

ADDRESSING CLIMATE-RELATED SECURITY RISKS

Conflict sensitivity for
climate change adaptation
and sustainable livelihoods

Toolbox



ABOUT THE PROJECT

The European Union (EU) and the UN Environment Programme (UNEP) established a partnership on climate change and security in 2017, with the aim of collaborating to develop integrated approaches to climate-conflict analysis and deliver actions on the ground to address emerging climate-related security risks. Building on the findings of the report commissioned by the Group of Seven (G7), "[A New Climate for Peace](#)," the five-year EU-UNEP Climate Change and Security project (2017-2022) aimed to strengthen the capacity of countries and international partners to **identify environment and climate-related security risks at global, national and community levels, and to programme suitable risk reduction and response measures.**

Implemented by UNEP, this project was supported by the EU Instrument contributing to Stability and Peace (IcSP). To deliver the project, UNEP worked hand in hand with the German think-tank adelphi on analysis, advocacy and capacity development. At national and community levels in Nepal and Sudan, the project was implemented through Practical Action, in close collaboration with local, state and national authorities.

This toolbox was developed to guide the design and delivery of integrated climate-security programming in Nepal and Sudan. It was updated at the end of the project to document lessons learned and good practices from the field.

For more information see: unep.org/climatesecurity

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Consultation in Southern Darfur. © Maxime Paquin, UNEP

CHAPTER 1

INTRODUCTION

This toolbox accompanies the “*Addressing Climate-Related Security Risks*” Guidance Note which supports the development of strategies, policies, and projects that seek to increase resilience by linking climate change adaptation, peacebuilding, and sustainable livelihoods, and the M&E Note which provides guidance to measure the effectiveness of these efforts.

This toolbox provides selected tools and exercises to support implementing the different approaches outlined in the Guidance and M&E Notes.

CHAPTER 1 provides background reading on climate-related security risks, including definitions of key terms and concepts.

CHAPTER 2 discusses the key elements to consider to deliver projects in a conflict-sensitive manner.

CHAPTER 3 provides guidance on delivering climate change adaptation projects.

CHAPTER 4 provides additional tools and resources for integrated climate-security analysis, project design, and M&E.

1.1

GLOSSARY OF KEY TERMS

CLIMATE CHANGE ADAPTATION is defined by the IPCC as “adjustment to actual or expected climate and its effects”¹ in human and natural systems, while adaptive capacity is understood as “the potential, capability, or ability of a system to adapt to climate change stimuli or their effects or impacts”.² This requires different human, institutional, socio-economic or technical capacities.³ At an intervention level, adaptation entails activities to reduce vulnerability to climate change at the sectoral, national or local level.⁴

CLIMATE CHANGE is defined by the IPCC as “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and the variability of its properties and that persists for an extended period, typically decades or longer”.⁵ According to the IPCC, it is highly likely that anthropogenic greenhouse gas emissions, such as carbon dioxide, methane and nitrous oxide, in combination with further anthropogenic factors, are the prevailing cause for the warming of the climate. Due to industrialisation and population growth, those emissions have reached unprecedented levels. Projections of future greenhouse gas emissions vary widely, but it is expected that warming of the climate and related, long-lasting impacts on the population and ecosystems will continue. Only a major reduction in greenhouse gas emissions could contain climate change and its impacts in combination with adaptation measures. But even if anthropogenic greenhouse gas emissions would be stopped, many climate change-related effects would still be felt for centuries.⁶

CONFLICT occurs when two or more parties find their interests incompatible and express hostile attitudes or take actions that damage the other party’s ability to pursue their interests. According to this definition, almost all contexts are affected by conflict in one way or another. Indeed, conflict is not necessarily negative. Almost any process of social change is likely to be contested by one or more groups within that society, which is a form of conflict. However, when conflicts spill over into violence, or threaten to do so, then the impacts on local people can be devastating.⁷

CONFLICT SENSITIVITY is the ability of an organisation or project to:⁸

- ➔ Understand the conflict context in terms of history, social and demographic composition, political system, economy and security.
- ➔ Identify the potential interaction between any planned action or intervention and the conflict context.
- ➔ Take action to minimise negative and maximise positive impacts on conflict and peace.

DO NO HARM This approach recognises that aid is not a neutral activity. Aid can affect conflict patterns by exacerbating the impacts of assistance – e.g., through intervening in inter-group relations in target communities. This approach requires analysis of issues dividing and connecting different groups and actors, carried out in close collaboration with local partners and assessed throughout the project. This is well illustrated through an example in rural Kenya, in which a new well unexpectedly increased tensions and resulted in family and inter-village conflicts. The project’s intervention aimed to reduce the distances that women had to travel when collecting water, but without a proper conflict analysis, failed to realise that women used the trips to the wells to discuss, negotiate, and resolve community problems.⁹

- DRIVERS OF CONFLICT** refers to the underlying issues that can drive or contribute to conflict. This includes not only visible signs of conflict, but also proximate and structural causes. Proximate causes are shorter-term factors that can contribute to conflict, such as availability of firearms, or high unemployment. Structural causes are the underlying structural and cultural drivers of violence such as narratives of clan superiority or competition for scarce resources that are built into the fabric of society.¹⁰
- EXPOSURE** is defined by the IPCC as “the presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social, or cultural assets in places that could be adversely affected.”¹¹
- FRAGILITY** The OECD defines fragility “as the combination of exposure to risk and insufficient coping capacity of the state, system and communities to manage, absorb or mitigate those risks. Fragility can lead to negative outcomes including violence, the breakdown of institutions, displacement, humanitarian crises or other emergencies.”¹²
- PEACEBUILDING** is a process which transforms violent conflict into sustainable peace and seeks to prevent relapses into violence. Peacebuilding activities address different levels such as structural or potential causes and the consequences of conflict, reconciliation measures and capacity building among the population and within institutions.¹³
- RESILIENCE** is the ability of individuals, communities, and states to absorb and recover from shocks (to cope), whilst positively adapting to longer-term change and transforming their core structures and institutions if necessary).¹⁴ Building more resilient states and societies does not mean ensuring the status quo and continuing practices that maintain conditions favouring the powerful. However, changing underlying structures and institutions is also a very long-term process that needs considerable resources and commitment by all actors.
- VULNERABILITY** is defined by the IPCC as “the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity.”¹⁵

1.2

WHAT IS FRAGILITY?

Fragility is the inability (whether whole or partial) of a state to fulfil its responsibilities as a sovereign entity, including a lack of legitimacy, authority, and capacity to provide essential services and protect its citizens.¹⁶ Thus, in a situation of fragility, the state lacks basic governance functions and the ability to develop mutually constructive relations with society.¹⁷

The ability of states and societies to withstand pressures and shocks, manage change and transform occurs along a spectrum of fragility that runs from most fragile to most resilient.¹⁸ At the positive end of the spectrum, resilient states are characterised by a stable social contract; functional, accountable, and inclusive institutions; and the provision of basic services. More importantly, resilient states and societies can absorb shocks and handle challenges peacefully while maintaining political stability and preventing violence.¹⁹

Fragility increases as we move towards the negative end of the spectrum.²⁰ Though the term ‘fragility’ has limitations, it offers a useful rubric for considering a range of related governance problems.

