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Climate Change and Security in the OSCE Region

Scenarios for Action and Cooperation

Lukas Ruettinger, adelphi

FINAL PROJECT REPORT

On behalf of:

European Environment Agency

OSCE

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European Environment Agency

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Executive Summary

How climate change will impact security and stability in the OSCE regions will depend on the development and interaction of a number of key trends. Demographics, urbanization and growing resource demands are important, underlying driving forces that will shape these challenges. At the same time, a number of critical uncertainties will gain in importance over the next 50 years. How severely will climate change impact our environment, societies and economies? Will the global economy grow steadily and provide the basis for a transformation involving more sustainable technologies? Will natural resources be managed in a sustainable way or plundered without regard for future generations? And will states try to find cooperative solutions to these challenges or move apart and try to foster their own national interests? The interaction of these factors will either increase or decrease the potential of climate change to destabilize regions and countries.

A comparison of the scenarios developed during the project **pinpoints two common dynamics or pathways that shape how climate change, driving forces and critical uncertainties interact to create fragility and conflict** or how they can help peacefully manage crises and challenges. These dynamics clearly show that climate change is never the only factor or driver of instability and conflict. It primarily acts as a risk multiplier:

- Climate change is not just one of the multiple drivers of instability and conflict: If **crises with a destabilizing effect** occur, they **have more than one dimension** and span multiple sectors. This means that an environmental crisis can become an economic crisis. If not managed well, these environmental and economic crises can, in turn, create social unrest and political crises – in the worst case scenario leading to violent escalations and conflicts. In this context, regimes can change or take a more autocratic path. If set in motion, these vicious circles are extremely hard to stop or reverse. Urban centres are particularly prone to multi-dimensional or compound crises.
- The second pathway points in the opposite direction – towards more stability and resilience. In many scenarios **a political, economic, environmental or ecological crisis serves as a starting point for increased action and cooperation**. These crises can be environmental tipping points, extreme weather events, regime change and even violent conflicts and wars. These events serve as a shock to the system, creating the momentum and willingness to overcome political, economic or social barriers as well as narrow national interests. The new path involves a move towards better governance, early and comprehensive adaptation and intensive regional cooperation.

Based on this analysis, the scenario workshops, a roundtable on the Arctic and a literature review on the Southern Mediterranean, it was possible to identify the following **strategic reflections to tackle the security implications of climate change in the OSCE regions**:

- **Multi-dimensional strategies**: The multi-dimensional nature of the security risks and their emergence must be addressed by developing multi-dimensional strategies and approaches. Sector-specific strategies should be well coordinated to form a comprehensive approach.
- **Understand and analyse interactions and compound crises**: In order to develop multi-dimensional strategies, it is important to have a good understanding of the interactions between different sectors and risks as well as compound crises. Scenario development should be followed up by more in-depth analysis, such as vulnerability assessments, and the results should be integrated into decision-making processes.
- **Act early**: The next two decades will be decisive when it comes to adapting to climate change and preventing social and political dynamics that contribute to crisis and conflict. The scope of the challenges and their interdependent nature make it hard to manage them once they have crossed certain thresholds.

- **Foster regional cooperation and integration**: Regional cooperation and integration will be key to managing and coping with the challenges posed by climate change. Joint assessments can be a starting point. However, they should not only be technical in nature but also take into account the political dimension of the issues tackled.
- **Support key sectors for prevention and action**, namely environment and natural resource management, adaptation to climate change as well as good governance and inclusive economic and social policies.
- **Link conflict prevention with sectoral topics**: Conflict prevention must be an integral part of strategies and approaches from the outset in order to maximize their preventive impact.

In addition, it was possible to identify the following **regional priorities**:

- **Western Balkans**: The **water and energy sector** were identified as priority sectors. The inefficient management of transboundary rivers and insufficient adaptation pose particular challenges. Action should focus on the particularly vulnerable coastal and urban regions.
- **Eastern Europe**: **Food security** was clearly identified as the priority for the region. This includes specific action to enhance food security and the adaptation of the agricultural sectors, as well as broader economic policies, good governance and international cooperation.
- **Southern Caucasus**: The **water, agricultural and energy sectors** were identified as priorities, with water being the most pertinent challenge. In addition, extreme weather events and disaster preparedness and management were highlighted as priorities.
- **Central Asia**: The closely interconnected **water-energy-agricultural nexus** with its regionally integrated infrastructure poses the biggest challenge for the region. The water sector is highly politicized, but also key to adapting to the challenges posed by climate change. In addition, disaster preparedness and management was also identified as a key priority.
- **Arctic**: The expert roundtable did not pinpoint specific sectors, but did stress the importance of fisheries and hunting for the indigenous communities and environmental protection. The main challenge highlighted was establishing the **appropriate multilateral forum to institutionalize greater cooperation** among Arctic countries and relevant stakeholders.
- **Southern Mediterranean**: The **agricultural and water sector** were identified as priority sectors. However, broader social and economic challenges, as well as the development of political systems, good governance and moves towards more open and democratic societies were also key points.

The following **organizational reflections** were identified with regard to the **OSCE**:

On a **political level**, this project and report could be used as an opportunity to **bring the topic of climate change and security back onto the political agenda**. Different formats and forums could be used to discuss the project and its strategic implications: For example, a follow-up conference to the Chairmanship Conference in Bucharest in October 2009, the Environment and Economic Forum of the OSCE, and a joint session of the Forum for Security-Cooperation (FSC) and the Economic and Environment Forum could be used to broaden the discussion and include the security community.

On the **operational level**, the following steps will be key to successfully linking conflict prevention and the environment, natural resources and the climate:

- A **short practitioner brief** for OSCE field officers should be drafted, explaining how to link the environment, natural resources and the climate with conflict prevention.

- **Training sessions and professional support for the OSCE field office** should be provided, focussing on the environment, natural resources, the climate and conflict.
- The OSCE could also use their in-country presence to **create and support regional hubs for adaptation**.

The following **organizational reflections** were identified regarding the **EEA**:

On the **political level**, the EEA could support the efforts of the EU Foreign Affairs Council and the European External Action Service in the field of climate diplomacy by strengthening early warning systems and capacities to prevent conflicts.

On the **operational level**, the EEA could use four entry points:

- **Entry point I: Expand the Global Megatrends focus** to place more emphasis on climate change and security impacts.
- **Entry point II: Improve the analysis of impacts, vulnerability and adaptation to climate change**. The assessments of vulnerabilities and the analysis of national and sectoral climate change adaptation issues should be improved, particularly in specific regional contexts.
- **Entry point III: Refine hotspot analysis.** Analyses of trends regarding natural hazards and the linkages between disaster risk reduction and climate change adaptation already form an important part of EEA's activities. Building on their relevance for peace and stability, the EEA could develop and apply additional indicators for climate change, impact and adaptation measurement.
- **Entry point IV: Create regional climate security scenarios for the 2020-2050 period** to support adaptation monitoring and evaluation and help adaptation planning processes that are complementing national activities in this field.

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List of Abbreviations

APCS	Areas of Particular Climatic Significance
CAN	National Security and the Threat of Climate Change
EEA	European Environment Agency
EEAS	European External Action Service
EFTA	European Free Trade Association
ENVSEC	Environment and Security Initiative
EU	European Union
FSC	Forum for Security-Cooperation
IPCC	Intergovernmental Panel on Climate Change
MENA	The Middle East and North Africa region
NATO	North Atlantic Treaty Organization
OCEEA	The Office of the Co-ordinator of OSCE Economic and Environmental Activities
OSCE	Organization for Security and Co-operation in Europe
RICCAR	The Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region
SFRJ	Socialistic federative Republic of Yugoslavia
SOER	The European environment – state and outlook
UN	United Nations
UNSC	United Nations Security Council
WBGU	German Advisory Council on Global Change

1 Introduction

1.1 Background

Climate change or anthropogenic global warming has been receiving increasing attention with regard to its impacts on crisis and conflicts. Most research on the topic concludes that climate change has the potential to act as a threat multiplier (WBGU 2007, CNA 2007, Brown and Crawford 2009, Carius 2009, Hsiang et al 2013). This means that climate change can increase the risk of violent conflict by interacting with other conflict factors and global trends, such as population growth, resource depletion and urbanization, especially if it puts additional stress on already fragile security situations.

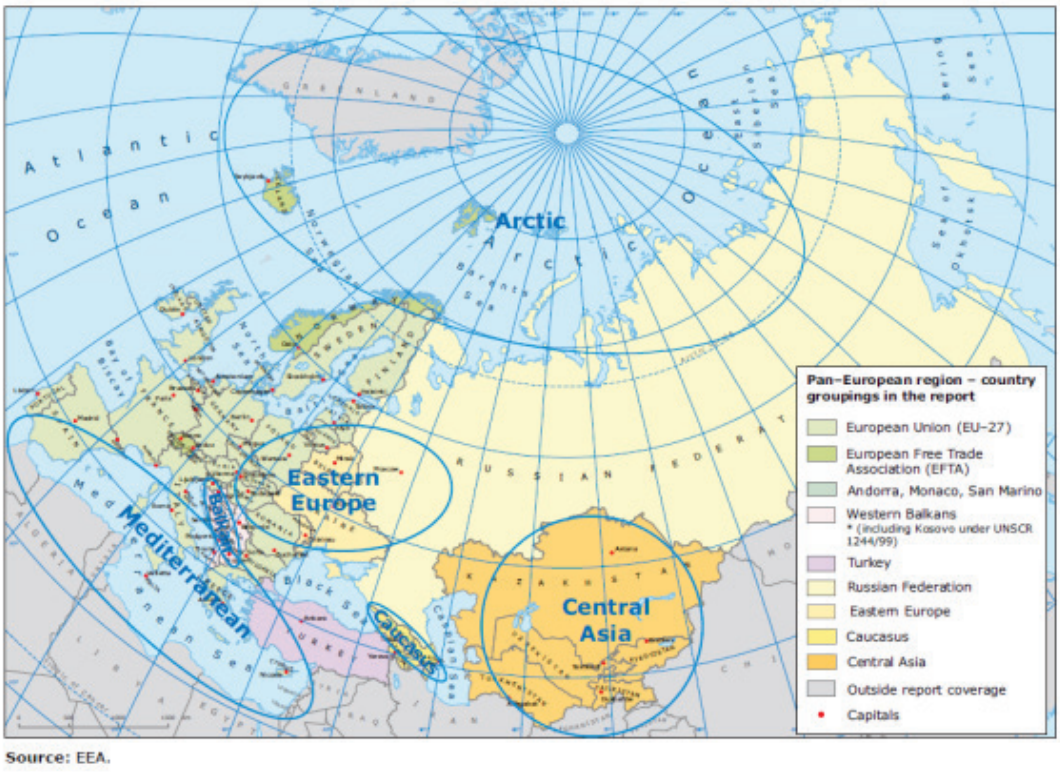
Increasingly, this has brought the topic to attention of policy-makers. In the past five years, the UN Security Council has held two major debates to discuss the implications of climate change on international peace and security. Convened by the United Kingdom in 2007 and by Germany in 2011, the latter meeting resulted in a formal presidential statement recognizing that "possible adverse effects of climate change may, in the long run, aggravate certain existing threats to international peace and security" (United Nations Security Council 2011). Engagement has been similarly strong on the EU level, culminating in a statement by the Foreign Affairs Council of the European Union, highlighting that climate change has important security implications (Council of the European Union 2011). The joint reflection paper "Towards a renewed and strengthened EU climate diplomacy" calls for mainstreaming climate action and the need for closer cooperation with third countries to provide expertise regarding adaptation, early warning systems and to prevent the conflicts highlighted (EEAS 2011)

