A thesis submitted to the Department of Environmental Sciences and Policy of Central European University in partial fulfilment of the Degree of Master of Science

Climate Change Adaptation Through a Security Lens

A Conflict-Sensitivity Approach to Peacebuilding in the Ferghana Valley of Central Asia

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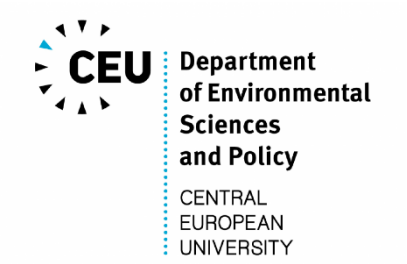
Budapest



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ABSTRACT OF THESIS submitted by:

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for the degree of Master of Science and entitled: *Climate Change Adaptation Through a Security Lens: A Conflict-Sensitivity Approach to Peacebuilding in the Ferghana Valley of Central Asia.*

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The idea of climate change as a threat multiplier implies that political stability is threatened by the increasing frequency of climate-induced disasters which, when added to increasing competition over access to natural resources, can lead to conflict in areas where peace is already fragile, decreasing human security. The Ferghana Valley was designated as the highest climate change security-risk area in Central Asia (Novikov and Kelly 2017). Achieving effective climate change adaptation requires accounting for climate-fragility risks and an overall view of the dynamics between and within countries. My research findings indicate that there is a high willingness to incorporate conflict-sensitivity into climate adaptation measures in the region. A combination of theoretical and empirical research shows that the integration of resilience, peacebuilding, and environmental security can help achieve *peaceful adaptation*. For that, I first determine how environmental factors contribute to conflict-sensitivity in the Ferghana Valley in the context of climate change, applying a conflict analysis framework to data obtained through literature review and content analysis. Then, I examine how a conflict-sensitive approach can be integrated into the countries' National Adaptation Plans (NAPs) to reduce security risks and enhance resilience in the region. I also assess the political feasibility of doing so, looking at the Readiness and Preparatory Support Proposals and performing interviews with country representatives, practitioners, and regional specialists. As a result, I propose a Conflict-Sensitivity Framework applicable to NAPs as a way to achieve peaceful adaptation.

Keywords: conflict-analysis; climate-security risk; human security; Ferghana Valley; resilience

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List of Abbreviations

AFD	French Development Agency
ASBP	Aral Sea Basin Programme
CAF	Conflict Analysis Framework
CAMP4ASB	Climate Adaptation and Mitigation Program for Aral Sea Basin
CAREC	Central Asia Regional Environmental Center
CAS	Central Asian States
CC	Climate Change
CCA	Climate Change Adaptation
CEOBS	Conflict and Environment Observatory
CEU	Central European University
COP	Conference of the Parties
CSA	Conflict-Sensitive Approach
DKU	German-Kazakh University
EC	European Commission
ENSEC	Environment and Security Initiative
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GFZ	German Research Centre for Geosciences Potsdam
GHG	Greenhouse Gases
GIZ	German Society for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit)
GSP	Global Support Programme
ICSD	Interstate Commission for Sustainable Development
IFAS	International Fund for saving the Aral Sea
INDC	Intended Nationally Determined Contribution
IOM	International Organization for Migrations
IPCC	Intergovernmental Panel on Climate Change
ISWG	Intersectoral Working Group
IUCN	International Union for Conservation of Nature and Natural Resources
IWM	International Water Management Institute
IWRM	Integrated Water Resource Management

NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
OSCE	Organization for Security and Co-operation in Europe
PDNA	Post-Disaster Needs Assessment
PERAC	Protection of the Environment in Relation to Armed Conflict
PIK	Potsdam Institute for Climate Impact Research
PVE	Prevention of Violent Extremism
REC	Regional Environmental Center for Central and Eastern Europe
RPSP	Readiness and Preparatory Proposal
RQ	Research Question
SES	Socio-Ecological System
SGD	Sustainable Development Goal
SIWI	Stockholm International Water Institute
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNDP IRH	United Nations Development Programme Istanbul Regional Hub
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
UNRCCA	United Nations Regional Centre for Preventive Diplomacy for Central Asia
USAID	United States Agency for International Development
WEF	Water-Energy-Food

1. Introduction

Half-way through the year 2020, the year that COVID-19 affected the entire world without concerns for borders or nationalities, the global pandemic showed us how the protection of water, especially in fragile areas, is a key factor for human security and it highlighted the vulnerabilities that exist (CEOBS 2020). The lack of access to safe water services, particularly for hygiene, increased the risk for the poorest and most vulnerable populations. Fragile areas that have experienced conflict in the past are the most susceptible: "COVID-19 is a particular threat in places where health systems have been ravaged by war, where people uprooted by conflict live in close proximity, and where life-saving resources like clean water, soap and medicine are in short supply" (ICRC 2020). International cooperation and good practices in water management are key responses to address the vulnerabilities, but cooperation does not always develop as planned, particularly in conflict-sensitive areas. The Geneva Water Hub recently published a set of legal principles[1] to promote the protection of water supplies in conflicts, which apply to the protection of water infrastructure also in pre- and post-conflict situations, highlighting the connections that exist between water, health, the environment, and peacebuilding.

Transboundary water management issues have been happening in all continents, exacerbated by fluctuating precipitation patterns and increasing water demand, affecting human security. In April 2020 the Iguazu Falls in Argentina registered the lowest level since 2006, when Brazil was holding back water from the Parana river in the Itaipu reservoir. Brazil had been experiencing unusual dry weather that drained 17% of the reservoirs in the southern region. As a consequence, Argentinian exports were affected when grain shipments had to carry lower weight adding a strain on the already Covid-19 hit economy (Garrison and Costa 2020). On the other side of the world, farmers and fishers in Cambodia, Laos, Thailand, and Vietnam were going through alternating "the worst drought in living memory" (Beech 2020) and sudden floods from the Mekong river. The Tibetan Plateau, however, still showed plenty of water, being held back by China and directly affecting the livelihoods of millions of people in the downstream countries. Glaciers that feed the river are melting fast due to climate change, and China's building of water reserves deprives the other countries from the usual water flow on which their existence depends. The southwest of the United States is going through the worst drought in 1200 years, with its natural variability exacerbated by climate change. It has intensified wildfires, and threatened water supplies and agriculture. The Rio Grande flows down to Colorado (US) to Mexico, with the largest reservoir of Rio Grande located

[1] The Geneva List of Principles on the Protection of Water Infrastructure (GLP) is available online. URL: https://www.genevawaterhub.org/sites/default/files/atoms/files/gva_list_of_principles_protection_water_infra_www.pdf

on the US side that provides water for urban consumption and irrigation. Northern Mexico, consequently, is water-starved with people unable to access drinking water, and irrigation for their agricultural production (Fountain 2020).

Central Asia is also facing transboundary water issues. A windstorm and heavy rains took place in Turkmenistan between end of April and beginning of May resulting in devastation in the eastern parts of the country. Infrastructure damage, debris, and flooded basements attracting mosquitoes – and with them potential vector diseases – in combination with the inaction of the government sparked the largest demonstration since Turkmenistan's independence in 1991 (RFE/RL's Turkmen Service 2020). The population in the Central Asia region is starting to wake up to the potential threats of climate change to human security. In May 2020 a dam on the Syr Darya river burst in Uzbekistan displacing over 70.000 people in Kazakhstan and Uzbekistan. People were evacuated from 22 villages due to flooding of irrigation canals opened to reduce the flow (Mamatkulov and Auyezov 2020). The same month, there were shootings at the border between Kyrgyzstan and Tajikistan triggered due to unclear ownership of a plot of land. Kyrgyz citizens planted corn in a disputed site, that is claimed by Tajikistan (Panfilova 2020). What seems to be a border dispute has an underlying water component – a river runs through the area, with hydraulic structures key for water supply in both countries. This conflict is only one example of the many that have happened throughout the years, evidencing the volatility that exists in the region.

All these examples highlight the problem that climate change, in combination with transboundary water mismanagement, increases the risk to human security. The Ferghana Valley has experienced several conflicts in the past in relation to mismanagement of transboundary water resources, with water acting either as a trigger, a weapon, or a casualty. Climate change has the potential to enhance the already existing tensions in the area, threatening the livelihoods of millions of people. Adaptation measures need to be implemented to prevent the negative impacts projected for the Valley, keeping into consideration the existing tensions and potential triggers that exist. This thesis determines the factors contributing to conflict dynamics of the Ferghana Valley, examines the institutional capacity of the states to adapt to climate change, and assesses the incorporation of conflict-sensitivity as a way to enhance resilience. Lastly, it presents a Conflict-Sensitivity Framework incorporated to National Adaptation Plans, with the potential to be applied to other adaptation or development projects in fragile states.

1.1. Problem Definition

Climate change has moved beyond scientific research to a have a more central role in the political agenda, with both scientists and governments around the world declaring a "climate emergency" in 2019 as seen in multiple publications and official communications. This can be read as securitization of climate change according to the Copenhagen School of security studies (Floyd 2007), not only mainstreaming climate adaptation and mitigation but also accelerating solutions and making its way into national and international security agendas threatening constitutional rights and the justification of the suspension of normal politics (Hulme 2019).

Homer-Dixon (2007) is one of the authors in favor of the concept of securitization in climate change, stating that "climate change will help produce the kind of military challenges that are difficult for today's conventional forces to handle: insurgencies, genocide, guerrilla attacks, gang warfare and global terrorism" (Homer-Dixon 2007), referring to it as a "threat multiplier" and calling for action to better understand the geopolitical implications of climate change. Even though the securitization of climate change may lead to emergency actions that integrate drastic but sometimes necessary measures, it can have a high political price due to the use of undemocratic procedures. An alternative appears from the Paris School of security studies proposing climate change to be understood as "the successful climatization of the security field" meaning that "existing security practices are applied to the issue of climate change and that new practices from the field of climate policy are introduced into the security field" (Oels 2012, 185). Examples of these practices include early warning systems, scenario planning, or even conflict analysis, but also include risk management and climate modelling.

The idea of climate change as a threat multiplier implies that political stability is threatened by the increasing frequency of climate-induced disasters which, added to increasing competition over access to natural resources, can lead to conflict in areas where peace is already fragile. To deal with the consequences of climate change, societies can choose between three main coping strategies: adaptation, conflict, or migration (Buhaug *et al.* 2010) depending on environmental changes, vulnerability, and contextual factors. Failing to achieve climate adaptation may result in conflict, with a group trying to secure an increased share of scarce resources by force if necessary. The other alternative would be to exit, but migration can also act as a "catalyst of social friction and armed violence" (Buhaug *et al.* 2010, 83) as it may result in confrontations in the receiving areas due to competition over natural and economic resources, ethnic grievances, mistrusts between states, or exacerbation of traditional fault lines.

The report of the Working Group II of the UN-IPCC also relates climate change to loss of livelihoods, migration and ethnic conflicts, leading to a potential impact on food related to scarce water availability, with evidence relating climate variability to an increased risk of violent conflicts (IPCC 2015). The risks to security as a consequence of climate change, apart from livelihood security, may include "human and economic losses, pressures from competition for natural resources, water shortages, water and energy insecurity, damage to infrastructure, loss of biodiversity, increased social grievances, changes in trade patterns, loss of sources of income and decreased physical security" (Novikov and Kelly 2017).

Homer-Dixon (1991) explores the main social effects and conflicts that may be caused by environmental degradation, grouping them mainly as: a decrease of agricultural production, a decline in economic outputs, displacements of population, and the disruption of both social relations and institutions. Based on this, he expands on "ideal types" of possible conflicts that result from these social impacts. First, *simple scarcity conflicts* happen between states over scarce natural resources, especially those that can be physically controlled such as water and agricultural productive land. Second, *group-identity conflicts* triggered between ethnic or cultural groups due to increased stress on resources. Third, *relative-deprivation conflicts*, more likely to occur in fragile states when there is a general discontent due to negative impacts on the economy or the environment. Keeping this in mind, the definition of environmental conflicts that is considered throughout this research is:

> Environmental conflicts manifest themselves as political, social, economic, ethnic, religious or territorial conflicts, or conflicts over resources or national interests, or any other type of conflict. They are conflicts induced by an environmental degradation. Environmental conflicts are characterized by the principal importance of degradation in one or more of the following fields: overuse of renewable resources; overstrain of the environment's sink capacity (pollution); impoverishment of the space of living (Libiszewski 1992, 14).

The Central Asia region – i.e. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan – is expected to perceive negative security impacts of climate change, enhanced by contextual mediators such as national income, population, weakness of political institutions, unstable neighboring countries, and a history of violence (Buhaug *et al.* 2010). Central Asia and particularly the Ferghana Valley (Fig. 1 below) is exposed to various natural impacts related to climate change making it a disaster-prone area. Its vulnerability is enhanced by man-made disasters caused by industrial activities and the legacy from the Soviet period. The impacts include hydrometeorological hazards such as mudflows, landslides, floods; and impact of high

temperatures and drought on food production and health; desertification, reduction of river flows, and glacial melting. This evidences the need for the implementation of adaptation measures. Central Asian countries have shown significant development progress over the past two decades in terms of climate adaptation and mitigation (OSCE 2017). Nevertheless, the distribution of climate action in the region is uneven, which would build on the cross-borders tensions that already exist related to the unequal distribution of water resources. Water is the resource that will be most affected by climate change: increasing temperatures, changing precipitation patterns, and an overall reduction of annual rainfall (IPCC 2018) will lead to depletion of major water sources, such as aquifers, glaciers, and fresh-water bodies.

Fig. 1. Topography and hydrography of the Ferghana Valley, in Central Asia.
Source: UNEP/GRID ARENDAL 2005

The Ferghana Valley – a trans-border area of the Kyrgyz Republic, Tajikistan and Republic of Uzbekistan; from now on referred to simply as Kyrgyzstan, Tajikistan, and Uzbekistan – was designated the highest climate change security-risk area among 11 identified regional and transboundary climate change and security hotspots in Central Asia (Novikov and Kelly 2017). The main water issues in the Ferghana Valley are related to water availability, quality and access, rising groundwater, and water logging from agriculture. Even though the conflicts in the region have a local character, the presence of diverse ethnic communities at the international borders add a transboundary ethnic dimension. The importance of transboundary water ecosystems suggests

that basin-wide cooperation mechanisms could help better address existing water management challenges at transboundary and national levels which would also address environmental security challenges related to water. Despite this, governmental agencies, local authorities, local NGOs, and other stakeholders remain largely uninformed about climate-related security risks. This undermines local and national capacity to prepare effective responses.

Achieving effective adaptation requires a clear understanding of climate vulnerabilities, but also an overall view of the dynamics present in the region, the context of fragility, and exposure to climate risks. Even if climate change does not directly lead to conflict and conflict does not prevent the ability of a country to adapt to climate change (Crawford and Church 2020); the interlinkages between the two require conflict drivers to be considered and addressed to achieve resilience and peaceful adaptation that can be sustained in time. For that, climate change adaptation (CCA) measures must include conflict-sensitivity, and as a result a conflict-sensitive approach to CCA "recognizes and addresses the dynamics that may trigger new or escalate existing conflict in the course of planning, implementation and management of adaptation projects. Conflict-sensitive adaptation understands the context it acts upon and strives to minimize negative and maximize positive impacts on human security" (Babcicky 2013, 486).

Understanding the feasibility of incorporating a conflict-sensitive approach (CSA) into the development of adaptation measures has both an academic and a practical relevance for the future that is already here. Political action needs to be informed by scientific research to prevent the development of conflicts in areas that are sensitive to violence, have to deal with resource scarcity or abundance (Behnassi 2019), or possess resources that will be valuable for a transition to a low-carbon economy. Promoting a CSA to CCA can provide the basis for a successful and peaceful development in the region, helping to build resilient nations.

1.2. Aims and Objectives

The Conference of Parties (COP) established the National Adaptation Plan (NAP) process at the COP 16 in 2010 under the Cancun Adaptation Framework, enabling countries to formulate and implement NAPs assessing vulnerabilities, mainstreaming climate risks, and addressing adaptation. Article 7 of the Paris Agreement, specific about adaptation, obliges countries to take action and makes the NAP process central. Paragraph 9 states that "each party shall, as appropriate, engage in adaptation planning processes and the implementation of actions, including the development or enhancement of relevant plans, policies and/or contributions" (United Nations 2015, 10). According to UNFCCC, the objectives of NAP process are:

> (a) To reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience; (b) To facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate (UNFCCC 2012, 11).

The COP has agreed that enhanced actions on adaptation should "follow a country-driven, gender-sensitive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems" (UNFCCC 2012, 11). However, countries that have experienced previous violent conflicts, are vulnerable to future conflict, or that are in a process of peacebuilding could benefit from including a CSA when developing their NAPs.

The aim of this thesis is to determine the feasibility of incorporating climate-fragility risks into climate adaptation measures as a way to achieve *peaceful adaptation* in the Ferghana Valley. The objectives of this research are to:

1. Determine how environmental factors contribute to conflict-sensitivity in the Ferghana Valley in the context of climate change
2. Examine how a conflict-sensitive approach (CSA) can be integrated into the countries' National Adaptation Plans (NAPs) to reduce security risks and enhance resilience in the region
3. Assess the political feasibility of incorporating conflict-sensitivity to improve National Adaptation Plans (NAPs)
4. Design a Conflict-Sensitivity Framework applicable to NAPs as a way to achieve peaceful adaptation

I anticipate that my research will generate findings in relation to the role of CCA in peacebuilding, more specifically on the potential of transformation from conflict to peace through the incorporation of adaptation measures in natural resource governance and the application of a CSA. This research applied an integrated framework combining environmental security, resilience, and peacebuilding in the Ferghana Valley, and as such will serve as a basis for peaceful adaptation through the development of a Conflict-Sensitivity Framework. The analysis will inform the paths for conflict-sensitive CCA at the national level for the countries in the Ferghana Valley. Specific Do No Harm considerations were taken, including an understanding of the political and cultural sensitivity when speaking of conflict, the availability (or lack thereof) data, and ensuring the anonymity of the interview respondents whenever required.

The research directly addresses Sustainable Development Goals (SDGs) SDG 13 (Climate Action) and 16 (Peace, Justice and Strong Institutions), but it also promotes progress towards Goal 2 (Zero Hunger) and 3 (Good Health and Well-Being).

1.3. Literature Review

The security field was questioned for its narrowness in the 1980s, with the claim that environmental factors needed to be integrated into the traditional approach to security (Ullman 1983). The publication *Our Common Future* (1987) was one of the first to use the term "environmental security" (Barnett 2003). This is considered the "first generation of environment and security research" (Rønnfeldt 1997). Their approach can be summarized as follows:

> Environmental security has emerged as a transnational idea, the core of which holds that environmental degradation and depletion, largely human-induced, pose fundamental threats to the physical security of individuals, groups, societies, states, natural ecosystems and the international system. Security institutions in particular are currently failing to redress these threats. All institutions, according to the central tenets to the idea, must better address these threats. The alternative if these threats are not better addressed will likely be economic, social and ecosystem health and welfare decreases (Dabelko 1996).

The evolution of security studies led in the 1990s and 2000s to the concept of *human security*, picking up the themes of development and structural violence from the 1970s. The concept of human security was launched by UNDP in 1994, expanding the field of security to include development. Security was broadened to include universal concerns, prevention of conflicts, and the global cooperation to eradicate poverty and promote development, including a people-centered approach. Threats to security started to include the sectors of "food, health, the environment, population growth, disparities in economic opportunities, migration, drug trafficking and terrorism" (Buzan and Hansen 2009). This concept, however, was criticized for the lack of consideration of the political and economic structure, and the disparities between the states' abilities to provide security, as well as the militarization of environmental issues.

Dalby (2013) discusses the environmental dimensions of human security, stating that human security "refers to the safety of people not states, places obligations on international institutions to deal with what became known as complex humanitarian emergencies, and bundles these together with aspirations to a liberal order where economic progress and human rights are combined as a policy desideratum as well as some sort of analytical lens" (Dalby 2013, 121). Human security, traditional concerns with national security, and environmental issues were linked

as a result of climate change enhancing the vulnerabilities of people, with political violence taking place in places where war does not officially occur. Security was then reshaped as human security – freedom from fear and freedom from want – together with environmental security – freedom from hazards, with a focus on prevention and anticipation.

Special consideration has been taken in terms of natural hazards and the importance of social networks as a key to resilience, and the responsibilities of the international community to respond when humanitarian emergencies arise. This brings in the concept of "responsibility to protect" not only when it comes to traditional issues of national security but including now environmental emergencies and the predicted impacts of climate change, especially to vulnerable communities. This was part of the second generation of environment and security research (Rønnfeldt 1997), which identified the causal pathway from environmental scarcity to conflict (Toronto Group's model illustrated in Fig. 2) through the application of empirical studies. Some of the main findings of this generation included that "in the absence of adaptation, environmental scarcity weakens states (...), sharpens distinction among groups and enhances their opportunities to participate in violent collective action" (Homer-Dixon and Percival 1996).

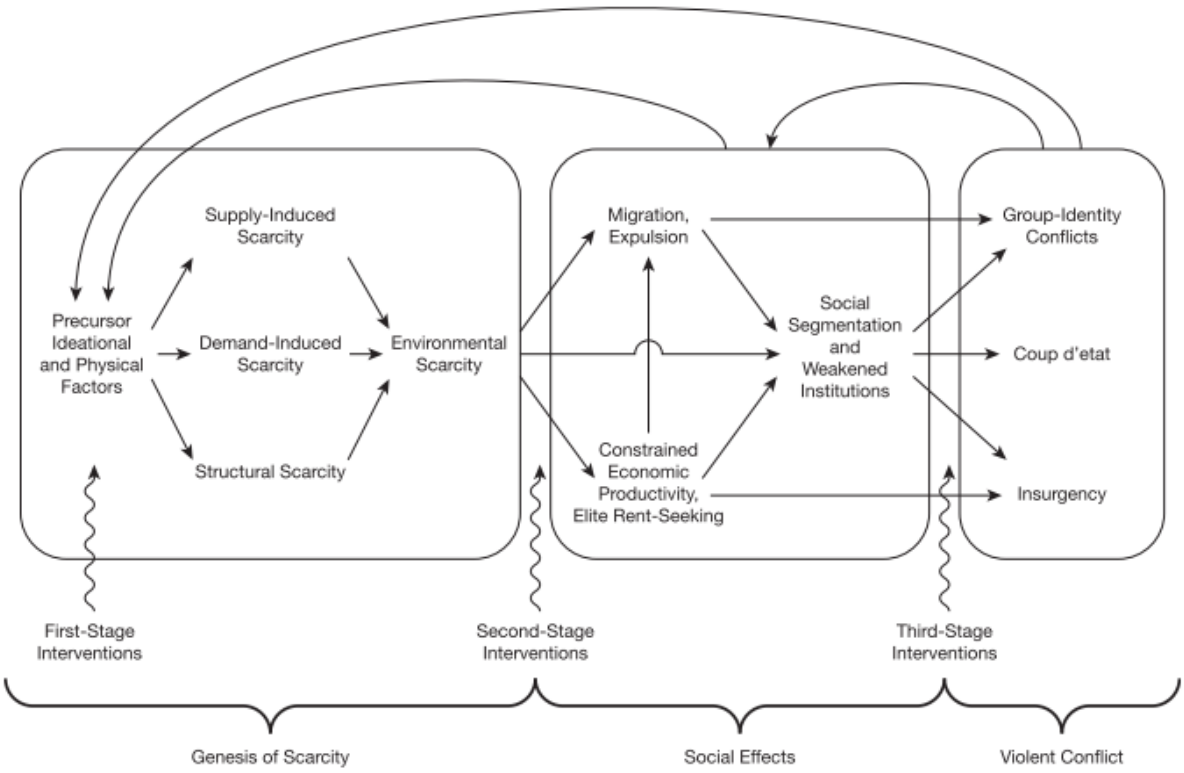

Fig. 2. Core model of causal links between environmental scarcity and violence.
Source: Deligiannis 2013

The third generation of environment and security research (Rønnfeldt 1997) emerged with the inclusion of comparative studies of cooperation and conflict as a response to environmental scarcity. As a result, it facilitated the mobilization of international assistance for conflict prevention given the correlation between, for example, water or weak governmental institutions with conflict. The concept of "ecological marginalization" linking environmental scarcities to political conflict (Homer-Dixon 1999) was provided to also include the role of poverty. A number of quantitative studies were performed to confirm the hypothesis presented by the scholars of this time. The main criticisms arise from the sub-state level of analysis of security in this case, excluding the effects of the international economy, transboundary resources, and lack of regional considerations (Rønnfeldt 1997). Cases of cooperation were then needed to break the causal link between the social effects of environmental change and conflict, but these cases were mainly focused in the so-called "developing world". This has been critically scrutinized by scholars in recent years, stating that it is an "ethno-centric assumption that people in the [global] South will resort to violence in times of resource scarcity – this assumption acts as a smokescreen that diverts attention from the fact that Northern countries consume and extract most natural resources worldwide" (Behnassi 2019, 567).

Nicole and Michele (2009) support the use of *environmental security* over *environmental conflict*. They explain that the environmental conflict discourse has a sense of urgency that leads to short-term adaptation strategies to avoid violent conflict, putting the focus on the state response. Instead, the environmental security discourse focuses on the impacts on all human beings and gives room to specific conflict considerations as well, and promotes longer-term strategies prioritizing human security over national security – "from the environmental security perspective, policies should be targeted at both human behavior [consumption and population] and natural processes [natural disasters and biophysical alterations], as each of these contribute to environmental insecurity for humans" (Nicole and Michele 2009, 307). The marginalization of climate change in the debate on environmental conflict (Trombetta 2012) led to focusing on scarcities instead of the long-term role it may play in triggering conflicts or turning fragile states into failed states. It also downplayed the connection between global dynamics to localized impacts. There is a need for shifting from reactive measures – i.e. direct state intervention – to proactive ones, leading to "the deployment of the political conditionality and good governance criteria attached to development and environmental aid, and [outlining] the importance of promoting adaptation to climate change in order to avoid destabilization" (Trombetta 2012, 160).

A new field is now emerging, with the concept of *climate security* at its forefront. Three main arguments support this field (Matthew 2013; Barnett 2003; Mcdonald 2013). First, climate change

poses a threat to national security when communities are forced to migrate due to their livelihoods being threatened by rising sea level, flooding, or droughts, creating conflict between migrants and receiving communities. Studies were performed mainly in the regions of South Asia, the Middle East, and sub-Saharan Africa, due to their fragile institutions and the projected impacts of climate change. The main ways in which climate change could affect national security are: "effects that (1) weaken the elements of national power; (2) contribute to state failure; or (3) lead to, support or amplify violent conflict" (Matthew 2013, 268). Framing climate change as a national security issue is not the best response to the scale of the climate crisis, given that it encourages "perverse political responses that not only fail to respond effectively to climate change but may present victims of it as a threat" (Mcdonald 2013, 49). The second argument for climate security is that climate change poses a threat to human security, organized in seven categories according to the definition of human security from UNDP: economic, food, health, environmental, personal, community, and political. The third argument is that there is a need to address climate change in the context of peacebuilding, and "as climate change can be linked to national and human security, integrating some level of climate sensitivity into peacebuilding operations, and building the capacity to prepare for and respond to climate change effects, has a prima facie attraction" (Matthew 2013, 273). The author suggests that the main strategy to do so is identifying entry points in all programmatic areas, identifying and assessing climate-sensitive sectors. For that, cooperation between countries, regions, or even at the global level is a key step.

Barnett (2003) argues that there are both problems and possibilities that arise from the climate-security discourse. Even though the framing of climate change as a security issue "risks making it a military rather than a foreign policy problem and a sovereignty rather than global commons problem", it has the potential to guarantee policy response that better address concepts like sustainability, vulnerability, or adaptation, and it can act as "an integrative concept which links local (human security), national (national security) and global (international security) levels of environmental change and response (…) [integrating] mitigation and adaptation as both are essential to security from climate risks" (Barnett 2003, 14–15). Matthew (2013) also states that "one way to integrate climate change adaptation into peacebuilding is to assist the new government to enhance its capacity for managing climate risk".

The field has evolved from a perspective of security treated independently of environmental issues, to the development of the environmental security and environmental peacebuilding fields. Nevertheless, climate security is still relatively new and has not been thoroughly explored. A new approach is therefore needed for the integration of climate change and security, specifically for adaptation measures as a way to achieve peaceful adaptation. There have been numerous

qualitative studies done in the area in relation to number of conflicts present, or with a focus on transboundary water management, but there is a lack of integration between the two fields. Some authors have stated the need for research to deepen areas of consensus in the many existing approaches, integrating human security, climate change, conflict, and political and economic realities (Deligiannis 2013; Maas *et al.* 2013). New research should lead to the "joint management of environmental affairs and natural resources with a view to overcoming direct, indirect and potential causes of conflict related to the environment and natural resources. In addition, the dialogue between different parties to a conflict may also support confidence- building and reconciliation measures" (Maas *et al.* 2013, 102). Empirical evidence is lacking a systematic approach on the role of environment and natural resources, the conflict dynamics, and the geopolitical and socio-economic context (Adams *et al.* 2018; Maas *et al.* 2013; Deligiannis 2013), thus the aim of this thesis is to provide new evidence about the potential of achieving peaceful adaptation through an integrated approach that is framed within conflict-sensitivity.

Conflict-sensitive approaches to climate change adaptation have focused mainly on avoiding maladaptation, i.e. the impact that adaptation measures can have on human security, given that "not all conflicts are caused by climate change itself, but often by human reactions to it" (Babcicky 2013, 481). In the case of water resources, adaptation projects in the past have led to increased tensions and conflicts between communities that depend on those resources for water supply, resulting in social instability and human insecurity:

> Adaptation measures that are technically sound but lack a conflict-sensitive approach can lead to an escalation of conflicts around water resources. This is most likely to occur in countries that share the same water resources (transboundary rivers). The mechanism is simple: adaptation measures that secure water availability in one country (or region) may increase water scarcity in another. The reduced availability of water is a result of another country's adaptation measures, thereby increasing the probability of international conflicts over the remaining water resources (Babcicky 2013, 482).