A government’s legitimacy decreases if it does not meet its population’s expectations, such as when it cannot provide basic needs, and expectations through political processes, or its institutions are not inclusive and accountable, marginalising certain groups.²¹ Failures can fuel frustration with the ruling authorities. The risk of civil unrest and conflict increases as the state’s legitimacy decreases.²²

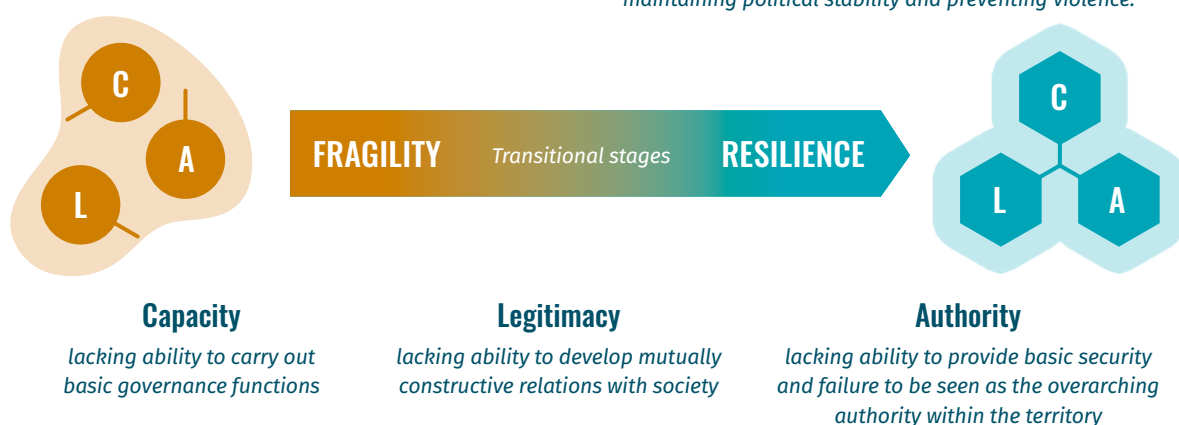
Fragility manifests itself in various forms and to varying degrees. Countries experience different fragility situations such as violent conflict, or political instability, civil unrest or regime change. These situations of fragility can emerge on the local, national, regional, and global levels.²³

Conflict is both a shock and a stress factor, as well as a symptom of a lack of resilience. In particular, violent conflict can directly undermine communities’ well-being and resilience through its impacts on physical and psychological health, basic service provision, and livelihood security. At the same time, conflict can be a symptom of weak resilience. The strategies that vulnerable populations employ to manage or adapt to other shocks and stresses can increase the likelihood or intensity of violent conflict. Therefore, communities that cannot manage shocks or stresses without recourse to violence can be described as being insufficiently resilient to cope with conflict-causing stresses.

FIGURE 1
From fragility to resilience

FRAGILITY is the instability (whether whole or partial) of a state to fulfill its responsibilities as a sovereign entity, including a lack of legitimacy, authority, and capacity.

RESILIENT STATES and societies are characterised by a stable social contract; functional, accountable, and inclusive institutions; and the provision of basic services. They can absorb shocks and handle challenges peacefully, while maintaining political stability and preventing violence.



1.3

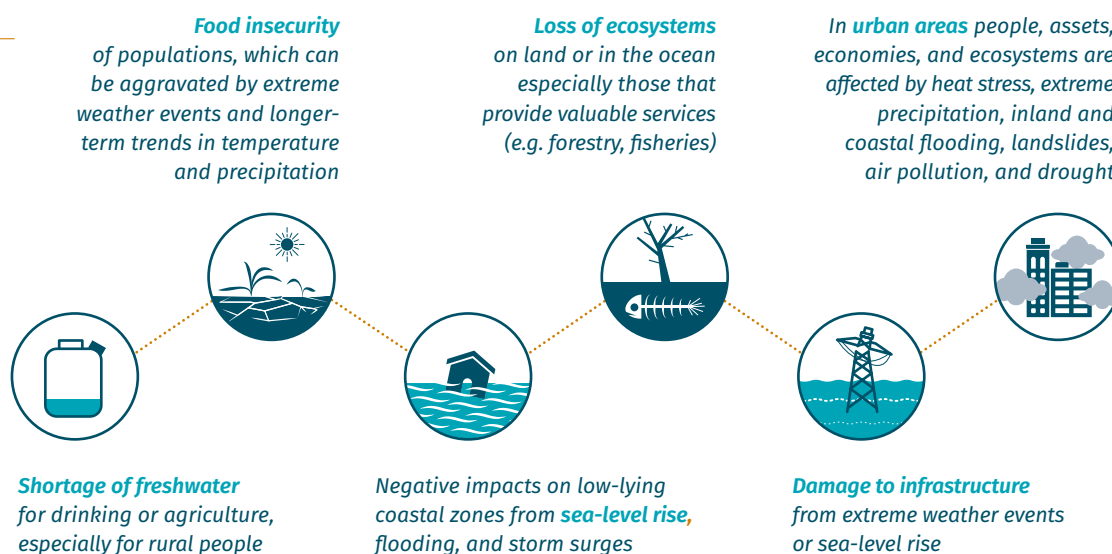
WHAT ARE CLIMATE-RELATED SECURITY RISKS?

For further reading on the fragility concept used in this toolbox, see 8.2.1

Fragility and conflict are always the results of complex interactions between different social, political, economic, cultural and environmental drivers. Climate change is one of many variables that aggravate pre-existing environmental, social, economic and political pressures and stressors. As such, it can drive a diverse set of knock-on risks such as political instability, displacement, poverty and hunger.

FIGURE 2

Climate risks are cross-cutting²⁴



CLIMATE CHANGE, MIGRATION AND DISPLACEMENT

Population growth, urbanisation, economic opportunities and conflict are important drivers of human migration. However, as the human impact on the environment and climate grows exponentially, climate and environmental factors increase human mobility. For example, in rural areas, negative impacts of climate change on livelihoods, such as agriculture or fishing, or water supplies, can push populations whose livelihoods rely on access to natural resources to migrate in search of alternative income sources in urban centres. However, in many contexts, rapid urbanisation is outpacing governments' capacities to expand sustainably. This is especially true in fragile and conflict-affected contexts, where social safety nets are already lacking. Residents of urban and peri-urban areas in climate-exposed regions, face growing risks of displacement (and possibly secondary displacement), especially in vulnerable coastal regions.

The effect of environmental and climatic changes on migration is best understood within the context of existing migration patterns.

Conflicts can force people in high-risk areas to flee to less dangerous places within their own country or across borders. In cases where environmental risks and violent conflicts occur at the same time, this pressure can even be intensified, and in receiving areas, an influx of migrants can put pressure on local resources or public services, exacerbating the likelihood of political tensions or outbreaks of violence.

However, migration can also be an effective adaptation strategy. Migration can improve living conditions and provide economic perspectives. Temporary or seasonal migration from severely affected regions to less affected areas, such as during seasonal rainfalls or heat waves, can help cope with a crisis.

An understanding of the relationship between climate change, fragility and conflict are only possible through a rigorous exploration of the complex interactions between different risk factors where climate change is understood as a variable that affects pre-existing economic, environmental, political, and social pressures and stressors.

Taking stock of the state of the art of research on the security implications of climate change, the report “A New Climate For Peace”, commissioned by the G7 foreign ministries, identified seven climate-fragility risks that emerge when climate change interacts with other political, social, economic, and environmental pressures, such as rapid urbanisation, inequality, economic shocks, and environmental degradation. These seven climate-fragility risks are:



LOCAL RESOURCE COMPETITION: Restricted availability and access to natural resources, such as water and arable land, in combination with a rise in demand, can increase competition over resources and result in instability and conflict if dispute resolution is lacking.



LIVELIHOOD INSECURITY AND MIGRATION: The livelihoods of people who depend on natural resources will be threatened by climate change in case environmental changes emerge in combination with other issues, forcing people to migrate or to turn to illegal sources of income.



EXTREME WEATHER EVENTS AND DISASTERS: Extreme weather events and disasters will endanger the livelihoods of people, especially when communities’ resilience is already strained by the impacts of conflict.



VOLATILE FOOD PRICES AND PROVISION: Climate change, in combination with increasing global pressures, is expected to result in more food insecurity, making societies more vulnerable to civil conflicts.



TRANSBOUNDARY WATER MANAGEMENT: With the rising demand for water and of climate impacts alike, transboundary waters have the potential to lead to tensions among riparian countries, especially in already conflict-affected regions.