The 2007 Madrid Ministerial Declaration on Environment and Security (OSCE 2007) recognizes that "climate change is a long-term challenge" and acknowledges that "the United Nations climate process is the appropriate forum for negotiating future global action on climate change, and the Organization for Security and Co-operation in Europe (OSCE), as a regional security organization under Chapter VIII of the United Nations (UN) Charter, has a complementary role to play within its mandate in addressing this challenge in its specific region."

1.2 Project and approach

Launched at the Chairmanship Conference in Bucharest in October 2009, the Office of the Co-ordinator of OSCE Economic and Environmental Activities (OCEEA) established an extra-budgetary project to address the security implications of climate change in the OSCE region. The OSCE and the European Environment Agency (EEA) joined forces to launch the project "Security Implications of Climate Change in the OSCE region" to assess the security implications of climate change in the OSCE region, namely in Southeast and Eastern Europe and Central Asia, as well as the Southern Caucasus, the Mediterranean, and the Arctic region. In addition, the aim was to raise awareness and develop recommendations and reflections on how to minimize risks and promote co-operation among participating countries.

Figure 1: Pan-European region – country groupings in the report



Source: EEA.

The project was divided into two main phases: The first phase involved a workshop and scoping study on the possible security implications of climate change in the OSCE region in 2010. Scenario workshops were conducted over the following two years exploring the security implications of climate change in Eastern Europe, the Western Balkans, Central Asia, and the Southern Caucasus. In addition to the scenario exercises, the project involved an expert roundtable on the Arctic in early 2013 and a literature review for the Southern Mediterranean.

Each of the scenario workshops conducted during this project brought together a group of national and international experts representing the different countries in a particular region. These experts came from the areas of policy, academia and civil society, and from national and international organizations. Background studies were conducted in advance to provide input for the workshops and to identify the specific focus and question of the workshop. The scenarios were developed for the year 2060.

Box: What are scenarios?

Scenarios are structured stories or narratives of how the world might look in the future. Drawing upon the best available scientific data and regional expertise, scenarios are a process of illustrating how changes might occur, what pathways those changes might take, and what repercussions they may have. Scenarios do not attempt to predict the future, but rather help to uncover what is not known, expected or monitored. In this way they help decision-makers deal with uncertainty, and plan for risks that might come as surprises (Maas et al. 2010).

1.3 Summary Report

This report summarizes and analyzes the results of the scenario workshops, the expert roundtable on the Arctic and the literature review on the Southern Mediterranean. Chapter 2 uses this as a basis to describe the potential security implications of climate change in the OSCE regions. Firstly, it outlines the outcomes and findings of each scenario exercise, the expert roundtable on the Arctic and the literature review on the Southern Mediterranean. Secondly, based on a comparative analysis, it identifies key challenges across scenarios, categorizing them as driving forces and critical uncertainties depending on the degree of uncertainty as to how these trends might develop over the next 50 years.

The third chapter outlines strategies and reflections. The focus was on developing strategies for the OSCE and the EEA. Based on a comparative analysis of the scenario workshops, the expert roundtable on the Arctic and the literature review on the Southern Mediterranean, it proposes a number of general strategic and organizational reflections. The aim was to identify robust strategies that work across scenarios.

2 Understanding the Security Implications of Climate Change

The following chapter gives a brief description of the main findings of the regional scenarios on the Western Balkans, Eastern Europe, Central Asia and the Southern Caucasus, the expert roundtable on the Arctic and the literature review on the Southern Mediterranean. Firstly, it will describe the outcomes of each of these exercises and provide an analysis (chapter 2.1). This will include a look at the main findings with regard to the risks, challenges and security implications of climate change as well as reflections and opportunities for action. Not all scenarios are included; instead, the analysis focuses on meta-trends regarding the security implications of climate change and describes larger dynamics and trajectories that emerged across scenarios.

Secondly, by comparing the scenarios, it was possible to identify a number of driving forces and factors that play an important role in the complex interactions that create crisis, fragility and conflict. Driving forces (chapter 2.2) and critical uncertainties (chapter 2.3) form the central building blocks of scenarios and can be understood as key challenges and risks that emerged across the different regions. In addition, two central meta-dynamics were identified that played a role in most of the scenarios. These common pathways and interactions explain how climate change can create certain security challenges.

2.1 Regional scenarios, expert roundtable and literature review

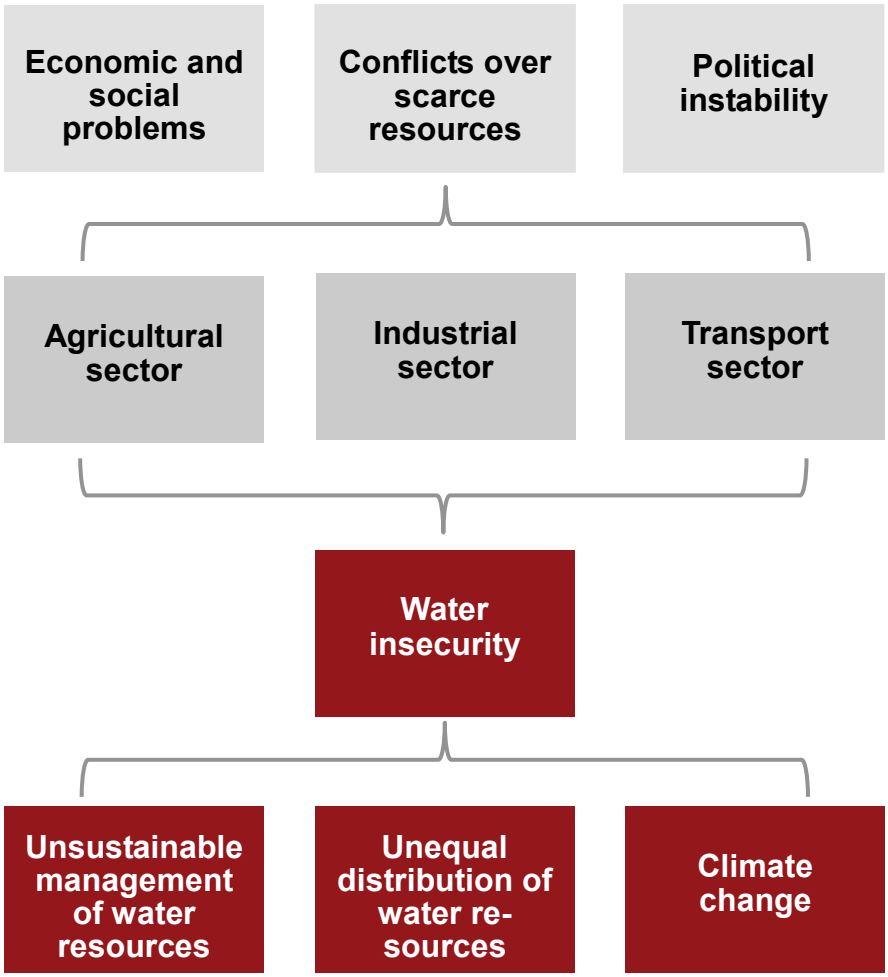
2.1.1 Western Balkans: Sustainability, water and energy

The scenario workshop on the Western Balkans focused on **water security**, especially with regard to sustainable economic development and the potential impacts of climate change. The workshop identified major risks which drive the security implications of climate change in the region, such as a spatially and temporally uneven water supply caused by changing climate patterns and extreme events. Ensuring a sufficient supply of drinking water to citizens and water for industry may become a challenge. Coastal and urban regions will be especially vulnerable regions. Water management decisions will play an important role in preserving biodiversity, ensuring a high level of water quality for society, coping with climate change impacts and poverty (such as planned cuts in water storage and decisions to increase the use of hydropower). A follow-up study by the EEA is continuing the analysis of regional security implications concerning water use, hydropower development and management options in the region.

Overall, the scenarios charted two main trajectories for the region:

1. If mismanaged, the impacts of climate change and an uneven water supply may lead to **water insecurity, especially in coastal and urban regions**. This includes the inefficient management of transboundary rivers and insufficient adaptation strategies and capacities. The agricultural, industrial and transport sectors would be negatively impacted, leading to economic and social problems, as well as political instability and increased competition over scarcer resources – particularly as extreme weather events increase in intensity and frequency. In addition, the scenarios identified the possibility of conflicts over transboundary water resources (see figure 1 below).