Babcicky (2013) states that what is necessary is the development of guidelines that can identify key conflict problems and specific instruments to address conflict-sensitive issues, resulting in a framework for "a socially acceptable implementation of adaptation programs". Studies integrating climate adaptation, water governance, and conflict management policies have been performed in the African drylands looking at the adaptation-water-peace nexus (Okpara *et al.* 2018). Okpara *et al.* (2018) looked at the policy level, suggesting a new "policy integration thinking" promoting decentralization as a form of governance, knowledge sharing, early warning-relief-recovery, and collaborative approaches. They did not aim to integrate conflict-sensitivity to adaptation measures

at the implementation level. A previous compilation of studies (Bob and Bronkhorst 2014) focused on conflict-sensitive adaptation to climate change in Africa, with a specific chapter on the water sector proposing an analytical tool – Water, Climate Change, and Crisis Assessment Framework (WACCAF) (Tänzler and Rüttinger 2014). Nevertheless, there is no practical application of this tool included, but only the encouragement to apply integrative approaches when it comes to CCA.

In the case of Central Asia, multiple studies have focused on climate change impacts (Sorg *et al.* 2012; Siegfried *et al.* 2012), climate change adaptation (Twyman Mills and Selenge 2018), water security (Kuehnast and Dudwick 2008; Bichsel 2009; Dalbaeva 2018; Perera and Perera 2019), environmental risks (Carius *et al.* 2003; Freedman 2014), WEF nexus (Meyer *et al.* 2019; Meyer 2019; Rakhmatullaev *et al.* 2017), transboundary water (Bernauer and Siegfried 2012), and climate security (Mirimanova *et al.* 2018; Novikov and Kelly 2017). However, there is a lack of literature looking at the case of Central Asia, and specifically of the Ferghana Valley, from a systemic view that integrates all the previously mentioned issues. As an example, a search on Google Scholar with the combination of keywords *Central Asia, conflict sensitivity, climate change adaptation* only gave 28 titles (May 2020), in which the region is only mentioned as an example of a place with water issues, but no empirical studies were performed. When *Central Asia* is replaced with *Ferghana*, only 1 title appears. This thesis aims to fill that gap by proposing the inclusion of conflict-sensitivity into adaptation measures as a way to promote cooperation and minimize the already existing tensions and conflicts that may exist in fragile regions, specifically in the Ferghana Valley in Central Asia, and develops a Conflict-Sensitivity Framework with application on the process of National Adaptation Plans (NAPs).

1.4. Outline

The present thesis is structured following the aims and objectives aforementioned. Chapter 2: Theoretical Framework describes the link between climate change and conflict, looking at the issues of climate change and security, conflict and sustaining peace, and climate and fragility in order to introduce an integrated approach as a framework for this research. Chapter 3 introduces the methodology that this research followed, to answer each of the research questions and fulfill the general objective.

Chapter 4: Conflict Dynamics presents a conflict analysis of the Ferghana Valley to identify the factors that contribute to conflict dynamics in the context of climate change. There I look at the context profile, conflict profile, and potential scenarios. Chapter 5: Policy Framework describes the current state of development of NAPs in Kyrgyzstan, Tajikistan, and Uzbekistan, and explains the need for a conflict-sensitive approach (CSA) to reduce security risks and enhance resilience in

the region, through the identification of themes obtained from expert interviews. Chapter 6: Intervention Logic, stemming from expert opinions and the previous analysis, identifies the political sensitivities, barriers, and opportunities of incorporating conflict-sensitivity to achieve peaceful adaptation. It also introduces the stakeholder perception to understand the political feasibility of this kind of approach.

Chapter 7: Future Perspectives discusses the findings of the previous chapters, looking at the barriers to resilience, linking them in the theoretical framework presented in Chapter 3, and finally presenting the application of the Conflict-Sensitivity Framework to the NAPs in the Ferghana Valley. Chapter 8: Conclusions and Recommendations provides final thoughts on the research, proposing recommendations for practitioners, for further research, and implications for the region overall.

2. Theoretical Framework: The Link Between Climate Change and Conflict

The present chapter looks at the role that natural resources play across the conflict cycle and throughout peacebuilding, keeping in mind: (i) the nexus between climate change and security, (ii) how natural resources contribute to conflict and sustaining peace, and (iii) the effects of multidimensional climate risks on fragility. Three main perspectives emerge: a social justice perspective, related to climate change and security; a socio-ecological systems (SES) perspective, related to conflicts and peacebuilding; and a resilience perspective, when it comes to climate and fragility risks. Finally, an integrated approach is presented linking environmental security and resilience to peacebuilding.

2.1. Climate Change and Security

The security implications of climate change, according to Buhaug *et al.* (2010), can be grouped in three manifestations: (i) climate change poses a risk to human livelihoods due to an increased scarcity and variability of renewable natural resources; (ii) the potential of sea-level rise together with worsened environmental conditions can trigger massive migrations, increasing stress in receiving areas; and (iii) the intensification of natural disasters can affect resources, infrastructure and settlements, and misguided efforts to adapt could result in social grievances. The authors developed a synthesized causal model (Fig. 3) illustrating the possible pathways from climate change to conflict, in which they distinguish five main mechanisms in which socio-political factors can act as "catalysts of social friction and armed violence" (p. 81).

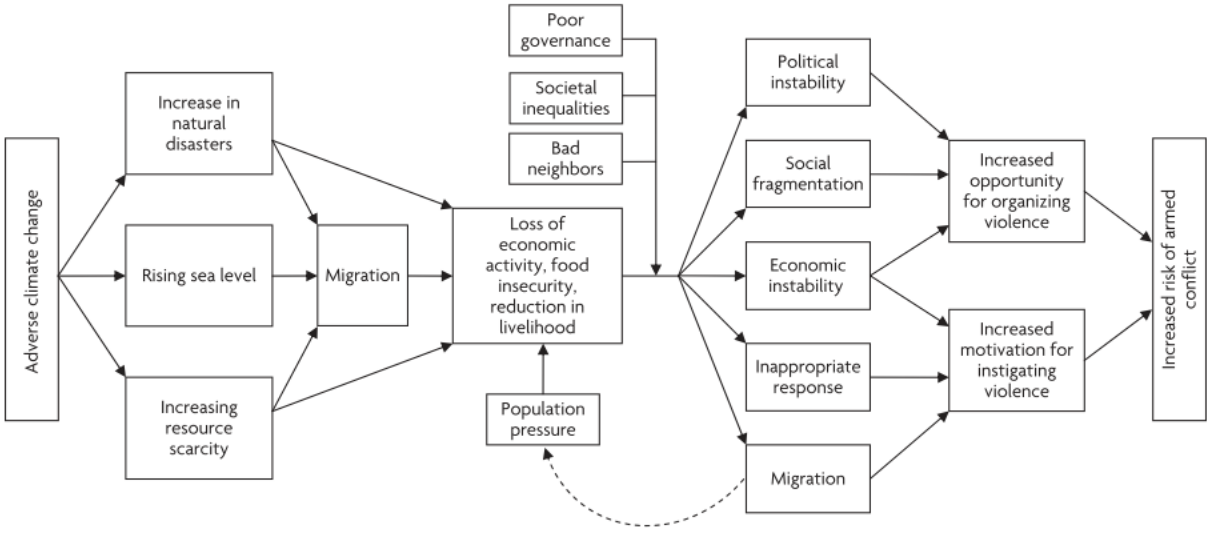

Fig. 3. Possible pathways from climate change to conflict.
Source: Buhaug et al. 2010. Note: feedback loops, reciprocal effects, and contextual determinants have been kept to a minimum

As seen in Fig. 3, the first of these catalysts is political instability. Substantial evidence has linked political instability to an increased risk of armed conflict, triggered by the weakening of the state due to scarcity of certain natural resources. The second catalyst is social fragmentation, with ethnicity as a facilitator of mobilization and reinforcing hostilities. Poverty can also act as a catalyst due to inequality and economic instability leading to food insecurity, loss of livelihoods and an increased ingenuity gap between sectors and between countries as well. Also, migration can reflect the perceived environmental push and pull factors, and act as catalyst for conflict especially in the receiving areas due to competition over natural resources, ethnic grievances, and mistrust between sending and receiving states. The last catalyst of conflict due to climate change, according to Buhaug *et al.* (2010) is inappropriate responses. At a macro-level, climate policies can have unforeseen or underestimated effects on global and regional economic systems, thus affecting political stability and triggering civil unrest. At a small scale, local CCA measures can have inadvert consequences on neighboring areas, for example building a dam to counter lower precipitation in an area can affect the populations downstream. However, these negative security impacts are more likely to be found in areas that have previously experienced some type of organized violence or armed conflict, and it is necessary to take into consideration country- or region-specific socio-political catalysts. Therefore, as explained by the authors, contextual mediators such as national income, population, weakness of political institutions, unstable neighboring countries, and a history of violence may affect whether adaptation results in violence. It is then necessary to understand the regional dynamics to ensure that CCA leads to sustainable development and a solid political system instead of turning societies back to conflict.

Climate change threatens to undermine the process towards democratization and just distribution of power and resources due to destabilizing effects for society and the environment related to issues of water management, food, and energy security. Climate change can threaten human security in a number of ways. Increasing frequency of climate-induced extreme weather events and disasters can put communities and their livelihoods at risk, which in turn can push people to migrate on a large scale or to turn to illegal sources of income. Climate-induced disruption of food production and increasing food prices can lead to social instability and civil unrest. Impacts on energy production caused by higher temperatures and lower precipitation, as well as threats to energy production and transmission infrastructure from extreme weather events put supply chains and energy security at risk. Increasing demand for water and an unreliable supply increase pressure on existing water governance arrangements and can complicate political relations, particularly at transboundary basins already affected by tensions.

Climate change adaptation requires a social justice perspective, not only considering the catalysts previously explained to reduce existing and future inequalities within countries and between regions. Mearns and Norton (2010) emphasize that adaptation measures need to be mainstreamed into planning based on equity and social justice, considering the communities' needs. Therefore, it is necessary to include long-term planning for infrastructure and land use; agricultural diversification, research, and extension; avoidance of maladaptation measures such as perverse incentives; inclusion of disaster risk reduction measures; and above all, consideration of social policy measures such as social protection, public health, and support to migrants. As a result, the incorporation of these rights-based approach can lead to "well-established technical, policy, and legal instruments in new ways to address climate change" (Mearns and Norton 2010, p. 12).

Mearns and Norton (2010) claim that fragile states with poor institutions and weak governance are likely to have their adaptive capacity affected by climate change. This can have consequences that include destabilization and violence, which in turn can pose a risk to national and international security. Therefore the authors suggest an approach to CCA called "the Development-Adaptation Continuum" (see Fig. 4) which seeks to "strengthen governance, policies, and institutions through approaches that include community-based natural resource management, community-driven development, and social protection programs, with a strong emphasis on empowerment, participatory planning processes, community involvement in decisions, access to information, and institutional capacity building" (Mearns and Norton 2010, p. 31).

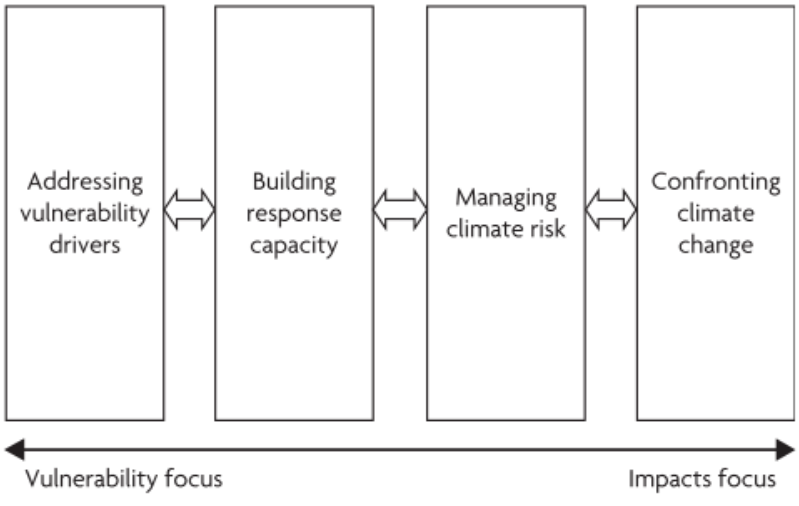

Fig. 4. Development-Adaptation Continuum.
Source: Mearns and Norton 2010

The incorporation of this social justice perspective in CCA can reduce the human security risks that climate change poses. Human security in this context includes the consideration of seven aspects: economic, food, health, environmental, personal, community, and political security.

Adaptive policy with the engagement of multiple stakeholders allows for greater public participation, is context-based, and flexible enough to be redesigned based on the ongoing monitoring and evaluation it requires. Agrawal (2010) encourages also the development of collaborative institutional partnerships between public, private, and civic actors in climate adaptation to achieve an integrated governance that will reduce the likeliness of conflicts within the society.

2.2. Conflict and Sustaining Peace

There are three main possible interactions between natural resources and violence, according to Behnassi (2019): (i) natural resources contributing to the escalation of violent conflicts, whenever coupled with contextual factors; (ii) natural resources becoming weaponized or victimized during violent conflicts; or (iii) violent conflicts resulting in benefits for the environment, e.g. through biodiversity conservation hotspots established in demilitarized zones. The first interaction has been studied by numerous scholars especially during the mid-1990s with the emergence of the 'securitization' paradigm, leading to the assumption that natural resources and environmental factors trigger violent conflicts. Other authors also explore the impacts of conflict on natural resources and the environment, identifying three main pathways for the link: direct impacts, caused by the physical destruction of the ecosystems; indirect impacts, as a result of coping strategies used by populations to survive the loss of livelihood caused by conflict; and institutional impacts, as a result of conflict disrupting institutions, initiatives and policy coordination (Matthew *et al.* 2009).

However, a new wave of researchers began to conceptualize natural resources, instead, as incentives for cooperation with the potential to help mitigate tensions between parties. Behnassi (2019) reviews the recent literature on this matter, and presents a new approach of "coviability of socio-ecological systems as an alternative to properly perceive the human-environment nexus" (p. 555) switching to socio-ecological systems instead of climate change as the object of securitization and developing 'environmental peacebuilding' as an instrument to transform conflict. An example given by the author is that of "water wars" predicted by other scholars during the 1990s being overstated, when instead water is more likely to promote cooperation and peace instead of violence. This idea transforms the perspective of the environment-conflict relation from negative peace – i.e. cessation of violence and post-conflict peacebuilding – to an environmental-peace relation with positive peace – i.e. cooperation and elimination of the causes of conflict. Matthew *et al.* (2009) highlight the role of natural resources in peacebuilding, as instruments to support economic recovery; develop sustainable livelihoods; and contributing to dialogue, cooperation and confidence-building.

Hardt and Scheffran (2019) explore the transformation of environmental peacebuilding and climate change pushed by UN institutions, readjusting to a concept of "sustaining peace" which encompasses the root causes of violent conflict, the involvement of multiple stakeholders with a local turn, and the inclusion of prevention of conflict. The authors distinguish between the third wave in environmental-conflict research, looking at climate change as a trigger for risks and conflict, against the third wave of environmental-peace research, looking at environmental peacebuilding and sustaining peace. Sustaining peace "strives to minimise the negative interactions between armed conflict, environmental destruction and low levels of development, which would lead to a 'vicious cycle' of a non-peaceful and unsustainable world" (Hardt and Scheffran 2019, 7). They aim to link human development, environmental protection, and peacebuilding instead.

Conflict and cooperation can coexist, and even have a transformative potential. Natural resources shared by conflicting parties can be a starting point for environmental cooperation, therefore also for environmental peacebuilding. Three types of environmental peacebuilding activities can help the transformation (Behnassi 2019): (i) activities aimed at preventing environmental conflicts, such as limiting pressure on natural resources and dealing with power asymmetries; (ii) activities aimed at building peace through cooperation, by stimulating dialogue between conflicting parties; and (iii) interstate bargaining through institutional cooperation, achieving a lasting and sustainable peace. As part of the set of activities that prevent environmental conflict, the inclusion of conflict-sensitivity approaches can lead to increased cooperation. Conflict-sensitivity applies to all contexts, even if no violence has previously resulted in that area before; it should be incorporated as an institutional approach and not only as a set of tools; applies to all types of works conducted at all levels; and does not require changing mandates or prioritizing peacebuilding above everything else (UNIFTPA 2012). It can also act as a preventive tool to avoid maladaptation – i.e. the triggering of conflicts that may result from the introduction of adaptation measures in a context where underlying tensions already exist.

The benefits of environmental peacebuilding are explored also by Ide (2020) together with the dark side of it. In terms of the benefits, Ide claims that environmental peacebuilding can be a tool to emphasize the locals capacity for conflict resolution "rather than reproducing Orientalist images of the global south as incompetent and violent" (Ide 2020, 2) making it a more accepted view around the world and not as contested as the concept of environmental security. It can also help promote concepts like "peaceful adaptation" (Barnett 2003) into the environmental security research, to adapt to climate change while building resilient livelihoods. Ide (2020) also highlights the risks of environmental peacebuilding that should be taken into consideration: depoliticization, displacement, discrimination, deterioration into conflict, delegitimization of the state, and

degradation of the environment. If these risks can be avoided, issues like water can provide an easy entry point for cooperation, trust building, and integration even in illiberal or violent contexts.

2.3. Climate, Fragility, and Conflict

Climate change, as previously stated, can act as a threat multiplier affecting peace and security in fragile contexts. According to Carius (2006), states can fall within a spectrum that goes from a positive end of *resilience*, characterized by a stable, functional, accountable and inclusive state, to the negative end of *fragility*, with weak or poor-performing states. Where a state will fall within the spectrum is dependent on its capacity, legitimacy, and authority. Resilience is determined by 5 dimensions: natural (resources and ecosystems), physical (infrastructure), human (skills, knowledge, capacities, and abilities), social (social capital and cohesion), and financial (resources) (adelphi and UN Environment 2019). Fragility can emerge on different levels and different forms: first, during transitional stages of post-conflict or regime change; second, in moments of crisis such as large-scale violence or state collapse; and third, in pockets of fragility such as localized conflict or violence (Carius 2006).

Considering the impacts of climate change on some states and societies in relation to fragility, there are 7 multidimensional compound climate-fragility risks that emerge when climate change interacts with other pressures: local resource competition, livelihood insecurity and migration, extreme weather events and disasters, volatile food prices and provision, transboundary water management, sea-level rise and coastal degradation, and unintended effects of climate policies (Rüttinger *et al.* 2015). These risks will be further explored during the study to understand how local conditions may trigger conflict or undermine resilience. The report also highlights the cooperation around shared water resources, given that they are mostly based on water flow and water usage which is changing under the fluctuating precipitation patterns triggered by climate change, and a changing demographic distribution.

The key to making cooperation sustainable lies in understanding the complex interaction between environmental, socio-political and economic patterns to achieve resilience in states that may be fragile. The fostering of climate- and conflict-sensitive natural resource management is a fundamental overall approach to address climate-fragility risks, linking CCA to peacebuilding. The following section will combine the three perspectives mentioned above into an integrated approach to CCA.

2.4. An Integrated Approach

Keeping in mind the previous theories explored, 3 main perspectives emerged: (i) a social justice perspective, related to the nexus between climate change and security; (ii) a socio-ecological systems (SES) perspective, related to how natural resources contribute to conflict and sustaining peace; and (iii) a resilience perspective, when it comes to the effects of multidimensional compound climate-fragility risks on peace and stability.

First, related to the nexus between climate change and security, it is key to understand the pathways between climate change and conflict by considering the contextual mediators including the history of armed conflict, which will determine the adaptive capacity of each country. Besides, the regional dynamics have to be considered always with a community-based perspective to be able to develop CCA measures that lead to sustainable development instead of conflict. Second, natural resources can promote cooperation instead of violence through environmental peacebuilding, with activities aimed at "preventing environmental conflicts, such as limiting pressure on natural resources and dealing with power asymmetries" (Behnassi 2019) and seeking to reduce key drivers of violent conflict. Part of these activities include the incorporation of CSAs to CCA, acting as a preventive tool to avoid the maladaptation. Third, fragility must be the underlying consideration to understand the interlinkages between transboundary environmental projects and socio-political-economic initiatives. An integrated approach is necessary to prevent climate-fragility and enhance resilience in the region and will determine the capacity of the states and societies to manage change. An integrated agenda for resilience must include CCA, development and humanitarian aid, and peacebuilding and conflict prevention. For that, 3 relevant compound-fragility risks were identified with entry points and action areas for each of them: transboundary water management, local resource competition, and extreme weather events and disasters. These will be further explored in the context of the Ferghana Valley.

Therefore, the integration of conflict-sensitivity into CCA policies in the Ferghana Valley would require climate vulnerability assessments with a fragility lens and transboundary perspective; a comprehensive notion of resilience when it comes to strategy and planning; and an implementation that ensures a distribution of benefits and resources that does not aggravate already existing tensions. I therefore explore how peaceful adaptation can be achieved with consideration of climate-fragility risks and bearing in mind conflict sensitivities to work *in* the context of conflict for peaceful interventions, considering all stages of conflict and the WEF nexus.

The aim of my thesis is to determine the feasibility of incorporating climate-fragility risks into climate adaptation measures as a way to achieve *peaceful adaptation* in the Ferghana Valley. The

theoretical framework I base it on considers environmental peacebuilding instead of environmental conflict; looking at enhancement of resilience. Within resilience, I will focus on action areas related to (i) transboundary water disputes settlements and (ii) building local resilience. I only speak of security in terms of the perspective I give to my research, which is a *human security lens* implying a security perspective that considers the societal consequences of climate change that may lead to armed conflict, including the aspects of security related to economy, food, health, environment, personal, community, and political security.

Moving forward, I consider a theoretical framework that aims to combine the concepts of resilience and environmental security, and for that it is important to highlight the definitions provided by Schilling *et al.* (2017): social resilience and environmental security. First, *social resilience* refers to "the ability of a group or community to withstand, recover, and learn from external disturbances" (Schilling *et al.* 2017, 5). The authors refer to both strengths and weaknesses of using the concept; strengths being related to the appreciation of complexity and local agency, its bridging function and an overall positive connotation. On the negative side, the concept of resilience may result in a depoliticization of disasters and a redistribution of responsibility to the local level, with higher authorities. The United States Agency for International Development (USAID) (2012) describes the dimensions of resilience that are relevant for conflict assessments including: flexibility in the systems, diversity in actors participating, adaptive learning to incorporate new knowledge, collective action and cohesion to achieve common goals, and self-reliance in terms of organizational activities. The countries of the region present an overall low score in terms of resilience, with Tajikistan achieving a 22.5/100 and Kyrgyzstan 14.3/100. For Uzbekistan the data is not available (FM Global 2019)[2]. The second concept, *environmental security* is defined as "the absence of risk or threat to the environment a person or community depends on and lives in" (Schilling *et al.* 2017, 8); and "addresses the linkages among the environment, natural resources, conflict and peacebuilding" (Matthew *et al.* 2009, p. 7) The strengths highlighted relate to the ability of the concept to motivate international cooperation and emphasize the importance of the environment. At the same time, the securitization of the environment can result in a justification of external intervention, so many states may choose to reject this concept because of its connotations. Therefore, combining both concepts into peacebuilding can help understand the risks due to environmental factors and the ability to adapt to those risks.

[2] The Resilience Index is based on three factors – the economic factor accounts for political and macroeconomic influences on resilience; the risk quality measures the relative commercial and industrial property risk across countries – including exposure to natural hazards; and the supply chain factor comprises four drivers – including control of corruption and quality of infrastructure.

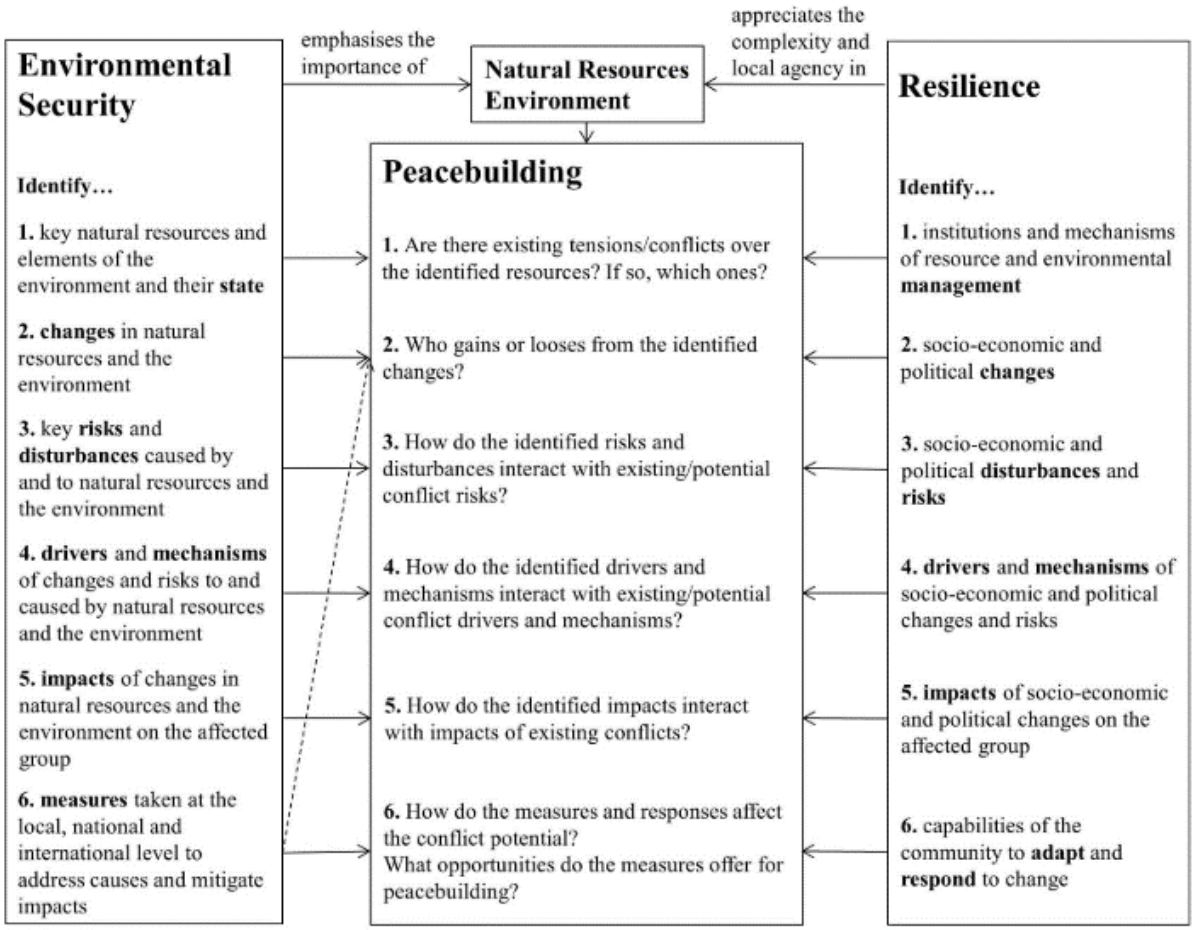

Fig. 5. Integrated approach linking environmental security and resilience to peacebuilding.
Source: Schilling et al. 2017

Fig. 5 above represents the conceptual framework linking environmental security and resilience to peacebuilding, with environmental security emphasizing the importance of natural resources and the environment, while resilience appreciates its complexity allowing for peacebuilding sustainable in time. The definition of *peacebuilding* to be considered is that it "comprises the identification and support of measures needed for transformation toward more sustainable, peaceful relationships and structures of governance, in order to avoid a relapse into conflict" (Matthew *et al.* 2009, 7). This conceptual framework is based on a six-step process, with the main objective of answering the questions of the peacebuilding column identifying both the environmental security and the resilience perspective. It is the basis for the research and is incorporated throughout the methodology. The risk of depoliticization that both the resilience and environmental security concepts imply will also be kept into consideration by attempting to involve the different levels of government and multiple stakeholders. After developing the 3 first objectives of the research, an analysis of the findings through this framework shows the link of environmental security and resilience to peacebuilding in the context of the Ferghana Valley. This leads to the development of a Conflict-Sensitivity Framework applied to NAPs.

3. Methods

3.1. Methodological Approach

Previous studies relating climate change to conflict have chosen a quantitative approach, focusing on climate data in combination with conflict records (Vivekananda *et al.* 2014). However, these have the limitation of not providing answers about the nature of the relationship between climate change and conflict/peace. Besides, the concept of security – usually measured in number of armed conflicts – is limited to understanding the impact on human livelihoods. As an alternative I applied a qualitative approach, with a conflict analysis of the Ferghana Valley area and expert interviews. The interviews provided more depth and detail of the existing dynamics, more content for a useful practical application, and were better for understanding complex issues such as the one at hand. Throughout the research I took into consideration the previously presented integrated framework linking environmental security and resilience to peacebuilding, as to emphasize the importance of natural resources and the environment while leading to peaceful adaptation.

3.1.1. Conflict Analysis Framework

The Conflict Analysis Framework (CAF) is used by the Global Partnership for the Prevention of Armed Conflict and allows for a comprehensive approach in line with the EU's objective of "preserving peace, preventing conflict and strengthening international security across a wide range of mechanisms and tools, including public and quiet diplomacy, (high level) political dialogue, policy dialogue, trade negotiations, external assistance, mediation, CSDP [Common Security and Defense Policy] missions and other interventions" (European Commission 2013). The CAF is designed to be applied during all possible stages of violent conflict, either potential, ongoing, or post-conflict; considering a "transformation timeline" that promotes action in all stages of conflict, from immediate action to long-term peace and stability. It provides key elements for the analysis of conflicts, as shown in Fig. 6.

The framing of this research within the CAF provided an understanding of a complex conflict context, promoting collaboration between different actors and incorporating an economic, political, and social view. This methodology takes into consideration the following variables (World Bank 2005): social and ethnic relations, governance and political institutions, human rights and security, economic structure and performance, environment and natural resources, and external forces. Given the large amount of studies in the area in relation to post-Soviet conflict developments, especially due to ethnic polarization, I decided to look instead at the environmental factors that contribute to the conflict dynamics in the context of climate change, particularly the consequences on land use, natural resources, and transboundary water.

The CAF follows a two-step approach: diagnosis and formulation of response recommendations. Applying the CAF, we can have a better approximation of location, timeframe, impacts of conflict, and conflict response feedback to be used for better-informed policy recommendations, considering the interactions between the three studied countries and not only within their borders. The possible responses to conflict dynamics that can come out of this assessment must consider the following approaches, according to USAID (2012): (i) the responses must be based on the analysis generated by the CAF; (ii) the responses are based on a credible "theory of change"; (iii) the responses are based on a sound understanding of what peacebuilding implies; and (iv) identification of "bright spots" – i.e. practices and behaviors that local communities perform and that can help achieve solutions or overcome barriers. Table 4 in Appendix B contains the Theory of Change diagram for the UNDP project that interacts with this research and helps assess the causal logic of the intervention and ensure that all factors are considered and that the intervention fits into the implementation context.