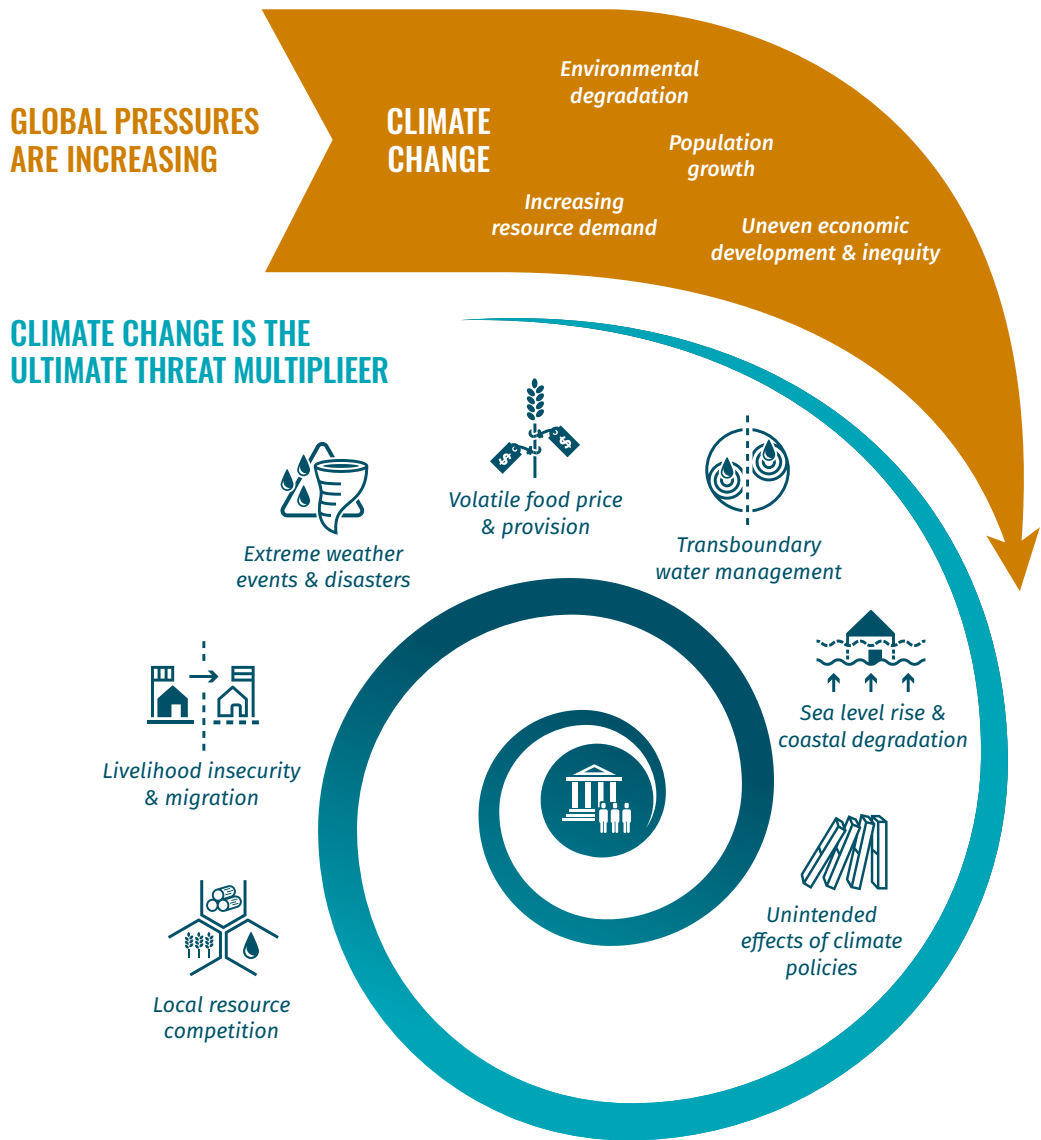
SEA-LEVEL RISE AND COASTAL DEGRADATION: Rising sea levels are expected to have severe negative impacts on economies. In addition, it is likely that the incidence of natural disasters in coastal areas will increase. Both effects are leading to the displacement of the population or forcing them to migrate, which eventually might contribute to conflicts.



UNINTENDED EFFECTS OF CLIMATE POLICIES: Climate adaptation and mitigation projects bear the risk that they lead to unintended negative consequences for the economy and political stability, particularly in fragile and conflict-affected contexts.

FIGURE 3

Seven compound climate change and fragility risks threaten states and societies



CLIMATE CHANGE, TERRORISM AND ORGANISED CRIME²⁵

Today, we can observe an increasingly complex landscape of violent actors from rebel groups and insurgents to organised criminal networks to highly professionalised terrorist groups such as Al Qaeda, ISIS, or Al-Shabaab. The boundaries between these actors are often fluid as are their organisational structures and agendas. Climate change facilitates the rise and growth of these kinds of non-state armed groups by contributing to fragility. Non-state armed groups can more easily operate in fragile and conflict-affected environments where the state lacks legitimacy and capacity to meet citizens' basic needs.

The progressively negative impact of climate change on livelihoods in many countries and regions makes affected groups more vulnerable to non-state armed groups' recruitment. These groups can fill a vacuum, offering economic incentives and responding to political and socio-economic grievances. At the same time, non-state armed groups leverage the fragile environments arising from compound climate-fragility risks to consolidate control. For example, by inhibiting access to critical natural resources such as water, armed groups further exacerbate resource scarcity and amplify their own power.

For more information see: Insurgency, Terrorism and Organised Crime in a Warming Climate - Analysing the Links Between Climate Change and Non-State Armed Groups.

Vulnerability to climate-related security risks depends on the exposure, and the capacity to cope and recover from these – which is known as resilience. Policies and programmes aiming to reduce climate change vulnerability can address exposure through preventive measures, and increase resilience through disaster risk reduction and adaptation practices at levels: natural, human, social, economic, institutional, security and political.

Building the capacity of individuals, communities and states to manage climate-related security risks requires a comprehensive approach that considers climate change adaptation, development, and peace-building as integrated cogs in the same wheel. In this sense, fostering resilience goes beyond ensuring the status quo and continuing practices that maintain conditions favouring those in powerful positions. Rather, inclusion, diversity and fair distribution of power and wealth are central to building more resilient states and communities.

Interventions that fail to consider the linkages between climate change, peace, and development can unwittingly exacerbate conflict dynamics. For example, if efforts to help communities prepare for or adapt to environmental or climate hazards are carried out without understanding the underlying factors that can contribute to conflict, they can unintentionally contribute to local tensions. Tensions can increase the risks of violence, and ultimately undermine the resilience of local people. Conversely, interventions that are informed by an understanding of local conflict dynamics, such as through a conflict analysis, may be able to identify creative ways of bringing people together across potential conflict lines, and addressing the tensions that can contribute to conflict while also contributing to climate change adaptation.

For more information on climate-fragility risks see www.climate-diplomacy.org

CHAPTER 2

SECURITY AND PEACEBUILDING

This chapter on security and peacebuilding discusses the key elements to consider when engaging with state and non-state security actors, including the military and police, as well as militias and criminal groups. The final section of the chapter describes how climate-related projects can contribute to conflict prevention and peacebuilding.

2.1

ENGAGING WITH THE SECURITY SECTOR

2.1.1 – INCLUSION OF THE SECURITY SECTOR IN CLIMATE-SECURITY ASSESSMENTS²⁶

The security sector can play a significant role in both exacerbating and responding to climate-security risks. Peacebuilding, therefore, often involves engaging directly with formal and informal security actors.

Consider, for example, a scenario where drought has contributed to a shortage of food and has disrupted previous resource distribution arrangements. In this event, formal security actors such as the military or police forces could either support the provision of equitable distribution of available resources or they could use their power to prevent certain groups from accessing food. In an extreme situation, informal security forces such as militias, organised criminals, or other non-state armed groups could challenge or prevent formal security actors from accessing resources.

Integrating the security sector into climate-security risk assessments from the onset can help development actors understand these power dynamics and identify both risks as well as possible entry points and opportunities for resilience-building.