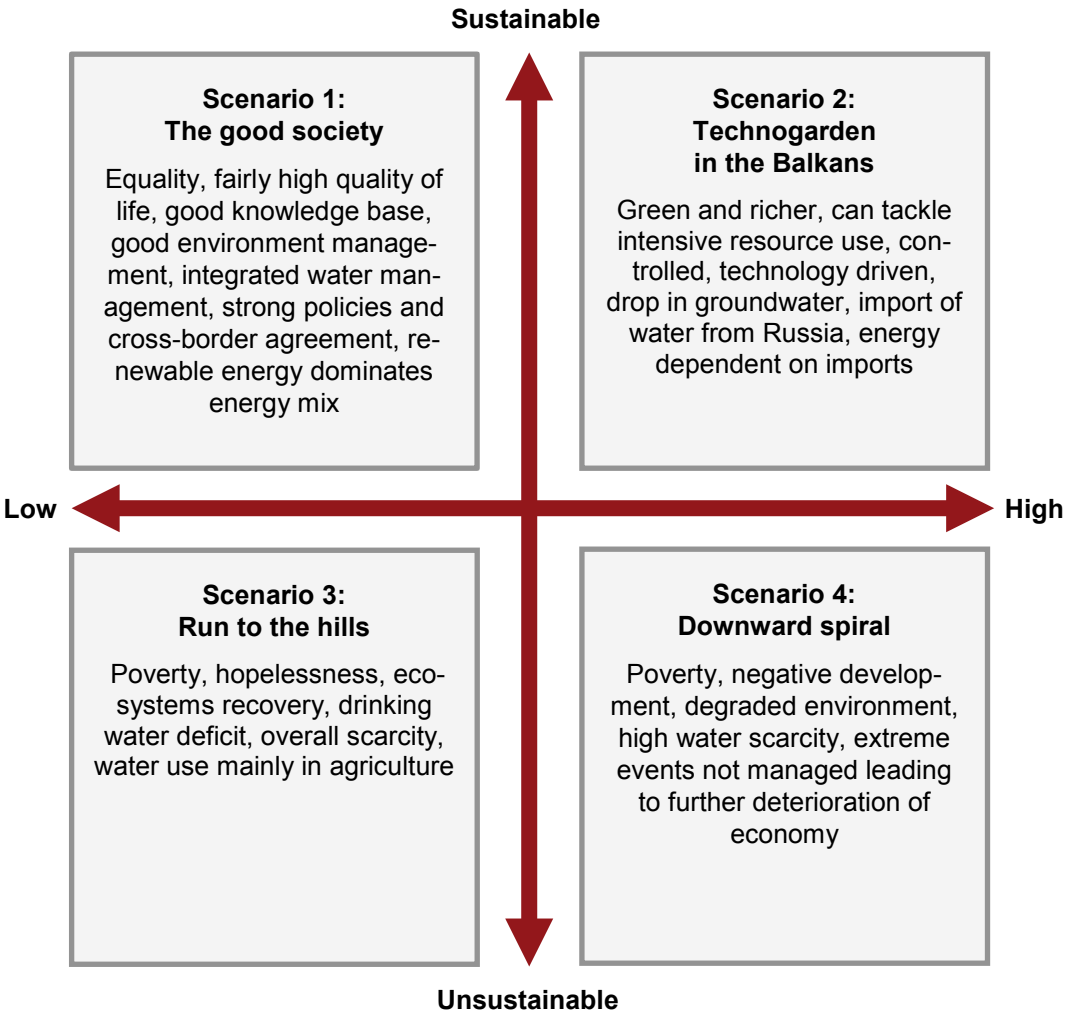
Figure 2: Security impacts of climate change in the Western Balkans



2. The second trajectory leads to **a more sustainable future in which the impacts of climate change can be managed well** through early adaptation, a switch to renewable energies, functioning water management institutions, a switch to green technologies, and sound economic management. This goes hand in hand with broader good governance, political stability, increased welfare and better education on – and awareness of – environmental issues (see figure 3).

Reflections and opportunities for action:
• Raise awareness and build capacities
• Improve infrastructure and technologies
• Strengthen good governance, especially on the local level
• Strengthen regional and international cooperation

Figure 3: Scenarios in the Western Balkans



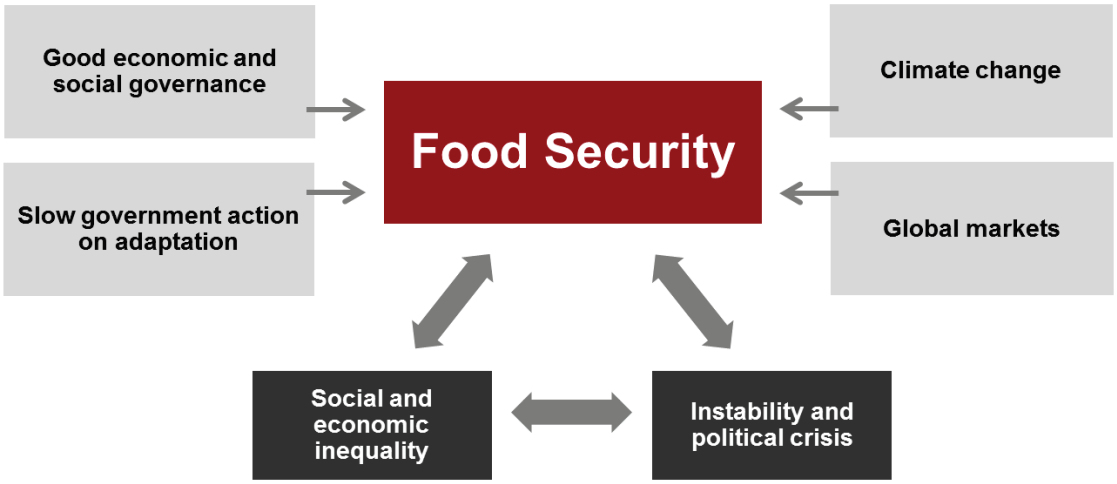
2.1.2 Eastern Europe: food security and governance

The scenario workshop on Eastern Europe focused on **food security**. Across all scenarios, climate change posed considerable challenges to food security in the region. In addition, the workshop identified the development and governance of agricultural markets as a critical and decisive driver (see figure 4), comprising two main pathways:

1. Bad governance and closed agricultural markets in conjunction with environmental degradation and slow government action on adaptation lead to a **combined economic and environmental crisis**. In turn, this crisis causes food insecurity, as well as rising inequality, social instability and a shift to more authoritarian political regimes. This sparks conflicts over natural resources such as water (see figure 3). Food security was identified as having a close connection to energy security through the utilization of renewable sources of energy.

2. While the liberalization of markets and cooperation with the EU leads to a considerable increase in investment and production of agricultural products in the region, **global developments negatively impact the region's food security**. Driven by high global food prices, prices in the region rise, leading to less food security. Overall, good governance and policies aiming to ensure that local populations benefit play a key role in the scenarios in averting social and political crises (see figure 4).

Figure 4: Security impacts of climate change in Eastern Europe

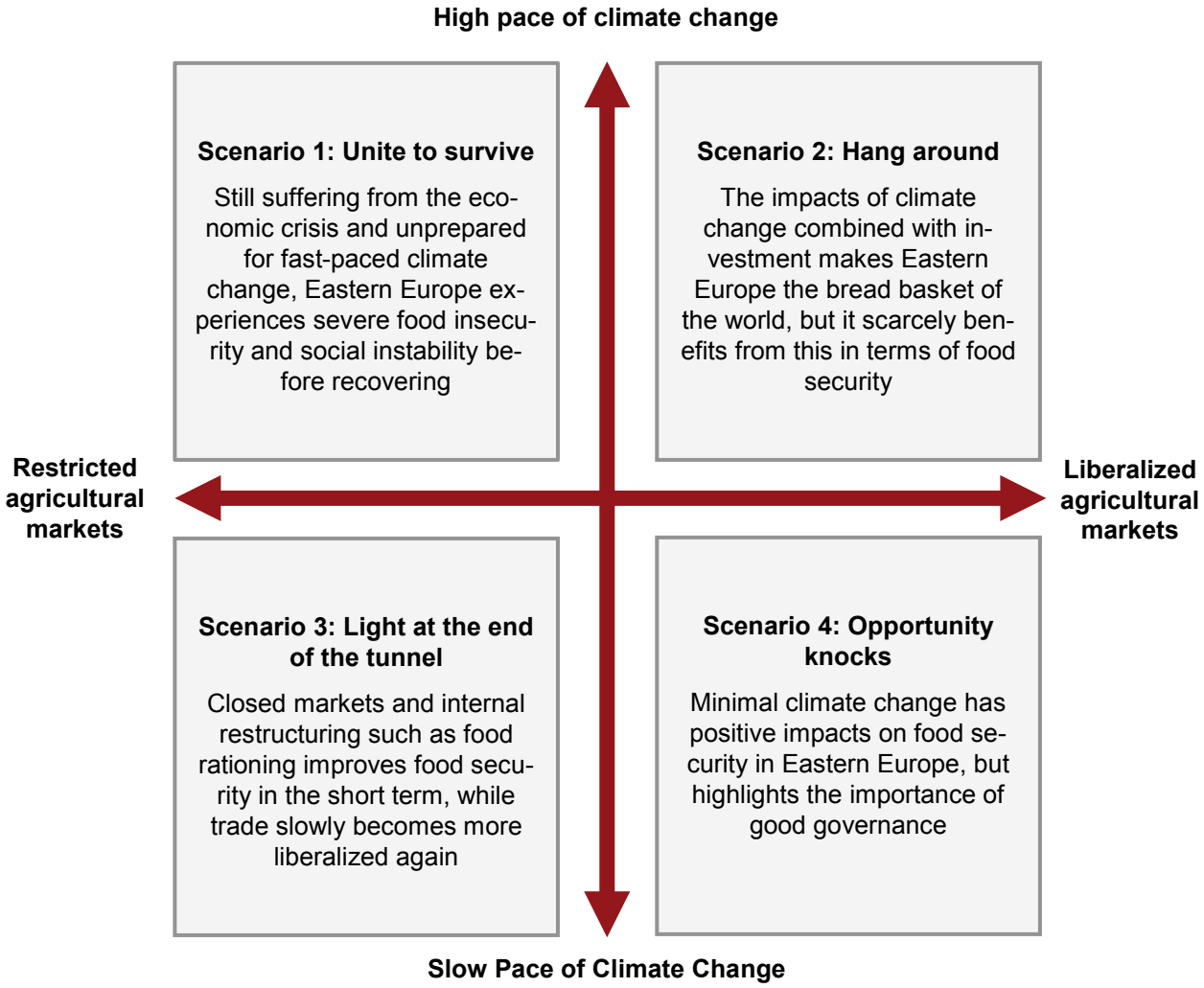


The scenarios show considerable **opportunities to change negative development trajectories** through cooperation, early and comprehensive adaptation, sound environmental policies, and social and economic policies that benefit the wider population.

