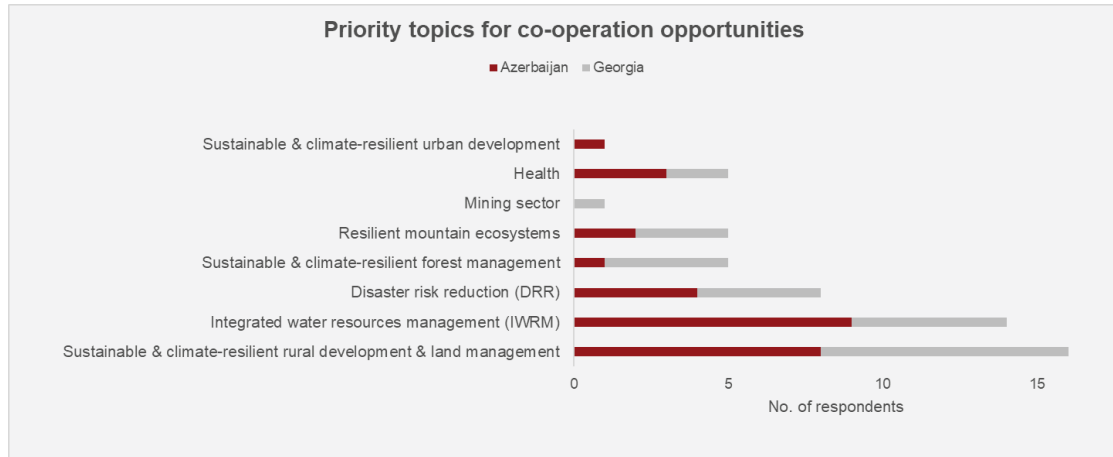
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## 5.3 Survey results

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This section provides an overview of the survey results. Figure 2 shows the number of respondents who confirmed and reassessed the priority of topics that resulted from the discussions during the launch event. For more details of the top priority topics and co-operation opportunities (i.e. sustainable and climate-resilient rural development and land management, DRR, and IWRM) that resulted from the survey, see Section 3.

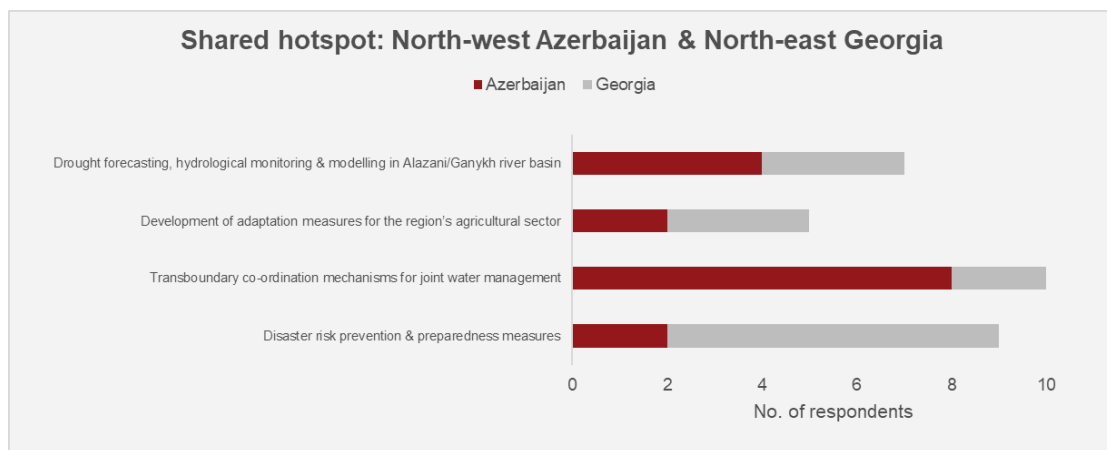
**Figure 2: Survey results on priority topics for co-operation opportunities between Azerbaijan and Georgia.<sup>13</sup>**



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Figure 3 shows the number of respondents who confirmed the priority of the topics for the shared hotspot North-west Azerbaijan and North-east Georgia that resulted from the discussions during the launch event. For more details of the top priority topics and co-operation opportunities (i.e. disaster risk prevention and preparedness measures, and transboundary co-ordination mechanisms for joint water management), see Section 3.4.

**Figure 3: Survey results on priority topics for co-operation opportunities in the shared hotspot North-west Azerbaijan and North-east Georgia.<sup>14</sup>**



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<sup>13</sup> The numbers shown in the figure represent those who completed the survey. It should be noted that these numbers exclude stakeholders who did not participate in the survey but confirmed that they have issued joint responses and/or referred to their respective colleagues' responses.

<sup>14</sup> The numbers shown in the figure represent those who completed the survey. It should be noted that these numbers exclude stakeholders who did not participate in the survey but confirmed that they have issued joint responses and/or referred to their respective colleagues' responses.

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## 5.4 Closing event

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The closing event was held on 1 June 2021, and attended by a total of 44 participants (19 female and 25 male), representing the project's stakeholders in Azerbaijan and Georgia, as well as the Delegation of the OSCE Participating States. The event began with opening remarks from Ambassador Vuk Žugić, Co-ordinator of OSCE Economic and Environmental Activities, Ms. Nino Tandilashvili, Deputy Minister of Environmental Protection and Agriculture of Georgia, and Ambassador Galib Israfilov, Permanent Representative of the Permanent Mission of the Republic of Azerbaijan to the OSCE.

The OSCE and adelphi then presented the project as well as the main results of the consultation process, drawing attention to the topics for co-operation opportunities that were identified during the process. The project's next phase, which will involve the development and implementation of co-operation measures, was also discussed.

This was followed by a tour de table, with interventions from participants, including from the Ministry of Ecology and Natural Resources of Azerbaijan, National Hydrometeorology Service of Azerbaijan, the Ministry of Environmental Protection and Agriculture of Georgia, as well as from the report's contributors, all of whom expressed strong interest and support for deepening bilateral co-operation on the identified topics. They also reiterated the importance of enhancing the information exchange between the two countries as a basis for advanced co-operation, as well as the need to connect different sectors and levels of stakeholders, and to prioritize specific issues and topics to ensure the process remains effective and focused. The Delegations of the OSCE Participating States also contributed to the discussions.

Overall, participants agreed that such joint initiatives will contribute to each countries' individual efforts in meeting their respective climate action targets. Such initiatives will also further advance co-operation and good neighbourly relations between the two countries.

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