2.1.2 – BENEFITS OF CONSTRUCTIVE ENGAGEMENT WITH SECURITY ACTORS

Security actors are often the “gatekeepers” of local communities. Constructive engagement with security providers may be necessary to deliver project interventions and benefit the safety and security of target communities. Climate change adaptation project interventions grounded in relationship building – such as over shared natural resources – can open communication lines between security actors, local communities, and project partners. In some scenarios, security providers may have access to knowledge, skills, equipment and workforce that can assist in the implementation of resilience-strengthening activities.

On the other hand, ignoring or failing to engage with security providers constructively can lead to hostile relationships which could impede the success of resilience-building projects or contribute to the marginalisation of certain groups.

2.1.3 – CHALLENGES WHEN ENGAGING WITH SECURITY PROVIDERS

Constructive engagement with actors across informal and formal security sectors can be challenging for several reasons:

- ➔ Ethical issues arise if security actors are (or are perceived to be) conflict actors or accused of violating rights.
- ➔ Implementing organisations can be open to criticism if there is perceived or real alignment, which can bring their impartiality into question.
- ➔ Projects can unintentionally empower conflict actors by giving them legitimacy and credibility, providing them with information, or supplying them with equipment or skills.
- ➔ Community members or staff could be put at risk if they criticise security actors.
- ➔ Some implementing organisations may not allow engagement with formal or informal security providers.

2.1.4 – BEST PRACTICE FOR ENGAGING WITH THE SECURITY SECTOR

Security actors can be important allies in resilience strengthening by reducing threats and negating vulnerabilities related to conflict or insecurity. There is no single way in which to build relationships with the security sector. Instead, whether to and how to best engage should be decided on a case-by-case basis. In all cases, engaging with security sector actors requires dedicated time and effort to build effective relationships. Best practices and lessons learned include the following:

- ➔ **INVOLVE SECURITY ACTORS FROM THE BEGINNING** of a climate-security assessment process, including in the stakeholder engagement phases when possible. However, the climate-security assessments and proposed entry-points should maintain impartiality as much as is feasible to ensure that all security actors remain engaged.
- ➔ **INCLUDE THE VARIOUS SECURITY ACTORS** in the conflict analysis. It is essential to understand different positions and interests, how climate-security affects specific groups and actors, and how different actors are affecting climate-security and resilience. What are their relationships with community stakeholders? What are their security and justice priorities? Are they already working in the area of Disaster Risk Reduction or similar efforts?
- ➔ **UNDERSTAND THE WEAKNESSES AND CHALLENGES** that security providers are facing: Are they already responding to climate-related security risks? Do they have the equipment and budget that they need for their work? Can that equipment and funding be used for climate resilience actions? Do they have the fundamental skills (including gender, conflict sensitivity and climate-security training) to reach out effectively with community members? How diverse are their staff, including women, ethnic or religious minorities, and other social groups?

2.2

HOW CAN A CLIMATE-RELATED PROJECT CONTRIBUTE TO CONFLICT PREVENTION AND PEACEBUILDING

Conflict prevention and peacebuilding actively aim to reduce the risk of lapsing or relapsing into conflict, to strengthen conflict management mechanisms such as Community-Based Resolution Committees, and to lay the foundations for sustainable peace and development. Peacebuilding is a long-term process that involves actions on many different levels, and is often integrated into projects and programmes across multiple sectors. Any intervention in a context affected by fragility or conflict should always be informed by the lessons learned of building peace. Peacebuilding principles include:

- ➔ LOCAL OWNERSHIP
- ➔ BUILDING TRUST
- ➔ INCLUSIVE APPROACHES, INVOLVING ALL GROUPS
- ➔ LONG-TERM COMMITMENT

Simple processes and activities that change how people interact with each other can contribute to conflict prevention and peacebuilding. For example:

- ➔ Ensuring meaningful rather than just nominal participation of groups that are usually marginalised and excluded from decision-making processes can be a powerful tool for building social cohesion. This might require building participants' capacity to negotiate positions and articulate their views constructively. Training in negotiation skills could be an activity to improve inclusive natural resource governance.
- ➔ Enabling people from conflicting groups to share information and expertise, and work together by addressing common concerns, grievances or priorities. Considering that information-sharing is often the first step to trust-building and locals are the experts in their areas, supporting opposing groups to use their knowledge to attain the same goal from a neutral standpoint can offer an entry-point for collaboration that may spill over to other dimensions. For example, setting up water-user committees, with representatives from across conflict divides in water-scarce contexts, might encourage people from conflicting groups to collaborate in other initiatives.
- ➔ Designing activities in which governance providers such as government officials coordinate and cooperate with communities to build trust and improve relationships. For example, through participation in meetings or as project advisors, through consultation on prioritisation of issues, by jointly developing or implementing action plans, by holding them to account for the successful implementation of action plans, and celebrating successes together.

CHAPTER 3

CLIMATE CHANGE AND ADAPTATION

This chapter provides guidance on how to plan for climate adaptation interventions and implement climate change vulnerability assessments. This section highlights key definitions and concepts, and suggests resources for further reading.

3.1

ADOPTING A HOLISTIC APPROACH TO CLIMATE CHANGE ADAPTATION

Climate change funding should not be limited to “narrow and technical interpretations of adaptation”. Sometimes a non-climate-specific solution is the most effective intervention to enhance adaptive capacity, e.g., education or conflict resolution. For this, it is important to understand the many dimensions to adaptive capacity, which can vary depending on the context, but often include:

- ➔ **KNOWLEDGE:** The general level of understanding, education, and awareness about climate change and its impacts in the different dimensions of natural resources, the environment, livelihoods and societies.
- ➔ **TECHNOLOGY:** The availability of and access to technological options for adaptation as well as the technological stage of the development of the context.
- ➔ **INSTITUTIONS:** The set of governance, political, economic, legal and behavioural patterns and characteristics of a society. This includes the capacities and efficiency of organisations, the enforcement of environmental laws, the transparency of procedures and decision-making processes, and the accountability and participation practices in ensuring the sustainable management of natural, financial and human resources.
- ➔ **ECONOMY:** The structure of the national and local economy including production, consumption, the employment rate, government debt, the sectoral breakdown of economic activity (i.e. agriculture, manufacturing, financial, or logistics), and dependence on imported food and energy. At a micro-level, economy can include household income, food expenditure, housing and dependency rates.

Adaptation measures are designed to anticipate future climate change impacts, and therefore come with a level of uncertainty. Employing ‘no regret’ measures can help mitigate risks of uncertainty. These are measures which create beneficial or desirable outcomes both immediately and in the long-term even if projected climate changes do not occur.²⁷ Insulation of buildings and the repair of leaking pipes are good examples of ‘no-regret’ measures as they provide important benefits even in the absence of climate change. Whether or not a measure can be regarded as ‘no-regret’ depends on the specific circumstances. For instance, irrigation infrastructure makes sense if there are regions that already face water uncertainty. Given the high capital costs of such infrastructure, it may only make sense in other regions if there is the certainty that climate change will result in the future loss of precipitation.²⁸

3.2

ASSESSING VULNERABILITY TO CLIMATE CHANGE²⁹

A vulnerability assessment examines the exposure of populations to climate-related risks and their capacities to prevent, adapt, respond to or recover from them. Vulnerability is informed by a range of human, environmental, social, and political factors which must be clearly identified, quantified and prioritised in the given context. There exists no one-size-fits-all approach to conducting vulnerability assessments and depending on their purpose, they can vary widely. In general, assessments can be differentiated between two basic types:

An **explorative vulnerability assessment** can assess several different topics, focus on a larger geographic area, and provide non-specific future climatic trends. This kind of assessment requires fewer resources and time. The results are often gained through expert interviews, existing literature and data.

A **focused vulnerability assessment** is necessary to assess the vulnerability of a specific geographic area, topic or period of time. This process is more resource-intensive as it demands in-depth stakeholder consultations. Focused vulnerability assessments provide the advantage of a more detailed analysis which can be used for specific adaptation planning.