Reflections and opportunities for action:

- Strengthen environmental policies and natural resource management
- Ensure early and comprehensive adaptation with a focus on agriculture
- Develop inclusive and sound economic policy
- Support good governance
- Increase international cooperation

Figure 5: Scenarios in Eastern Europe



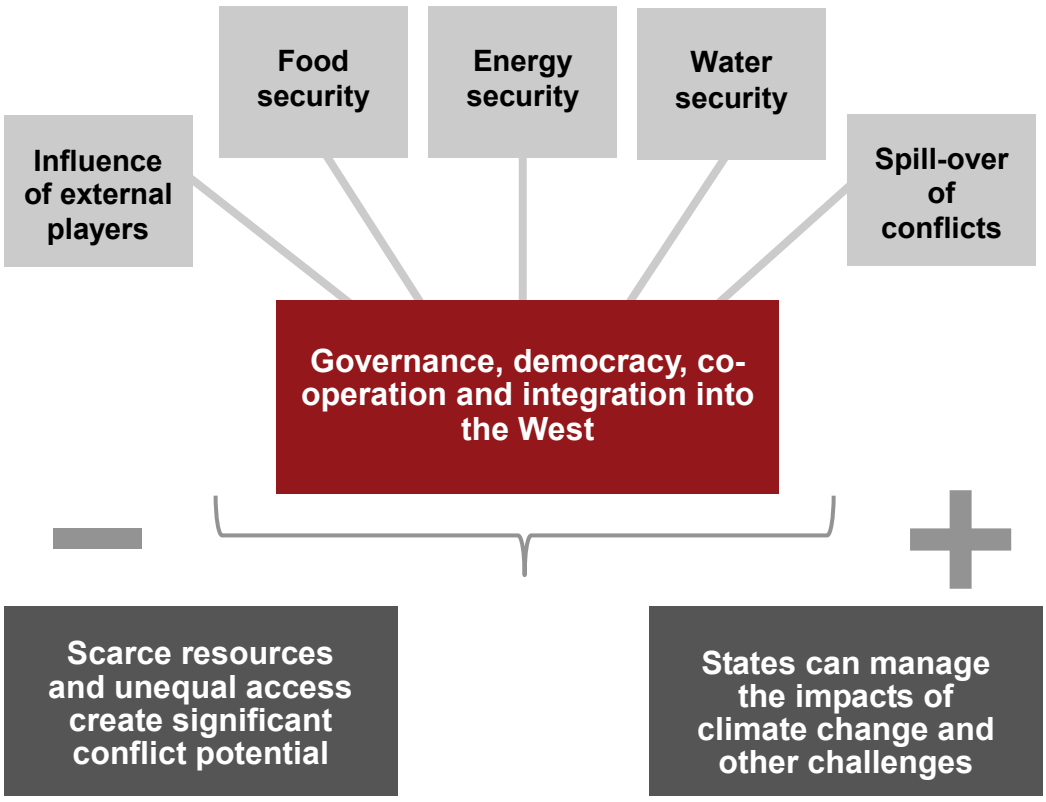
2.1.3 Southern Caucasus: Good governance and external influence

The scenario workshop analysed the security implications of climate change by focusing on the water-energy-agriculture nexus. **Water, food and energy security** were the main challenges across all scenarios, regardless of whether climate change impacts were high or low. Most participants viewed water as the most pertinent of these challenges. In addition, extreme weather events played a significant role in the scenarios where climate change impacts were high (see figure 6).

Governance, the state of democracy, regional cooperation and **integration in the West** were important factors which affected whether the South Caucasian states could manage the challenges for the region. In this regard, the scenarios describe two main pathways for the region (see figure 5):

1. Based on **good governance, democratic institutions and strong civil societies, the region is able to integrate and become a close political and economic union while also forging stronger ties with the West** by integrating into NATO and moving closer to the EU. This allows the South Caucasian states to manage the impacts of climate change and other challenges – even if they are very high. Early action with regard to climate change played a decisive role in three of the four scenarios.
2. In three scenarios, instability and conflicts spill over from neighbouring countries. In two scenarios, these spill-over effects plunge the region into a **vicious circle that is amplified by bad governance, the closing of political systems and a lack of regional cooperation**. In this situation, scarce resources and unequal access create significant conflict potential – especially with regard to transboundary water management.

Figure 6: Security Impacts of Climate Change in the Southern Caucasus



Over the next 40 years, all scenarios also show that **external players and neighbouring countries will have a significant impact on the region**, as illustrated by the risk of a spill-over of instability and conflict from neighbouring areas. All scenarios highlight the role of Iran and Russia as an important driving factor. Another common challenge for the region described in all scenarios is **urbanization**, which not only creates social tensions but also significant challenges for delivering public services, especially transportation.

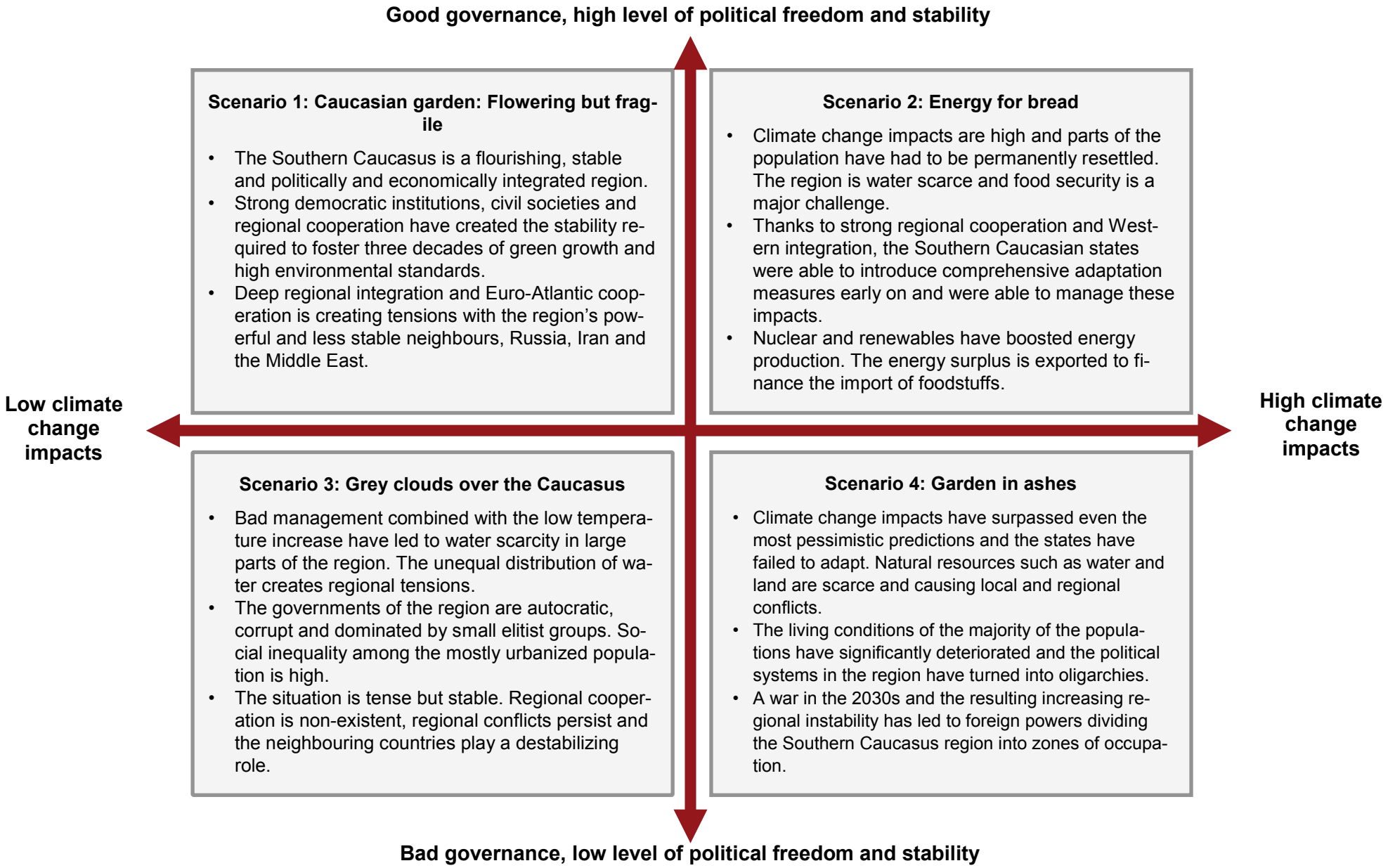
The **energy sector** also plays a decisive role in all scenarios. The development of renewable energies, large-scale hydropower in Georgia and a new nuclear reactor in Armenia played a significant role in three of the four scenarios.

An analysis of the scenario timelines reveals that **the next 20 years are of decisive importance**. Important strategic decisions made during these years will lay the foundations for the development path of the region. Crises during this period may either plunge the region into a vicious circle of bad governance, regional disintegration and instability or be used as a starting point for regional cooperation and for building open and democratic states with closer ties to the West.

Reflections and opportunities for action:

- Strengthen regional cooperation on sectoral topics, such as transboundary water, energy, agriculture, economic development or disaster management
- Implement comprehensive adaptation measures early on, especially in the field of water, agriculture and energy
- Build capacities and improve education
- Improve good governance and strengthen democracy