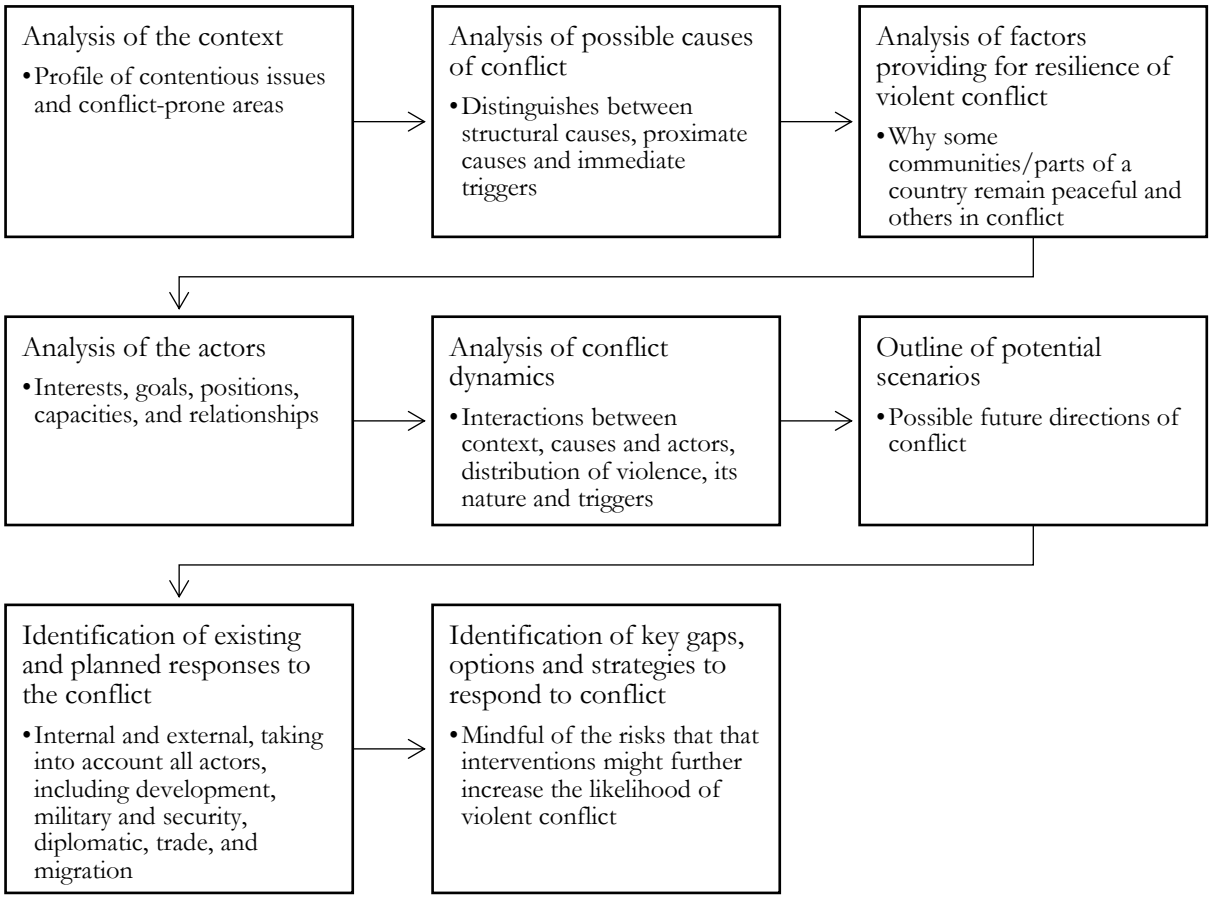

Fig. 6. Key elements of EU conflict analysis.
Source: European Commission 2013 (with amendments)

3.1.2. Interviews

The advantages of using information from interviews relates to the diversity of information and the speed with which the information could be obtained from people. The questions were oriented to fulfill the objectives directly, instead of having to extract the information from literature sources. Finding information about political feasibility required interviewing to see how practitioners view the topic and researching outcomes with practical relevance. The interviews were performed either by telephone or videocall, which was ideal to observe the expressions and body language of the interviewee. There were individual interviews, with a brief summary of the thesis provided in advance to give context. All interviews took place during April and May 2020. Specific *Do No Harm* considerations for conflict-sensitivity were required, including the choice of individuals to approach or not to approach, the consequences of excluding some groups, or even the possible rebound effect of talking about conflict.

The contact with the interviewees was facilitated by UNDP IRH, given that I was doing an internship with the Climate Change Adaptation team during the development of the thesis. My research was aligned with their project "Climate Change and Resilience Building in Central Asia" which has the objective to support peace, stability, and climate resilient development in the Ferghana Valley through improved knowledge of climate-related security risks among stakeholders at local, national, and regional level. Its aim is to enhance resilience to climate-fragility risks through an integrated action addressing CCA, enhanced resilient livelihoods, and climate-informed peacebuilding and security. This thesis contributes to 3 of the project outputs: (1) enhanced knowledge base and capacities to identify and assess climate-driven security risks in trans-border areas of Kyrgyzstan, Tajikistan and Uzbekistan; (2) climate fragility risks are integrated into national security, adaptation, and development strategies and plans in the Kyrgyzstan, Tajikistan and Uzbekistan; and (3) enhanced regional cooperation and awareness on climate and fragility risks.

3.2. Study Design

Objective 1: Determine how environmental factors contribute to conflict-sensitivity in the Ferghana Valley in the context of climate change

In order to meet the first objective, I performed a systematic literature review, looking at both peer-reviewed papers and grey-literature, and processing the information using a synthesis matrix. I used Google Scholar, Sierra (CEU Library) and LUBsearch (Lund University Libraries) search engines, looking at papers published from 2010 onwards to have the more recent and relevant information. I selected a combination of keywords that included but were not limited to: *Ferghana Valley; conflict; water; climate change adaptation*. I applied the snowballing principle after selecting the

most relevant literature, looking at the bibliography included and finding relevant works to my topic. I also included data from white papers and working documents facilitated by UNDP IRH. The information was processed following the Conflict Analysis Framework (CAF).

Objective 2: Examine how a CSA can be integrated into the countries' NAPs to reduce security risks and enhance resilience in the region

The next step in the research involved looking at the current state of adaptation measures that already exist in the three countries of the Ferghana Valley and the state of their NAPs to reduce human security risks. For that, I used qualitative content analysis of the NAPs Readiness and Preparatory Support Proposal (RPSP) for each of the countries (GCF 2018; GCF 2020; GCF 2019) and compared them to the development pathway suggested by the Technical Guidelines for the NAPs (UNFCCC 2012) included in Appendix D of this thesis. I looked at the National Communications to the UNFCCC and the NDCs to infer the priority sectors for adaptation in each country. I also performed semi-structured interviews with the UNDP Country Offices which are leading the development of the NAPs to understand their current state of development and roadmap. The questions asked were designed to have updated information on NAPs that is not public or available yet, the key priority areas identified for adaptation, going beyond what was included in their RPSPs.

The interviewees were selected based on their responsibilities and experience. It included respondents from:

- UNDP Kyrgyzstan:
    - Climate change specialist managing the NAP process
    - Team leader on environment and DRR, with knowledge on the political situation and sensitivities
    - Monitoring and evaluation specialist in the area of prevention of social conflicts
- UNDP Tajikistan:
    - Team leader on climate change, DRR, energy, and environment
- UNDP Uzbekistan:
    - Climate change specialist with over 20 years of experience in the region
    - UN Aral Sea program manager

Objective 3: Assess the political feasibility of incorporating conflict-sensitivity to improve National Adaptation Plans (NAPs)

I performed interviews to look at the main barriers and benefits of achieving peaceful adaptation, taking into consideration climate-fragility risks and having a CSA. The objective was to understand the political feasibility of incorporating the CSA to NAPs through information regarding climate change induced human security risks, perceptions of potential conflicts, and political sensitivities.

The interviewees were selected given their experience in regional work in the area, and included:

- Regional specialists:
    - Regional specialist from UNDP IRH, with previous involvement in the report Climate Change and Security in Central Asia (Novikov and Kelly 2017)
    - Analyst and Project Manager from the Regional Environmental Center for Central Asia (CAREC)
    - Specialist from UNECE working with transboundary issues and human security
- Think-tank and NGOs:
    - Senior researcher from the Stockholm International Peace Research Institute (SIPRI)
    - 2 specialists from Zoï Environment Network – an independent organization that provides scientific knowledge to UNEP – who were directly involved in the report Climate Change and Security in Central Asia (Novikov and Kelly 2017)

Objective 4: Design a Conflict-Sensitivity Framework applicable to NAPs as a way to achieve peaceful adaptation

All the interviews performed for the previous objectives also contributed to identifying specific tools that could be included to support the incorporation of a CSA in the development of NAPs, and information about a possible overall framework with the possibility of applying it to other regions/projects. The findings of all the objectives were analyzed through the theoretical framework initially described, linking environmental security and resilience to peace. Then, the structure of the Technical Guidelines for the NAPs (UNFCCC 2012) was followed to integrate principles of conflict-sensitivities and suggested implementation activities, leading to a Conflict-Sensitivity Framework.

3.3. Data Analysis

To obtain the information from white papers and RPSP documents I used qualitative content analysis, defining specific observational categories developed during the literature review. Whenever necessary I applied search methods, based on the keywords: *conflict; security; key sectors; adaptation; peacebuilding.*

The interviews were semi-structured to allow a better flow of information from the respondents. I transcribed them and coded them to identify the main themes through a framework analysis. The in-text citations of the personal communications were done according the following abbreviations:

- UNDP Kyrgyzstan (KGZ)
- UNDP Tajikistan (TJK)
- UNDP Uzbekistan (UZB)
- Regional specialists (RS)
- Think-tank (TT)
- NGO (NGO)

3.4. Limitations and Ethical Considerations

Three type of data issues that I encountered during the process: (i) the data did not exist; (ii) the data existed but was not available; or (iii) the data was available but was not verifiable. Another limitation was that some information was only available in Russian language. Nevertheless, thanks to the support of the UNDP IRH colleagues, the data gaps were filled by interviewing experts and supported by working documents not available to the public, but that contained valuable information for the analysis.

Regarding the interviewees, there is no reason to believe that their participation resulted in any disadvantage or damage to their reputation or work. I engaged with all the potential candidates given their professional interest in the research area, and the willingness to do collaborative research and share existing knowledge. Whenever asked by the interviewee, their personal details were kept confidential and anonymous. Participation was voluntary and free of coercion. There is no potential for the results of my research to be harmful in any way to the reputation, dignity or privacy of the subjects; or harm their relationships with other people.

4. Conflict Dynamics: The Ferghana Valley

In this chapter, an analysis of the conflict dynamics in the Ferghana Valley is performed to understand how environmental factors contribute to conflict-sensitivity in the context of climate change. First, a brief description of the context profile is provided including the socio-economic context, the biological importance of the area, and the climate change vulnerability. Then, the conflict profile is developed looking at the possible causes of conflict, the factors providing for fragility, the actors involved, and the conflict dynamics themselves. Finally, potential scenarios are described taking into consideration the elements previously described.

4.1. Context Profile

In order to understand the natural resources and environmental factors that may trigger conflicts in the area, it is important to look at the context of the Ferghana Valley from a socio-economic perspective, take into consideration the biological importance of the area, and the climate change vulnerability. The Conflict Analysis Framework (CAF) described in the methodology was applied.

4.1.1. Socio-Economic Context

The Ferghana Valley is one of the fastest growing regions of Central Asia, home to nearly 30% of the region's population concentrated in less than 5% of the region's total land area, with almost half of the resident population under 28 years old. The population density has been estimated to be as high as 550 people per square km - relative to an average of just 75.1 people per square kilometer (Ferghana Regional Government 2017), making it the most densely populated region in Central Asia (Simonett and Hughes 2017; Mirimanova *et al.* 2018). Economies are intrinsically linked to Russian remittances, with Russia hosting 8 million citizens from Kyrgyzstan, Tajikistan, and Uzbekistan. Russia's economic slowdown and falling commodity prices have therefore severely impacted the region's economy, leading to high unemployment, high poverty rates, reverse migration to home countries, and greater internal migration.

Mirimanova *et al.* (2018) describe Uzbekistan as a country with a gradual shift to a market economy; Kyrgyzstan with limited access to exports but also trying to implement market reforms; while Tajikistan has been slowly diversifying its economy. The three main countries that form the Ferghana Valley are culturally and ethnically diverse nations, but with the common characteristic of weak trust in the state and in the public sphere. According to the climate-related security risk assessment done by the authors, these governments use securitization means to respond to dissent, by labelling protests as "against the state".

The Valley accounts for 51% of Kyrgyzstan's population, 31% of Tajikistan's population, and 27% of Uzbekistan's population. It covers the Andijan, Ferghana, and Namangan regions of Uzbekistan; Kyrgyzstan's Batken, Jalalabad, and Osh regions; and Tajikistan's Leninabad (Sughd) region. The Valley's ethnic composition is extremely heterogeneous and includes eight extra-territorial enclaves. The connection between water and social cleavages has previously been studied in the Ferghana Valley, concluding that future interstate and interethnic confrontations in the region will be driven by water allocation problems, and that the construction of "collective identities" can help minimize the tensions in the area (Krutov and Spoor 2003; Bichsel 2009). The Ferghana Valley has been one of the most unstable areas since the fall of the Soviet Union, with hard-to-reach areas exposed to poverty, resource scarcity, and frequent border disputes. Previously centralized service provision has deteriorated to varying degrees across the region, leaving many communities outside of social safety nets.

Irrigated agriculture, which expanded extensively during the Soviet period, and cattle raising have traditionally comprised the largest sources of livelihoods. Cotton and wheat, both of which are climate sensitive crops, have occupied most of the irrigated land. Although the Valley is relatively water-rich, compared to the rest of Central Asia, an increasing aridity and outdated Soviet-era irrigation infrastructure impose water tensions. These tensions, many of which revolve around upstream/downstream and highland/lowland axes, also concern the maintenance and financing of cross-border water infrastructure.

The Ferghana Valley hosts Central Asia's largest oil refinery and many core industries, including chemical, textiles, and mining. In addition, the Valley is home to important transport networks connecting the three countries with the region more broadly. This infrastructure is vulnerable to earthquakes and associated landslide and mudslide risks, which are particularly concerning given the presence of tailings from some 50 Soviet-era uranium mines. Fig. 7 below illustrates the environment and security priority areas in the Ferghana Valley in relation to the existence of the radioactive belt and industrial pollution sites. Many of these are not properly maintained or safeguarded and are located near groundwater sources or tributaries that flow into the Syr-Darya watershed. As Kyrgyz and Tajik glacial ice begins to melt, the risk of nuclear contamination and leeching increases, posing public health risks.

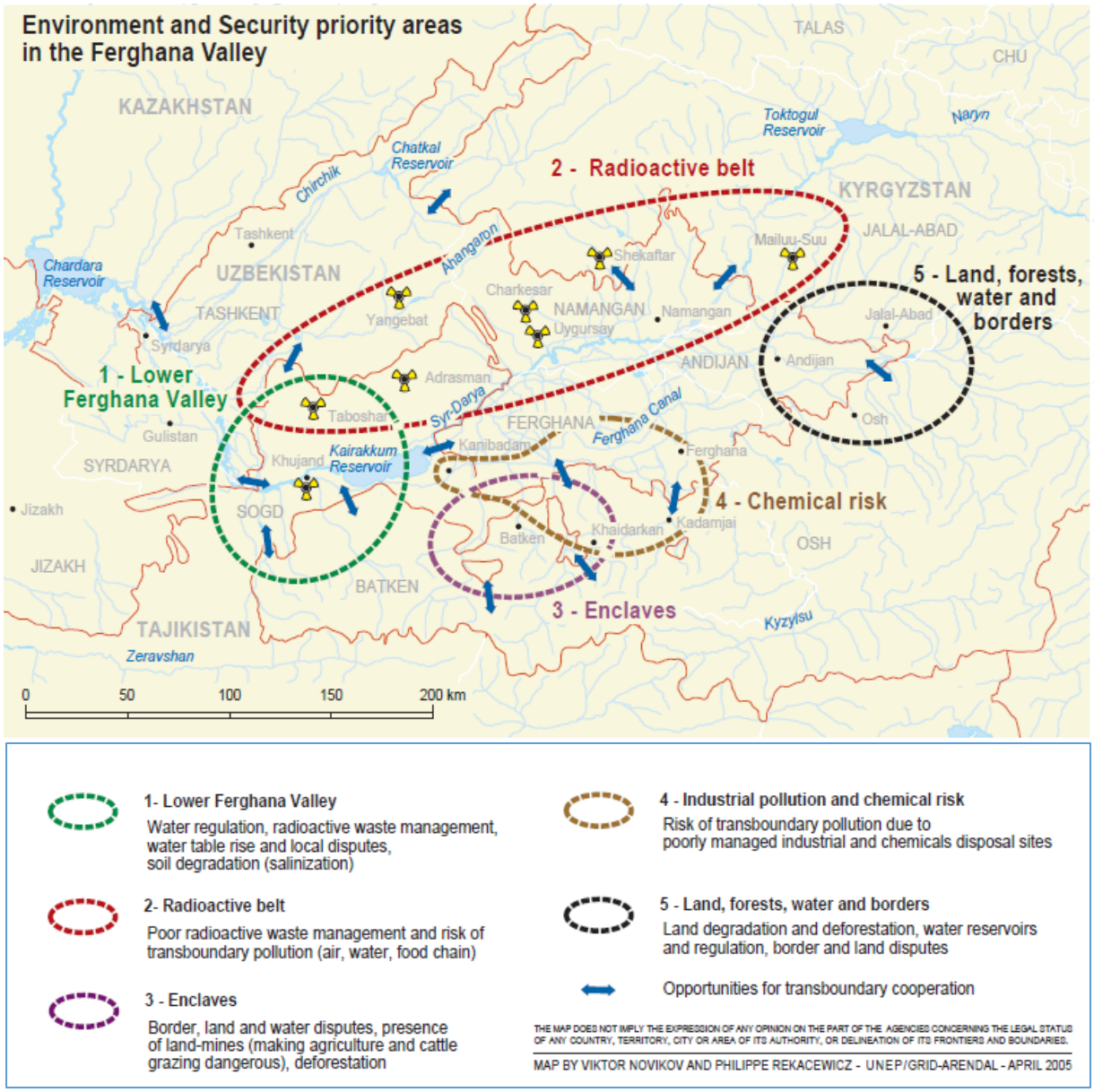

Fig. 7. Environment and security priority areas in the Ferghana Valley.
Source: UNEP/GRID-Arendal 2006. Cartographer: Viktor Novikov and Philippe Rekacewicz.

4.1.2. Biological Importance

The biological importance of the Ferghana Valley can be considered high. This particular ecoregion corresponds to a biodiversity hotspot, shown in Fig. 8: The Mountains of Central Asia (Conservation International 2016). The Ferghana Valley area meets the two thresholds that make it a biodiversity hotspot: it has at least 1500 endemic native vascular plant species, and it as already lost at least 70% of its primary native vegetation (Myers *et al.* 2000). This means the area is one of 35 biodiversity hotspots in the world – i.e. highly threatened biogeographic region with high biodiversity endemism (Mittermeier *et al.* 2011). The valley belongs to the ecoregion Alai-Western

Tian Shan steppe, characterized by temperate grasslands, savannas, and shrublands biomes (Olson *et al.* 2001).

Simonett and Hughes (2017) depict the region with 30 different ecosystems, which results in great landscape and biotic diversity. The biodiversity hotspot contains a wide range of ancestors of domestic fruit and nut varieties, as well as wild crop relatives of many cultural herbaceous plants making the region a storehouse of genetic diversity, out of which around 25% are endemic. Fauna diversity is also characteristic, with presence of Marco Polo sheep, snow leopards, and wild goats, as well as numerous reptiles, birds, fish, and invertebrates.

Fig. 8. Biodiversity hotspot Mountains of Central Asia in the Ferghana Valley.
Data source: UN Biodiversity Lab 2019

The ecosystem services provided by the Central Asia Mountains hotspot cover all areas – provisioning, regulating, cultural, and supporting. The most important service the region provides is the storage and release of water, which has given the mountain range the role of "water towers" (Simonett and Hughes 2017). The water distribution, though, is uneven, with Kyrgyzstan and Tajikistan holding together 70% of the water resources, but Uzbekistan being the largest consumer because of irrigation. Table 5 in the Appendix provides more details on the ecosystem services provided by the Valley. An integrated landscape-level approach with transboundary cooperation is necessary to enhance the resilience of the area to the threats that climate change may impose, and to maintain these essential services.

The biological importance of the area is also rooted in the mountain glaciers that maintain the water flow during the summers. The Tian Shan mountains to the north of the Valley include the Inylchek Glacier, over 50 kilometers long. The glaciers cover 4% of Kyrgyzstan and 6% of Tajikistan (Simonett and Hughes 2017). The largest river of Central Asia, the Amu Darya, has its origins between the Tian Shan mountains, the Pamir mountains of Tajikistan, and the Hindu Kush mountains in Afghanistan and Pakistan. Widespread (often wasteful) irrigation and uncoordinated cross-border water use has led to groundwater salinization, waterlogging, seasonal flooding, and other risks to sustainable management of water, land, and other natural resources.

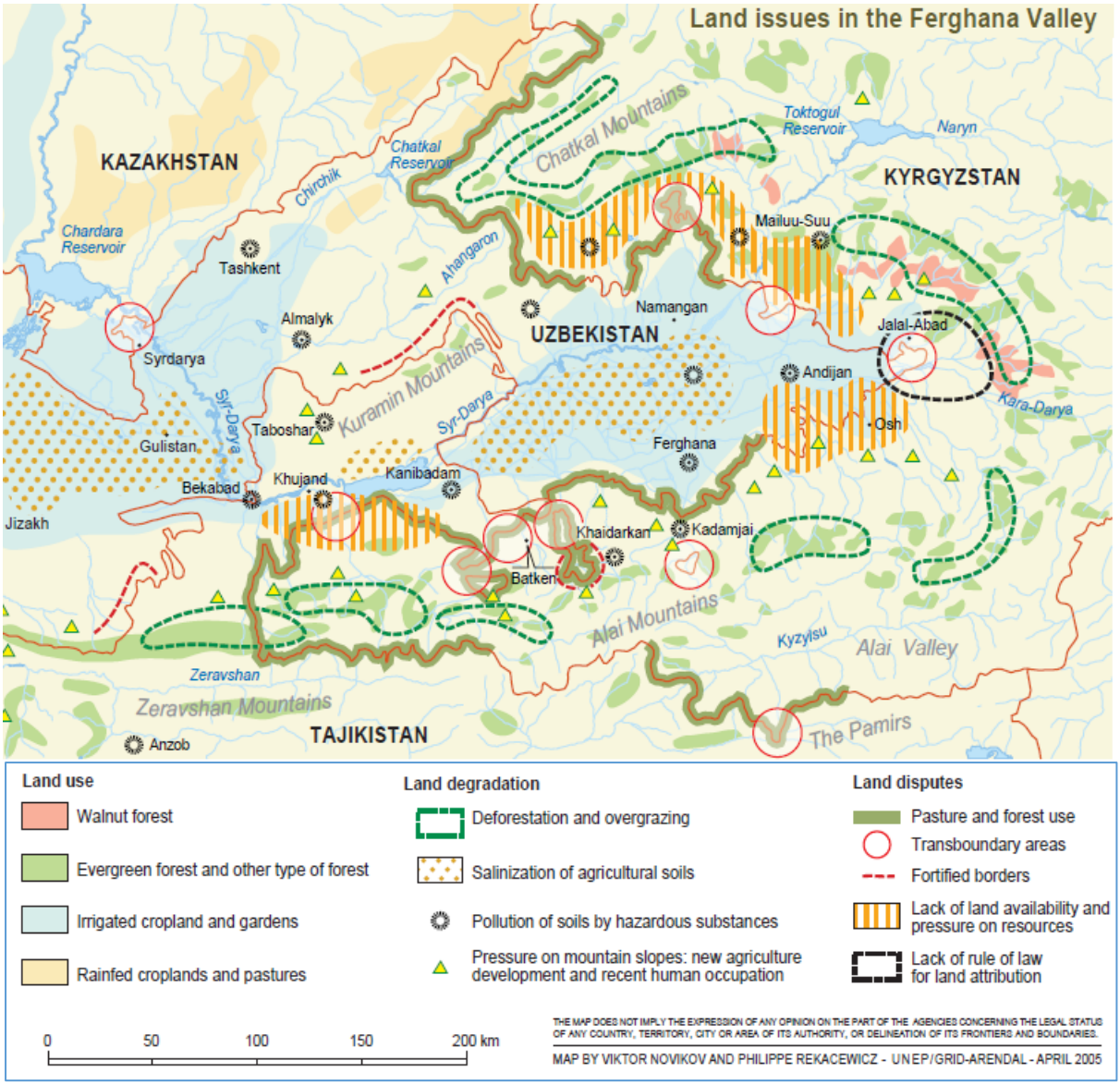

Fig. 9. Land issues in the Ferghana Valley.
Source: UNEP/GRID-Arendal 2006. Cartographer: Viktor Novikov and Philippe Rekacewicz.

Fig. 9 above illustrates these transboundary land issues that the region faces, differentiating between land uses, land degradation, and land disputes. Moreover, because the headwaters of much of the Syr Darya watershed are glacial fed, accelerating glacial melting is believed to both increase short-term flood risks and worsen longer-term water availability for irrigation and hydropower generation, as well as other commercial and household needs.

4.1.3. Climate Change Vulnerability

Kyrgyzstan, Tajikistan, and Uzbekistan have relatively low greenhouse gas (GHG) emissions when compared to other Central Asian countries but are still vulnerable to climate change. In a region that is subject to multiple stressors, climate change exacerbates existing vulnerabilities and is warming faster than the global average (Twyman Mills and Selenge 2018). Average annual temperatures have risen by 0.5 degrees Celsius over the last three decades, evidenced by substantial reductions in mountain snowpack and depleted volume of the Tien Shan glaciers and permafrost, releasing carbon and methane stocks which contribute to further warming. This degradation and ground-ice loss translates into changes in the seasonality of runoff in the river basin, increasing annual flow and therefore also increasing the risk of flooding in the area and challenges in the management of irrigation water (Hock *et al.* 2019). The region is projected to experience increased incidences of extreme weather events, changing precipitation patterns and increased drought. Fig. 10 below illustrates the projected impacts of climate change in key sectors of Central Asia.

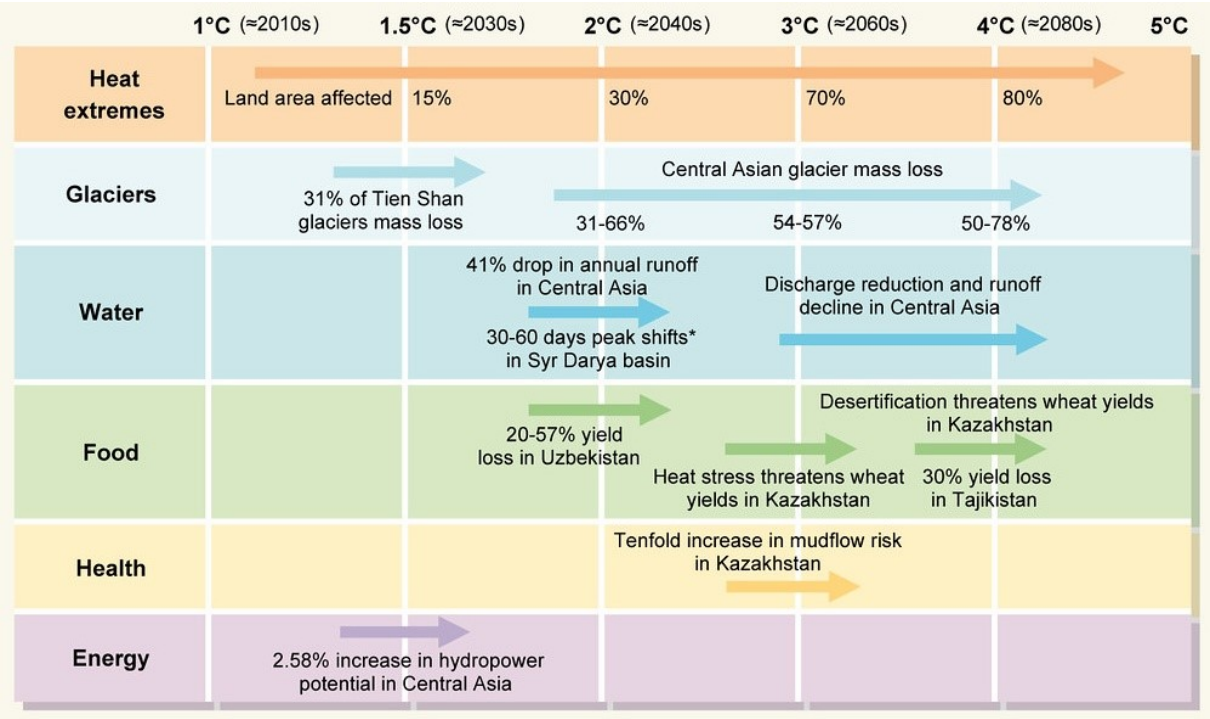

Fig. 10. Projected impact of climate change in key sectors of Central Asia across different global warming levels.
*Source: Reyer et al. 2015. Notes: *Warming levels are relative to pre-industrial temperatures. **From the current spring/ early summer towards a late winter/ early spring runoff regime.*

These impacts add pressure to the already stressed and overexploited natural resources, thereby increasing the vulnerability of rural communities and their livelihoods and undermining resilience. Fig. 13 in Appendix A illustrates the risks of natural disasters impacts, in combination with some major recent natural disasters that happened in the area, including droughts, mudflows, and landslides. This evidences the need for adaptation measures to be implemented, to minimize the negative expected impacts including desertification, reduction of river flows, and glacial melting.

A particularly complex challenge is the water-energy-food (WEF) nexus (as represented in Fig. 11 below) because electricity and food production rely on scarce transboundary water resources. Rakhmatullaev *et al.* (2017) study of the water issues in the Central Asia region concludes that water governance requires a more integrative approach with systemic and long-term solutions considering the WEF nexus in combination with environmental issues instead of just focusing on security approaches. A growing population in the area and climate change impacts, according to the authors, requires "coordinated policies and inter-sectoral approach in managing and governing of water resources" (Rakhmatullaev *et al.* 2017, p. 16) and a nexus approach can provide solutions for local communities preventing the development of social unrest and conflict.