There are various motivations for conducting a vulnerability assessment. These include:

- ➔ IDENTIFYING CLIMATE CHANGE / VULNERABILITY HOTSPOTS
- ➔ IDENTIFYING ENTRY POINTS FOR INTERVENTION
- ➔ MONITORING CHANGES IN VULNERABILITY AND ASSESSING ADAPTATION CAPACITY
- ➔ RAISING AWARENESS OF CLIMATE CHANGE AMONG DECISION-MAKERS AND COMMUNITIES
- ➔ INFORMING RESPONSES TO CLIMATE CHANGE IMPACTS

Defining the following key areas are essential to designing an effective vulnerability assessment:

- ➔ **SCOPE:** Climate change impacts, or sectors to be covered by the assessment.
- ➔ **GEOGRAPHY:** National, regional, and local level, as specific as municipality, community, household or even individual.
- ➔ **TIME SCALE:** Current and future vulnerability, short and long-term.
- ➔ **METHODOLOGIES:** Quantitative methods (e.g. measuring, or statistical surveys), qualitative methods such as interviews, or mixed methods approach.

3.3

INTEGRATING CONFLICT ANALYSIS INTO PARTICIPATORY VULNERABILITY ASSESSMENTS

Participatory Vulnerability Assessments (PVA) engage communities and other stakeholders in an inclusive process to collect and analyse information about their vulnerability, risks and capacities in a structured way, which can later be used as a basis for developing programming solutions. Its main purposes are to:

- ➔ **IDENTIFY** the key vulnerabilities of a particular community.
- ➔ **UNDERSTAND** how community members perceive risks and threats to their lives and livelihoods.
- ➔ **ANALYSE** the resources and strategies available to them to address or reduce these risks.
- ➔ **HELP** the community develop an action plan to address identified vulnerability and risk.

A PVA is a core tool used by development and disaster risk reduction organisations. While this approach is effective in promoting inclusive, bottom-up approaches, most PVA tools do not explicitly address conflict risks and thus fail to assess climate-related security risks.

However, conflict sensitivity can be integrated into existing PVA processes. Slightly adapting questions in common PVA tools can help the assessment to identify existing or potential conflicts that could impact on a community or project's resilience-building efforts. Designing relevant questions on conflict for existing PVA tools requires consultation with communities to explore how different risks interact dynamically. Conflict analysis questions can nuance an understanding of how group membership and identity affect vulnerability, for example, through exploitation, discrimination or violence. PVA tools should be adjusted for areas where conflict sensitivity is relevant and can add value. **Annex 4.1** offers specific guidance for integrating conflict-sensitive questions into PVA tools and processes.

It is important to remember that adjusting a core institutional tool requires strong buy-in, not only from senior management but also across the organisation. Making changes to existing practices takes time and needs to be accompanied by an understanding of why those changes are being made. At the same time, the process of integrating conflict sensitivity into the PVA tool can also provide an opportunity to raise internal awareness of the relevance of conflict analysis and conflict sensitivity in climate-related work.

For further guidance and practical examples of vulnerability assessments, see the following references:

- ➔ **THE TECHNOLOGY VULNERABILITY SOURCEBOOK** provides a standardised approach to vulnerability assessments covering a broad range of sectors, topics and levels. **Annex 4.1** includes many tools and templates.
- ➔ **USAID CLIMATE VULNERABILITY ASSESSMENT** provides step-by-step guidelines on climate vulnerability assessments.
- ➔ **UN ENVIRONMENT GUIDANCE ON INTEGRATING ECOSYSTEM CONSIDERATIONS INTO CLIMATE CHANGE VULNERABILITY AND IMPACT ASSESSMENT TO INFORM ECOSYSTEM-BASED ADAPTATION** provides step-by-step guidance on how to implement a vulnerability assessment with a particular focus on ecosystems and their services.
- ➔ **GIZ FRAMEWORK FOR CLIMATE CHANGE VULNERABILITY ASSESSMENTS** provides an overview of data sources and participatory as well as top-down, sector-specific and generic methods for assessments.

CHAPTER 4

ADDITIONAL TOOLS, EXERCISES, AND RESOURCES

This chapter includes tools, exercises, and resources that can help to put the different concepts and approaches of the guidance and M&E note into practice. It includes checklists and guiding questions as well as mapping and analytical tools that are broken down into steps. In addition, the most prominent online platforms for environmental and climate monitoring are listed, together with a set of additional resources to source high-quality data for desk geospatial analysis exercises.

4.1

CONFLICT-SENSITIVITY CHECKLIST

These questions are intended to guide thinking and help you consider context-specific responses. There is no right or wrong answer to these questions. These questions are relevant to the whole programme cycle.

QUICK CHECKLIST TO REVIEW THE CONFLICT SENSITIVITY OF YOUR PROCESS

- Has a conflict analysis been conducted (at the local and national level)? Does it include an assessment of underlying conflict factors and power dynamics as well as a stakeholder analysis? How has the design of the project been informed by this analysis?
- Have you considered whether and how project activities could make conflict worse, or spark conflict within or between communities? If so, how will risks be managed and monitored?
- Have you considered how your project would respond if there were to be an increase in conflict within or close to the project sites?
- Have you identified specific challenges faced by men and women, young people, boys and girls?
- Have you identified any underlying values and attitudes relating to gender that may be responsible for driving gender inequalities? How might these affect your project, and how might your project affect these values and attitudes?
- How have the project beneficiaries and partners been selected? Has this been informed by the conflict analysis (e.g., accounting for any divisions along ethnic, political or social lines)? Were clear criteria for participant selection developed with the local communities (including both direct beneficiaries and surrounding communities)?
- Are communities involved in decision-making and planning around the programme design, implementation and monitoring? What feedback and accountability mechanisms have been built into the programme implementation plans?
- Does your M&E framework reflect the ways in which the project interacts with conflict dynamics? Does it capture the effects that the project will have on conflict, and impacts that the conflict dynamics could have on the intervention?
- Do budgets include provision for updating the conflict analysis and building capacity of staff, partners or community members in conflict and gender sensitivity?

4.2

INCLUSIVE PLANNING GUIDING QUESTIONS³⁰

KEY QUESTIONS TO UNDERSTAND AND PROMOTE INCLUSION IN ANALYSIS AND PLANNING

- Have you conducted a gender and social inclusion analysis?
- How do different identity markers and related power dynamics shape or influence the ways in which people are included or excluded from decision-making in community/region (e.g. gender, race, ethnicity, religion, citizenship, age, caste, ability)?
- Have you considered the daily and seasonal schedules of different groups of women, men, girls, and boys, and designed your project interventions in a way that enables the inclusion of all groups (e.g. setting appropriate meeting times)?
- Have you considered community norms that may exclude certain groups from full participation in project activities (e.g. taboos for women or men, childcare needs, time availability)?
- Have you considered who the most marginalised women, girls, men and boys in the community are and why?
- What social and economic programmes are available to different groups in the community?
- Who does and does not have access or control over productive resources and why?
- Which groups have the lowest and the highest levels of public representation and why?
- What laws, policies and organisational practices limit the opportunities of different groups?
- What opportunities facilitate the advancement of different groups?
- What initiatives would address the needs of the most marginalised or discriminated groups in society?

EXAMPLES OF WAYS TO PROMOTE INCLUSIVE PROGRAMMING:

- ➔ Consider promoting gender equality and women's rights as non-negotiable in programming, whilst also recognising that converging identities on opportunities and access to rights, and of how policies, services and laws that impact on one aspect of our lives are inextricably linked to others. As such, gender should be considered in relation to other identities such as class, religion and race to understand how resilience and vulnerability are affected by cultural practices and social norms.
- ➔ Support a bottom-up approach to analysis and planning. Programming should begin by asking about how people live. This then helps identify the influences that shape women's lives.
- ➔ Recognise and build on the existing strengths and capacities of marginalised groups. For example, invest in women's institutions, and work with them to build strengths and capacities because they have knowledge and skills that need to be recognised to enable them to participate fully in resilience-building.
- ➔ Strengthen access to resources for marginalised and excluded groups, for example, through livelihood programmes. In turn, this will help these groups' influence and position in the community and support their ability to influence broader community decision-making, such as in risk reduction committees, to ensure that planning reflects their priorities.
- ➔ Build alliances between organisations and networks of marginalised groups. This involves supporting them to lobby policymakers, and setting up space for dialogue with decision-makers to build confidence. For example, this could include working in broad alliances to build national movements for women's land rights, protection of natural resources, and more.