Figure 7: Scenarios in the Southern Caucasus

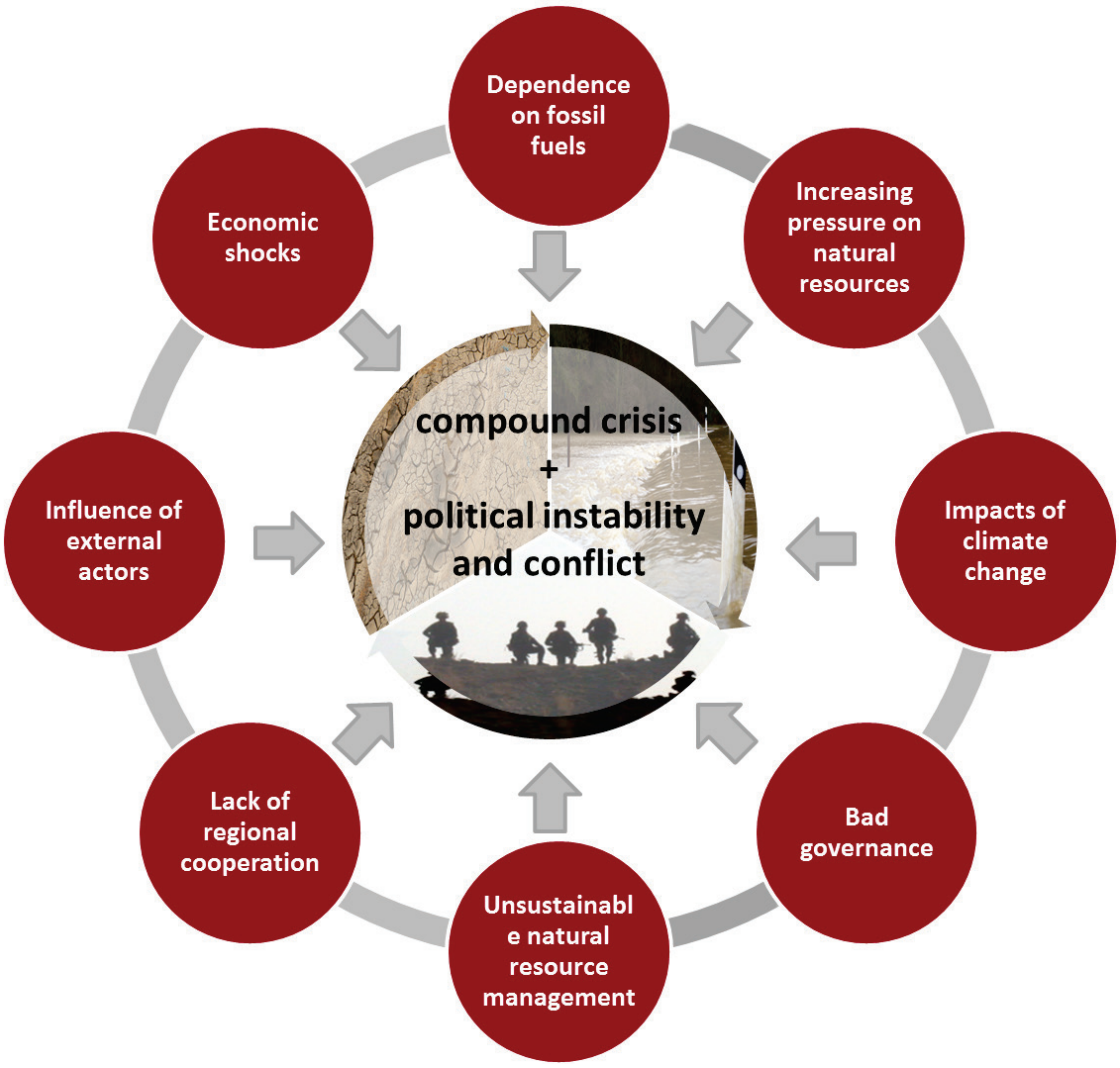


2.1.4 Central Asia: Interdependence and compound crisis

The scenario workshop on Central Asia analyzed the security implications of climate change by focusing on the **water-energy-agriculture nexus**. The water-energy-agriculture nexus will come under increasing stress across all scenarios – even if climate change impacts remain low. In addition, natural resources will become scarcer over the next decades, especially fossil fuels. Invariability, political tensions, instability and even conflicts and revolutions emerged across all scenarios, but to varying degrees of intensity and duration.

Political instability and conflicts mostly occurred in the context of **complex, compound and multi-sectoral crises**. These crises affected multiple sectors, such as energy, water and agriculture, and were characterized by an interplay of physical and climatic factors such as extreme weather events, governance factors such as misled policies or inaction, and external factors such as the influence of geopolitical powers or economic shocks (see figure 8).

Figure 8: Security impacts of climate change in Central Asia



Across all scenarios, **the critical period of time is between 2020 and 2040**. This is when the impacts of climate change start to become more significant, while resources such as fossil fuels become increasingly scarce. These developments collide with unsustainable resource management and inadequate cooperation. In all scenarios, the decade between 2025 and 2035 was a transition period – when Central Asia as we know it today moved from no cooperation to regional cooperation.

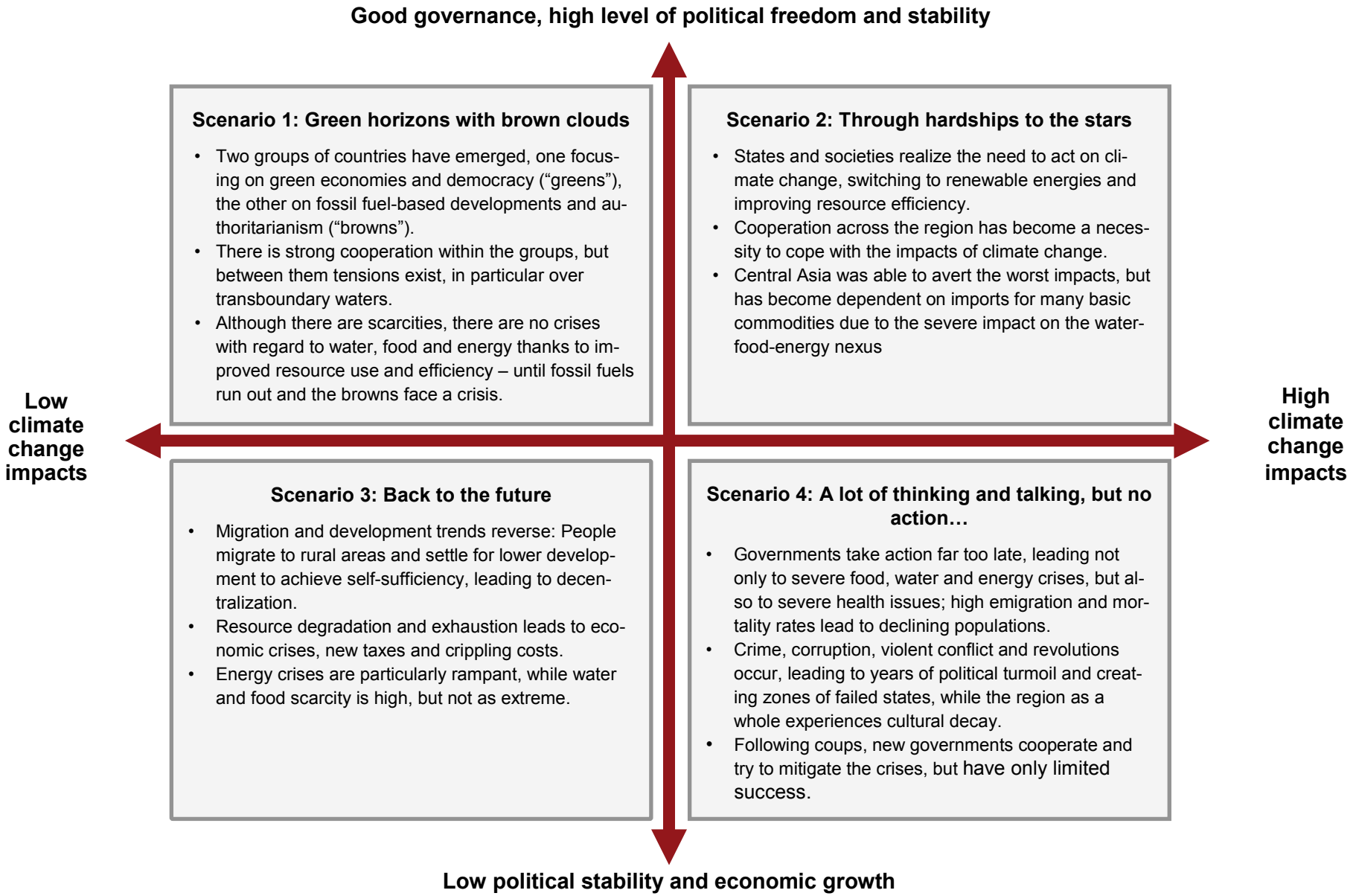
Regional cooperation had a decisive impact on Central Asia's ability to deal with the challenges in the years ahead. Central Asian countries are highly interdependent due to their interconnected water, energy and agriculture sectors. As a result, countries were not able to solve the increasing challenges alone. This either led to regional cooperation – often triggered or fostered by crisis – or countries became dependent on external actors such as China.

Early adaptation to climate change was another decisive factor that helped the countries in the region manage the risks of climate change. This went hand in hand with a stronger civil society, better governance, education, information and research, as well as a transition to a green economy.

Reflections and opportunities for action:

- Strengthen regional cooperation and integration
- Implement comprehensive adaptation measures early on
- Strengthen civil society and improve good governance
- Improve education, information and research on environmental issues
- Make the transition to a green economy

Figure 9: Scenarios in Central Asia



2.1.5 The Southern Mediterranean: The future of the Arab Spring

A **literature review of the potential security implications of climate change** was compiled for the Southern Mediterranean.[1] Following the scenario development approach used in the other regions, it particularly focused on the major driving forces and critical uncertainties that will affect the region's ability to cope with, and adapt to, a changing climate.

Despite often being labelled as "a region", the countries of the Middle East and North Africa (MENA) are very heterogeneous in terms of their political, social and economic development and have become even more diverse since the Arab Spring, which has profoundly altered the political power structures in some of these countries. However**, these countries share a number of trends and challenges**, which are often closely interlinked and difficult to assess independently of each other. These include demographic and social change, such as the ever-growing young population and urbanization, economic development and employment, the degradation of natural resources – especially water and land – as well as regional relations and geopolitical developments.

In addition to these trends, the review identified a number of key **critical uncertainties**. This was based on a comparison of other regional scenario exercises (in particularly OSCE 2012, Planungsamt der Bundeswehr 2011, Mabey et al. 2013), as well as the broader literature on environmental security and the potential security impacts of climate change in the region. Particular attention was given to the Arab Spring.