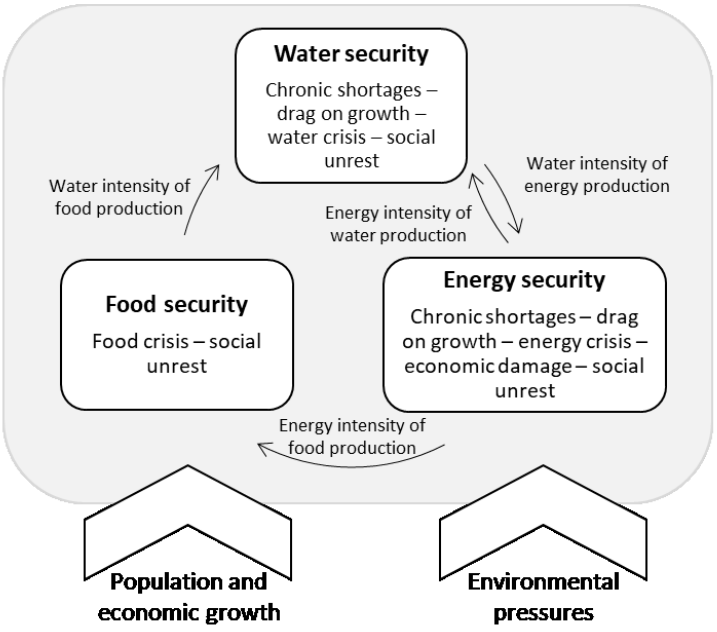

Fig. 11. The WEF nexus with a security focus.
Source: Rakhmatullaev et al. 2017 (with amendments)

Although the region is rich in energy resources, they are not evenly distributed: most of the region's hydropower resources are concentrated in Kyrgyzstan and Tajikistan. Yet, these countries are also most exposed and vulnerable to climate change and have limited adaptive capacity. As climate change reduces the availability of water for hydropower and thermoelectric cooling, energy security may be affected, with direct impacts on public service provision and economic function. Already,

outdated infrastructure limits access to energy for some communities and compounds power shortages, particularly in winter as well as in summer as hot temperatures (heat waves) required greater cooling and air-conditioning in public buildings and private housing. Increasing incidence of climate-induced extreme weather events will exacerbate risks to infrastructure.

Water and energy have historically been defining factors of inter-state and inter-communal relations in the region. There is a transboundary nature of water distribution in the area (as illustrated with Fig. 14 in Appendix A), in combination with areas sensitive to flooding, raising groundwater tables, runoff, and pollution. Uzbekistan is a carbon-rich country reliant on fossil fuel extraction to meet energy needs. By contrast, Kyrgyzstan and Tajikistan source 90% of their electricity from glacial fed hydropower (European Parliament 2018). To cover winter hydropower demand, the latter store water in reservoirs over the summer, which is when downstream countries have their most urgent irrigation needs. Warming, changing runoff and precipitation patterns, and an increased frequency of extreme events are leading to increased water demand for agriculture, and risks to energy production.

Water availability may increase in the medium-term (2030-2050), particularly over the winter season, when it is paired with the risk of flooding, landslides, and mudflows. In the longer term, shifting precipitation patterns, increasing temperatures, and dry spells are predicted to lead to water stress (see Fig. 12 below) resulting in less available water for irrigation, drinking and sanitation activities, and energy generation. The Ferghana Valley has a water stress value of over 80%, indicating a high competition among uses. The projected change in water stress (RCP 4.5) by 2030 based on global indicators for water demand, supply, stress, and seasonal variability shows an expected increase in water stress by 1.4. At the same time, projected increases in population and economic growth will likely increase demand to levels that may exceed the dwindling supply, thus leading to water insecurity. In terms of their water availability considering the flow generation and the water abstraction, Uzbekistan's availability is significantly low with a high water-footprint[3]; while Kyrgyzstan and Tajikistan have a high flow generation comparing to the withdrawal.

[3] To balance the water use and avoid scarcity, the use of tools such as *Water Footprint Assessment* can provide the information required measure the water footprint, analyze projected trends and efficiency of the sector (agriculture, industry, urban), and develop a response strategy that considers the whole river basin that is sustainable, efficient and equitable. URL: https://www.waterfootprintassessmenttool.org/

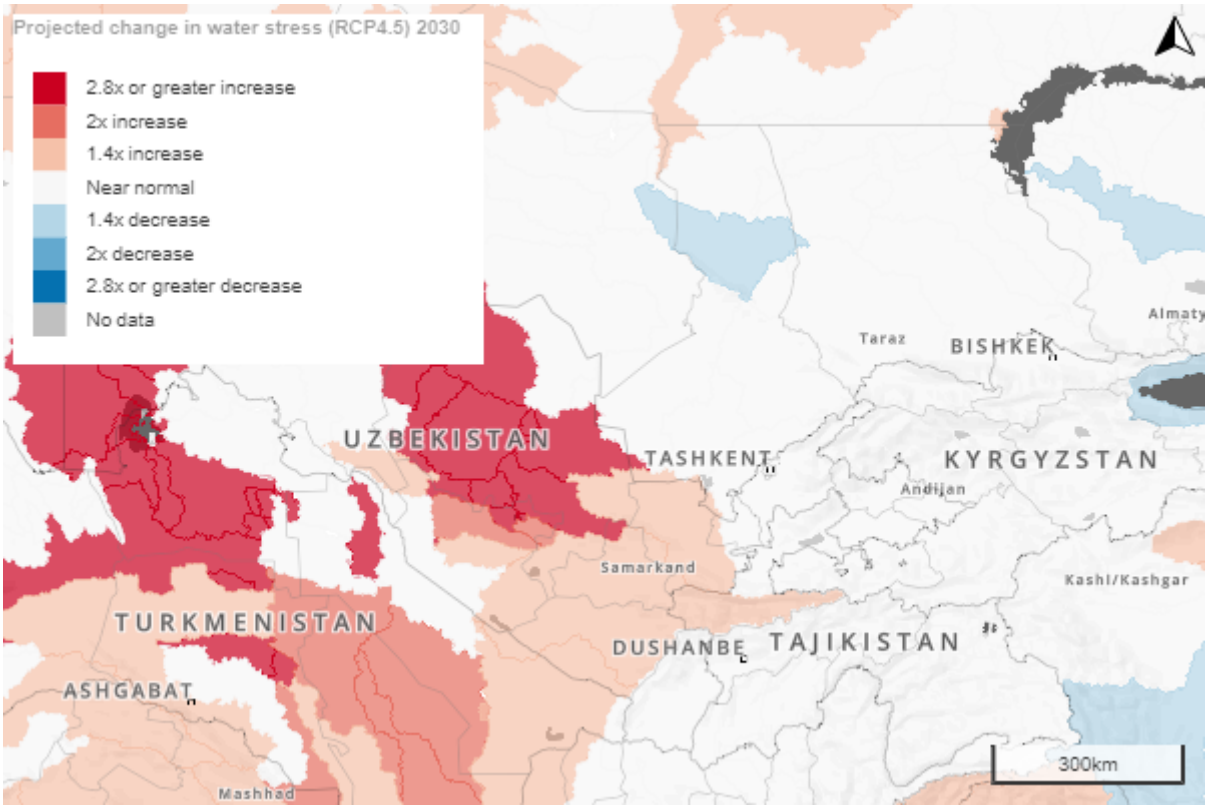

Fig. 12. Projected change in water stress.
Data source: UN Biodiveristy Lab 2019

Food security and health will also be affected as water insecurity increases. Despite efforts to diversify crop portfolios the agricultural sector remains sensitive to climate impacts. Heat stress and increased variability of precipitation are likely to affect the production of staple crops. Degraded land faces further erosion and loss of productivity through desertification and dust storms, or conversely flash floods and increased run-off. Water loss contributes to salinization. Changing conditions may also lead to increased outbreaks of agricultural pests and diseases with transboundary consequences. Agri-pastoral grazing systems, which are common throughout the region, will be impacted through increased stress on livestock, affecting growth and reproductive patterns, compounded by the spread of infectious diseases. Collectively, these impacts undermine food security across the region, affecting livelihoods and driving up food prices. Crop failures undermine human health and nutrition. Impacts on water resources may reduce access to clean water, which already affects over 40% of Tajikistan's population (USAID 2018) . The region may also face a resurgence in malaria, which was eradicated in the 1960s-70s, as the mosquito vector's range expands (Beard *et al.* 2016).

Climate change aggravates the already existing environmental and land degradation in Central Asia, which can create further pressure on biodiversity and undermine the capacity of ecosystems to provide critical services. Much of the region relies on irrigated agriculture as a key economic driver

and source of livelihoods, contributing to up to 27% (Tajikistan) of GDP in 2014 (USAID 2018). Value added in the agricultural sector in Uzbekistan is 28.79% (2018) (The Global Economy 2020). However, extensive irrigation of arid lands has resulted in severe depletion of water resources, land degradation, and soil pollution. According to rough estimations, around 1 billion tons of waste from mining and processing radioactive ores are stored on tailing sites across the region, many of which are concentrated along the tributaries to the Syr Darya river. The absence of adequate storage for toxic waste[4] poses a serious threat to public health and the environment, and risks contaminating the water sources used to sustain agriculture and livelihoods.

Increased incidence and velocity of extreme weather events and disasters threaten physical security, critical infrastructure and access to healthcare and education. Over the last two decades the number of recorded natural disasters has doubled from some 200 to over 400 per year, disrupting livelihoods of local populations. This can result in human and economic losses, potentially leading to social unrest, large-scale displacements and labor migration (Opitz Stapleton *et al.* 2017). The latter has the dual impact of increasing the population density in sinks – further stressing overstretched social safety networks.

Given the transboundary nature of climate risks and shared natural resources, climate action can be seen as an entry point for strengthened regional cooperation. Enhanced regional policy dialogue is key to achieve a climate resilient basin-wide management of water and natural resources, which remains a priority for all three countries in the Ferghana Valley. Benefits of the regional approach include complementarity, economies of scale, experience sharing, and strategic planning and financing.

To summarize, the main climate change vulnerabilities in the region are:

(i) substantial reductions in mountain snowpack and the depleted volume of the Tien Shan glaciers and permafrost;

(ii) effects on the WEF nexus due to electricity and food production relying on scarce transboundary water resources;

(iii) projected water scarcity in combination with increases in population and economic growth thus leading to water insecurity;

[4] Flooding of abandoned coal mines in Ukraine has caused pollution, increased methane emissions, and led to ground subsidence. Acid mine drainage contamination can affect water reservoirs, in some areas triggered by anomalously heavy snowfall followed by rapid melting. The CEOBS has published an example of this type of contamination in April 2020. URL: https://ceobs.org/abandoned-mines-are-flooding-in-ukraines-donbass-region/

(iv) the countries' limited adaptive capacity affecting energy security as climate change reduces the availability of water for hydropower and thermoelectric cooling;

(v) heat stress and increased variability of precipitation are likely to affect the agricultural sector, therefore likely food insecurity will also be experienced;

(vi) aggravation of the already existing environmental and land degradation; and

(vii) increased incidence and velocity of extreme weather events and disasters threatening physical security, critical infrastructure, and access to healthcare and education.

The nexus framing of these issues, with the incorporation of community levels impacts and improvement of resource governance, allows informing of more coherent policies and the promotion of collaboration across sectors (Albrecht *et al.* 2018). It would also provide solutions for local communities preventing the development of social unrest and conflict. In the case of Central Asia, many of the transboundary water protection projects were motivated by conflict prevention and cooperation (Carius 2006) but there is no interlinkages between transboundary environmental projects and initiatives supporting human rights, peace processes, promotion of democracy, or poverty reduction. Thus, an integrated approach is necessary to prevent climate-fragility and enhance resilience in the region and will determine the capacity of the states and societies to manage change. An integrated agenda for resilience must include climate change adaptation, development and humanitarian aid, and peacebuilding and conflict prevention (Rüttinger *et al.* 2015).

4.2. Conflict Profile

The countries of Central Asia that share the Ferghana Valley have a history of conflict related primarily to the shared water resources. The main events have been summarized in Table 6 of the Appendix, with 13 conflicts between 1990-2020 having water mainly as a trigger of conflict, but also as a weapon in 2 of the exchanges, and as a casualty in 3 (Pacific Institute 2019). The latest conflict recorded took place in 2018, and it involved Kyrgyz and Tajik farmers over irrigation water, and more recent tensions have also taken place during 2020. Conflicts over land have developed in the area, especially after the collapse of the Soviet Union. Two main conflicts can be highlighted: first, in 1990 the Osh riots, an ethnic conflict between Kyrgyz and Uzbeks because of a dispute over the land of a former collective farm, leading to the death of approximately 1000 people; and second, the 2010 South Kyrgyzstan riots, again between the same groups which triggered the Kyrgyz Revolution of 2010. The causes of the Kyrgyz Revolution can also be traced

to an economic and energy crisis, as well as an authoritarian government, but its victory led to the consolidation of a new parliamentary system in Kyrgyzstan.

The coming section looks at the conflict profile of the Ferghana Valley and considers the conflict actors; the possible causes of conflict – including structural causes, proximate causes, and triggers; the factors that may provide for resilience of conflicts considering the multidimensional compound climate-fragility risks introduced in Chapter 2; as well as potential scenarios.

4.2.1. Conflict Actors

Identifying the conflict actors required, first of all, listing the institutional stakeholders relevant to an intervention in the Ferghana Valley. For that, a list was compiled (Table 7 in Appendix C) taking into consideration:

(i) competent authorities within national governments to coordinate climate risks initiatives and CCA policies, including national interagency bodies responsible for national adaptation planning;

(ii) competent authorities within national governments responsible for development and implementing national policies related to various hazards and environmental risks (e.g. civil protection agencies, disaster risk reduction and crisis management bodies and agencies);

(iii) technical departments of other relevant ministries (e.g. environment, energy, natural resources, economy, industry, agriculture, finance) and other government agencies (e.g. water management agencies, toxic and radioactive waste management agencies);

(iv) national agencies and institutions responsible for generation and delivery of climate risk information, analysis and early warning (e.g. national hydro-meteorological services and research entities); and

(v) regional and local governments, civil society organizations (e.g. NGOs, academia), private sector, multilateral organizations and regional projects (e.g. CAREC, UNECE, UNEP, IFIs).

In the context of a project from the International Union for Conservation of Nature and Natural Resources (IUCN) in cooperation with other organizations in Central Asia, a stakeholder analysis and consultations has previously been performed (IUCN 2018). Even though the project had a focus on food security, the findings can be applicable to environmental security aspects in general, given that it also includes areas of application on climate change and DRR, among others. The highlights of the analysis for the relevant countries of the region – Kyrgyzstan, Tajikistan, Uzbekistan – was compared to the stakeholders previously identified and mapped in terms of their

positions, interests, issues, and power. The power/interest grids can be consulted in Appendix C (Fig. 15 to Fig. 18) and were used for the mapping to identify the level and type of communication, engagement, and capacity building activities necessary with the stakeholders for implementing an integrated approach.

The main findings of the stakeholder mapping resulted in a need for increased inter-sectoral cooperation, which will require the involvement of a diverse number of stakeholders representing ministries, regional organizations, private sectors, civil society, as well as the support of international institutions. The key players will need to be engaged on a regular basis, for project implementation and decision making, and include the ministries of economy, agriculture, energy, and water for each for the countries. At the regional level include the International Fund for Saving Aral Sea (IFAS), the Secretariat for Interstate Commission on Sustainable Development (ICDS) and some regional projects. The actors with low power/high interest need to be supporters in terms of interest and capacity, such as scientific and regional organizations, farmers associations, international development partners, and Hydromet agencies. Regional actors in this category include the Regional Environmental Centre for Central Asia (CAREC), UN agencies, and OECD, among other actors. Actors with high power/low interest will have to be communicated on the developments of the project to increase their interest, including international financial institutions (IFIs) and state environmental/climate change committees. Low priority actors such as mass-media and civil society will have to be informed on the developments as a way to keep them updated.

The key for success of an integrated approach lies on effective communication to and between all actors. It is also of essence to involve the public at large through information campaigns and other outreach activities in the assessment implications of climate change and resilience. The promotion of intergovernmental exchange and civil society will provide an opportunity to forge partnerships and share experiences on addressing climate-fragility risks.

4.2.2. Factors Providing for Fragility

The factors providing for fragility indicate the reasons why some communities may remain peaceful while others may trigger conflicts, considering mainly environmental factors but also the political realities of the countries of the Ferghana Valley. This Fragile States Index places the three countries of the Ferghana Valley at an elevated warning score. Out of a score of 120 (most fragile), Kyrgyzstan scored 76.2, Tajikistan 77.7, and Uzbekistan 75.7 (Fund for Peace 2020). Uzbekistan, nevertheless, was listed as one of the most improved countries in 2019, but the destabilization of climate change could change this and push the countries towards failing states (Guy 2020). This

composite index is calculated with twelve conflict risk indicators that take into consideration population displacements, institutional structures, security apparatus, inequality, and human rights, among other. Nevertheless, it is not enough to illustrate the conflict profile of the Ferghana Valley.

Governance is also a factor that will determine the climate-fragility of a country. It is defined by the developers of the Worldwide Governance Indicators as "the traditions and institutions by which authority in a country is exercised. This includes (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them" (Kaufmann *et al.* 2010, 4).

Table 1. Capacity – Government and institutions in the Ferghana Valley states.

World Bank Governance Indicators	Kyrgyzstan	Tajikistan	Uzbekistan
Political stability and absence of violence/terrorism	25.24	20.00	35.71
Government effectiveness	28.85	12.02	33.65
Rule of Law	17.79	7.69	12.98
Voice and accountability	33.99	4.93	6.40
Control of corruption	16.35	6.25	12.50
Regulatory quality	37.98	12.50	12.02

Data source: World Bank Governance Indicators dataset 2019. Note: The rank values represent the percentile rank among all countries (ranges from lowest 0 – 100 highest). Full dataset available online at https://info.worldbank.org/governance/wgi/

The latest values available corresponding to 2019 show that the countries have a low stability, governance, and corruption performance. Table 1 above includes all the values for the three countries, in terms of their aggregate indicators in the six broad dimensions of governance. Tajikistan is the worst performer country in every indicator, while Kyrgyzstan is the best performer. These indicators, however, do not take into consideration the projected impacts of climate change, so moving forward the analysis needs to consider the possible causes of conflict – structural causes, proximate causes, and triggers – and other factors increasing fragility. Compound climate-fragility risks (Rüttinger *et al.* 2015) relevant to the region should be applied. Consideration needs to be taken in terms of identifying the structural causes, or pervasive factors; the proximate causes, meaning those that contribute to a climate of tension or escalation; and triggers, that is single key events that may set off conflict or lead to escalation of existing tensions.

4.2.3. Conflict Dynamics

Understanding the conflict dynamics in the Ferghana Valley requires first of all looking the possible causes of conflict and the factors providing for fragility. For that, I performed a causal analysis considering international, regional, national, and local levels as well as different types of causes and triggers. Then, I looked at 3 out of the 7 multidimensional compound climate-fragility risks that

emerge as climate change interacts with other pressures (Rüttinger *et al.* 2015): transboundary water management, local resource competition, and extreme weather events and disasters. Two main patterns emerged: the first one, has to do with the possible causes of conflict in the area at different levels of intervention – i.e. international, regional, national, or local. The second pattern is related to the compound climate-fragility risks which are entrenched in the WEF nexus – the dependency on water for food supply and energy security.

Regarding the first pattern, the structural causes identified are mostly related to the history of conflict (Table 6 in the Appendix) combined with the political and economic legacy that the countries still experience today. The consequences of these affect the political level and the public's trust in the state, as well as the correct functioning of the democratic institutions (Mirimanova *et al.* 2018). The local institutions are rendered powerless due to the highly centralized approach to the region, increasing the distance between political decisions and the problems that the local communities experience. Given the local nature of the conflicts that have historically affected the Ferghana Valley, this is very problematic, enhanced by the presence of extremist groups in some areas that may seek to gain control of access and rent of natural resources. At the regional level, the tensions may be exacerbated due to the predicted increase in population from 2019: 42% increase in Kyrgyzstan, 74% increase in Tajikistan, and 30% in Uzbekistan by 2050 (United Nations 2019). At the international level, the lack of global governance mechanisms aligning policy actions that address climate-security risks, the missing standardized global hub for climate-security information informing policy, and the leadership gap between climate specialists and security practitioners (Werrell and Femia 2019) are also structural causes to be considered.

The proximate causes of the conflicts are also mainly political and economic, with the region being of strategic interest to international powers and a lack of enforceable legal frameworks for water regional governance even though there are good experiences in water diplomacy (Mirimanova *et al.* 2018). In terms of geopolitics, the region is of interest to Russia, China, Turkey, US, and Iran; due to its strategic location for military and trade routes and the sources of natural resources (Mirimanova *et al.* 2018). In the case of China, the Silk Road Economic Belt lack the involvement of transboundary water cooperation frameworks (Howard and Howard 2016; Martens 2018). Russia has their dominant military force (Collective Security Treaty Organization) and economic influence (Eurasian Economic Union – EAEU) (Russell 2019). At the national level, different economies and approaches to the market also may be causes of conflict, with a general disregard for the environment in favor of achieving energy security instead. Kyrgyzstan has been attempting market reforms but has limited access to export market, Tajikistan diversifying its economy slowly, and Uzbekistan with a gradual shift to a market-oriented economy. The countries clearly

experience an unequal distribution of natural resources, as well as a competition of shared resources for hydropower and irrigation mostly. At the local level, there are historical multi-ethnic grievances due to perceived or actual inequitable distribution or use of scarce resources – local land and water resources disputes, not always escalating into interstate disputes (Novikov and Kelly 2017).

The triggers are a direct consequence of climate change-exacerbated water insecurity and the choice of adaptation measures applied in the region, in combination with rising authoritarianism, and the use of securitized responses to social and political dissent (Brock *et al.* 2020). Regional triggers are related to the planning or construction of hydropower dams, or increased irrigation that would affect downstream countries. All these causes increase fragility in the area, therefore increasing also the vulnerability to climate change, human insecurity, and thus possibilities for violent conflict. Instead, the focus should aim to increase stability and enhance resilience, resulting in improved human security and peaceful adaptation. Vivekananda *et al.* (2014) refer to this as the "climate-resilience-peace nexus".

The second pattern of conflict dynamics relates to the factors that may provide for fragility in the area: transboundary water management, local resource competition, and extreme weather events and disasters. The risks that were identified related to transboundary water management highlight a difference between seeing water as a common good (downstream Uzbekistan) versus considering the resource a commodity (upstream Kyrgyzstan), power asymmetries in negotiations, and an increased demand for water due to population growth and a decreased water flow projected. The tipping point in this sector is unilateral resource development, such as the planning and construction of hydroelectric dams (Tajikistan), the imposition of tariffs triggered by fear of water shortages exacerbated by climate change, and the combination of the aforementioned with political and economic crisis.

The risks that emerge from local resource competition result from a differentiated use of water resources, namely irrigation of water-intensive cash crops (Uzbekistan) and electricity from hydropower (Kyrgyzstan and Tajikistan). Combined with a projected depleted volume of glaciers and permafrost (Hock *et al.* 2019) and the struggle with unresponsive governments, these risks may lead to increased fragility. The tipping points may be given by local resource conflicts that could trigger wider conflicts. The high reliance on climate-sensitive rural economic activities, such as agriculture and pastoralism, also increase the risks. Uzbekistan, for example, has water-intensive cash crops which usually belong to large collective farms.

Lastly, the risks from extreme weather events and disasters are a consequence of projected increase in extreme weather events, changing precipitation patterns and increased drought, added to risk of flooding from melting glaciers – Tian Shan and Hindu Kush Himalaya. This could lead to a tipping point due to risk of nuclear contamination and leaching as glacial ice begins to melt, in combination with disasters that may affect already fragile existing infrastructure.

The differences between countries and their adaptation measures could also act as tipping point (Hock *et al.* 2019), with one country more prepared to deal with the consequences of such events while others struggle. This analysis supports the dependency on the WEF nexus and the potential of climate change to undermine the development of the Ferghana Valley countries. Consideration of this analysis must be taken when developing National Adaptation Plans, resulting in a CSA that leads to peaceful adaptation.

4.3. Potential Scenarios

The conjunction of adverse environmental effects, the triggers that lead to increased conflict, the forecasted impacts of climate change, thus the climate-security interaction, result in risks that can be classified into destabilizing physical shocks – or first order effects – and aggravated social grievances – second-order effects (Guy 2020). Looking at the most recent security threat assessment of global climate change, the previously explored context and conflict profile, and actors involved in the Ferghana Valley, it is possible to understand the climate-fragility risks that threaten resilience and increase regional friction, resulting in conflict.

The threat profile of the CENTCOM region (Middle East and Central Asia) (Guy 2020) indicates high-very high threat in the near-term scenario (1-2°C warming between now and 2050) as a result of an expected increase in temperature, droughts, and decreased water supply that may lead to increased conflict. In the medium-long term scenario (2-4+°C warming between 2050 and 2100), the threat level goes to very high to catastrophic given increased competition over water resources and some areas rendered uninhabitable. In Central Asia, the risk to security environment in the near-term scenario is mainly increased flooding from accelerated glacial melting. In the middle-long term scenario, the main risk is posed by the existing fragile states reliant on revenues from energy resources, thus vulnerable to price fluctuations that could bankrupt public budgets, transforming these fragile states into failed ones. It is important to convert the interest of foreign governments, such as China and Russia, from military support and weaponization, to CCA measures that provide resilience. Attention to peace agreements and shared management of resources should be monitored, especially given the population growth and water stress expected in the region.

Even though environmental degradation and resource scarcity have not been a direct cause of conflict in the past, the threat multiplier potential of climate change can be the trigger that turns an unstable peace into violent conflicts, even at the local level. Environmental risks in the Ferghana Valley may be exacerbated by limited institutional structures at the sub-state level with weak implementation capabilities, and the sectoral approach of the legislative and institutional system. The environmental factors driving tensions in the border regions of the Ferghana Valley are likely to increase, as the availability and quality of water and soil resources are affected by climate change. Adding to the existing tensions and instability stemming from the past, vulnerability in the region could increase further if security of livelihoods, water, food, and energy supply continue to decrease due to climate change. Growing shortages of water and increased land scarcity, combined with rapid growth in population, insufficient employment opportunities and low-skilled labor forces, create further challenges.

A 2017 report has valuated the costs of inaction from limited cooperation and suboptimal water management in the region of Central Asia, looking at political, economic (direct and indirect), and social and environmental costs. Table 2 below summarizes the different costs for the Ferghana Valley countries if cooperation is not achieved. These costs, as previously explained, result from reduced agricultural productivity, higher energy prices, energy insecurity, and limited access to international finance. In the case of downstream countries, the main impact results from under-irrigation in the agricultural system. It is important to distinguish between upstream and downstream countries, as their costs and benefits of cooperation – or lack thereof – will differ.

Table 2. Costs of inaction in the Ferghana Valley countries.

	Kyrgyzstan	**Tajikistan**	**Uzbekistan**
Political costs	Land-locked mountainous terrain dependent on cooperation with transport sector and new hydropower investments	Strains on bilateral relations with Uzbekistan due to planned construction of new hydropower infrastructure	Risks to social and political instability
Economic costs	Poorly maintained water infrastructure Energy insecurity due to seasonal hydropower plants generating high surplus in summer and deficit in winter	Productivity of irrigation agriculture below potential	Underirrigation due to insufficient seasonal water availability Additional infrastructure – pumping stations to mitigate undersupply of agreed volumes of water Inefficient regional electricity trade
Social and environ-mental costs	Untreated wastewater due to infrastructure shortcomings and frequent power outages Floods and mudslides	Power outages and energy shortages in winter Floods and mudslides	Multifaceted consequences of water scarcity – rural livelihoods affected, health risks due to pollutants, reduced water quality Loss of ecosystem integrity Floods, mudslides and droughts

Data source: Pohl et al. 2017 (with amendments)

The report delineates four possible scenarios for the future in terms of cooperation: (1) business as usual, (2) strengthened technical cooperation, (3) reinforced sub-regional cooperation, and (4) reinforced regional cooperation. For the Ferghana Valley, the combined benefits of cooperation would add up to $3228.9 million USD per year (Pohl *et al.* 2017). In the case of the fourth scenario, a reinforced regional cooperation would include not only technical and political cooperation at the sub-regional level, but also political cooperation at the regional level through the establishment of joint institutions on water and related issues, and renewed basin-wide agreements.

Nevertheless, there is a need for an integrated analysis of both the climate change projections especially on water scarcity and land degradation, and the different levels of cooperation. A suggested course of action for potential scenarios could include:

1. Near-term climate change impacts (1-2°C warming, 2020-2050)
    a. Business as usual cooperation
    b. Strengthened technical cooperation
    c. Reinforced sub-regional cooperation
    d. Reinforced regional cooperation
2. Medium-long-term climate change impacts (2-4+°C warming, 2050-2100)
    a. Business as usual cooperation
    b. Strengthened technical cooperation
    c. Reinforced sub-regional cooperation
    d. Reinforced regional cooperation

These scenarios could be overlapped with mapping of the historical climate change and natural disaster impacts (Fig. 13 in Appendix A), points of transboundary water issues in the Ferghana Valley (Fig. 14 in Appendix A), and sites of historical water and land conflicts (starting from Table 6 in Appendix C). They could also include the fragility indicators described in the previous sections. This scenario analysis could result in a dynamic map of the local hotspots where tensions are expected to increase or where conflicts may be developed and could be used as an early-warning system to inform adaptation measures.

4.4. Concluding Remarks

This chapter has looked at the conflict dynamics in the Ferghana Valley. Starting with the context profile, the socio-economic characteristics of Kyrgyzstan, Tajikistan, and Uzbekistan especially in relation to their multiethnicity and reliance on water for economic activities and energy provision

stand out. A high population increase is an extra pressure on the region. The biological importance of the area is given by the high biodiversity endemism and the position of the Valley as a hotspot. A variety of ecosystem services – provisioning, regulating, cultural, and supporting – take place, but the most important is that of storage and release of water. However, an uneven distribution of water resources between the countries is a source of tension. Climate change vulnerability is especially high, given that the region, already subject to multiple stressors, is warming faster than the global average. This will not only affect the availability of water, but also the fertile land available thus putting at risk the livelihoods of millions of people.