4.3

MAPPING AND GEOSPATIAL ANALYSIS

As climate change is increasingly affecting more people globally, it is necessary to identify its security consequences, integrating climate, environmental and social factors both spatially and temporally. This is essential to understand how climate change may aggravate existing social, economic and environmental risks that can fuel unrest, exacerbate existing tensions, and potentially result in violent conflict.

Through Earth Observation (EO) technologies, capturing data about the different systems of our planet is possible. EO can include measurements from simple tools such as thermometers, wind gauges, buoys and seismometers, and more advanced data in the form of radar and sonar images obtained from remote-sensing satellites. This information is processed and can be converted into maps and models, which can serve to visualise planet dynamics. The most common example is the weather forecast, but biodiversity and deforestation can also be monitored, together with natural hazards and disasters such as earthquakes, forest fires, floods, and pests. Not only natural systems can be tracked through EO. Human dynamics such as urbanisation, displacement, transportation or agriculture are also under constant monitoring.

THE INSIGHTS AND VISUALISATIONS PRODUCED BY EARTH OBSERVATIONS ARE VALUABLE FOR PRACTITIONERS TO UNDERSTAND CLIMATE AND ENVIRONMENTAL THREATS TO SECURITY

Nowadays, many international efforts are concentrated in predicting climate change trends by combining historical climate and human systems observations such as greenhouse gas emissions, population growth, governance and technological advances. These factors are processed by advanced statistical models that produce projections of future climate change scenarios. A highly complex forecast would enable analysts to assess potential climate vulnerabilities, and to predict where and when climate change will lead to more significant risks. For example, sea-level rise is a slow-onset climate hazard that bears significant risks to coastal populations, such as in the case of small island states.

In consequence, the geospatial monitoring of risks arising from climate change is essential for prioritisation of action, to explore adequate responses in the form of adaptation and mitigation strategies, and to identify entry-points for peacebuilding, aiming to increase resilience to climate change, and adapt to the most pressing risks in a specific geographic area. For this reason, the insights and visualisations produced by EO, in the form of models and maps, are valuable for practitioners to understand climate and environmental threats to security, and their consequential knock-on risks.

Geospatial analysis, or the application of statistical methods to geographic areas, goes beyond visualisation to assess environmental and climate change issues such as the efficacy of disaster risk reduction management, natural resources management, or climate change adaptation. These analyses are conducted with geospatial information software (GIS) such as QGIS or ArcGIS, and allow for a multitude of spatial techniques which, for instance, have been used in conflict analysis to illustrate the role environmental risks and natural resources play (for examples, see [ENVSEC](#) or [GRIDA](#)³¹).

LESSONS LEARNED

- ➔ Maps provide an objective overview of conflict dynamics. This can help populations to approach conflicts they are affected by with a more nuanced and systemic understanding.
- ➔ Mapping exercises provide an opportunity for conflicting parties to meet, get to know each other and exchange their individual perspective on the conflict situation. This helps to create awareness for the situation of the other party and to overcome potential misunderstandings. The presence of an independent third party can be useful to encourage a discussion between conflicting parties.
- ➔ When you are conducting the mapping as part of a project to address the climate-related security risks in the region, such a mapping can be a useful tool to understand the underlying challenges faced by the population fully, and to better comprehend the dynamics behind climate-related security risks.

In a disaster or a conflict-affected setting, environmental and climate problems tend to compound existing issues and may create highly complex situations of fragility that need to be analysed from diverse angles. While certain factors may play an important role in the short-term, there might be underlying conditions, less obvious, that contribute to long-term problems which need to be tackled too. When assessing fragility risks using maps and geospatial analysis, it is important to remember that these depictions are simplifications of the actual dynamics and processes seen in reality and, consequently, the information displayed in maps need to be complemented with qualitative assessments on the ground.

For example, in a potential assessment of climate security in Somalia, the impact of the flash floods on the local population after the Gu rains is a clear risk that might lead to internal displacement of people looking for shelter. This temporal, seasonal displacement of people might compound to the forced migration caused by the long-lasting instability of certain areas that experience armed conflict, droughts, and food insecurity. However, not all rainy seasons are equal, as seen by the 2018 Gu rains which substantially helped address food insecurity.³² This example highlights how the same weather phenomena can pose both risks and benefits to the same population, and strengthens the notion that maps need to be assessed contextually and with references to a baseline or benchmarks.

In addition, mapping is advantageous for environmental peacebuilding strategies to capture social dynamics, for instance:

- ➔ **PROTECTION AND DEFENCE:** As a response mechanism to potential ongoing conflict in the country, effective peacebuilding operations should regard constant monitoring of conflict to avoid the areas of risk while still being able to implement the programmed activities. This also helps officers to identify areas that require priority responses.
- ➔ **TRADITIONAL MIGRATION PATTERNS, AND FARMER LOCATIONS AND PASTORALIST LIVESTOCK:** Existing migration profiles and trends could be mapped to learn what are the routes that communities have been traditionally following, and how the migration routes are modified due to climate change variability and other social dynamics. Coupled with mapping of agricultural areas of farmers, and natural resources necessary for subsistence such as water and forests, it is possible to assess how observed changes in any of these elements may have disrupted the social dynamics between communities and given rise to tensions.

- ➔ **SETTLING AND URBANISATION:** As climate variability increases, rural communities are moving into different lifestyles, leaving behind the climate-dependent farmer and nomadic pastoralist livelihood. Since urbanisation puts extra pressure on the natural resources that are required to sustain livelihoods in the cities, it would be important to understand the many ways in which this affects the environment in Somalia.
- ➔ **DISEASE SPREAD:** The spread of diseases are possible to be tracked, which allows the assessment of patterns of disease distribution. This is especially useful for vector-borne diseases through, for instance, the analysis and forecast of good conditions for mosquito-spread. Using these maps allows planning accordingly to avoid risk areas for human settlements or migration trajectories.

Online mapping platforms for environment, climate, and security

With the advance of digital technologies, mapping is becoming much more accessible and requires less technical background, for which it is encouraged to explore online platforms that provide a rapid visualisation of environmental and climate indicators.

- ➔ **MAPX** provides a variety of tools and resources to visualise spatial data on a set of environmental and climate variables, including natural resources and extractives. <https://app.mapx.org/?project=MX-ZU2-F8I-ZVS-JCK-FBQ>
- ➔ **SDG 6.6.1** is a freshwater ecosystem explorer that provides data products to help decision-makers access national, sub-national, and basin-level data on freshwater. <http://sdg661.app>
- ➔ **ARMED CONFLICT LOCATION & EVENT DATA PROJECT (ACLED)** is a disaggregated conflict collection, analysis and crisis mapping project. ACLED collects the dates, actors, types of violence, locations, and fatalities of all reported political violence and protest events. <https://acleddata.com/acleddatanew/dashboard/>
- ➔ **THE UPPSALA CONFLICT DATA PROGRAM (UCDP)** is the world's main provider of data on organised violence and the oldest ongoing data collection project for civil war, with a history of almost 40 years. Its definition of armed conflict has become the global standard of how conflicts are systematically defined and studied. UCDP, through its VIEWS programme, also provides monthly forecasts of conflicts. <https://ucdp.uu.se>

Resources for desk geospatial analysis

With the advance of digital technologies, mapping is becoming much more accessible and requires less technical background, for which it is encouraged to explore online platforms that provide a rapid visualisation of environmental and climate indicators.