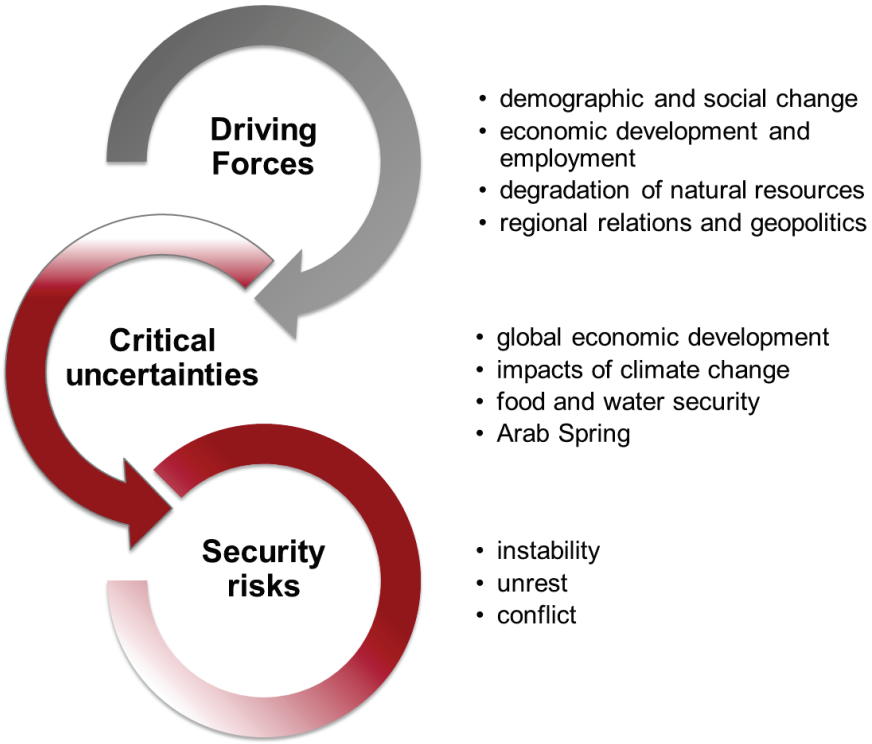
In fact, the **Arab Spring**[2] can be understood as a result of the Arab countries' inability to cope with the challenges caused by the driving forces outlined above. High unemployment, particularly among the youth, manifold economic hardships such as increased food and energy prices, corruption, repression and a massive lack of trust in, and acceptance of, the political institutions and leaders were all crucial elements that spurred popular unrest in the Arab countries – from Morocco to Syria and Jordan. The similarities of causes and drivers of the Arab Spring across the region underline this point. However, the underlying causes are much more diverse and vary far more than a cursory look at the issue may reveal: The countries' capacities to manage and react to the uprisings depended very much on the specific context in the country. This includes not only economic resources, but also the political power and governance structures, external influences and history. These country-specific characteristics have given rise to very different outcomes across the region and will continue to create varying development trajectories in the decades to come.

With regard to the impact on security, all of the scenario exercises analyzed conclude that the **convergence of different factors may pave the way for future instability**. Climate change and both its rapid and slow-onset implications and external economic impacts converging with already critical underlying conditions, such as high population growth and high unemployment, a repressive and in many ways dysfunctional political system with little capacity to deal with economic and social challenges and a degraded natural resource basis, in particular with regard to water and land, can create a dangerous mix leading to further uprisings, instability and conflict (see figure 10).

[1] This includes the following countries: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia and the Occupied Palestinian Territories

[2] The Arab Spring is a term used to describe the revolutionary wave of demonstrations, protests, riots and civil wars in the Arab world that began in December 2010.

Figure 10: Security impacts of climate change in the Southern Mediterranean



This is particularly likely as the dynamics unfolding in the light of the Arab Spring have further weakened the countries' institutional capacities and financial resources. Functional institutions and a stable political system providing good governance and economic growth will be crucial to coping with the challenges of climate change, such as potential decreasing crop yields and worsening water scarcity. Furthermore, important infrastructural decisions that need to be taken by the countries of the Southern Mediterranean – e.g. with regard to their energy mix – may be delayed or badly implemented due to the political stalemate in some of the countries, particularly Egypt and Tunisia. In this sense, **the Arab Spring has reduced the capacity of many of the countries in the region not only to adapt to climate change, but also to mitigate its impacts**. It is unlikely that increased development assistance will be able to compensate for this. In addition, the developments spurred on by the Arab Spring may actually lead to a decrease in the already low level of regional cooperation, since countries are preoccupied by internal conflicts and the reconstruction of their political and economic systems. This would mean that the benefits of cooperation which, in turn, could allow these countries to better cope with adverse climate change impacts in the fields of trade, water and energy, cannot be exploited.

Reflections and opportunities for action:

- Conduct joint vulnerability assessments to identify hotspots
- Foster inter-regional exchange and cooperation based on shared challenges
- Build capacities for improved natural resource governance
- Exploit opportunities for green growth
- Inform and educate civil society actors on environmental issues

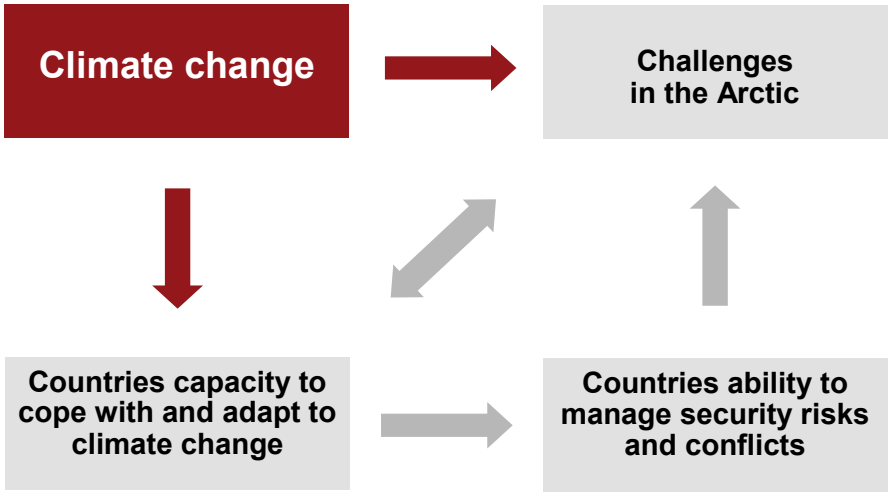
2.1.6 The Arctic: Geopolitics, environmental change and resources

The expert roundtable on the Arctic discussed four scenarios on potential risks for the Arctic in the context of a changing climate (see figure 11). The limited scope of participants and timeframe only allowed for the development of preliminary narratives that are not rooted in the same analysis as the scenario workshops.

The roundtable determined that the **global context** was of particular importance for the Arctic. The issues surrounding its governance, resources and ecosystem services mean that it is highly interconnected with the rest of the world. The roundtable established that the willingness of nation states to cooperate multilaterally will have a decisive impact on the security risks linked to a changing climate.

Whether high or low, **climate change impacts will not significantly alter the outcome** of changes in the Arctic climate. There is more uncertainty concerning how climate change will impact other regions. This in turn will influence the ability of countries to cope with, and react to, changes in the Arctic. A higher pace of change can reduce their adaptive capacity at home and influence their ability to manage security risks and conflicts in the Arctic. However, in no scenario did conflicts in the Arctic escalate into large-scale violence. These feedback loops also flow in the other direction: Challenges in the Arctic, such as the collapse of ecosystems, will impact the rest of the world, putting global food security at risk, for example (see figure 11).

Figure 11: Security impacts of climate change in the Arctic



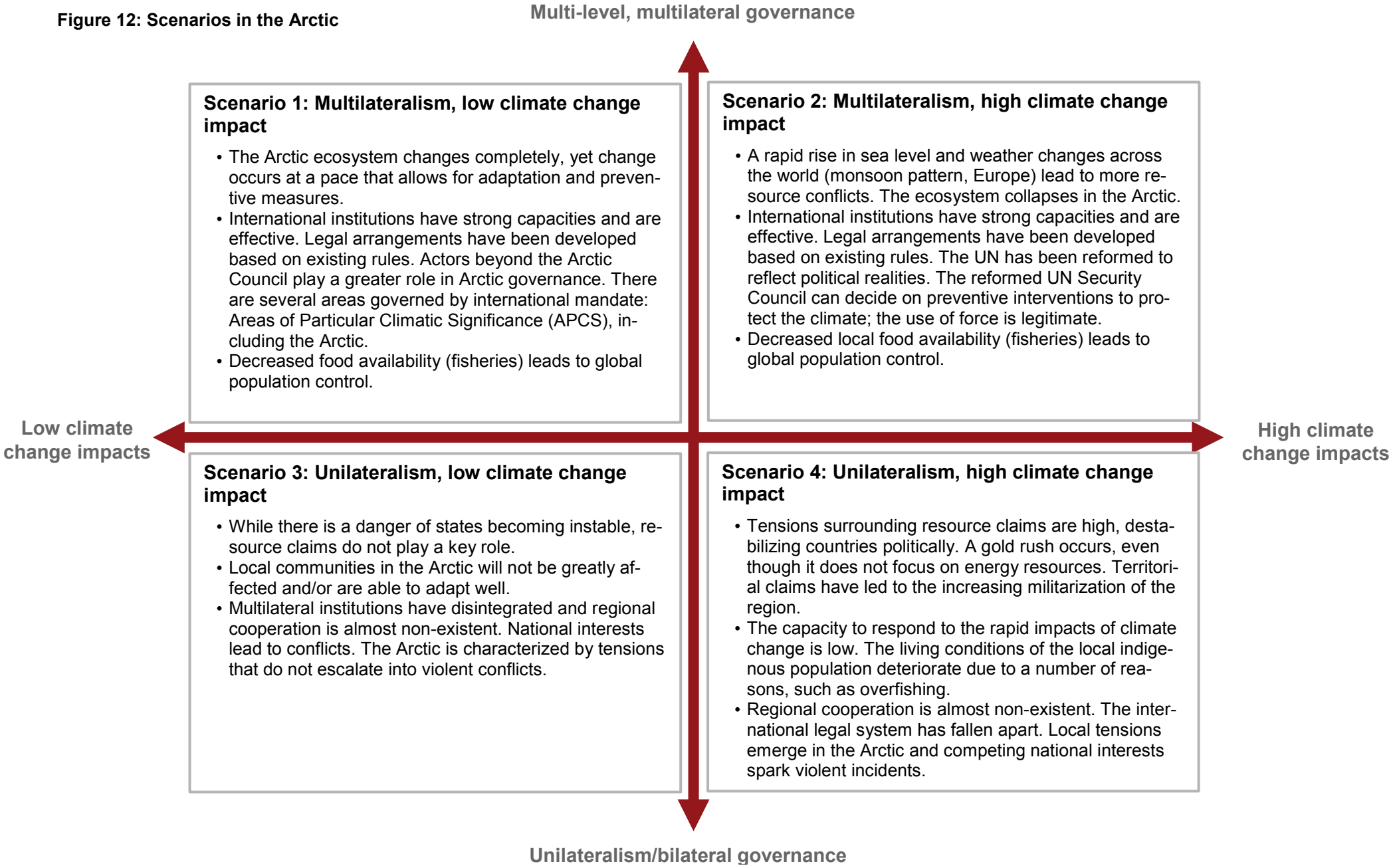
Scenarios that include an **Arctic gold rush** show that it is triggered by minerals and not energy resources. This is due to the anticipated global transformation of energy systems which reduces the demand for fossil fuels. **Territorial claims** were not a central issue in any scenario. While no clear answer to the question of future territorial claims emerged, conflicts over territory did not play a significant role. One reason is that the vast energy resources are likely to become less valuable in the future as the transition to renewable energies progresses.