The conflict profile was also explored. The analysis of the conflict actors showed the high number of agencies, ministries, international organizations, and civil society organizations that have a stake in the region. As a result, an integrated approach can only be achieved if there is effective communication to and between all actors, and if information is also provided to the general population through campaigns and opportunities for participation. Partnerships are essential to keep all actors involved and have a fruitful collaboration. The factors for fragility showed that all countries in the Ferghana Valley have an elevated warning score in terms of the Fragile States Index, and low values when it comes to governance indicators. Fragile states are more likely to fail when subjugated to the pressures that climate change will bring. Looking at all the factors combined, it was possible to distinguish conflict dynamics in relation to the multidimensional compound climate-fragility risks: transboundary water management, local resource competition, and extreme weather events and disasters. This allowed to identify the possible causes of conflict at all levels, triggers, and risks.

Keeping that in mind, potential scenarios were explored analyzing the cost of inaction in terms of cooperation, together with the threat level that climate change may impose. More research is needed in terms of scenario analysis, so suggestions were made in terms of the indicators to keep in mind to have a better understanding of the hotspots that need more attention when developing adaptation measures or any other project in the region. The following sections will look at the current state of adaptation measures in the Ferghana Valley Countries, and also analyze the institutional adaptive capacity and the feasibility of regional cooperation in the framework of conflict-sensitivity.

5. Policy Framework: National Adaptation Plans (NAPs)

The present chapter aims to understand the current state of development of NAPs in the Ferghana Valley Countries to see how a CSA can be integrated into the NAPs, reducing security risks and enhancing resilience in the region. To achieve that, first a description of the current state of NAPs is provided for each of the countries, looking at the institutional landscape, the development of relevant policies, and the Readiness and Preparatory Support Proposals (RPSPs) submitted by the countries to the Green Climate Fund (GCF) for support in their NAP development. Then, the need for a CSA is delineated exploring current limitations experienced from the focal points for NAPs: alignment with government priorities, institutional adaptive capacity, adaptation networks, and implementation and financial allocation.

5.1. Current State of NAPs in Ferghana Valley Countries

An understanding of the institutional landscape and the status of CCA relevant policies and strategies is necessary to address climate-fragility risks and identify entry points. The NAPs are the starting point for the incorporation of adaptation measures to climate change. The Technical Guidelines from the UNFCCC (see Appendix D for the full structure of the Technical Guidelines) set four elements for the NAP process: (A) Lay the groundwork and address gaps, (B) Preparatory elements, (C) Implementation strategies, and (D) Reporting, monitoring, and review. The three countries seem to be in Element A, with the submission of the Readiness and Preparatory Support Proposal (RPSP) to the Green Climate Fund (GCF) as the first step taken. In the following sections, a brief analysis of the institutional adaptive capacities of the countries is presented, together with the current state in the NAP process and the inclusion of specific ways to address fragility or conflict issues – if they have already developed them. The information was obtained through a detailed analysis of the NAP RPSPs submitted by each country to the GCF, and interviews with the focal points in each UNDP Country Office. In addition to the NAP support project, there are other initiatives aimed at increasing the governments' capacity to address climate change, which have been listed in Table 8 of Appendix E.

5.1.1. Kyrgyzstan

Kyrgyzstan has been actively integrating climate change considerations into policy making, however, additional support is required to implement strategies and action plans. The government has established in 2019 a Green Economy and Climate Change Coordination Council (GECCCC), led by the First Vice Prime Minister and comprising representatives from all key ministries, as well as academia, business, and civic institutions. The GECCCC is intersectoral, is considered the best in the region ensuring interagency coordination, and includes the membership of key governmental

agencies with the secretariat under the State Agency for Environmental Protection and Forestry (SAEPF). The latter serves as the focal point for UNFCCC, implementing and coordinating all environmental and climate change policies. Kyrgyzstan also has its own Climate Finance Centre (CFC), established in 2018 to support mainstreaming of climate change considerations and acting as a center for CCA investments. At the local level, there is the Covenant of Mayors on Climate Change. The National Hydrometeorological Agency (KyrgyzHydromet) is responsible for knowledge management and supporting evidence base for CCA planning and implementation.

The following timeline includes the steps taken by the Kyrgyz government towards achieving their NAP (UNDP 2020):

- November 2012: The Government establishes the *Climate Change Coordination Commission* (CCCC).
- January 2013: The *Kyrgyz Republic 2013-2017 National Sustainable Development Strategy* (NSDS) is approved.
- October 2013: The *Priority Directions for Adaptation to Climate Change in the Kyrgyz Republic* until 2017 is established. Sectoral Adaptation Plans are developed with medium-term strategies covering (i) agriculture and irrigation water, (ii) emergency situations, (iii) forests and biodiversity, and (iv) health.
- September 2016: The first steps towards establishing a NAPs process are taken at a high-level conference entitled *From Paris to Bishkek: On the Way to Sustainable Climate Resilient Development for Kyrgyzstan.*
- October 2016: The country's Third National Communication to the UNFCCC is finalized and the Government sends an official requirement to the GCF and UNDP to begin work on a NAP support project.
- April 2017: A preliminary stocktaking mission is undertaken by the NAPs-Global Support Programme team to identify the country's needs regarding NAP process, in consultation with stakeholders. A Theory of Change is developed in a consultative process, to strengthen adaptation planning at the national, provincial, and sub-national levels.
- June 2018: A RPSP for the initiation of the NAP process is submitted to the GCF for review.
- February 2020: Kyrgyzstan submits its NDCs.

The RPSP is not publicly available but the UNDP Kyrgyzstan Country Office provided the latest version for review. It calls for the implementation of conflict resolution mechanisms and for the integration of climate-related risks and hazards into planning and budgeting. It also "recognizes

the importance of CCA for sustainable development and calls for the development of mechanisms for climate change adaptation to contribute to environmental security" (GCF 2018). As of June 2020, Kyrgyzstan is waiting for the final approval of the Proposal. No other major climate adaptation projects have been implemented in the country, and there are still no clear conflict-resolutions mechanisms designed. The priority sectors for adaptation in Kyrgyzstan according to their Third National Communication to the UNFCCC are: disasters and emergency management, health, biodiversity and forests, and agriculture and irrigation water.

The three outcomes set in Kyrgyzstan's RPSP include: (1) cross-sectoral coordination, technical and scientific support, and knowledge management; (2) address weaknesses and capacity gaps in priority sectors' agencies; (3) strengthen sub-national CCA capacities and mainstream CCA in planning and budgeting. Within this proposal there is no clear mention of transboundary issues, but as stated by UNDP Kyrgyzstan they will try to include them for the implementation stage, which will begin once they get the approval of GCF for the RPSP (KGZ1 pers.comm.). Then UNDP Kyrgyzstan will organize a kick-off inception meeting of multi-sectoral character: government, academia, development partners, NGO and civil society, and local authorities. Upon the suggestions of what can be improved they will develop implementation plans and make changes to the inception document, including transboundary cooperation.

5.1.2. Tajikistan

The vulnerability of Tajikistan's most important sectors to climate variability was acutely demonstrated during the "compound crisis" of 2007-2008, an energy crisis exacerbated by severe cold weather which depleted the main reservoir for hydroelectric power. Whilst public perception remains limited, the government of Tajikistan is increasingly aware of climatic risks and has demonstrated commitment to addressing this vulnerability. Mainstreaming disaster risk management is a government priority, as demonstrated by the establishment of the *National Platform for Disaster Risk Reduction*.

The focal point for the GCF is the Committee for Environmental Protection (CEP), a specialized agency overseeing the use of natural resources and environmental protection and which serves as the central government authority responsible for implementation of public policy in the area of environmental conservation, hydrometeorology, and rational use of natural resources. It will be in charge of coordination of the NAP in Tajikistan, while the Hydrometeorological Agency of Tajikistan (TajikHydromet) reports to the CEP and is the lead agency for climate change. Within the TajikHydromet, the Climate Change Center (CCC) manages climate-related research and reports related to adaptation and mitigation. Other ministries and agencies are also involved but

there seems to be a lack of coordination and integration – Ministry of Economic Development and Trade; Committee on Emergency Situations and Civil Defense; Ministry of Agriculture, Agency for Land Reclamation and Irrigation; Ministry of Energy and Water Resources; and the Committee on Land Use, Geodesy and Cartography.

The following timeline includes the steps taken by the Tajik government towards achieving their NAP (UNDP 2020):

- September 2015: Tajikistan submits their Intended Nationally Determined Contributions (INDC) to the Paris Agreement.
- December 2016: RPSP submitted to the GCF to strengthen the capacity of the National Designated Authority for strategic engagement with the GCF.
- March 2017: Tajikistan ratifies the Paris Agreement and submits their First NDCs.
- June 2017: NAP-Global Support Programme undertakes a mission to Tajikistan to take stock of adaptation policies and suggests next steps for the country's NAP process.
- July 2017: Developed a Stocktaking Report and a preliminary roadmap for advancing the NAP process in Tajikistan.
- August 2018: Submission of the RPSP to the GCF, requesting support to enable an effective NAP process for Tajikistan. It was resubmitted in April 2019.
- June 2019: Government approved the *National Climate Change Adaptation Strategy* (NCCAS) (until 2030). It was initially drafted in 2016, focusing on building capacity for climate resilience.
- April 2020: Resubmission of the RPSP to the GCF. As of June 2020, they are still waiting for approval.

The submitted RPSP is not publicly available, but the UNDP Tajikistan Country Office provided the latest version for review. It includes the incorporation of conflict resolution mechanisms and climate risk information to regulate building and other economic activities at the subnational level, although no specific tools are mentioned at this stage (GCF 2020).

The NCCAS approved in 2019 states that the NAP will serve as its implementation plan, which presents a long-term (until 2030) outline of priority adaptation measures with concrete actions according to successive five-year timeframes. The priority sectors for adaptation in Tajikistan according to the NCCAS are: energy, water resources, transportation, and agriculture.

5.1.3. Uzbekistan

Uzbekistan has taken steps to include climate change considerations across national policy but, to date, a comprehensive framework for CCA is still lacking. Efforts to address climate change are currently dispersed across sector-specific entities, undermining coordinated action and generating inefficiencies in budgeting and implementation.

In the case of Uzbekistan, climate change is treated under the hydrometeorological service (UzHydromet), the Ministry of Agriculture, the Ministry of Water Resources, and other authorities related to the environment, but there is a lack of coordination and transversal integration. As stated in their RPSP, Uzbekistan is also lacking a national adaptation strategy and environmental policies are usually fragmented (GCF 2019). There is only an interagency coordination structure for the development of policy documents, but nothing specific to climate change.

The following timeline includes the steps taken by the Uzbek government towards achieving their NAP (UNDP 2020):

- June 2016: Government delegation from Uzbekistan attends the *NAP-Global Support Programme Eastern European, Caucasus, and Central Asia Regional Workshop* in Moldova.
- August 2016: Government of Uzbekistan requests support on the formulation and implementation of a NAP process.
- October 2016: NAP-Global Support Programme undertakes mission to Uzbekistan to take stock of adaptation policies and suggest next steps for the country's NAP process.
- December 2016: A Stocktaking Report and preliminary roadmap for advancing the NAP process is developed, identifying 4 simultaneous workstreams needed to develop NAP between 2017-2020.
- April 2017: Uzbekistan submits its Intended Nationally Determined Contribution (INDC)
- September 2018: Uzbekistan ratifies the Paris Agreement.
- June 2019: The U.S. government funded C5+1: Adaptation Planning project holds a training workshop for government ministries and stakeholders in Tashkent to shape Uzbekistan's key adaptation principles and to share global best practices for adaptation planning and implementation.
- October 2019: Approval of the RPSP for the purpose of developing a NAP.

The RPSP approved by the GCF in 2019 states that, to achieve the successful implementation and sustainability of the project, certain risks need to be mitigated including historical problems related to stakeholder cooperation, and conflicts among stakeholders regarding their roles in the

adaptation project, as well as the exclusion of the most vulnerable affected stakeholders from participation and decision making. It also calls for the implementation of conflict resolution mechanisms, and the inclusion of climate change risks into the economic analysis and appraisal of priority adaptation options (GCF 2019). The priority sectors for adaptation in Uzbekistan according to their Third National Communication to the UNFCCC are: agriculture, water resources, public health, housing, and emergency management.

5.2. The Need for a Conflict-Sensitive Approach (CSA)

As explored in previous sections, the development of NAPs does not include at the moment any specific approach to conflict-sensitivity. Given the characteristics of the Ferghana Valley area, and also applicable to other parts of the world, a conflict-sensitive NAP process could benefit CCA measures acting as an early intervention for conflict prevention and enhancing resilience. The UNFCCC has acknowledged the potential of climate change to act as a threat multiplier, triggering conflict or increasing tensions in areas where it was dormant or where it had never happened before. When subjugated to this pressure, fragile states can turn into failed states, increasing the vulnerability of the area. Consideration of these interlinkages between climate change and conflict is increasingly recognized as a fundamental for effective adaptation. Adaptation planning processes present a key opportunity to address the human security risks of climate change, having the achievement of peaceful adaptation as a universal goal. Specialists from UNDP Country Offices for Kyrgyzstan, Tajikistan, and Uzbekistan, as well as regional, peacebuilding, and adaptation experts were consulted regarding the institutional adaptive capacity, barriers to implementation of adaptation measures, and the incorporation of a CSA.

5.2.1. Alignment with Government Priorities

All official documents that are developed for this region should be in line with national procedures: there are specific standards approved by national governments for all strategic documents, and any strategy, no matter the sector, has to follow this structure and justification line as a way to standardize all proposals. The NAP guidelines promoted by the international community are restricted by these standards at the national level, therefore limiting the ability to include certain action areas. It is always important to keep in focus the priority sectors announced by the governments and available in their official documents:

> It is vital to always refer to state priorities, and frame interventions in a way that they are not boxed into environmental sectors only. Recommendations should be tailored to each country's reality before aiming for a regional approach (RS1 pers.comm.).

Building the discussion around these concerns and linking them with other variables (geographical location, population density, socio-economic development) will facilitate the agreement and help the process move forward without technical confrontations. The main climate change and security concerns for each country were explored in the Climate Change and Security in Central Asia report (Novikov and Kelly 2017). For Kyrgyzstan, the main challenges dealing with climate change include "political and other instability, low public awareness and administrative capacity, insufficient financial resources and lack of monitoring and assessment tools" (p.76). In the case of Tajikistan, the national consultations highlighted the importance of local level participation and tailoring of adaptation strategies including the use of traditional knowledge. Institutional challenges included "the need to improve interagency cooperation and to strengthen the legal and regulatory framework for adaptation in order to prevent climate change and security risks and called for effective communications and raising public awareness" (p.76). Lastly, Uzbekistan emphasized the weakness of water management regional coordination, and the importance of loans and insurance to reduce the risks of droughts and improve economic prospects. These issues were further explored during the interviews, and the respondents' opinions coincide with the 2017 report mostly.

5.2.2. Institutional Adaptive Capacity

Section 5.1 looked at the institutional capacity of the Ferghana Valley countries in relation to climate change. Kyrgyzstan has what is considered a 'stronger' institutional capacity in terms of their structure, but it does not mean that is effective. In reality, Kyrgyzstan is "more chaotic" according to one of the regional experts interviewed (NGO1 pers.comm.). Consecutive changes in government combined with a proliferation of agencies concerned with climate change but with indistinct functions results in an unclear distribution of responsibilities and authority:

> At the moment the National Designated Authority (NDA) has been taken from the State Agency for Environmental Protection and Forestry. There are unclear institutional arrangements when it comes to climate change and other environmental issues. The focal point for UNFCCC was changed in 2020 to Ministry of Foreign Affairs; before it was Environment and Forestry. The Ministry of Economy and Climate Finance Centre holds the secretariat for GCF. The [recently established] GECCCC is a strong platform to bring together all stage agencies, ministries, and institutions. It would act as an umbrella organization in charge of coordination (KGZ1 pers.comm.).

Uzbekistan, without a transversal institution as such, is doing much better than the other two countries: the centralized state has high control, has a stronger performance institutionally, and

has a better coordination of funding (NGO1 pers.comm.). Tajikistan, on the other hand, has what could be considered a mixture of the two approaches: not perfectly organized but with better implementation practices – the Ministry of Finance is in charge of overseeing the big external climate funding that arrives, but this means that the TajikHydromet, responsible for climate change issues, is not always fully aware of the full funding but instead has to work with the partial funding assigned by the Ministry of Economy.

> In Tajikistan there is an overarching institution, the Committee for Environmental Protection (CEP), but coordination has its challenges. Structurally the CEP cannot instruct line ministries and agencies; it has a lower status than ministries: previously it was the Ministry of Environment, but it was downgraded to committee (TJK1 pers.comm.).

Another issue related to institutional capacity has to do with data availability. The sensitivities in Tajikistan regarding climate and security manifest themselves in the exchange of information and data regarding water volumes, the diversion of water courses within a country, and long-term planning. The previous ENVSEC program tried to tackle these issues, but projects usually have a limited timeframe of maximum 3 to 5 years. Tajikistan's government faces a "weak institutional memory", and climate change projects are usually viewed as something that does not fit the government's agenda, especially when speaking of environmental security (TJK1 pers.comm.). The reports and the data produced by international organization or foreign projects are not used by the government institutions, which poses difficulties in long-term planning therefore having priorities set only for short- or medium-term.

Overall there is no reliable statistical material or raw data available to be processed or analyzed. Three main problems arise: the data does not exist, the data exists but is not available, or the data exists and is available but not reliable. Given this lack of trustworthy data, qualitative analysis might be more suitable when defining adaptation measures and potential risks to human security. Stakeholder consultations appear as a solution, but there are difficulties to bring all the relevant actors to the table. There is also a need for more data at the national and local level – global models are not easily understood, and the bigger adaptive capacity is not considered (RS1 pers.comm.).

Understanding climate risks can enhance local capacity to integrate climate considerations into decision-making processes, pre-disaster, and development planning. Enhancing positive change calls for the need to present complex climate information in terms that are relevant to local stakeholders. This highlights the importance of communication of climate-risk information: climate variability (precipitation, dry spells, number of days with above-normal temperatures); how it will affect at the local level (agricultural yield, water availability, floods, and mudflows); the impact

on different communities, organizations, and institutions (income, quality of infrastructure, ecosystem services); and the ability to prepare, respond, and recover – that is the adaptive capacity. Many governments focus their attention on short-term processes and, as a result, adaptation measures are focused on current pressures. It is vital to enhance the capacity of technical professionals and decision makers to think long-term and integrate this climate-risk information into their long-term planning. As a result, there will be avoidance of potential maladaptation practices triggered by a limited short-term thinking.

5.2.3. Adaptation Networks

Given that climate change falls usually under the mandate of the environmental ministries or agencies, the NAP is led by a small group of specialists from the ministry while other ministries are usually not involved in the development of the process.

> They will be invited to comment, but the majority will refrain except for requesting the removal of sections that they would consider not relevant to the Ministry of Environment – i.e. security, defense, foreign affairs. The final document will then lose half of the intended content. The NAP is seen as an environmental document instead of a cross-cutting action plan. (…) NAPs should be under the mandate of the Ministry of Economy, or some governmental body in charge of development (RS1 pers.comm.).

Other ministries may not have the knowledge to coordinate adaptation tools; at the moment there is no systemic approach on how to involve them. By improving this communication, it can be guaranteed that the people forming the commission or sitting at the roundtable do not only contribute from their personal knowledge and interests but also transfer the experience from and to the rest of their ministry.

The diverse characteristics of the Ferghana Valley states make the dissemination of information different:

> The central state and vertical power in Tajikistan and Uzbekistan make it easier to disseminate information and ensure vertical transfer of power. Kyrgyzstan, being a parliamentary democracy, shows a vacuum of information which can be used as an advantage for extremist and violent groups instead, promoting further tensions and conflicts (KGZ2 pers.comm.).

The advancement of CCA through a CSA requires vertical integration. National governments can provide the access to financing, while having the authority to mainstream climate action; but the participation of the local level is imperative to achieve the implementation of the NAPs. The translation of national priorities into local action, integrating the different adaptive capacities and

local needs national policy can be achieved through governance networks working cooperatively. Access to financial resources and other benefits from CCA measures should be equitable, to avoid creating grievances between groups through the implementation of adaptation measures. Oels (2012) gives an example of management of water resources: technical assistance to one group can produce tensions in terms of water allocation with other groups. Therefore, a combination of participatory processes and expert consultations can avoid the mismanagement of adaptation measures and ensure they take conflict-sensitivities into consideration. It can act as an opportunity for local communities to find the adaptation practices that best fit their own context, instead of having a pure top-down approach. These practices can then be shared with other communities, creating "adaptation networks" and promoting cooperation, thus minimizing the risk of tensions.

5.2.4. Implementation and Financial Allocation

The governments are not paying enough attention to the environment-climate change-conflict link. In their view, environment and climate change factors are of secondary importance, though recently they have been making efforts to better understand the link.

> The Kyrgyz government is keen on implementing measures, but nothing has been done of actual action on the ground – there is a lack of implementation of the National Strategies. Even if local authorities show willingness to implement CCA measures, the lack of support from the central government acts as a barrier (KGZ2 pers.comm.).

Other barriers to the implementation of these measures include: (i) duplication of roles in institutions with very poor coordination between central and local governments – a deep divide; (ii) unclear roles and responsibilities, there is a need for clear delineation of this but the government has been reluctant to do it because they do not want to lose the power they have over local governments; (iii) funding allocation, the local level has their own budgets, they are decentralized and have more freedom in terms of what they do with it; (iv) need for public education and awareness raising, usually done in cooperation with international or development organizations intervening.

> It is very important to put the focus on implementation of CCA – if a final document is approved without clear financial allocation, it will only remain in paper. The NAP document needs to include budget allocation (RS1 pers.comm.).

Climate risks could be translated to economic value for governments to accept and implement the actions. Cross-sectoral plans could be divided in between line ministries, with specific financial allocations. Implementation mechanisms have to be agreed with specific institutional and financial structures.

The main opportunity for the incorporation of a CSA is to show the actual implications of climate change at the country level – the connections need to be concrete. Engaging with middle-level or above officials who have the capacity to understand the linkages between climate and security is vital, but it requires patience and diplomacy to cross the initial resistance. A clear definition of the terms conflict and security is key, given that conflict can be met with suspicion. Overall the experts consider that there is potential to work with these concepts, as long as there is awareness of the dynamics and preparation to overcome the resistance with dialogue (NGO2 pers.comm.).

5.3. Concluding Remarks

This chapter presented a brief analysis of the institutional capacity of the Ferghana Valley countries in relation to CCA, while seeing the current state of NAP process to understand how a CSA could be integrated. In the RPSPs there were some elements calling for conflict resolution mechanisms, but no reference to conflict-sensitivity was made. Uzbekistan is the only country whose RPSP is already approved, while the Kyrgyzstan and Tajikistan are hoping to receive the approval later this year. Through interviews, the need for a CSA was delineated exploring current limitations experienced from the focal points for NAPs, and several themes were identified.

The first theme was the need for alignment with government priorities to ensure governmental support of CCA measures avoiding the compartmentalization of climate change issues to the environmental sector only. Then, the analysis of the institutional adaptive capacity evidenced (i) the need for an overarching coordinating institution concerned with climate change to avoid the proliferation of agencies with unclear functions and responsibilities, (ii) the lack of trustworthy data and information of global patterns translated to the national and local level, and (iii) the importance of communication of climate-risk information to enhance the adaptive capacity overall. The third theme identified related to adaptation networks, highlighting the importance of integrating different ministries in the NAP process while combining participatory processes and expert consultations, to ensure that conflict-sensitivities are taken into consideration. Adaptation practices can then be shared between communities, adjusting them with the local context and promoting cooperation, minimizing the risks of tensions. Lastly, implementation and financial allocation was identified as a theme calling for clear distribution of funds and overcoming barriers to implementation.

The following chapter dives into the intervention logic of a conflict-sensitive approach, that is understanding the political sensitivities that surround the issues of conflict and security, the barriers to its incorporation to NAPs, and the opportunities that this approach brings to the individual countries and to the region as a whole.

6. Intervention Logic: Political Sensitivities, Barriers, and Opportunities

With a better understanding of the Ferghana Valley's conflict dynamics and the policy framework in which NAPs are developed, the present chapter looks at the political feasibility of incorporating a CSA to achieve peaceful adaptation. For that, interviews with regional experts, country offices, and other actors were performed and emerging themes were recognized. The political sensitivities of the area are described looking mainly at the securitization of climate change, stakeholder perceptions, and existing tensions. Then, barriers and opportunities are identified looking at language sensitivity, the perception of climate change, regional approaches, and international funding.

6.1. Political Sensitivities

The sensitivity of security issues in the area is tied to temporal fluctuations. Some periods see a higher reluctance from the governments to speak of security issues, while others are more open to considerations of security outside of the traditionally realm (i.e. defense, foreign affairs). In the words of one of the regional experts interviewed, "security is a perception-based factor, much like the threat of a virus" (NGO1 pers.comm.).

6.1.1. Securitization of Climate Change

The Ferghana Valley has been identified as the main security hotspot in the area (Novikov and Kelly 2017). However, certain issues emerged when translating the report to Russian language:

> The findings from the report were developed both in English and Russian language. When translated to Russian an adjustment had to be made because of the high sensitivity of governments. In Russian language, hotspot means *conflict* or *war* – instead, the project managers chose to replace the word 'hotspot' with the phrase 'a territory that requires special attention in light of climate change' (RS1 pers.comm.).

This language barrier is also present when speaking of climate change and security issues: in Russian, the words *resilience* and *sustainability* are the same, which evidences the need for clear conceptual explanations when treating these issues at the governmental level. Besides, the governments would be reluctant to accept a project that includes references to security or conflict explicitly without clarification of what is meant by those terms.

The interviews and email communications with specialists provided various insights on the political sensitivities in relation to the securitization of climate change:

> Approaching climate change and security issues presents a difficulty, mainly because the term security has historically been associated to security agencies such as the KGB, war in Afghanistan, or political destabilization (RS1 pers.comm.).

If a CCA project uses this term, it will face immediate blockage because it is usually a special group of people in the government that are assigned to discuss "security issues". For example, when the 2017 Climate Change and Security in Central Asia report was drafted, agreement was found in the rounds of consultations with specialists at the technical level. Yet when presented to government officials there was instant disagreement. From the Ferghana Valley countries, only Kyrgyzstan seems to be more open to discuss and consider this framing of the issues. That is why several projects have been reframed as *resilience* instead, which seems to be more acceptable for regional interventions. These "potentially toxic concepts" (NGO2 pers.comm.) tend to be avoided by international organizations or development agencies that work in the area, to facilitate the implementation of projects minimizing the level of disagreements with the corresponding authorities. Given that the UN is inherently a political body, promoting a higher level of grassroot engagement and empowering local actors is essential to achieve sub-national ownership of CCA.

One of the institutional problems identified relates to consensus driven organizations, such as OSCE, and the need of approval of all member states before they discuss new issues. They tend to be very pragmatic but at the time of security assessments become very cautious with the notion of conflict and security. In the case of international organizations such as UNDP, their mandate to be politically neutral can act as a barrier to the implementation of climate-security projects. Initiatives like ENVSEC were not meant to be neutral but in the end, they were redrafted as human security and DRR to avoid the notions of conflict.

> There is an institutional logic that runs contrary to the opportunity to seriously look into security. There is a trend for these types of organizations to stay away from security; they view it as a potentially toxic concept so instead they deal with safer concepts, like resilience (NGO2 pers.comm.).

From the perspective of this expert, it is very important to continue the implementation of the concepts of security and conflict into preventive measures. Certain limitations were discussed, including the dependence of Country Offices on excellent cooperation with their government counterparts, thus resisting the use of these types of concepts that are not considered "safe enough". Even the Regional Environmental Centre for Central Asia (CAREC), as a project-driven organization, has to be mindful of the language they use when introducing CCA projects. They understand that issues related to conflict and security exist, but instead they refer to them as "opportunities for cooperation or collaboration" (RS2 pers.comm.). The reason for this is the

dependency on governmental cooperation, and they view the environmental sphere as something that requires neutrality and diplomacy.

6.1.2. Stakeholder Perceptions and Existing Tensions

In the early 2000s the notion of security was not sensitive at all: countries did not express concerns when looking at the environment-security nexus, they were not very alert towards this notion, and it was not an issue either for other actors involved. A security expert interviewed that previously worked with the governments of the Ferghana Valley shared his experience in doing an assessment for the Amu Darya river basin:

> In general Kyrgyzstan and Tajikistan were not as sensitive as Uzbekistan, which at first refused to participate in the ENVSEC initiative due to the security nexus. After years of slow diplomatic work, Uzbekistan accepted the field mission, but still remained cautious. Kyrgyzstan is a country that is not really involved in political notions or has a genuine sensitivity about security issues; their interest in international borders is a justification for acquiring financial resources. Tajikistan on the other hand has a very strict hierarchy, but they participated enthusiastically through their strong focal point given that they are less sensitive to the issues of security (NGO2 pers.comm.).

Other projects in the region have required multiple stakeholders to be involved in consultations based on their expert view. Represented sectors included agriculture, water management, forestry, and officials from various ministries, including environment and foreign affairs. During the presentation of the conclusions more representatives were invited including other ministries traditionally linked with security work. In one of the projects directly linking climate to security, careful considerations were taken by the presenter in terms of the language used given that there were already tensions between Tajikistan and Uzbekistan at the time as well as explicit statements of readiness for war in case of further conflict (RS1 pers.comm.).

The political sensitivities are also dependent on who addresses the security concerns. The regional specialists (NGO1, TT1 pers.comm.) gave the example of Climate Change and Security presentations or roundtable discussions: when they are organized by a Ministry of Foreign Affairs of another country, government officials would participate and not question the wording used; if a NGO or an international organization develops a project, it will be questioned and will have to be redrafted to reduce sensitive language. There is no general agreement on this from the specialists interviewed: others stated that there is no clear resistance towards NGOs or IGOs (NGO2 pers.comm.), but it is still a point to take into consideration.

Another interesting argument is related to the percentage of population living in the Ferghana Valley. Taking Kyrgyzstan as an example, with over 50% of the population settled in the southern areas and conflicts both in the Kyrgyz-Uzbek and Kyrgyz-Tajik borders, these conflicts are rarely address by politicians:

> Authorities rarely address [security] issues for fear losing popularity in their next election. They remain cautious of their wording and avoid dealing with the causes of the conflicts, related to strong pressure and competition for natural resources in the area (KGZ2 pers.comm.).