- ➔ **FAMINE EARLY WARNING SYSTEMS NETWORK (FEWS NET)** is a leading provider of early warning and analysis on acute food insecurity. Created in 1985 by the US Agency for International Development (USAID) after devastating famines in East and West Africa, FEWS NET provides objective, evidence-based analysis to help government decision-makers and relief agencies plan for and respond to humanitarian crises. Products include monthly reports and maps regarding current and projected food insecurity, timely alerts on crises as well as specialised reports.
<http://fewsn.net>
- ➔ **GLOBAL FOREST WATCH FIRES (GFW FIRES)** is an online platform for monitoring and responding to forest and land fires using near real-time information. GFW Fires combines real-time satellite data from NASA's Active Fires system, high-resolution satellite imagery, detailed maps of land cover and concessions for key commodities such as palm oil and wood pulp, weather conditions and air quality data to track fire activity and related impacts in the South East Asia region.
<http://fires.globalforestwatch.org/home/>
- ➔ **USGS EARTHQUAKES DATABASE** is a database of all earthquakes recorded by USGS from 1973 to present, at the global scale.
<https://earthquake.usgs.gov/>
- ➔ **NOAA GLOBAL DROUGHT MAP** provides monitoring of drought through the use of indices such as Palmer Index and SPI.
<https://gis.ncdc.noaa.gov/maps/ncei/drought/global/>
- ➔ **GLOBAL FLOOD MONITOR** is managed by the Institute for Environmental Studies (IVM - VU University Amsterdam) and FloodTags. The platform provides a real-time overview of ongoing flood events based on filtered Twitter data from July 2014 to date.
<https://www.globalfloodmonitor.org/#>
- ➔ **DISASTER AWARE** is an early warning and multi-hazard monitoring platform used by thousands of the most demanding government customers and humanitarian assistance organisations around the globe. It supports disaster risk reduction and best practices throughout all phases of disaster management – providing early warning, multi-hazard monitoring, modelled impact assessments, and the largest collection of scientifically verified geospatial data.
<https://www.pdc.org/apps/disasteraware/>
- ➔ **DESINVENTAR SENDAI** is a conceptual and methodological tool for the generation of National Disaster Inventories and the construction of databases of damage, losses and in general the effects of disasters. It covers more than 30 countries.
<https://www.desinventar.net/index.html>
- ➔ **PREVENTIONWEB** is based on the Global Assessment Reports on Disaster Risk Reduction, and provides global risk data in an easily accessible manner. Supported by the UNDRR.
<https://www.preventionweb.net/english/>

- ➔ **THE WFP PLATFORM FOR REAL-TIME IMPACT AND SITUATION MONITORING (PRISM)** assesses the potential risk and forecasts the impact of climate hazards on the most vulnerable communities, in order to design risk reduction activities and target disaster responses. <https://innovation.wfp.org/project/prism/>

- ➔ **WORLD RESOURCES INSTITUTE (WRI)** maintains the Resource Watch data catalogue and is now working to develop a global data set on water, peace and security (including through the use of AI). WRI also maintains the Aqueduct Water Risk Atlas. The Atlas uses a robust, peer-reviewed methodology and the best-available data to create high-resolution, customisable global maps of water risk. <https://resourcewatch.org/topics/water/>

- ➔ **WMO CATALOGUE FOR CLIMATE DATA** is a trust-worthy source for climate data. The datasets have been assessed through an internationally agreed maturity evaluation process. An initial 18 global climate datasets have been so far submitted by international domain Subject Matter Experts (SMEs) and assessed. <https://climatedata-catalogue.wmo.int/>

- ➔ **EU and the JOINT RESEARCH CENTER** are heavily invested in conflict risk modelling and monitoring as an input to EU programming prioritisation. The global conflict risk index (GCRI) has a new focus to incorporate climate change and food security into their model, and they are looking for partners on how to do this. In the future, they are also looking to spatialise their model – and provide sub-national conflict hotspot mapping. The other important EU platform is INFORM – a collaboration of the Inter-Agency Standing Committee Task Team for Preparedness and Resilience and the European Commission. INFORM mostly focuses on natural hazards. <https://ec.europa.eu/jrc/en/publication/global-conflict-risk-index-artificial-intelligence-conflict-prevention>, <https://drmkc.jrc.ec.europa.eu/inform-index>

- ➔ **THE WORLD BANK** is continuing to invest in its internal Global Crisis Risk Platform to help drive internal prioritisation and prevention. The platform monitors a series of 12 indicators and uses a threshold classifier to generate red flags (4 thresholds across the 12 indicators). The World Bank generates an annual internal report plus quarterly analysis. It is also working on a Fragility, Conflict and Violence (FCV) Risk Observatory. <http://documents.worldbank.org/curated/en/762621532535411008/Global-Crisis-Risk-Platform/>

- ➔ **PEACE RESEARCH INSTITUTE OSLO (PRIO)** has been involved in the collection of a number of datasets on armed conflicts, including among others the UCDP/PRIO Armed Conflict Dataset for the period 1946 to the present. Recognised as a leading institution for conflict monitoring, PRIO also maintains the PRIO GRID for geospatial analysis of armed conflict. Natural resources are one of the themes of interest for PRIO. <https://www.prio.org/Data/Armed-Conflict/>

4.3.1 – CLIMATE-SECURITY MAP

Climate-security risk maps depict the main climate and conflict risks in a given geographic area graphically. For example, these maps can show certain geographic area's climate hotspots, resource availability, and areas where conflicts are or were prevalent. Any other relevant information and data can also be included graphically as an additional layer (e.g., migration movements paths, or areas hosting communities of internally displaced persons). In addition, mapping provides an opportunity to include local communities into assessment and planning processes. Through participatory 3D mapping communities can inform spatial planning processes, ensuring that it takes into account local knowledge. In particular, mapping exercises can be used to analyse differences in Climate-security risks between geographic areas and what the reasons for these differences might be (e.g., different climatic conditions, different availability of or access to resources, governance mechanisms established, relations between groups, (non-)existence of conflict resolution mechanisms, and more). However, maps depict reality in a simplified way which cannot contain every detail. In conflict-affected and fragile contexts, it is important to ensure that maps are developed in a conflict-sensitive manner by including all stakeholders, in particular those that are marginalised. It is important to accompany a map with additional background information to avoid misinterpretations.

These kinds of maps make it easy for the users or target audiences to grasp potential Climate-security hotspots, which regions and population groups are affected and what sectors need to be targeted and where to carry out measures. As such, they are a good tool to discuss different perceptions and raise awareness. Mapping exercises provide an opportunity to initiate dialogue processes, either among the affected population and conflicting groups when collecting data and developing the map in a participatory process at the local level, or among policymakers and stakeholders when presenting the results of the mapping at the national level. When presenting the results of the mapping to representatives of different sectors, departments or ministries, this might be an opportunity for them to recognise linkages between issues in different regions and sectors which they may not have recognised before, and may flag the need for cross-sectoral cooperation.

Before areas with potential Climate-security risks are being secured on a map, you can experience the geographic details of this area through a walk together with the participants of the mapping exercise. For example, in areas where land ownership is contested, you can ask the local participants to show you the boundaries of the village or of the land which is contested. These boundaries can be drawn into the map. This visualisation of land and resources can have significant impacts on the perception of the local population and may encourage dialogue processes and motivate participants to find solutions.

There are a number of different platforms that provide free access to data and maps that can be helpful for your mapping exercise. For natural resources mapping and monitoring, MapX platform offers useful services. It provides access to spatial data and tools and helps to manage information. Another source for mapping data and exemplary maps and graphics is the World Resources Institute's maps and data library.

FIVE STEPS TO CONSTRUCT A CLIMATE-SECURITY MAP	
1	Define the scope and geographic area: Based on the geographic areas assessed, choose the participants for the exercise. It is important to have all population groups, ethnicities and religions that are living in geographic areas as well as other important stakeholders represented.
2	Make sure the purpose of the mapping exercise is clear to all participants.
3	Ask participants to draw a map of the area, including the resources, places and characteristics which are important to them and their livelihoods. These can include food or firewood, water wells or holes, arable and grazing land, or religious and cultural places. In addition, ask participants to mark areas with specific climatic conditions or climate risks, for example, where rainfall is variable or where extreme weather events such as floods have occurred. The particular items which participants will be asked to include depend on the specific purpose and objective of the Climate-security mapping.
4	Once the participants feel the map contains all information important to them, ask them in which areas resources or other items are affected by conflict or where conflict is occurring. For example, learn where does competition for grazing land, water resources or firewood, exists or where are armed groups active. Highlight these places or items on the map. If displaced people or migration movements play an important role, also include those.
5	In a further step, encourage participants to review and discuss the highlighted areas of conflict and climate risks. Focus the discussion on the interaction between conflict and climate risks. It might also be helpful to rank the importance of different climate-related security risks. One method to identify Climate-security risks at a local level is through a transect walk.