Participants highlighted the role of fisheries and hunting for **indigenous communities**. However, from a global point of view, there will be different urgent adaptation priorities in other regions – in densely populated low-lying coastal areas, for example. This will leave the Arctic population with fewer resources and less external support to adapt.

Reflections and opportunities for action:

- Raise awareness of the global nature of the issues at stake
- Strengthen multilateral and multi-institutional cooperation on dialogue
- Promote sustainable energy and livelihoods regionally and globally
- Develop a common understanding of risks through joint vulnerability analysis

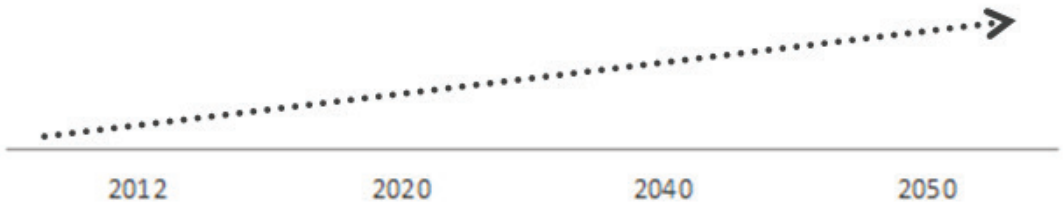
Figure 12: Scenarios in the Arctic



2.2 Key drivers

A comparison of the scenarios revealed a number of driving forces that played a decisive role in each of the regions. These forces were important, underlying drivers of crisis, fragility and conflict. The uncertainty concerning how these driving forces will develop was not as great as in the case of critical uncertainties (chapter 2.3). In other words, non-linear developments with regard to these driving forces were deemed to be less likely (see figure 13). They can, therefore, also be described as predetermined elements. The key drivers identified during this project have a considerable overlap with the EEA's global megatrends (EEA 2011) and should be understood in this context.

Figure 13: Predetermined elements: high impact, high certainty



2.2.1 Demographics

Demographics played an important role in all scenario exercises. Demographics in the Arctic itself did not play a role, but global demographics had an impact on the region. The central dynamics of this driving force were the following:

- growing and young populations driven by a high birth rate
- shrinking and aging populations driven by a declining birth rate and/or out-migration

This driving force created challenges in terms of economic growth, employment, strain on public services and infrastructure and may, in turn, play a role in creating social discontent and political tensions if these challenges are not managed well (see also EEA global megatrend 1 "Increasing global divergence in population trends; EEA 2011).

2.2.2 Urbanization

In all regions and almost all scenarios, urbanization was an ongoing and increasing trend in the decades to come. Urban centres mostly remained receiving areas for migration from rural areas and abroad. This led to an increasing strain on public services and infrastructure and created vulnerabilities by increasing exposure and sensitivity and decreasing adaptive capacity.[3] In turn, urban centres often experienced challenges first and to a greater degree

[3] *Adaptive Capacity* has been defined by the IPCC as the "potential or capability of a system to adapt to (to alter to better suit) climatic stimuli or their effects or impacts analysis" (IPCC 2001), *Exposure* is defined by the IPCC as the "degree of climate stress upon a particular unit" (IPCC 2001) and *Sensitivity* as the "degree to which a system is affected by or responsive to climate stimuli" (IPCC 2001).

and became hotbeds of social unrest and political instability if challenges were not managed well (see also EEA global megatrend 2 “Living in an urban world”).

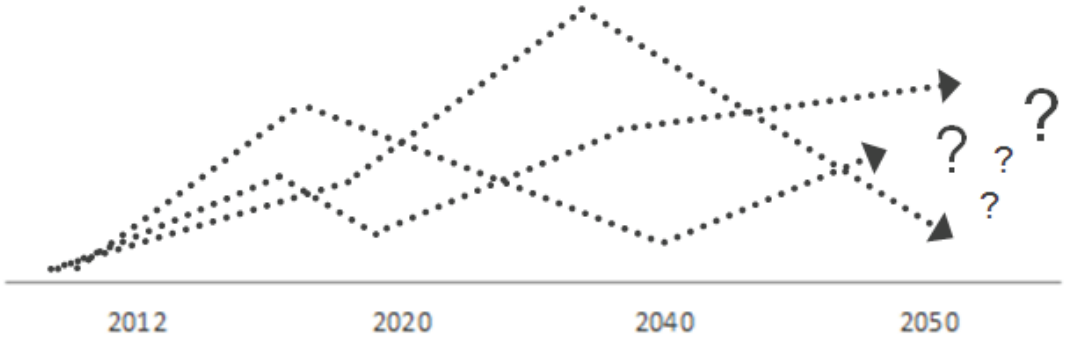
2.2.3 Growing resource demand

Driven and linked to demographics and urbanization, growing resource demand was another important driving factor for all regions and scenarios. No scenario showed an overall trend of decreasing resource use. However, demand for certain resources such as fossil fuels decreased in some scenarios and regions. The resources of land, water and fossil fuels formed a central element of most discussions. Minerals were included in some but not all scenarios. In turn, scarcity of and increasing competition over resources often played an important role in creating conflict and instability on a sub-national level as well as between countries (see also EEA global megatrends 7 “Intensified global competition for resources” and 8 “Decreasing stocks of natural resources”).

2.3 Critical uncertainties

In addition to the key drivers described in the previous chapter, four critical uncertainties played a decisive role in determining how climate change will impact security in the OSCE region. In comparison to the predetermined elements, these driving forces were identified as having the potential to develop in highly uncertain and non-linear ways (see figure 14).

Figure 14: Critical uncertainties: high impact, high uncertainty



2.3.1 Impacts of climate change

The impacts of climate change formed one of the axes of the scenario frameworks in all scenario workshops and were an important part of the discussion on the Arctic and the Southern Mediterranean. In most scenarios, higher climate change impacts led to more severe crises and, in conjunction with other important drivers (see chapter 2.4.), had the potential to increase the fragility of regions and countries and spark conflict. However, a number of scenarios also showed that even impacts on the lower end of the spectrum could already have a destabilizing effect when combined with other challenges. This was particularly the case in Central Asia (see also EEA global megatrend 9 “Increasing severe consequences of climate change).

The expert roundtable on the Arctic clearly showed that the impacts of climate change must be understood on a global and regional level, as the impacts in other regions of the world severely affected the ability of countries in the Arctic to deal with challenges.

2.3.2 Global and regional economic development

Global and regional economic development played an important role in all scenario exercises. It could provide much needed investment and employment, help transform energy systems and increase the capacity of states to adapt and cope with climate change. However, in many scenarios it also served as an external shock that further weakened states or exacerbated downward spirals into political instability and conflict. Sound and inclusive economic management was often crucial to preventing social unrest and political instability when faced with new challenges such as the impacts of climate change (see also EEA global megatrend 5 “Continued economic growth?”).

2.3.3 Natural resource management

While almost all scenarios showed increasing demands on resources (see chapter 2.2), the way natural resources were managed differed greatly across scenarios. Sustainable natural resource management was often a decisive factor in decreasing environmental stress, adapting to climate change and preventing scarcities. If managed badly, increasing competition over natural resources and scarcities could lead to environmental degradation, migration and even conflict. These conflicts mainly occurred on the sub-national level between different user groups or communities, but also on a regional level between states over transboundary water resources, for example (see also EEA global megatrend 11 “Environmental regulation and governance: increasing fragmentation and convergence”).

2.3.4 Governance and cooperative behaviour

Governance and the cooperative or uncooperative behaviour of states played a decisive role in the emergence of crises, fragility and conflict. Good governance fostered cooperation and created the conditions and capacities necessary for states to manage crises and conflicts, even if the impacts of climate change were high. Bad governance often exacerbated or created crises and instability. This dynamic is clearly reflected in the scenarios on Central Asia and the Southern Caucasus, where the ability of political systems and their leaders either allowed the regions to manage the security implications of climate change or plunged them into crisis and conflict (see also EEA global megatrend 11 “Environmental regulation and governance: increasing fragmentation and convergence”).

2.4 Dynamics, pathways and interactions

A comparison of the different scenarios makes it possible to establish two common dynamics or pathways that affect how climate change and the aforementioned driving forces and critical uncertainties interact to create fragility and conflict and how they can aid the peaceful management of crises and challenges. These dynamics also clearly show that climate change is never the only factor or driver of instability and conflict. It primarily acts as a risk multiplier.

2.4.1 Compound and multi-dimensional crisis

Climate change is just one of multiple drivers of instability and conflict. Furthermore, as the scenarios demonstrate, if crises occur that do have a destabilizing effect on societies, political systems, states or regions, they have more than one dimension. Firstly, they often span multiple sectors. The close connection between the energy, water and agricultural sector is one example of this, often described as the energy-water-agriculture nexus. In this case, a water crisis often leads to a crisis in the energy and agricultural sectors. Secondly, this often means that an environmental crisis becomes an economic crisis. If not managed, this can create social unrest and political crisis – in the worst case scenario leading to escalations of

violence and conflicts. In this context, regimes can change or take a more autocratic path. Once set in motion, these vicious circles are extremely hard to stop or reverse.

The scenarios demonstrated that urban centres are particularly prone to multi-dimensional or compound crises, especially when it comes to extreme weather events. Their infrastructure is often closely interlinked and their population more vulnerable. At the same time, popular unrest and political instability often begins and gains momentum in urban centres.

2.4.2 From crisis to cooperation

The second pathway points in the opposite direction: towards more stability and resilience. In many scenarios, a political, economic, environmental or ecological crisis serves as a starting point for increased action and cooperation. These crises can be environmental tipping points, extreme weather events, regime change and even violent conflicts and wars. These events serve as a shock to the system, creating the momentum and willingness to overcome political, economic or social barriers, as well as narrow national interests. The new path involves a move towards better governance, early and comprehensive adaptation, and close regional cooperation.

3 Prevention and Action: Strategies and Reflections

Strategies and reflections were developed as part of the scenario workshops, the expert roundtable on the Arctic and the literature review on the Southern Mediterranean. The focus here was on developing strategies for the OSCE and the EEA. Based on a comparative analysis of the exercises and documents, the following chapter outlines a number of general strategic and organizational reflections. The aim was to identify robust strategies that work across scenarios.