Even if countries or different actors are sensitive at first towards the notion of security and conflict, a persistent diplomatic approach with clear explanations and capacity building can help people understand the link.

6.2. Barriers and Opportunities

The RPSPs submitted to the GCF attempt to tackle the gaps, barriers, and obstacles at the national, sectoral, and subnational levels. These identified gaps are mainly related to weak institutional frameworks and coordination arrangements. The first phase of the NAP process, Element A. Lay the Groundwork and Address Gaps will be tackled through these proposals. At this stage, reviewing adaptation options in accordance to the analysis of current and future climate scenarios will help integrate CCA into development and sectoral planning.

The barriers and opportunities presented below correspond to different themes identified during the interviews and email communications. Overall there was a perception that the specialists in this region fully understand the risks of climate change, but it is difficult to translate those concerns to government officials. The main challenges identified include:

- lack of cross-sectoral coordination for harmonized data collection and distribution;
- limited skills for regional coordination, cooperation, and multi-stakeholder adaptation planning;
- science-policy gap due to limited technical skills and institutional capacity to inform laws, policies, and investments; and
- lack of a framework to govern climate change, even if it is stated as priority by governments.

6.2.1. Climate Change as a Cross-Cutting Issue

> Climate change is included in the agenda of the governments of Central Asia but, in reality, it is far from a priority. About 90% of the climate related initiatives or actions are funded by external donors [IGOs, NGOs] or international partners [foreign governments] (RS1 pers.comm.).

The governments in the region are in fulfilment of their obligations from international treaties and conventions such as the UNFCCC, but there is a lack of understanding or acceptance by high-level government officials. There is a range of perceptions of climate-change itself: from those that understand the climate-risks connection, to those who completely deny it as a threat. Overall climate change is not seen as an existential threat neither as main concern to be mainstreamed into the political agenda. The political system is designed with a focus on other issues, and climate change is framed mostly as a purely environmental concern. It therefore remains disconnected from economic, social, and developmental aspects. The Ministry of Environment is usually the main counterpart in development projects, so the climate change agenda lacks the transversal integration required to achieve a successful implementation.

> The climate change agenda should involve dozens of bodies, out of those the Ministry of Environment is the weakest in terms of budget and power. The lack of implementation of climate change concerns cannot be read in the political discourse; it is the budget allocations that tell the reality. Even if prioritization of climate change issues improve, implementation is still the weakest point (RS1 pers.comm.).

The lack of understanding of climate change as a complex problem, according to the regional specialist, relies in the specialization of science translated to multilateral agreements. They present issues primarily with environmental focus leaving out socio-economic problems. This compartmentalization of a complex system makes it difficult to translate actions to the governmental level. Even for environmental specialists, the language used in agreements or documents such as those of UNFCCC is tricky and difficult to apply. In the consulted expert's own words: "climate change is a monster living its own life in full disconnection from reality" (RS1 pers.comm.), meaning that when trying to apply concepts at a national, regional or local level, there is failure to do so.

Given the hesitancy to accept climate-security risks and to promote CCA, the main focus of projects should be to generate awareness of what the impact will be for different sectors – water resources, agricultural yield, variability of weather conditions. Avoiding the "demonization of climate change" would increase the acceptance from government officials, presenting climate change outside of the environmental realm and framing it as an opportunity for development. The

common thought, nevertheless, is that climate change will act as a threat multiplier but is not directly the main factor that will enhance tensions. Climate change can nevertheless be an opportunity for collaboration, as stated in the latest UN World Water Development Report 2020:

> "(…) even if funds are available, transboundary water management can be politically difficult (…) need to find a politically salient entry point around which to build cooperation. In some cases, climate change itself can be the factor that opens up the opportunity for cooperation on transboundary management" (UNESCO and UN-Water 2020, 138)

A specialist from UNDP Kyrgyzstan explained the need for a stronger state to address the environment-climate-conflict links, which is stimulated by the unequal distribution of land and unfair access to natural resources. This topic is quite new for the government; more information is needed on the climate-security link at the local level. Climate change touches upon every single sector, and the countries just like Kyrgyzstan need climate change to become a cross-cutting theme: "government officials need to treat climate issues in junction with other development and social issues" (KGZ2 pers.comm.).

6.2.2. National Focus versus Regional Approaches

The understanding of climate change and security issues looks into threats that are not only physical – it considers political situation, poverty, social disruptions. There are lots of tensions in the Ferghana Valley area, and it can be either looked as a geographical unit or as specific location or hotspots. The Valley is a fragmented mosaic with a variety of grievances which depend on geographical precision. Conflicts in the Ferghana Valley need to be approached from several dimensions, taking into consideration the history of local conflicts and the factors that trigger them: a highly mosaic region with many complicated borders. The border issues in the area need to consider the historical perspective – since medieval times the Valley belonged to one same territory not separated into national states, but in feudal states. Central Asia was divided into different tribes but there was no presence of a nationalist sentiment until the 20th century. The borders that exist now were drawn by the Soviets, and they kept moving until the 1940s (RS3 pers.comm.). When the borders were drawn, there were no immediate repercussions for the local communities – they kept living regardless of which 'side' they were on. Even today, Uzbeks are the biggest minority in Kyrgyzstan and Tajikistan statistically, and so are the Tajiks in Uzbekistan. This results in one of the main complexities of the area: its multiethnicity.

One of the experts (NGO1 pers.comm.) expressed his thoughts on how once there is an agreement on borders, the risk of conflict will drastically fall; other experts explained how this view

is very limited and does not account for socio-economic realities on the ground, water mismanagement, and scarcity of land. It needs to be approached from a regional perspective (RS1 pers.comm.): "changing the borders that exist now would be a complete disaster leading to catastrophe" (RS3 pers.comm.). Instead, the diversity of the Ferghana Valley should be cherished and seen as an opportunity to build bridges between nations and promote regional cooperation. With trust and good mechanisms for cooperation, solutions can be found even in complex settings. Measures can be implemented in one particular country, with a previous joint discussion to understand the benefits for the basin as a whole.

> A regional approach is, by definition, prescribed when it comes to dealing with climate, environment, and security. There has always been an appetite for regional cooperation in the region (NGO2 pers.comm.).

At the local level, the environmental authorities in the Ferghana Valley are open to regional cooperation. For example, in the past years there was a proposal from UNDP Uzbekistan and GCF for an Early Warning System at the national level. The governmental authorities proposed to include transboundary components, showing the high willingness from the working level and line ministries to have an active exchange and cooperation with their counterparts. Nevertheless, measuring the political willingness needs to be the first step towards tapping on the potential and opportunities for cooperation and dialogue.

The viability of a regional approach depends on the goodwill of the countries and their leadership. Previous lack of cooperation has resulted in conflicts, for example between Tajikistan and Uzbekistan due to the construction of the Rogun hydropower dam in Tajikistan:

> The tensions between countries at that time were high but at the local level there were no conflicts, possibly given that the borders on the ground in this area are demarcated more clearly. But it is not only a border issue – it is a resource issue. In a shorter timeframe the border demarcations between Kyrgyzstan and Tajikistan could help reduce the level of conflict on the ground, but once water availability becomes an issue conflicts will start to appear again. (…) There is no clear understanding between the countries regarding the amount of water that needs to be supplied (TJK1 pers.comm.).

Even though there are multiple agreements that have been signed, the governments choose to refer to different ones depending on their national interest: Kyrgyzstan usually refers to the earlier International Fund for Saving the Aral Sea (IFAS) agreement while Tajikistan holds a later agreement as valid (TJK1 pers.comm.). The IFAS agreement on water allocation sets quotas that are reviewed on a yearly basis. Since the agreement was first signed almost 30 years ago, many argue that it should be reformed to include adaptability based on climate change scenarios and,

overall, more flexibility. Kyrgyzstan froze their participation in IFAS due to a high focus on the Aral Sea itself instead of the areas around it, lacking also for socio-economic considerations (RS3 pers.comm.). Kyrgyzstan also froze their participation in the Interstate Commission for Water Coordination of Central Asia (ICWC) and does not participate in transboundary projects implemented by the World Bank either (KGZ1 pers.comm.). This decision stems from 2015, after disagreements on responsibilities of upstream countries: Kyrgyzstan was expected to provide water to downstream countries – i.e. Uzbekistan, releasing 75% of their run-off. Complying with an agreement between the Hydromet services, Kyrgyzstan provided details on water availability, glacial mass balance, among other details. The relationship between countries got tense, due to the seasonality of the water release: Kyrgyzstan released water in winter, when they needed to generate energy, but it was not welcome by Uzbekistan. In summer it was difficult to provide water in the demanded amount due to irrigation needs and lack of water availability. Since then the relationship between countries has continued to be volatile.

Regional approaches have failed in the past due to 3 main reasons:

> First, previous efforts to regional approaches did not succeed because countries do not see the region as a whole, only their national interests. There is a lack of understanding of joint development into the future – after the Soviet collapse, each president wanted to take leadership of the region. Second, unresolved problems in relation to border lines between the countries and within, in the enclaves. [This] has led to a lack of trust between communities and political establishments, perpetuating the consideration of each other as potential aggressors. Lastly, the unequal distribution of natural resources also plays a part – Kyrgyzstan rich in water, Uzbekistan in natural gas and petrol, but Uzbekistan does not regard water as something with value. There is no true valuation of the water service provided (KGZ3 pers.comm.).

Lately the political situation has changed, showing some positive signals that promote cooperation; the stage for regional cooperation is in a much better place today comparing to years ago – the opening up of Uzbekistan has shown unprecedented level of collaboration that has not been seen before (RS2 pers.comm.). There has been stagnation of regional cooperation through IFAS but on the bilateral level there are a lot of improvements. There is still a lot of work to be done at the regional level, but there is an optimistic view: "without cooperation, without trust, we will not have a solution" (RS3 pers.comm.). There is a need to find mechanisms for cooperative solutions and conflict prevention. International donors have helped developed transversal institutions or centers, but these newly developed actors are not able to maintain their structure in time when funding is

not available anymore. Regional centers then move their focus to national priorities instead of continuing their function as integrating bodies.

Given the transboundary nature of climate risks and shared natural resources, climate action can be seen as an entry point for strengthened regional cooperation. Thus, it is of the utmost importance to pursue an enhanced regional policy dialogue on climate-fragility factors and resilience. Benefits of the regional approach also include complementarity, economies of scale, experience sharing, and strategic planning and financing. Climate resilient basin-wide management of water and natural resources remains a priority for all three countries.

6.2.3. Attracting International Funding

Agencies like UNDP and UNEP have been financing programs in the region for over two decades. National communications are prepared in coordination with agency staff and consultations with national experts. Without this financing, little would be done in terms of climate change agenda. Other international organizations or agencies also support projects – e.g. FAO for agriculture, UNICEF for water management. In the case of NAPs, UNDP is leading the process. Without UN's support, the NAP process would not have been initiated yet. NAPs, however, should be developed and led at the national level. Allocation of government funding is problematic and limited: "work on climate change is driven by the international community in Tajikistan, there is no real governmental ownership" (TJK1 pers.comm.).

In Tajikistan, climate change is seen as a topic of purely environmental character, embedded within the environmental sector institutionally. The understanding of climate change as an overarching issue affecting multiple sectors is not yet there – it is in the rhetoric, but there are no practical considerations.

> Climate issues are being addressed as part of other areas, for example agriculture and DRR, but there are limited capacities in the country especially at the governmental level. The major interest of the government is to tap into climate finance as a resource to support their economic resilience in the broader sense. (…) GCF projects that have been approved to date are mostly packaged by international institutions and the government to support specific sectors – e.g. water or agriculture (TJK1 pers.comm.).

Tajikistan is in such economic state that it cannot afford allocating resources to climate change specific causes as they are failing to deliver security to the population in terms of health and education. As a result, climate funding seems to be the only source that promotes resilience in terms of human security.

Even though climate security issues are sensitive, as explained above, the governments understand that they provide a good opportunity to attract international funding that can be used for climate- and disaster-proofing of infrastructure. Therefore, it is very important to track the funds, and have appropriate monitoring and evaluation stages when it comes to CCA implementation. This view provides an opportunity:

> By framing something as climate and security countries can get the money to improve infrastructure, livelihoods, irrigation (RS3 pers.comm.).
>
> Reading project documents they look very ideal, but down on the field it is a very different reality – they require reorientation of project activities considering the local or real situation (KGZ3 pers.comm.)

This reinforces the idea of improving the knowledge of governments related to climate-security risks and the benefits of promoting a CSA, framing it as an opportunity for development and enhanced resilience.

6.3. Stakeholder Perception of Conflict-Sensitive NAPs

The results from the interviews demonstrate that adaptation measures must be based on a thorough analysis that addresses both climate challenge and the difficulties that arise from conflict risk and state fragility. For that, a CSA can provide a framework in which to operate. Conflict-sensitivity "means being aware of the causes of potential conflict in a given location; (…) involves understanding the operational context and the effects of working in it, and on that basis, developing a capacity to avoid negative impacts and maximize positive ones" (Oels 2012, 83).

6.3.1. Building Trust

Overall the perception of incorporating a CSA to NAPs was positive:

> A CSA as a framework could be extremely helpful (RS1 pers.comm.).
>
> There is a need for conflict-sensitive analysis, and adaptation projects can be an opportunity for building trust between villages, neighbors, and nations" (RS3 pers.comm.).

Another expert (NGO1 pers.comm.) suggested the reframing of the CSA, considering two aspects. First, NAPs are under national jurisdiction and the conflict focus would be within the national territory, therefore conflict-sensitivity should be approached in terms of upstream/downstream regions within the countries. The expert suggested avoiding 'overcomplication'; politically, governments will not accept a CSA unless it targets specific transboundary resources. Second,

consider speaking of reducing the risk of maladaptation, and also disagreements between ministries. As a solution the expert proposed:

> They could do a quick screening of potential disruptions between provinces or sub-regions that belong to the same river basin [such as a connectors and dividers analysis]. Conflict-sensitivity should be incorporated, because of the presence of conflicts within the countries – between different upstream/downstream villages. (…) These conflicts tend to lack visibility from the media, so they are excluded from concrete analysis or research – there is no proper historical record of the tensions within the countries themselves (TJK1 pers.comm.).

6.3.2. Climate, Justice, and Cooperation

The Country Offices also had an optimistic view in terms of a conflict-sensitive framework that they could apply not only to NAPs, but also to other projects developed in the region. UNDP Kyrgyzstan considers very critical the implementation of a CSA to CCA, given that any adaptation measure can have an impact on neighboring regions and partners (KGZ1 pers.comm.). It should involve a combination of climate, justice, and cooperation. The government of Kyrgyzstan would be open to consider it as well, in the specialist's opinion.

> We are working on a project in the Batken region, funded by the Russia-UNDP Trust Fund on climate resilience and livelihoods through the promotion of smart irrigation. This project, even if not stated, needs to be placed far from the borders, so the process of site selection was crucial to prevent tensions with Tajikistan (KGZ1 pers.comm.).

In the past UNDP projects supporting irrigation in the Tajik side without the consultation of Kyrgyzstan resulted in damaging relations between the two countries. During implementation of a cross-border cooperation and conflict prevention project, they faced one problem related to infrastructure. The approach of implementation of this type of project is usually mirrored – all activities done in Kyrgyzstan should be done as well in Tajikistan. UNDP Tajikistan (early 2018) started one infrastructure project on their territory, but on a river that is stated as interstate river:

> Any kind of project or technical works done on an interstate river needs to be mutually agreed between governments, but they started technical works without any previous agreements. They [UNDP Kyrgyzstan] accidentally learnt about this project and started observing the situation – and it escalated from local authorities getting involved, to higher-level governments, to the Ministry of Foreign Affairs. The project implementation had to stop immediately for consultations to be made. (…) The project ended in 2019, and even today the situation has not changed – the government forced

> all works to be returned to their original state, destroying construction works that the Tajik side did (KGZ3 pers.comm.).

In Kyrgyzstan there are some efforts on the ground working with populations on dispute resolution and education, even setting up informal councils among respected elders with mechanisms to deal with grievances and hotlines for urgent support. However, the link between peacebuilding efforts and climate risks is not clear; there is a need for the incorporation of conflict-sensitivity into adaptation plans, linking conflict with environment and natural resources. One of the respondents stated that "the development of the NAP process will hopefully help with some viable mechanisms for conflict resolution" (KGZ2 pers.comm.).

Human security, conflict, and transboundary issues are not considered in Uzbekistan's NAP proposal. As per consultation and agreement with the government, NAPs are concentrated on in-country sectoral and Aral Sea region climate change vulnerability assessments (UZB1 pers.comm.). Other projects of UNDP Uzbekistan have focused on 4 pillars of human insecurity: environmental, economic, food, and health (UZB2 pers.comm.), mainly in the Aral Sea region. This clearly calls for the integration of conflict-sensitivity into climate change adaptation measures, as Uzbekistan's NAP proposal includes an element of conflict resolution mechanisms and climate change risks, but so far there is no action integrating all elements.

6.3.3. Vertical and Transversal Integration

A conflict-sensitive analysis could work very well only if there is ownership from the different structures working on it – especially the coordinating institution, with a clear mandate to the line ministries in charge of implementation of CCA measures (agriculture, water, energy, land-use planning). There are challenges and barriers regarding different kinds of trade-offs between priorities, and conflicts that exist not only at the local level in relation to resource use, but also at the institutional level regarding mandates and funding.

> The NAP guidelines were elaborated keeping in mind the sectoral planning, but a CSA could be beneficial during the planning process, especially in the long-term. Starting from a regional approach, considering the interests of each country, and trickled down the local realities (district, sub-district levels) would be an appropriate way to benefit from it. (…) Especially consider the administrative units that cover both upstream and downstream locations (TJK1 pers.comm.).

One of the respondents highlighted the importance of a CSA, especially in the Ferghana Valley as a key development point for the future of Central Asia. Even though the region is not fully integrated into the dynamics of the modern world, it has potential for development, but there is a

need for a deeper understanding of the region and its complexities. This approach would not only benefit the local communities by reducing the threats and triggers of conflict, but also, as stated by a peacebuilding specialist "the incorporation of a CSA would be very important and very useful for development agencies" (KGZ3 pers.comm.). One example of the benefits a CSA stem from the previously mentioned cross-border cooperation and conflict prevention project that took place in Tajikistan, which invited local communities to participate in community-level dialogues:

> Until 2014, relations between Kyrgyz and Tajik communities was very tense, with a lot of incidents and involvement of border service, physical and material damages. After 2014, community relations became almost non-existent, there was no cross-border relations beyond commercial purposes. Local communities were asked about how they see the conflicts and what mechanisms of conflict resolution could be applied. (…) Promoting dialogue across-borders, with critical discussions among communities, but thanks to the moderation and facilitation they came to an agreement (KGZ3 pers.comm.).

Another issue is that the strength of institutional compartmentalization is enormous. Everything becomes a project – a "self-contained thing", with its own deliverables and timeframes – but all the projects have a cumulative effect. Interventions should help people process information and understand how to absorb it – not unilaterally impose measures (TT1 pers.comm.). Overcoming this requires both vertical and transversal integration within and between institutions and programs.

6.4. Concluding Remarks

This chapter started by looking at the political sensitivities around the issues of security and conflict in the Ferghana Valley countries. First, the securitization of climate change was explored in terms of the usage of words like *security* and *conflict* given the historical association with military interventions, wars, or political destabilization. The issue of language was described, with the difficulty of translating certain terms – e.g. sustainability, resilience, hotspot – into Russian language. The avoidance of "toxic concepts" by international and development organizations poses an issue, given that projects then become softer and do not tackle the triggers of conflict or potential tensions directly. When it comes to the stakeholder perceptions and existing tensions, the respondents emphasized the temporal fluctuation of the sensitivities depending on other political tensions, and the importance of using specific vocabulary when engaging with multiple stakeholders. The political sensitivities are also dependent on who addresses the security concerns – security-related projects proposed by an NGO will not be taken the same way as from the Ministry of Foreign Affairs of another country. Practitioners emphasized the importance of

diplomacy and the clear definition of concepts when presenting projects or data to the national governments.

The barriers and opportunities explored highlighted the vital role of understanding climate change as cross-cutting issue, avoiding its demonization as a way to increase the acceptance from government officials. The presentation of climate change outside of the environmental realm can provide an opportunity for development, even if national governments do not consider it a serious threat. It should be considered that the viability of a regional approach depends on the goodwill of the countries and their leadership, but climate action can act as an entry point for regional cooperation. The main challenge comes from overcoming previous barriers, such as moving away from national interests to see the region as a whole, understanding the importance of joint development for the future, rebuilding trust especially in terms of disputed territories, and appreciating the value of water resources. In terms of funding, accepting climate change as a threat multiplier and its potential effects on security can provide an opportunity for countries to improve their infrastructure and livelihoods, while adapting to climate change and promoting peacebuilding.

Finally, the stakeholder perceptions of conflict-sensitive NAPs evidence the need to build trust among stakeholders, promote justice and cooperation, and integrate initiatives in a vertical and transversal manner, learning from other communities' experiences and building adaptation networks. Even though these insights are important to consider, it should be noted that not all valuable stakeholders were interviewed given the limitations of this study. Important groups such as pastoral communities and local civil society organizations could not be reached mainly due to the travel restrictions of Covid-19 and the impossibility to perform online interviews.

The next chapter discusses all the findings described so far, addressing the main barriers to resilience, integrating environmental security and resilience to peacebuilding, and finally proposing a Conflict-Sensitivity Framework in the area of NAPs.

7. Future Perspectives: Conflict-Sensitivity Framework in NAPs

Along this research I have looked at the conflict dynamics in the Ferghana Valley; the policy framework of NAPs; and the political sensitivities, barriers and opportunities for an integrative CSA. This chapter explores the barriers to resilience and aims to integrate all the findings into the theoretical framework initially described. Finally, the path forward for the development of a Conflict-Sensitivity Framework will be proposed, with the application to NAPs.

7.1. Barriers to Resilience

The countries of Central Asia are striving to mainstream climate change in the national policies and pursue a transition to low-carbon resilient development. All countries in the region have developed national strategies and action plans on climate change, with associated projects on mitigation and adaptation. Kyrgyzstan, Tajikistan, and Uzbekistan targeted by those projects have reflected their priorities on climate resilience in their NDCs under the Paris Agreement. Nonetheless, institutional frameworks to manage this process remain weak, both at national and regional level. Several significant barriers to resilience were identified in the course of earlier *Instrument contributing to Stability and Peace* (IcSP) actions[5] (see all instruments in Table 9 of Appendix E). One overarching constraint is the insufficient knowledge base, information, and communication on climate-induced risks and hotspots. At the national level, efforts to address climate change are largely diffused across sectoral ministries, creating diseconomies of scale and inefficiencies in budgeting and implementation. Making sectoral interlinkages explicit, particularly across the WEF nexus, facilitates holistic climate action.

Despite laudable efforts to mainstream climate change considerations into development and sectoral policies, targeted NAPs are still lacking. In addition, climate change considerations remain noticeably absent from sectoral development policies and strategies. If carefully managed, with the requisite resources, adaptation, and disaster management processes and plans have the potential to reduce vulnerability and improve coping and adaptive capacities, as well as safeguarding economic and other development gains. This constitutes a triple win, across social, economic and environmental indicators. However, care must be taken to avoid unintended consequences, through holistic and participatory vulnerability analysis and risk mapping to identify hotspots and priority interventions. At present, a lack of capacity and on-the-ground experience in climate-fragility risk prevention and management undermines practical action.

[5] The IcSP actions from the European Commission fund activities in the areas of crisis response; conflict prevention, peacebuilding and crisis preparedness; and response to global, trans-regional and emerging threats. It was established by Regulation (EU) No 230/2014 of 11 March 2014.

The key barrier to resilience in the Ferghana Valley that stems from this research is the lack of integration between the climate change and resilience agendas in the national and sectoral planning and policies: insufficient understanding and mainstreaming of climate-fragility risks, conflict prevention, civil protection strategies and plans, and insufficient integration of human security in adaptation planning. Another important barrier to consider is the insufficient regional cooperation and awareness on climate-fragility risks and mitigation measures, evidenced with the expert interviews performed. Lastly, the lack of capacities and on-the-ground experience in climate-fragility risks prevention and management needs to be addressed, combined with an enhanced knowledge base, information, and communication on the climate-fragility risks and hotspots. The incorporation of a CSA into NAP process could act as a multifaceted framework in which all these issues could be tackled in a harmonized manner. As a result, reduced fragility and enhanced resilience could be achieved through CCA.

Nevertheless, certain barriers to integrate conflict-sensitivities into the NAP process should be considered. Firstly, attention should be given to the main risks in the Ferghana Valley which, as explored in Chapter 4 of this research, are related to transboundary resources while the NAP process is of a national character. Hence, special efforts should be placed in developing a specific joint adaptation plan for the region. Secondly, given the multiplicity of actors, organizations, and projects involved in the area, their full participation and coordination must be ensured. As a result, a participatory plan in which even the most marginalized populations are represented and included would help prevent the risk of maladaptation and human insecurity. In terms of data collection and availability, it is important to promote collaboration with the governments to ensure the data obtained can be used in political decisions. Overall, achieving resilience would imply a combination of the ability to handle knowledge, the willingness to cooperate, and the capacity for understanding complex realities.

Other important factors to take into consideration are the governance issues given the low scores that was found in the Ferghana Valley countries in terms of government effectiveness, rule of law, voice and accountability, control of corruption, regulatory quality, and political stability. Any efforts that aim to maintain peace or avoid the dilation of present tensions should also be made in combination with initiatives to improve governance.

7.2. Linking Environmental Security and Resilience to Peacebuilding

The results provide evidence to the importance of all the factors interacting, including different levels of government and multiple stakeholders, to understand the feasibility of achieving peaceful adaptation by considering the human security risks of the area and incorporating a resilience

perspective. The 6-step theoretical framework initially described (Section 2, Fig. 5) was applied to the findings of the previous chapters. Table 10 in the Appendix shows the different steps and the interactions between environmental security, resilience, and peacebuilding. The findings of this analysis are as follows.

The key natural resources for human security in the Ferghana Valley and important impacts on these resources were identified, based on an environmental security perspective. The main environmental problems recognized are related to fertile land and water availability. Water is the most important single natural resource used for irrigation, hydropower, and household needs. Climate change is projected to increase temperature, change precipitation patterns, accelerate the melting of glaciers and permafrost, increase droughts, and increase the frequency of extreme weather events.

The environmental security of the local communities is severely undermined by the resulting risks and disturbances cause by and to natural resources, including mudflows, floods, reduction of glacier areas, decreased water availability, and increased land scarcity. It is important to consider the direction of water flows, keeping present that the Amu Darya river flows from Tajikistan to Uzbekistan and the Aral Sea, while the Syr Darya river flows from Kyrgyzstan to the Ferghana Valley and the Aral Sea. Here, two main factors need to be considered: the unilateral changes of water flow upstream, which have a direct impact on downstream countries/communities, and conflictual water infrastructure. It clearly results in negative impacts for the local communities, especially when it comes to food insecurity, loss of livelihoods, and violence in disrupted territories. Even though the countries have the IFAS agreements regulating the water flow that should be allowed to downstream countries, the lack of trustworthy data and the political interests make yearly negotiations difficult. In terms of land, the unclear borders between territories and the agricultural production in disputed lands trigger conflicts at the local level, combined with the numerous already existing inter-ethnic conflicts and insurgents' movements.

The resilience perspective illustrates how environmental insecurities combine and interact with other risks undermining the security and well-being of the Ferghana Valley communities. The social grievances are enhanced by an expected population growth, inequitable use of benefit-sharing mechanisms, and power asymmetries in negotiation and decision-making processes. Together with differences in adaptation measures, these socio-economic and political considerations enhance the already existing tensions due to higher competition for natural resources. Past clashes and violent conflicts, together with historical events such as the dissolution of the Soviet Union (1991), the Tulip Revolution (2005), the Osh riots (1990), the Batken conflict

(1999), and the South Kyrgyzstan ethnic clashes (2010) need to be considered to understand current grievances and the potential of tensions developing into conflicts.

Domestic factors further undermine the resilience of the Ferghana Valley, thereby frequently interacting with water-related environmental insecurities. These include regime changes, social instability, weak administrative and governance structures, as well as a lack of vertical integration. Global factors such as increases in fuel or food prices, or impositions of tariffs and travel restrictions at the regional level are also factors affecting resilience. A strong dependence on western organizations such as IFIs, GCF, or UN agencies, and their top-down approaches in the context of peacebuilding also prevent countries from being able to cope with natural or political external disturbances.

What is required is a combination of addressing acute environmental security challenges while simultaneously increasing the resilience of the cooperating communities. Such measures need to work in three levels:

(i) at the local level, forums for conflict resolution, enhancement of knowledge, and strengthening local institutions are essential to reduce social frictions;

(ii) at the national level, the development of national strategies that mainstream CCA into policies, higher regional cooperation, establishment of inclusive dispute resolution mechanisms, investing in food systems and social protection mechanisms, and supporting economic development and diversification; and

(iii) at the international level, food security projects, modernization of irrigation practices, coordination of regional approaches, and high-level environmental diplomatic action, focusing on improving natural resource management.

All of these measures need to be approached within a conflict-sensitivity framework, thus improving the capabilities of the communities to adapt and respond to changes. Such capabilities can be enhanced with improved knowledge, better data collection and processing, technologies for efficient irrigation, networks for transboundary cooperation, and sensible financial allocation for the implementation of CCA measures. The most important point is to translate global information for local use and to generate new data at the local level to inform worldwide risk assessment. However, the already explored unwillingness of governments to use data generated by international organizations is a barrier to be overcome. Increased transparency is necessary in terms of availability of data, and also building up trust between the organizations – international or regional – that are working in the area.

7.3. Integrating Conflict-Sensitivity into the NAP Process

Reflecting on the current state of NAPs, the institutional adaptive capacity, and the need for a CSA, the integration of a CSA into the NAP process should take into consideration the following principles:

- Applies to all types of work, from humanitarian, to development and peacebuilding, performed by different actors, including public or private sector, or civil organizations.
- Can be mainstreamed across any priority or mandate, and therefore does not require a commitment to peacebuilding itself.
- Applies to all contexts, even when no violence has developed recently as a result of underlying tensions.
- Understands the context in which the adaptation measures are to be implemented.
- Understands the interaction between the approach itself, its activities, and the context – acts upon the understanding of this interaction to avoid conflicts and enhance resilience.
- It is an institutional approach that should be in a transversal and vertically integrated manner, beyond the application of specific tools.
- Channels resources for adaptation, ensures adaptation finance from international sources, and access to information in ways that generate equitable benefits for people of all ethnic and social groups.