3.1 Strategic reflections

3.1.1 Multi-dimensional strategies

The multi-dimensional nature of security risks and their emergence must be addressed by developing multi-dimensional strategies and approaches. This means that strategies and approaches must cover multiple sectors and challenges. Focusing on one sector or one dimension of the problem – environmental degradation, for example – will not be enough to prevent crisis and conflict. This is especially true in Central Asia, the Southern Caucasus and the Southern Mediterranean, where the water-agriculture-energy nexus is especially tight, creating complex vulnerabilities.

However, this does not mean that there should be no sector-specific strategies or strategies that tackle specific driving forces and critical uncertainties, but rather that these strategies must be very well coordinated. Together, they should form a comprehensive approach that covers the whole spectrum of challenges.

3.1.2 Understand and analyse interactions and compound crisis

In order to develop multi-dimensional strategies, it is essential to have a good understanding of the interactions between different sectors and risks as well as compound crises. Scenario development has proved to be a useful methodology to deal with the high uncertainty linked to climate change, as well as political, social and economic developments. However, scenario workshops can often only be a starting point and must be followed up by more in-depth analysis and their results integrated into decision-making processes.

New approaches and methodologies are being developed and implemented – such as vulnerability assessments – that could provide important insight on how climate change may impact the environment, states and populations. An example of this is the regional vulnerability assessment of the League of Arab States, which is part of the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR).[4] In general, climate change assessments should be combined with more comprehensive analytical approaches focusing on socio-economic as well as political trends.

[4] For further Information on RICCAR, please visit: http://www.escwa.un.org/RICCAR/ri.asp?ReferenceNum=RI (26 June 2013).

3.1.3 Act early

The next two decades will be decisive when it comes to adapting to climate change and preventing social and political dynamics that contribute to crisis and conflict. The scope of the challenges and their interdependent nature make it hard to manage them once they have crossed certain thresholds. Crises and disasters today should be understood as warning signs of the challenges to come. At the same time, they can provide important windows of opportunity and arguments for taking action today.

3.1.4 Foster regional cooperation and integration

Regional cooperation and integration will be key to managing and coping with the challenges posed by climate change. Joint regional assessments could be used as a starting point for fostering cooperation. These assessments should be technical in nature, but also take into account the political dimensions of the issues tackled. In Central Asia, for example, transboundary water management is a highly political issue with many obstacles. Nevertheless, in order to foster regional cooperation on specific topics it is essential to have a common understanding of the challenges ahead. Part of this will involve identifying and supporting the appropriate platforms, forums and institutions in order to develop common positions and foster cooperation. The EU can serve as a model and a partner in this regard.

3.1.5 Support key sectors for prevention and action

The following sectors were identified as having a decisive impact on whether climate change and its security implications can be managed in a peaceful way:

Environment and natural resource management

In order to support the sustainable management of natural resources, it is essential to develop better environmental legislation and capacities for its implementation. In addition, research, education and public awareness must be improved. These actions should be part of a larger effort aiming to build greener economies, especially in the field of energy, since this could also create important opportunities for sustainable economic development. Regional cooperation in this field would include transboundary natural resource management, especially on water resources, and the exchange of information, data and best practices.

Adaptation to climate change

Early and comprehensive adaptation should focus on the water, energy and agricultural sectors, as well as on cities. These could be testing grounds for the aforementioned integrated and multi-dimensional strategies. Disaster management must form an integral part of these efforts. In addition, initial concepts for conflict-sensitive adaptation approaches are being developed and should be tested. These approaches link adaptation and conflict prevention from the outset.[5]

Good governance and inclusive economic and social policies

In order to foster good governance, governments need to be held accountable, and must be responsible and transparent. This includes, but is not limited to, fighting corruption and preventing moves towards more authoritarian political systems. A strong civil society is one of the most important factors in these efforts.

[5] See Tänzler et al. 2013: The Need for Conflict-Sensitive Adaptation to Climate Change. In: Dabelko, Geoffrey D., Lauren Herzer, Schuyler Null, Meaghan Parker, & Russell Sticklor (Eds): Backdraft: The Conflict Potential of Climate Change Adaptation and Mitigation. In: Environmental Change & Security Program Report Vol. 14, Issue 2), p. 5-12 Washington, D.C.: Woodrow Wilson International Center for Scholars.

Inclusive economic growth and social policies are important strategies for preventing political instability and unrest. Employment and service delivery in urban centres will be especially key. On a regional level, economic cooperation can provide important momentum for growth, through customs unions, for example.

Regional priorities

The scenario workshops identified priority sectors for each of the regions analyzed:

1. **Western Balkans**: The water and energy sectors were identified as priority sectors. Inefficient management of transboundary rivers and insufficient adaptation pose particular challenges. Action should focus on the particularly vulnerable coastal and urban regions.
2. **Eastern Europe**: Food security was clearly identified as the priority for the region. This includes specific action to enhance food security and the adaptation of the agricultural sectors, as well as broader economic policies, good governance and international cooperation.
3. **Southern Caucasus**: The water, agricultural and energy sectors were identified as priorities, with water being the most pertinent challenge. In addition, extreme weather events and disaster preparedness and management were highlighted as priorities.
4. **Central Asia**: The closely interconnected water-energy-agricultural nexus with its regionally integrated infrastructure poses the biggest challenge for the region. The water sector is highly politicized, but also key to adapting to the challenges posed by climate change. In addition, disaster preparedness and management was also identified as a key priority.

The expert roundtable on the Arctic and the literature review also identified a number of priority sectors:

5. **Arctic**: The expert roundtable did not pinpoint specific sectors, but did stress the importance of fisheries and hunting for the indigenous communities and environmental protection. The main challenge highlighted was establishing the appropriate multilateral forum to institutionalize greater cooperation among Arctic countries and relevant stakeholders.
6. **Southern Mediterranean**: The agricultural and water sector were identified as priority sectors for the region. However, broader social and economic challenges, as well as the development of political systems, good governance and moves towards more open and democratic societies were also key points.

3.1.6 Link conflict prevention with sectoral topics

In order to address the security implications of climate change, the key sectors outlined above give some guidance on what sectors to choose. However, merely focusing on these sectors will not be enough. In order to maximize the preventive impact of strategies and approaches, it is essential to closely integrate conflict prevention from the outset. A number of different development agencies have tried, for example, to link natural resource management and conflict prevention.[6]

[6] See, for example, the documents and web resources of the UN-EU partnership on natural resources and conflict at http://www.un.org/en/land-natural-resources-conflict/offer/eu-un-partnership-offer.shtml or the Initiative for Peacebuilding's Water, Crisis and Climate Change Assessment Framework at http://www.adelphi.de/files/uploads/andere/pdf/application/pdf/2011_water_crisis_and_climate_change_assessment_framework.pdf

3.2 Organizational reflections

3.2.1 For the OSCE

Political level

This project and report could be used as an opportunity to bring the topic of climate change and security back onto the political agenda. Different formats and forums could be used to discuss the project and its strategic implications. For example:

- a follow-up conference to the Chairmanship Conference in Bucharest in October 2009
- the Environment and Economic Forum of the OSCE, and
- a joint session of the Forum for Security-Cooperation (FSC) and the Economic and Environment Forum aiming to broaden the discussion and include the security community

Operational level

Linking conflict prevention with the environment, natural resources and the climate is not easy. Firstly, the impact chains leading from climate change to crisis and conflict are not linear and are highly complex, making it hard to identify the right leverage points. Secondly, the track record of mainstreaming conflict prevention into projects and programmes that target other sectors such as natural resources shows that it is rarely successful. The following steps will be key to successfully linking conflict prevention and the environment, natural resources and the climate:

- A short practitioner brief for OSCE field officers should be drafted, explaining how to link the environment, natural resources and the climate with conflict prevention.
- Training sessions and professional support for the OSCE field office should be provided, focussing on the environment, natural resources, the climate and conflict.

The new ENVSEC project “Climate Change and Security in Eastern Europe, Central Asia and the Southern Caucasus” could be used to develop and test these products and further refine the participatory approaches used during the scenario exercises.

The OSCE could also use their in-country presence to create and support regional hubs for adaptation. These would be used to foster cooperation and coordination based on national adaptation strategies which particularly aim to tackle regional climate change impacts on peace and stability.

3.2.2 For the EEA

Political level

The EU Foreign Affairs Council recognized the need to step up EU climate diplomacy efforts in July 2011 and again in June 2013 to address matters such as the potential security implications linked to climate change. In addition, the council has welcomed the specific steps laid out in a reflection paper prepared by the European External Action Service (EEAS) and the EU Commission, entitled “An EU climate diplomacy for 2015 and beyond”. One of the entry points is the need to establish a toolbox for climate diplomacy. The EEA could strengthen early warning systems and capacities to prevent conflicts, above all by making them priority areas in already ongoing activities.

Operational level

Entry point I: Expand the Global Megatrends focus

In the report “The European environment – state and outlook 2010” (SOER), the EEA defines global megatrends that have an impact on the European environment. As early as 2010, the EEA was examining decreasing stocks of natural resources, the increasingly severe consequences of climate change and the environmental pollution load. Climate change and security impacts could play a greater role in the assessment in the next SOER report, to be published in 2015.

Entry point II: Improve the analysis of impacts, vulnerability and adaptation to climate change

Assessment of vulnerabilities and analysis of national and sectoral climate change adaptation issues should be improved, based on a broader and participatory analysis of climate change impacts – particularly in specific regional contexts. This will help inform adaptation strategies and actions at different levels (transnational, national and urban/rural) with regard to the stabilizing effects in the field of water and food security. In so doing, the EEA can contribute to the aforementioned climate diplomacy toolbox, since such information can help develop climate diplomacy narratives by highlighting the specific foreign policy benefits of climate policies. To this end, information is also needed on successful examples of handling challenges such as changing water resources.

Entry point III: Refine hotspot analysis

Analyses of trends regarding natural hazards and the linkages between disaster risk reduction and climate change adaptation already form an important part of EEA’s activities. Building on their relevance for peace and stability, the EEA could develop and apply additional indicators for climate change, impact and adaptation measurement. These indicators can, among other things, help identify specific hotspots or priority areas for climate change adaptation, especially with regard to the destabilizing impacts of climate change.

Entry point IV: Provide scenarios for the 2020-2050 period

The EEA already supports the development of long-term strategies to mitigate and adapt to climate change with its assessments for the 2020-2050 period. Regular regional climate security scenarios can contribute to an iterative participatory process, which can help improve adaptation monitoring and evaluation, as well as adaption planning processes that are complementing national activities in this field.

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