The application of these principles of conflict-sensitivity guide the design and implementation of conflict-sensitive adaptation strategies in all settings, in fragile or post-conflict regions. The framework could entail a number of activities, described in Table 3 below. It shows the application of the Conflict-Sensitive Framework specifically to NAPs. It is based on the Gender-Responsive Process to NAPs (NAP Global Network and UNFCCC 2019) and was adapted taking into consideration the principles of conflict-sensitivity mentioned above. The entry points represent the steps in each of the 4 elements described in the Technical Guidelines for NAP, the principles establish the general concept behind the application of a conflict-sensitive approach, and the implementation points are suggestions on how to apply these principles on each of the steps.

To facilitate the application of the Conflict-Sensitivity Framework, a series of tools can be developed, especially for organizations that have not dealt with conflict-sensitivity before. The key tools may include: (1) Conflict Analysis (conflict tree, force field analysis, multi-causal role model, connectors and dividers, CAF); (2) Conflict-Responsive Facilitation; (3) Multi-Criteria Analysis; (4) Conflict Mainstreaming; (5) Conflict-Responsive Monitoring and Evaluation; and (6) Conflict-Responsive Budgeting.

Table 3. Application of the Conflict-Sensitivity Framework to NAPs.
Note: To facilitate the understanding of the application to NAPs, the table has been subdivided according to the Elements described in the Technical Guidelines for NAP.

ELEMENT A. LAY THE GROUNDWORK AND ADDRESS GAPS			
Step	**Entry points**	**Principle**	**Implementation**
A.1	Initiating and launching the NAP process	Commit to a conflict-responsive NAP process	Create the mandate to integrate conflict and security considerations in the NAP process Secure high-level commitment Establish conflict-responsiveness guiding principles for the process from the outset Mainstream climate security into strategic documents developed to guide the process Establish a conflict-sensitivity coordinating team Engage conflict and security actors from the beginning
A.2	Stocktaking	Identify available information and knowledge to support integration of security considerations in the NAP process	Undertake initial literature review on conflict and climate change Analyze available information on conflict dynamics and capacities Identify existing capacities and gaps Assess integration of security considerations into ongoing and past adaptation activities Identify gaps in information related to conflict dynamics Include findings in stocktaking documentation produced as part of the stocktaking exercise
A.3	Addressing capacity gaps and weaknesses	Enhance the capacity of all relevant actors to facilitate conflict-responsive approaches in the NAP process	Enable institutional and technical capacity gaps, and opportunities to integrate CCA into development planning Identify and enhance awareness of potential opportunities for integrating conflict-sensitive CCA into development planning Design and implement programs on climate change communication, public awareness-raising, and education that include the links between climate change, conflict, and security Update and create new policies to facilitate work on conflict-sensitive adaptation
A.4	Assessing development needs and climate vulnerabilities	Ensure that institutional mechanisms for the NAP process are inclusive and include climate and peacebuilding expertise	Identify key development goals sensitive to climate change Compile information on main development objectives, policies, plans, and programs that can enhance security Identify synergies between development and adaptation objectives, policies, plans, and programs to identify risks and opportunities for collaboration Be aware of and understand that political factors that may affect integration of conflict-sensitivity approaches in adaptation

ELEMENT B. PREPARATORY ELEMENTS			
Step	**Entry points**	**Principle**	**Implementation**
B.1	Analyzing current climate and future climate change scenarios	Using conflict and climate-fragility data in vulnerability and adaptation assessments	Assess what information is available regarding particularly vulnerable groups to climate-related fragility, and further research on this topic Analyze regional, national, and local level climatic patterns, natural hazards, range of uncertainty, and indices of climate trends and the effects for the environment and the livelihoods of communities Use scenario analysis at the national level or as part of a regional analysis including climate and socio-economic factors, the history of conflict, and existing tensions Communicate projected climate-security information to all stakeholders and the public
B.2	Assessing climate vulnerabilities and identifying adaptation options	Analyze and address differences in adaptation needs and capacities	Undertake a conflict analysis to identify vulnerabilities. Facilitate inclusive stakeholder engagement processes, allocating resources to recruit conflict actors to support vulnerability assessment Enhance stakeholder capacity for participation, identifying barriers to participation triggered by conflicts or tensions Identify targeted adaptation for more vulnerable communities
B.3	Reviewing and appraising adaptation options	Consider conflict-sensitivity in prioritization of CCA	Apply participatory and inclusive approaches, ensuring transparency Facilitate separate prioritization processes for different communities Include marginalized groups in the development of criteria for prioritization Use "contribution to human security" as a criterion for prioritization
B.4	Compiling and communicating NAPs	Address security considerations throughout NAPs	Include conflict-responsiveness as a guiding principle in NAP Incorporate specific sections summarizing conflict analyses and how they have been applied Develop a framing for conflict and adaptation issues that is context-specific, forward-looking, and challenges political sensitivities Provide information on the process followed to develop the plan Ensure that security issues are addressed in every section of the plan Involve conflict actors in the development and review of documents Include indicators of progress on conflict-sensitivity Use inclusive communication strategies
B.5	Integrating CCA into development planning for sectors	Address climate change and security as interrelated cross-cutting issues in sector planning	Analyze sector-specific security issues and the implications for adaptation, and identify conflict-sensitive adaptation Incorporate actors that address human insecurities Involve conflict-actors in sector planning processes Training for sector officials and staff to understand the conflict dimensions of adaptation and priorities in their particular sector Ensure that human security is integrated into funding proposals for sector-based initiatives
B.5	Integrating CCA in subnational development planning	Address locally specific conflict and climate change issues in subnational planning	Undertake participatory vulnerability assessment and adaptation planning processes at the local level Analyze implications of context-specific security issues for adaptation in the locality Identify conflict-sensitive adaptation options Incorporate actions that address social norms and cultural practices that perpetuate tensions and conflicts Recognize marginalized groups as stakeholders and agents of change Promote the participation and leadership of community level organizations

ELEMENT C. IMPLEMENTATION STRATEGIES			
Step	**Entry points**	**Principle**	**Implementation**
C.1	Prioritizing CCA in national planning	Tailor and implement the NAP activities based on an understanding of conflict dynamics and the impacts of climate change	Identify best ways for prioritization of adaptation at the national level Include security aspects into national criteria for prioritizing implementation, based on development needs, climate vulnerability, risks and existing plans, as well as past, present and potential conflicts Identify opportunities for building on and complementing existing adaptation activities, peacebuilding, and conflict resolution mechanisms
C.2	Developing (long-term) implementation strategies for adaptation	Develop conflict-responsive and inclusive implementation strategies for adaptation actions	Involve conflict and security actors in the development of implementation strategies Use findings of conflict analysis to inform the development of implementation strategies Undertake inclusive and participatory processes Ensure equitable participation and benefits from adaptation actions Incorporate actions that support conflict-responsive and inclusive implementation, as well as peacebuilding activities and conflict mediation
C.3	Enhancing capacity for planning and implementing adaptation	Undertake outreach to ensure that different stakeholders understand the conflict dynamics of climate change	Involve conflict and security actors in the long-term planning of institutional and regulatory frameworks for addressing adaptation Implement outreach on NAP process outputs at the national level and promote international cooperation with a focus on climate security and conflict prevention Cooperate in, promote, facilitate, develop and implement formal and non-formal education and training programs focused on climate change and security, mechanisms for conflict prevention and resolution, and transboundary resource management Promote sharing of experiences and facilitate public access to data and information on CCA measures
C.4	Promoting coordination and synergy at the regional level	Ensuring the participation of the all relevant sectors groups, including local communities, in the NAP process	Develop strategies to promote and enhance cross-sectoral and regional coordination of adaptation, incorporating conflict-analysis data Broaden the knowledge base by engaging a regional pool of experts from the fields of security, peacebuilding, and climate change adaptation Avoid negative transboundary impacts, and provide the opportunity to share costs and pool resources for joint processes Define a clear regional strategy for cooperation, ensuring full ownership of all the countries and regional entities involved

ELEMENT D. REPORTING, MONITORING AND REVIEW			
Step	**Entry points**	**Principle**	**Implementation**
D.1	Monitoring the NAP process	Integrate conflict in NAP monitoring and evaluation systems	Involve conflict and security actors in the development of monitoring and evaluation (M&E) frameworks, building on existing systems and data Establish inclusive teams to ensure fair and robust data collection and analysis Monitor and report on the integration of fragility considerations into the NAP process, including indicators of conflict-sensitivity Collect data and undertake a conflict analysis of data to assess benefits and results from adaptation actions Evaluate impacts of adaptation actions on vulnerable communities and marginalized groups
D.2	Reviewing the NAP process	Review progress on conflict prevention and resolution through the NAP process	Reflect on the integration of security considerations in the NAP process, focusing on key entry points and enabling activities outlined Engage diverse stakeholders in the review or the NAP process Identify and share successful approaches and insights Recognize areas for improvement and lessons learned for future NAP updates Agree on concrete steps to improve conflict-responsiveness in the NAP process as it moves forward Undertake a conflict-analysis of data collected through NAP M&E systems to assess equitable benefits Evaluate the integration of fragility considerations into adaptation and make improvements if necessary
D.3	Iteratively updating the NAPs	Increase ambition on conflict-responsiveness in the NAP process over time	Incorporate successful approaches and addressing areas for improvement in relation to security and conflict in updated NAPs Involve conflict and security actors in updates to NAPs Integrate new conflict analyses and the results of evaluations that assessed conflict-responsiveness Review principles, objectives, and targets related to conflict and increase ambition where appropriate Communicate lessons learned in a transparent way, including mistakes and unintended consequences Align with and learn from other policy processes that address conflict and security Analyze and communicate the implications for other policy and planning processes
D.4	Outreach and reporting on progress and effectiveness	Communicate progress on and lessons learned about integrating conflict-sensitivity considerations in the NAP process	Track and report on conflict-sensitivity in institutional arrangements and stakeholder engagement in processes related to NAP Document adaptation decision-making processes Report on results from adaptation investments and progress on security and peacebuilding through the NAP process Document and disseminate successful approaches and lessons learned from integrating conflict-sensitivity in NAPs Incorporate conflict-sensitivity in NAP-related progress reports, NDC processes and reviews, notational communications, etc. Promote peer-to-peer learning and knowledge exchange among countries on conflict-sensitive NAP processes Target outreach to conflict and security actors, grassroot organizations, and representatives of marginalized groups to keep them informed and engage them in the future

The previous tables summarize the application of the Conflict-Sensitivity Framework to NAPs. Each sub-table applies for a different element of the NAP process and could be further developed. An example of how each of the elements and implementation activities can be further developed is *B3. Reviewing and appraising adaptation options*. The principle driving implementation activities is *Consider conflict-sensitivity in prioritization of CCA*. This step implies a process of prioritization of adaptation options that have been previously identified, so the opportunities for inclusion of conflict-sensitivity can help ensure all actors, no matter the level (national, regional, local) or sector (agriculture, energy, urban) of intervention, get equitable benefits from the adaptation measures applied.

The implementation activities mentioned in the table can be further explained as follows:

- Apply participatory and inclusive approaches, ensuring transparency: hold stakeholder workshops for different actors, across the country, and document all priorities identified in the process and the participants that took part.
- Facilitate separate prioritization processes for different communities: moderate parallel discussions during the stakeholder events.
- Include marginalized groups in the development of criteria for prioritization: engage with representatives of all the communities that may be affected, from different ethnic groups and gender.
- Use "contribution to human security" as a criterion for prioritization: link to the results of the conflict analysis and assess the ways in which adaptation options can contribute to peacebuilding.

The key tools that can support this implementation activities are (2) Conflict-Responsive Facilitation and (3) Multi-Criteria Analysis. On account of giving a general overview and given the limitations of time and space, the table format was preferred for this thesis and the supporting tools have not been developed further. Nevertheless, the table is a good starting point and broad enough for the implementation activities to be applied to a variety of projects beyond the NAPs.

8. Conclusions and Recommendations

8.1. Conclusions

The results demonstrate that there is a high willingness and feasibility to incorporate climate-fragility risks as a way to achieve peaceful adaptation, reducing human security risks and contributing to climate resilience. The objectives set at the start of this research were fulfilled. First, I looked at the factors that contribute to conflict-sensitivity in the Ferghana Valley in the context of climate change (Chapter 4: Conflict Dynamics). Different elements were considered through the Conflict Analysis Framework (CAF), including the context profile, the conflict profile, and the potential scenarios. As a result, the main factors identified included land use change, increased land scarcity, and increased water scarcity, leading to interstate tensions and grievances between societal groups. I looked at the structural causes, proximate causes, and triggers; and the factors providing for increased fragility, including transboundary water mismanagement, local resource competition, and extreme weather events and disasters. Finally, I explored the potential climate change scenarios and the effects as a threat multiplier, also looking at the costs of inaction in the Ferghana Valley countries from a political, economic, and social-environmental perspective.

Secondly, I analyzed the current state of NAPs in Kyrgyzstan, Tajikistan, and Uzbekistan and explored the need for a conflict-sensitive approach to reduce security risks and enhance resilience in the region (Chapter 5: Policy Framework). I looked at the institutional landscape in each of the countries, the development of relevant policies, and analyzed the Readiness and Preparatory Support Proposals (RPSPs) submitted as the first step in the NAP process. I processed the interviews performed with the UNDP Country Offices in charge of the NAP process to measure their willingness to incorporate a conflict-sensitive approach.

Thirdly, I attempted to measure the political feasibility of incorporating a CSA to achieve peaceful adaptation, based on expert interviews and the application of the Conflict-Sensitivity Framework to the development of NAPs in the Ferghana Valley countries (Chapter 6: Intervention Logic). This chapter is fully based on the information obtained from the interviews with regional specialists, peacebuilding practitioners, NGOs, and UNDP Country Offices as well. I identified themes and organized the information in political sensitivities, barriers and opportunities, and stakeholder perceptions. Overall, I identified a high need for the development and incorporation of conflict-sensitivity as an underlying framework of climate change adaptation.

Finally, I integrated all the findings focusing on the barriers to resilience, the application of the environmental security-resilience-peacebuilding framework in the context of the Ferghana Valley, and integrated conflict-sensitivity into the NAP Process (Chapter 7: Future Perspectives). The

barriers to resilience build on the conflict analysis initially performed, the interviews regarding the state of NAPs, and the political sensitivities of the region. Then, I applied the 6-step theoretical framework with an environmental security and peacebuilding perspective to understand how it affects resilience, and proposed measures for the local, national, and international levels. Keeping all this in mind, I proposed a Conflict-Sensitivity Framework and showed the integration into the NAP process, following the entry points from the UNFCCC Technical Guidelines and establishing principles and activities for each of them. A step forward would imply the development of 6 key tools to support the Conflict-Sensitivity Framework, including alternatives for conflict analysis, facilitation, multi-criteria analysis, mainstreaming, monitoring and evaluation, and budgeting.

Certain limitations were found in the research, especially when it came the qualitative data obtained. Perspectives from local communities and government officials were missing, as there was no opportunity to interview them directly. Nevertheless, other respondents provided their perspective on these actors, which even if it is not as accurate as speaking with them, filled the gap to understand the feasibility and the benefits of incorporating the conflict-sensitive approach. Another limitation had to do with the impossibility to visit the Ferghana Valley myself, due to Covid-19 travel bans. It would have been enriching in terms of conducting personal interviews and direct observation of certain hotspots. Also, the fact that the most commonly used language in the region is Russian, derives in many documents and sources of information only available in this language. Given that I am not able to read it, there is a possibility that valuable data and information was missed.

Keeping in mind my experience with this research and the application of the Conflict-Sensitivity Framework in the Ferghana Valley, recommendations can be made for practitioners and for further research, which are explored in the next sections.

8.2. Recommendations for Practitioners

Before undergoing a full conflict analysis, it is important to undertake a connectors and dividers approach. This is essential to look the effects on actors across different groups, identifying the factors that contribute to collaboration or to grievances within the society or, in the case of a regional analysis, between countries. Certain tools that were previously mentioned in the Conflict-Sensitivity Framework: (1) Conflict Analysis (conflict tree, force field analysis, multi-causal role model, connectors and dividers, CAF); (2) Conflict-Responsive Facilitation; (3) Multi-Criteria Analysis; (4) Conflict Mainstreaming; (5) Conflict-Responsive Monitoring and Evaluation; and (6) Conflict-Responsive Budgeting. These tools, when developed, would act as guidance for

practitioners to facilitate the incorporation of conflict-sensitivity to NAPs or any other development or adaption project that they may undertake in fragile areas.

Practitioners should also consider the quickly changing dynamics of fragile, conflict-prone or post-conflict regions, especially when it comes to data collection. For that, rigorous reflection of the data collected is suggested, every 6 months, to ensure updated information and allow better monitoring of the situation. For monitoring and evaluation, it can be useful to analyze the changes in individual and community perceptions of their reality, before, during, and after the intervention has been made – has the project/program/action contributed to more stability or has it increased tensions?

Lastly, consider undertaking participatory research led by people in communities to shift the power balance between groups who are not usually part of the conversation. The information obtained this way will be richer in terms of perceptions, connected to the history of conflict of the area, and can promote the ownership of the activities that will be implemented afterwards. It is a way of empowering local communities and promoting active participation, which can lead to more opportunities of collaboration intra- and inter-communities. It would change populations from being vulnerable to being empowered agents of change, moving from a conflict-sensitive to conflict-responsive approach, integrating measures to promote peace and promote equal opportunities to derive social and economic benefits. This way, the experiences and perceptions of local communities become fundamental elements in the design, implementation, and monitoring and evaluation of natural resource- and climate-related projects and policies.

8.3. Recommendations for Further Research

The following areas could benefit from further research, to complement the present study and give a better understanding of the conflict dynamics of the Ferghana Valley and the application of a conflict-sensitivity framework:

1. Political mapping of enclaves. It is important to have a thorough analysis of the enclaves, which are very strict, isolated, but still strive commercially. They are one of the focus points of grievances as well, given the high multiethnic context – e.g. So'x District is an Uzbek enclave inside of Kyrgyz territory has 99% of their population of Tajik ethnicity. The unregulated borders themselves are not the source of conflict; instead conflicts have been prompted due to unjust distribution of natural resources, in combination with underlying causes such as impoverishment and scarcity (especially during summer) that affects peasants and road workers. The presence of enclaves creates a further source of tension, when peasants have to cross them to move their cattle or transport goods to another village.

2. Prevention of violent extremism (PVE) and organized crime. There are some peacebuilding projects that focus on prevention of violent extremisms, but very few relating them directly to natural resources and climate change. The population of the Ferghana Valley is increasing dramatically. Overall, with decreasing social protection and economic development, people living in rural areas are very vulnerable to coercion making it an ideal place for recruitment of extremist and terrorist groups. The nexus between climate, security, and violent extremisms in the Ferghana Valley needs further exploration as it would greatly influence the successful implementation of peacebuilding efforts before, during, and after conflicts.

3. Cultural study. The Ferghana Valley is culturally unresearched still – before developing guidelines for local authorities, further cultural anthropology research is necessary to understand their customs, their mindsets, and the variations between different groups, in combination with the conflict analysis and the understanding of environmental hotspots.

4. Common goods approach. It would be interesting to analyze an economic and political approach to the Ferghana Valley as one regional unit, where the natural resources do not belong to a specific country but instead are managed as a whole. For that, an economic valuation of the natural resources and the ecosystem services provided could be the starting point for more equitable trade of resources – e.g. today Uzbekistan is rich in natural gas and oil, which it provides to Kyrgyzstan at a market value. Kyrgyzstan, on the other hand, provides water to Uzbekistan, but it is not regarded as something with value.

5. Development of other renewable energies. Given the high dependency of the region on water, and the history of conflicts related to its use, it would be valuable to see the potential for other renewable energies such as wind and solar as a way to enhance resilience to predicted climate change impacts.

6. Scenario analysis. Integrated analysis of both the climate change projections especially on water scarcity and land degradation, and the different levels of cooperation. These scenarios could be overlapped with mapping of the historical climate change and natural disaster impacts, points of transboundary water issues in the Ferghana Valley, sites of historical water and land conflicts, and fragility indicators. The scenario analysis could result in a dynamic map of the local hotspots where tensions are expected to increase or where conflicts may be developed and could be used as an early-warning system to inform adaptation measures.

8.4. Research Implications

This thesis proposed a Conflict-Sensitivity Framework and suggested implementation activities based on the structure of the National Adaptation Plans that countries of the Ferghana Valley are in the process of developing. The fact that Central Asia is not yet fully integrated into the dynamics of the modern world, gives potential for peaceful adaptation and development as long as the complexities of the region are considered. Conflict-sensitive climate change adaptation provides the perfect opportunity for promotion of more inclusive development assistance that understands the community and the institutions required for peacebuilding, and the dimensions of climate change and the environment. This is not a one-fits-all solution: applying this framework in other regions will require a deep analysis of the contextual factors and the history of the place, relying on a participatory and inclusive stakeholder consultation to ensure the measures selected can bring benefits to all involved, ensuring the livelihoods of the local communities and a long-lasting collaboration between groups. International organizations, regional entities, NGOs, and civil societies are welcome to adjust the Conflict-Sensitivity Framework to their needs. Flexibility and adaptability are, after all, key elements to achieve resilience in this ever-changing world we live in.

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Appendix

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Fig. 13. Climate change and natural disaster impacts in the Ferghana Valley

Fig. 14. Water issues in the Ferghana Valley

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A. Introduction

Fig. 13. Climate change and natural disaster impacts in the Ferghana Valley.
Source: UNEP/GRID-Arendal 2006. Cartographer: Viktor Novikov.

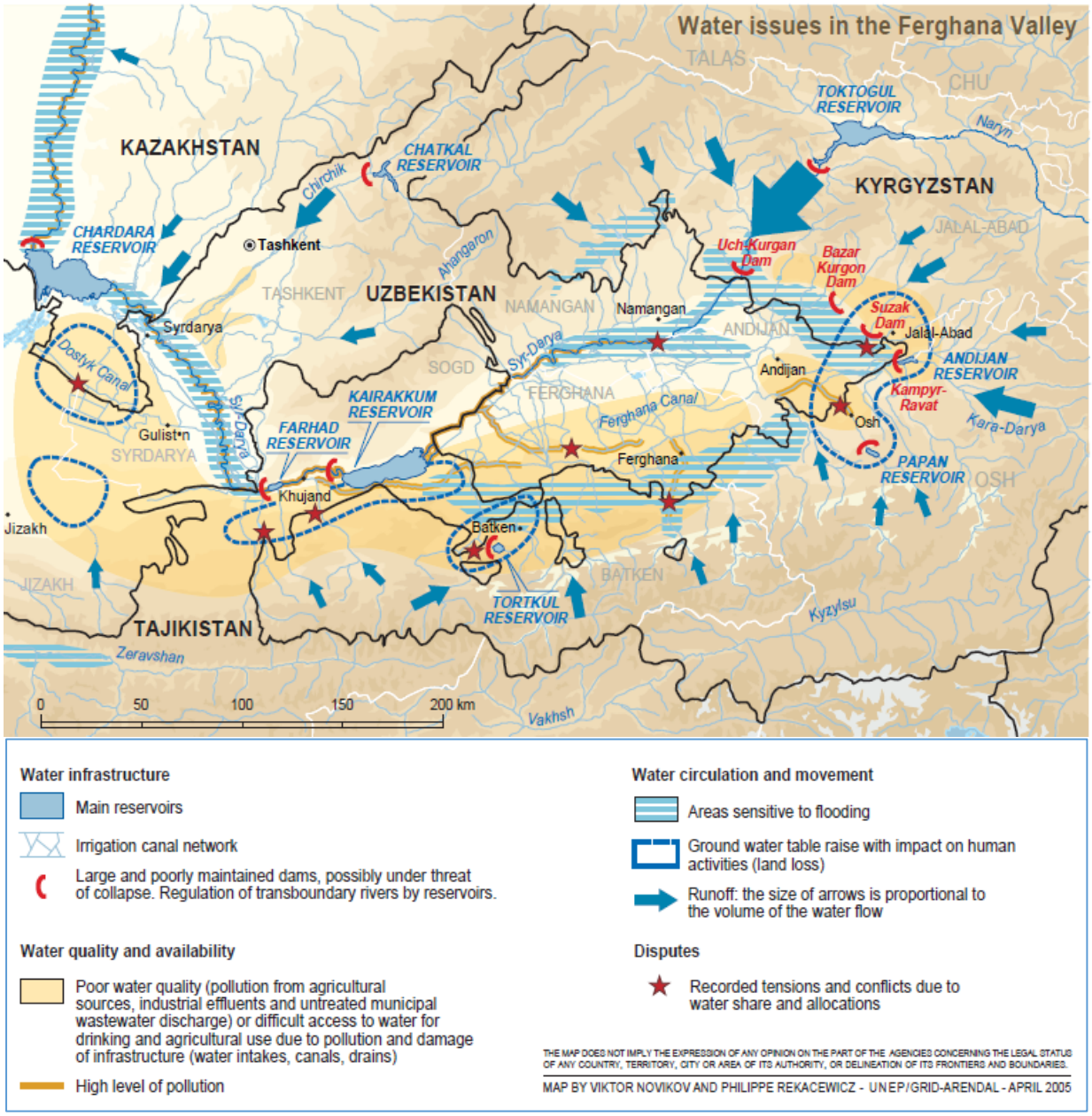

Fig. 14. Water issues in the Ferghana Valley.
Source: UNEP/GRID-Arendal 2006. Cartographer: Philippe Rekacewicz.

B. Methods

Table 4. Theory of change diagram for Climate and Resilience project in the Ferghana Valley.

Development impact	SDG 13 Climate Action: Take urgent action to combat climate change and its impacts SDG 16 Peace, Justice and Strong Institutions: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels			
Outcome	Strengthened cooperation and resilience of local and regional stakeholders to the threats and risks posed by climate change			
Results	1. Enhanced knowledge base and capacities to identify and assess climate-driven resilience risks in Kyrgyz Republic, Tajikistan and Uzbekistan with focus on Ferghana Valley	2. Climate resilience risks are introduced into national policies, CCA and development strategies and plans in Kyrgyz Republic, Tajikistan and Republic of Uzbekistan	3. Enhanced regional exchange and awareness on climate and fragility risks	4. Enhanced climate-related early warning and prevention measures demonstrated at pilot transboundary site/s in Ferghana Valley
Activities	1.1. Systematic review and screening of national climate change and security assessments/strategies/plans and climate information tools, as part of a gap analysis. This will inform vulnerability assessments and produce information on climate induced security risks and required adaptation measures.	2.1. Support to national and sectoral adaptation planning: mainstreaming climate-fragility risks and resilience building measures into key strategic documents (policies, strategies, and plans) for priority sectors (i.e. civil protection and disaster risk reduction, water and agriculture, land management, energy, health, rural development, urban development, climate change, and environment, etc.)	3.1. Three high-level regional events / policy dialogues on climate-fragility risks with participation of stakeholders from five Central Asian countries (disaggregated by sex and country).	4.1. Community-based climate-related risk and vulnerability assessments and participatory adaptation and resilience planning for selected pilot communities in three pilot transboundary hotspots. Developing preparedness and response plans for pilot communities.
	1.2. Undertaking participatory assessments through structured national and regional consultations to discuss climate change-security implications and to identify hotspot areas within the Ferghana Valley, thus supporting consensus-building on possible adaptation measures.	2.2. Supporting water management policies and river basin management plans in all three countries to improve water management in Ferghana Valley	3.2. Information meetings and workshops in each project country to build understanding and awareness at national level among high-level decision-makers and key stakeholders of climate-fragility risks and corresponding adaptation measures.	4.2. Implementing/enhancing community-based early warning and last mile communication on climate induced extreme events and disasters at selected pilot communities
	1.3. Technical trainings for national counterparts/stakeholders on sectoral interlinkages between climate change resilience and vital sectors such as	2.3. Conducting regional training workshops for national decision-makers and institutional stakeholders on climate-induced security impacts, CCA	3.3. Preparing outreach information and awareness materials reflecting the outcomes of the participatory assessments in each project country.	4.3. Implementing adaptation and risk reduction measures to enhance climate resilience of the identified communities in the

	water, energy, health, food, etc.	and resilience building measures.		transboundary hotspots.
	1.4. Improving public awareness on climate-induced security risks and resilience building through, inter alia, awareness raising activities and effective knowledge exchange activities, with special attention to marginalized groups.		3.4. Developing a regional knowledge sharing platform on climate-related fragility risks.	4.4. Developing and distributing information and awareness materials on the climate change and resilience across pilot transboundary hotspot areas.
Assumption	A strong and sustainable network of institutional partners is established and maintained for the project implementation led by beneficiary governments; Clear lines and means of communication and dissemination of information are established Alignment with needs identified by the government translate into full support by the authorities in the implementation phase; Decision-making by recipient authorities is overall timely and coherent; Policy priorities do not suffer sudden and radical changes; Political, social and economic stability is preserved in the entire region; Interest in cooperating with the EU is maintained; Resources for implementation are sufficient and available timely; Project governance is effective.			
Risk	Physical risks and force majeure. This includes national or man-made disasters, political disturbances, conflicts. Unintended, direct or indirect negative harms of human safety Political risks/non-conducive political context. In the region of operation, there are some protracted conflicts that could create challenges to regional co-operation. Political changes at the national, regional or global level that can hinder the implementation of the Action or provoke the exclusion of one of the countries from the project Lack of experience in participatory whole-of-government approaches to planning and risk management in the context of climate-driven risks. Uncertainty and lack of awareness on the linkages between climate-related insecurities among the policy makers and technical level officials in the governments. Sensitivity of the subject and reluctance of the national and local officials to disclose climate risk-related information. Difficulty to reach a fully integrated approach to climate-driven insecurities Barriers to disseminate information and arrange open dialogue on the results of relevant analysis and assessments with national counterparts. Project complexity and a broad scope related to the extended network of institutional partners, the geographical, social, political and economic diversity, and sensitivity may affect the project implementation with respect to the adequacy of allocated resources, work plans and stakeholder engagement. Officials are not willing/available to participate in training and capacity building activities or their participation is not consistent. Risks related to limited access to climate change information from the recipient and/or other organizations that are involved in the implementation of the project, if the information is not available and/or if the data provided by the partners are incorrect or incomplete			

C. Conflict dynamics

Table 5. Ecosystems services provided by the Ferghana Valley.

Type of service	Ecosystem service	Beneficiaries	Relative importance within the hotspot
PROVISIONING	Water (artisanal and run-off) for drinking, irrigation, industrial use, energy generation	Entire population	High
	Fisheries in freshwater	Local fishers, fish consumers, associated economic activity	Locally important
	Wood for firewood, charcoal	Rural communities	Minor, but significant for some remote communities
	Timer, poles and other construction material	Timber traders, forest owners, craftspeople	Significant in some areas
	Non-timber forest products	Rural and agrarian communities	Locally important for forest communities
	Grazing and fodder for livestock	Local livestock herders and, indirectly, consumers of milk, meat	High
	Medicinal plants	Local populations	Locally important, in China active use in traditional medicine
	Genetic resources	Agro-industry	High
REGULATING	Moderation of extreme events	Entire population	Significant in some areas
	Reduction of soil erosion through stabilization of soils	Local populations, economic activity, especially in mountainous and arid areas	Significant in some areas
	Local air quality	Urban population	Moderate
SUPPORTING	Habitat for plants and animals	Agricultural population, global existence value	Significant
	Maintenance of genetic diversity	Agricultural community and users	High
	Carbon sequestration	Global	Low
CULTURAL	Recreation	Local populations, especially urban populations using natural areas	High
	Tourism using natural spaces	Global tourists, local people engaged in the tourism economy	High
	Spirituality	Local population	Significant in some areas

Source: Simonett and Hughes 2017 (with amendments)

Table 6. History of water conflicts in the Ferghana Valley.

Date	Headline	Conflict Type	Country	Description	Sources
1990	Violence over water competition kills 300 along Uzbekistan border	Trigger	Kyrgyzstan, Tajikistan, Uzbekistan	The Fergana Valley, shared by these three countries, is especially vulnerable to violent eruptions over water and ethnicity. In 1990 an outbreak of violence in the Kyrgyz town of Osh on the border with Uzbekistan claims over 300 lives. The violence is provoked by competition for water, limited arable land, and ethnic grievances.	Khamidov 2001
1997	Uzbekistani troops guard reservoirs along border	Trigger, Weapon	Kyrgyzstan, Uzbekistan	Continued serious water tensions between Kyrgyzstan and Uzbekistan lead to the deployment of 130,000 Uzbekistani troops on the Kyrgyz border to guard reservoirs straddling the two countries. Uzbekistan accuses Kyrgyzstan of releasing too much water from the Toktogul reservoir. Kyrgyzstan, through media leak, hints that in case the reservoir would be blown up, the resulting flood would sweep away Uzbekistan's Ferghana and Zeravshan Valleys.	Votrin 2003
1998	Guerillas threaten Tajikistan dam	Casualty	Tajikistan	Tajik guerrilla commander Makhmud Khudoberdyev threatens to blow up a dam on the Kairakum channel if his political demands are not met.	World Rivers Review (WRR) 1998
2001	Kyrgyzstan charges downstream countries for water	Trigger	Kyrgyzstan, Uzbekistan	In June 2001, the Kyrgyz parliament adopts a law classifying water as a commodity and announces that downstream countries would be charged for water. In response, Uzbekistan cuts off all deliveries of natural gas to Kyrgyzstan and accuses Kyrgyzstan of failing to honor an agreement to provide Uzbekistan with water in return for oil and gas.	Hogan 2000a; Khamidov 2001

Date	Headline	Conflict Type	Country	Description	Sources
2008	Confrontations occur along border of Kyrgyzstan and Tajikistan over water resources	Trigger	Kyrgyzstan, Tajikistan	Disputes over unclear borders and poor communications lead to a series of confrontations over water resources in a border area of Kyrgyzstan and Tajikistan. The confrontations with Kyrgyz border guards occur when villagers from Isfara Tajikistan cross into the southern Batken district of Kyrgyzstan to remove a dam blocking an irrigation canal preventing water from reaching the Tajik village of Hoja Alo. The dam is located in an area where the boundary line between the two states has not been agreed. Actions by Kyrgyzstan cut off irrigation water to Tajikistan during the spring growing season.	Kadykeev 2008
2012	Uzbekistan cuts gas over Tajik dam project	Trigger	Uzbekistan	Uzbekistan cuts natural gas deliveries to Tajikistan in retaliation over a Tajik hydroelectric dam which Uzbeks say will disrupt water supplies. Gas flows resumed after a new contract is signed.	Kozhevnikov 2012
2012	Escalating rhetoric over dams in Central Asia	Trigger	Kyrgyzstan	Tensions escalate over two proposed dams in Central Asia: Kambarata-1 in Kyrgyzstan and the Rogun Dam in Tajikistan. These dams could affect water supplies in the downstream nations of Uzbekistan, Turkmenistan, and Kazakhstan. Uzbekistan's president, Islam Karimov, says the dams could cause "not just serious confrontation, but even wars."	Economist, The 2012
2013	Kyrgyz villagers block canal at border	Trigger, Weapon	Kyrgyzstan, Kazakhstan	A water and land dispute between villagers living on the border between Kazakhstan and Kyrgyzstan escalates when Kyrgyz villages block a canal to prevent water flowing to farmers on the Kazakh side of the border.	Lillis 2013

Date	Headline	Conflict Type	Country	Description	Sources
2014	Kyrgyzstan and Tajikistan security clash over border dispute	Casualty	Kyrgyzstan, Tajikistan	Security forces in Kyrgyzstan and Tajikistan clash over a border dispute. Among the targets of the violence, which leave security forces wounded on both sides, are a small dam and electricity substation inside Kyrgyzstan. The local grievances include disputes over access to pasture and water resources.	Trilling 2014
2014	Violence over access to water between neighbors in Kyrgyzstan leaves one dead	Trigger	Kyrgyzstan	In Kyrgyzstan an Uzbek farmer is killed by his Kyrgyz neighbor who reportedly attacks him over access to irrigation water.	Arnold 2018
2018	Clashes expand between Tajik and Kyrgyz farmers over irrigation water	Trigger	Kyrgyzstan	Clashes between farmers over irrigation water across the Tajikistan-Kyrgyzstan border escalate, with at least two instances involving armed guards to defuse the fights. One fight started over the installation of a water pump.	Arnold 2018
2020	Clashes between Kyrgyz and Tajik farmers in a disputed territory	Trigger	Kyrgyzstan, Tajikistan	Shootings at the border between Kyrgyzstan and Tajikistan triggered due to unclear ownership of a plot of land. Kyrgyz citizens planted corn in a disputed site, that is claimed by Tajikistan. A river runs through the area, with hydraulic structures key for water supply in both countries.	Panfilova 2020
2020	A dam on the Syr Darya river bursts, resulting in flooding downstream	Casualty	Uzbekistan, Kazakhstan	In May 2020 a dam on the Syr Darya river burst in Uzbekistan displaced over 70.000 people in Kazakhstan and Uzbekistan. People were evacuated from 22 villages due to flooding of irrigation canals were opened to reduce the flow	Mamatkulov and Auyezov 2020

Data source: Water Conflict Chronology. Full list available online at http://www.worldwater.org/conflict/list/

Stakeholder analysis

To perform the stakeholder analysis, first of all a list with all the possible relevant actors was made:

Table 7. Relevant state actors to the Ferghana Valley.

	Actor
Kyrgyz Republic	Ministry of Agriculture and Melioration
	Ministry of Water Resources and Processing Industry
	Ministry of Ecology and Emergency Situations
	Ministry of Natural Resources
	State Agency on Environmental Protection and Forestry
	State Agency on Geology and Mineral Resources
	Climate Change Coordination Committee (formerly the 'National Committee on Climate Change')
	KyrgyzHydromet
	Water User Associations (WUA) / Farmers' Associations / Dekhan Associations
	Climate Change Dialogue Platform of Kyrgyzstan
	Kyrgyz Science Technical Centre
	Institute of Economic Research
	National Academy of Sciences
	National Council on Gender and Development
	National Statistic Committee
	National Committee on Climate Change Consequences (NC4)
Uzbekistan	Center of Hydrometeorological Services (UzHydromet) under the Cabinet of Ministers of Uzbekistan
	Ministry of Emergency Situations (MES), its regional crises management centers
	State Committee for Ecology and Environment Protection
	Ministry of Agriculture
	Ministry of Water Resources
	State Committee for Statistics
	State Committee for Land Resources, Geodesy, Cartography and State Cadaster
	Scientific and Research Hydrometeorological Institute
	Academy of Sciences
Tajikistan	Water User Associations (WUA)
	Committee of Environmental Protection (CEP)
	National Agency on Hydrometeorology (TajikHydromet)
	Agency of Statistics
	Forestry Agency
	Ministry of Economic Development and Trade (MEDT)
	Ministry of Energy and Water Resources (MEWR)
	Committee of Emergency Services & Civil Defense (CoES)
	Open Centre, Department of Geology - government

Regional	International Fund for Saving Aral Sea (IFAS)
	Interstate Commission for Sustainable Development (ICSD)
	Regional Environmental Centre for Central Asia (CAREC)
	Regional Centre for Hydrology (RCH)
	Regional Mountain Centre of Central Asia (RMCCA)
	Basin Water Organisations (BWO) "Amudarya", "Syrdarya",
	Inter-Ministerial Committee on Civil Protection (IMCCP)
	"Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II for Asia" or FOCRAII
	Secretariat of the Interstate Commission for Water Coordination (ICWC)
	Aga Khan Development Foundation (AKDN)
	University of Central Asia
	UN Environment
	German Federal Foreign Office and/or GIZ
	Potsdam Institute for Climate Impact Research
	CAREC (Central Asia Regional Environmental Center)

Taking into consideration the previous experience with other projects in the area and given the lack of time and resources to perform consultations myself, an existing stakeholder analysis was used to understand the dynamics of the actors in Central Asia. The *Central Asia Nexus Dialogue Project: Fostering Water, Energy and Food Security Nexus Dialogue and Multi-sector Investment* (IUCN 2018) performed an analysis using existing project documents, together with national consultations, individual meetings, and working group discussions. The objective was to understand the challenges and opportunities for mainstream WEF Nexus approach on policy level, which seems relevant to my research given that it is aimed at mainstreaming CCA to foster cooperation.

The following figures contain the mapping of the stakeholders for each country and for the regional level, adapted to the present research.

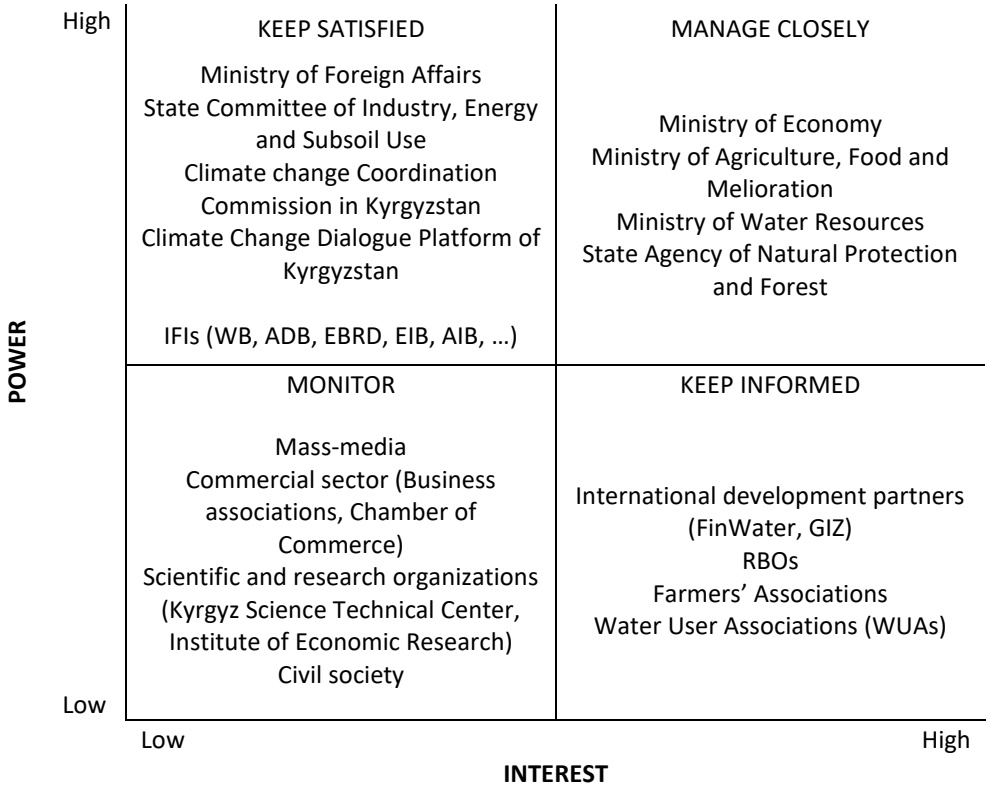

Fig. 15. Stakeholder mapping for Kyrgyzstan.
Source: IUCN 2018 (with amendments)

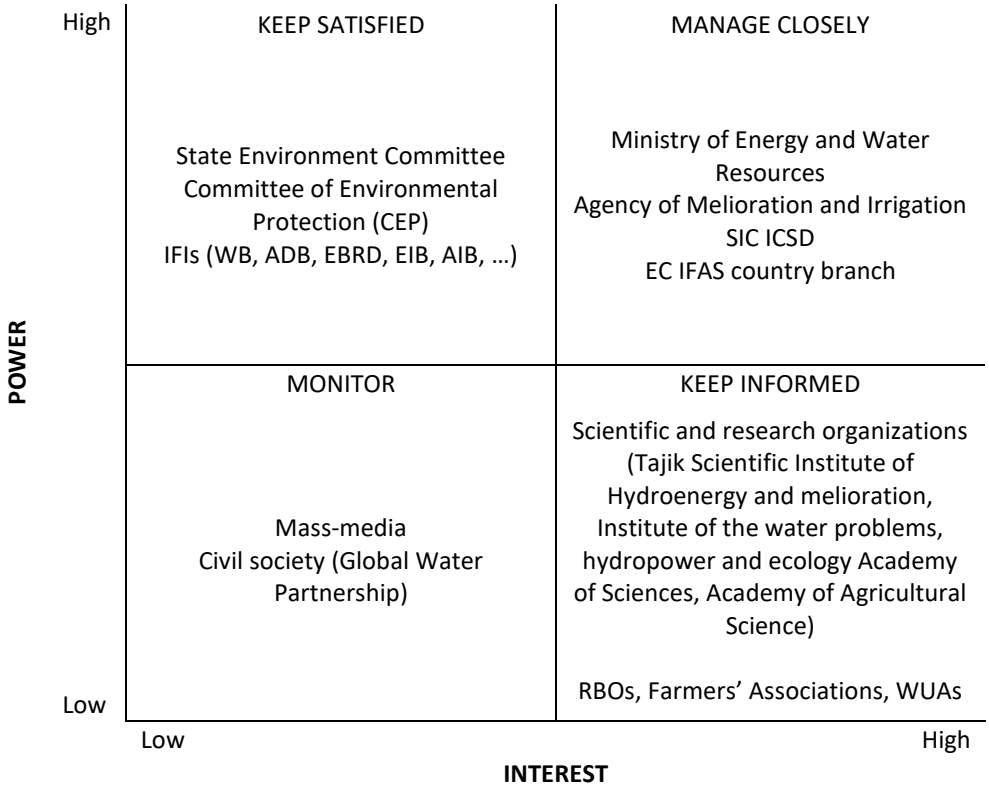

Fig. 16. Stakeholder mapping for Tajikistan.
Source: IUCN 2018 (with amendments)

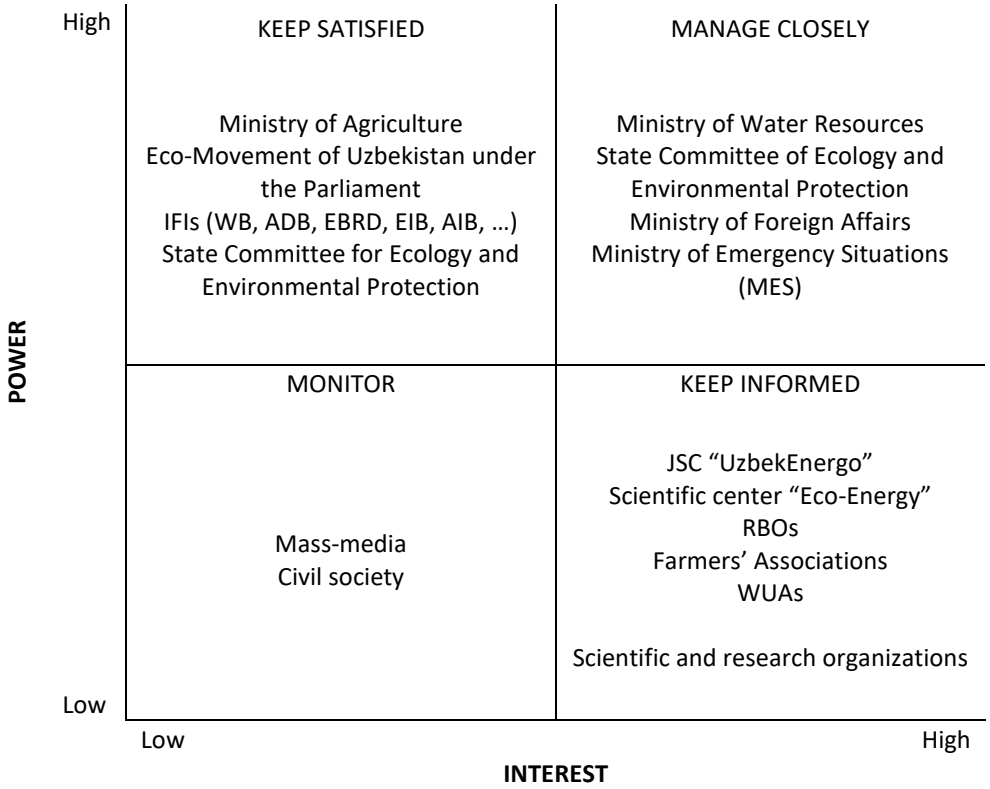

Fig. 17. Stakeholder mapping for Uzbekistan.
Source: IUCN 2018 (with amendments)

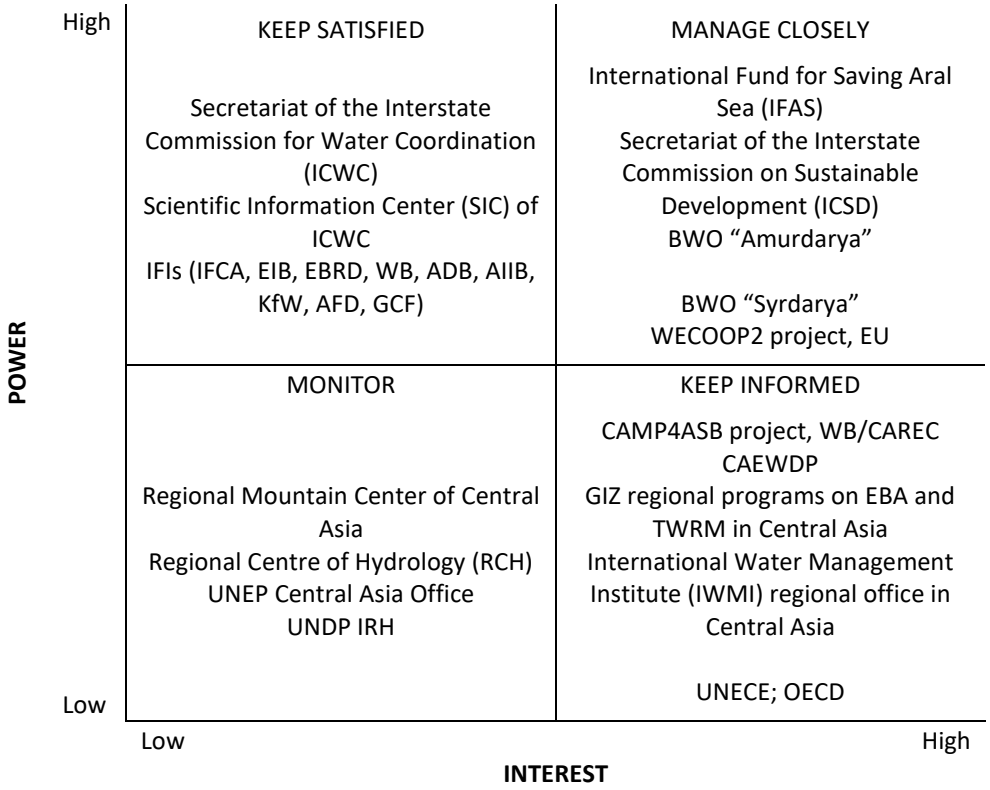

Fig. 18. Stakeholder mapping for regional actors.
Source: IUCN 2018 (with amendments)

D. Policy framework

UNFCCC Technical Guidelines for the NAP process establishing different steps under each of the elements of the formulation of NAPs, which may be undertaken as appropriate (UNFCCC 2012):

Element A. Lay the Groundwork and Address Gaps

1. Initiating and launching of the NAP process
2. Stocktaking: identifying available information on climate change impacts, vulnerability and adaptation and assessing gaps and needs of the enabling environment for the NAP process
3. Addressing capacity gaps and weaknesses in undertaking the NAP process
4. Comprehensively and iteratively assessing development needs and climate vulnerabilities

Element B. Preparatory Elements

1. Analyzing current climate and future climate change scenarios
2. Assessing climate vulnerabilities and identifying adaptation options at the sector, subnational, national and other appropriate levels
3. Reviewing and appraising adaptation options
4. Compiling and communicating national adaptation plans
5. Integrating CCA into national and subnational development and sectoral planning

Element C. Implementation Strategies

1. Prioritizing CCA in national planning
2. Developing a (long-term) national adaptation implementation strategy
3. Enhancing capacity for planning and implementation of adaptation
4. Promoting coordination and synergy at the regional level and with other multilateral environmental agreements

Element D. Reporting, Monitoring and Review

1. Monitoring the NAP process
2. Reviewing the NAP process to assess progress, effectiveness and gaps
3. Iteratively updating the national adaptation plans
4. Outreach on the NAP process and reporting on progress and effectiveness

E. Intervention Logic

Table 8. Initiatives, projects, and programs aimed at increasing governments' capacity to address climate change.

Year	Country	Action	Theme	Implementing partner
2009	Tajikistan	Pilot Program for Climate Resilience (PPCR)	Climate resilience CCA Institutional capacity	WB, ADB, and EBRD
2011-2015	Regional	Climate risk management in Central Asia to reduce the occurrence of natural disasters	Climate risk management CCA	UNDP; UzHydromet
2011-2023	Kyrgyzstan, Tajikistan	Central Asia Hydrometeorology Modernization Project (CAHMP)	Data availability CCA	World Bank
2013	Kyrgyzstan	Promoting Climate Resiliency of Water Supplies in Kyrgyzstan	Climate Resilience	GEF-SCCF EBRD-supported
2014-2018	Kyrgyzstan Tajikistan	Strengthening of livelihoods through CCA in the Kyrgyz Republic and Tajikistan	Coordination in CCA	GIZ;
2014-2019	Uzbekistan	Developing climate resilience of farming communities in the drought prone parts of Uzbekistan	CCA	Adaptation Fund
2015	Kyrgyzstan	Pilot Program for Climate Resilience for Kyrgyz Republic (PPCR)	Climate resilience CCA Climate finance	European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB), and the World Bank
2015-2017	Uzbekistan	Uzbekistan Climate Data Restoration	Data availability	WMO; UzHydromet; Korea Meteorological Administration
2016	Kyrgyzstan	NDA Strengthening and Country Programming support for Kyrgyzstan through FAO	Water sector Climate proofing of investments	GCF Readiness and Support project being implemented by FAO
2016-2019	Regional	C5+1 Supporting National and Regional Adaptation Planning	CCA	USAID
2016-2022	Regional	Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB)	CCA Coordination Capacity building	GCF14; World Bank as Accredited Entity
2017-2018	Uzbekistan	GCF Readiness	Capacity building Cooperation	BMU; UNEP; UNDP, WRI; UzHydromet
2017-2018	Uzbekistan	Support to Public Finance Reforms in Uzbekistan	Climate finance	UNDP; UK; Ministry of Finance
2017-2022	Uzbekistan	Market Transformation for Sustainable Rural Housing in Uzbekistan	Low-carbon transitions	GEF
2018	Tajikistan	Strengthening Capacity of NDA for Strategic Engagement with the GCF	Capacity building Coordination	GCF; GIZ
2018-2019	Kyrgyzstan	Umbrella Programme for Preparation of National Communications and Biennial Update Reports to the UNFCCC	NAP	UNEP-GEF; implemented by SAEPF

Year	Country	Action	Theme	Implementing partner
2018-2022	Kyrgyzstan	Climate Services and diversification of climate sensitive livelihoods to empower food insecure and vulnerable communities in the Kyrgyz Republic	Climate risks Food security CCA	GCF SAP2; World Food Programme
2018-2022	Tajikistan	Building climate resilience of vulnerable and food insecure communities through capacity strengthening and livelihood diversification in mountainous regions of Tajikistan	CCA Food security Integrated approach Baseline assessment	GCF67; World Food Programme as Accredited Entity
2018-2024	Tajikistan	Institutional development of the State Agency for Hydrometeorology of Tajikistan	Physical infrastructure for TajikHydromet	GCF75; Asian Development Bank as Accredited Entity

Table 9. Instrument contributing to Stability and Peace actions in the Ferghana Valley countries.

Year	Country	Action	Theme	Implementing partner
2015-2017	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan	Promoting dialogue for conflict prevention related to environment, water nexus issues in Central Asia: Central Asia Water-Nexus Cooperation (CAWECOOP)	Natural resources and conflict	Regional Environmental Centre for Central Asia (CAREC)
2015-2017	Tajikistan	Decreasing the Post-Conflict Tensity and the Risks of Community Conflict Reoccurrence through Socio-Economic Inclusions of Local Youth into Peace and Confidence Building and Income-Generation Activities	Economic recovery/livelihoods	International Charity Public Organization (ICPO)
2015-2018	Tajikistan	Youth Empowerment toward Sustainability and Change (YES to Change)	Children, youth, and conflict	Deutscher Volkshochschul-Verband
2017-2019	Kyrgyzstan	Democracy and Religion - Dialogue between Equal and Moderate voices (DREAM)	Confidence building, mediation, and dialogue	Centre de recherche et d'information socio-politiques (CRISP) / Deutscher Volkshochschul-Verband / Public Union Institute for Youth DE / Youth of Osh

Year	Country	Action	Theme	Implementing partner
2017-2020	Kyrgyzstan	Constructing dialogues on religion and democracy	Confidence building, mediation, and dialogue	International Alert
2017-2020	Kyrgyzstan	Promoting dialogue and collaboration among youth to counter extremism in Kyrgyzstan	Countering violent extremism/counter terrorism	Rename partner to Foundation for Tolerance International (FTI) / Saferworld
2018-2019	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan	Contributing to stability and peace in Central Asia through media literacy, improved reporting and regional cooperation	Conflict prevention and resolution, peacebuilding and security	Internews
2018-2020	Kyrgyzstan	Judicial and Social Action for Enduring Stability and Peace	Mainstreaming human rights	UN High Commissioner for Human Rights (OHCHR)
2019-2021	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan	Strengthening Resilience to Radicalization and Disinformation in Central Asia through Independent Media (phase II)	N/A	Internews
2020-2021	Tajikistan	Enhancing Cooperation and Dialogue between Civil Society and Government in the Area of Human Rights and Fundamental Freedoms	Confidence building, mediation, and dialogue	International Partnership for Human Rights (IPHR)

Data source: European Commission 2020. All projects available online. URL: https://icspmap.eu/

F. Future Perspectives

Table 10. Integrating environmental security and resilience to peacebuilding in the case of the Ferghana Valley.

Emphasizes the importance of → **Natural Resources Environment** ← Appreciates the complexity and local agency in

	Environmental Security		**Peacebuilding**	**Resilience**	
1	*Key natural resources and elements of the environment and their state*	Water storage in glaciers Scarce water Scarce fertile land	There are grievances and conflicts over water and land, as well as numerous already existing inter-ethnic conflicts and insurgents' movements	*Institutions and mechanisms of resource and environmental management*	National: Hydromet agencies; GECCCC; CEP; Ministries of Agriculture / Water / Energy Regional: CAREC, IFAS International: IFIs; UNDP; UNEP; UNFCCC; GCF
2	*Changes in natural resources and the environment*	Increasing temperature Changes in precipitation patterns Melting glaciers Extreme weather events Increased drought	All countries would lose from the identified changes, with differences between upstream (Kyrgyzstan and Tajikistan) vs downstream (Uzbekistan) especially in rural areas	*Socio-economic and political changes*	Population growth Inequitable use of benefit-sharing mechanisms Power asymmetries in negotiation and decision-making processes Differences in adaptation measures
3	*Key risks and disturbances caused by and to natural resources and the environment*	Mudflows Floods Glacier area reduction Decreased water availability Increased land scarcity	Risks and disturbances will enhance the existing tensions due to higher competition for resources	*Socio-economic and political disturbances and risks*	Increases in food prices Regime changes Social instability Weak administrative and governance structures Lack of vertical integration
4	*Drivers and mechanisms of changes and risks to and caused by natural resources and the environment*	Global climate change Unilateral changes of water flows Conflictual water infrastructure	An unequal distribution of resources between upstream and downstream countries would act as triggers for potential conflicts undermining human security	*Drivers and mechanisms of socio-economic and political changes and risks*	Increase in national taxes on food and oil Increase in global food prices Increase in global fuel prices Imposition of tariffs and travel restrictions
5	*Impacts of changes in natural resources and the*	Food insecurity Loss of livelihoods Violence in disputed territories	The identified impacts would fuel existing conflicts, putting at risk the efforts of	*Impacts of socio-economic and political changes*	Increase hunger Poverty Displaced populations

	environment on the affected group		peacebuilding that exist in the area and preventing further regional cooperation	*on the affected group*	
6	*Measures taken to address causes and mitigate impacts*	Local: Forums for conflict resolution National: Development of National Strategies (CCA, Sustainable Development); subsidies to agriculture and food; regional cooperation International: Food security projects; modernization of irrigation practices; coordination and regional approaches	The measures and responses would decrease the conflict potential, while simultaneously offer opportunities for peaceful adaptation	*Capabilities of the community to adapt and respond to change*	Improved knowledge Data collection Technology for efficient irrigation Networks for transboundary cooperation Financial allocation for climate change adaptation measures