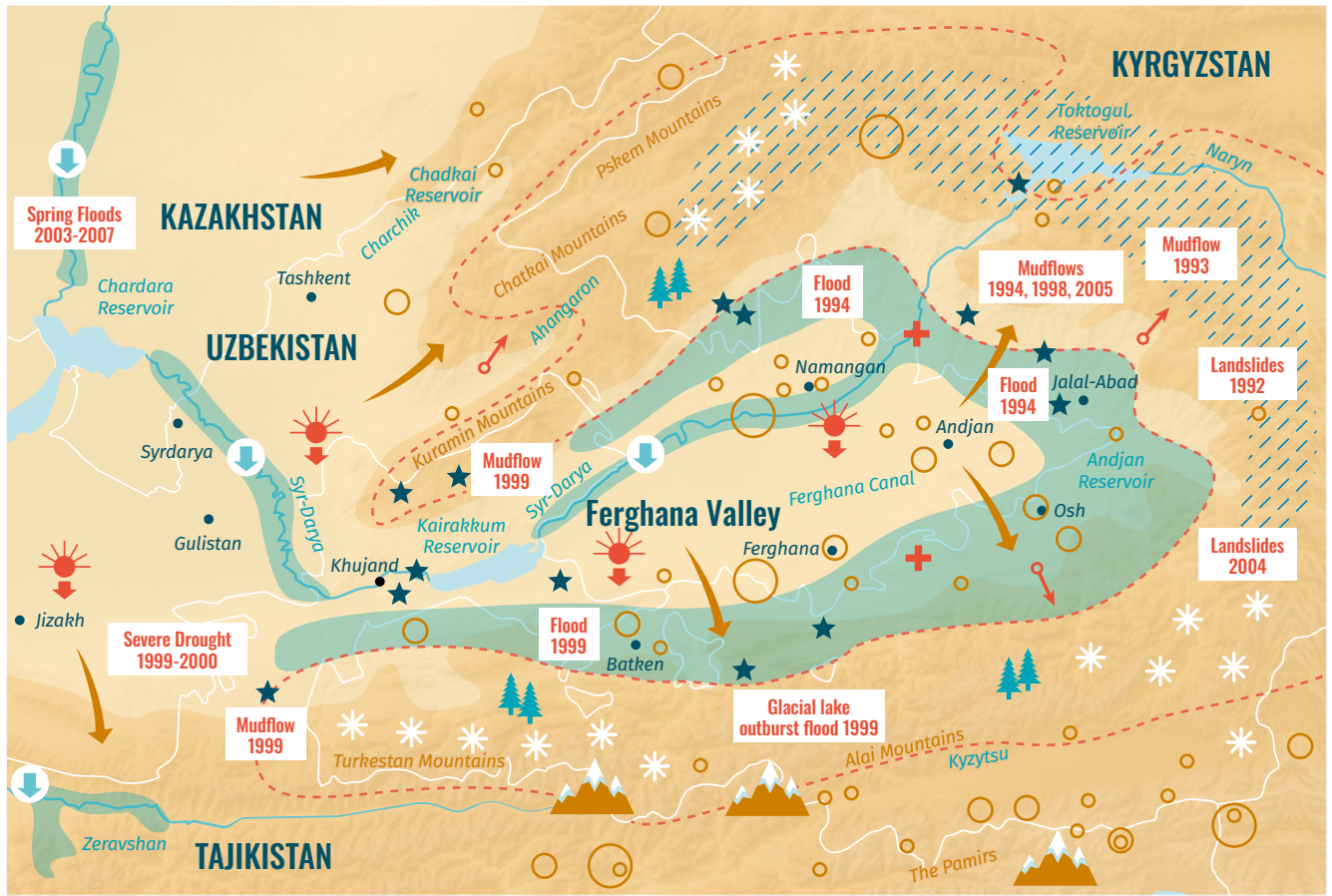
Climate-security mapping at the national level

Mapping exercises at the local level represent the first step, as their results will then be transferred into a national map. The regions which will be included into the national map depend on the context and objective of the mapping exercise. In addition, you may want to include further climate or conflict characteristics of the country which are relevant and have not been addressed in the local mapping exercises. Overall changes in climatic conditions, natural disasters, migration routes, and availability of resources can be included as additional layers into the map. For an example map, please see page 30.

A draft map can serve as a basis for discussion to the target audience, and for further developing the map according to the suggestions made during the presentation. Alternatively, conduct the mapping exercise together with the national representatives employing a basic map, and use their inputs to craft the final map. Mapping exercises can be lengthy processes, and could produce controversial opinions. This can be a positive effect of the exercise to encourage a discussion among the stakeholders and their engagement for the topic. In this case, it is necessary to allocate sufficient time to the exercise.

FIGURE 4

Climate change and natural disaster impacts in the Ferghana Valley³³



Topography

- Lowlands and piedmont areas
- Mountainous regions (above 1500 metres)

Hydrometeorological hazards

- Risk of flooding
- Risk of mudflows and landslides
- Torrential rainfalls
- Impact of high temperatures and drought on food production and health
- Major recent natural disaster and year of event

Essential earthquakes

- Epicenters depicted from the instrumental records
- Magnitude on Richter scale 7 to 8
 - Magnitude on Richter scale 6 to 7
 - Magnitude on Richter scale 5 to 6

Potential impacts of climate change

- Desertification (deserts, semi-arid and arid land expansion)
- Changes in productivity and elevational shift in alpine biodiversity
- Increase in health vulnerability
- Spread of malaria to higher altitudes
- Rapid melting of glaciers and ice caps
- Changes in snow cover, permafrost and intensification of snow melt
- Reduction of summer river flow

Infrastructure under threat of destruction from natural disasters

- Industrial sites, dams, irrigation networks

4.3.2 – DPSIR FRAMEWORK AND MAPPING

The DPSIR causal framework is of great utility for describing the impact of human activity on the environment. It is used typically for integrated natural resources management such as water, but also to address air pollution, biodiversity issues or ecosystems like wetlands or agricultural environments. The DPSIR framework incorporates drivers, pressures, state, impact and responses; which are conceptualised as:

- ➔ **DRIVERS:** This refers to human activity such as industry, tourism, consumption, urbanisation and population growth. Typically, the lifestyle and dynamics of production and consumption of the studied society will be analysed at the state level, but local, regional, and global patterns can influence these drivers too and should be considered.
- ➔ **PRESSURES:** This captures the results of human activity and drivers that affect the environment. Pressures will be different across geospatial scale and time, and will be dependent on technological development too. For example, this will affect resource consumption – including their extraction and use rate, but also waste or pollution generated.
- ➔ **STATE:** Pressures can have effects on ecosystem health, which may change its state. These changes are generally negative and could be caused by direct and indirect processes that might not always be easy to identify. The state of ecosystems should be assessed through physical, chemical, and biological factors which would serve to determine whether an environment is degraded.
- ➔ **IMPACT:** Human livelihood and the environment are closely connected, and many lifestyles are actually entirely dependent on natural resources and the environment. When the welfare of humans is affected by environmental degradation, human livelihood can be negatively impacted through the unavailability to obtain food, water, or shelter. It is not crucial that humans can benefit from these through their availability, but also their quality should be regarded. In addition, healthy ecosystem services will also provide for economic provisions.
- ➔ **RESPONSE:** This regards the actions taken to prevent, mitigate, adapt, or fix problems that undermined the healthy state of an ecosystem. This is done by trying to control the drivers and pressures by enacting policies, laws, and projects which can be international (e.g. conventions and treaties), transboundary (e.g. shared resource management policies), national (e.g. domestic laws and policies), and local (e.g. adaptation or restoration projects).

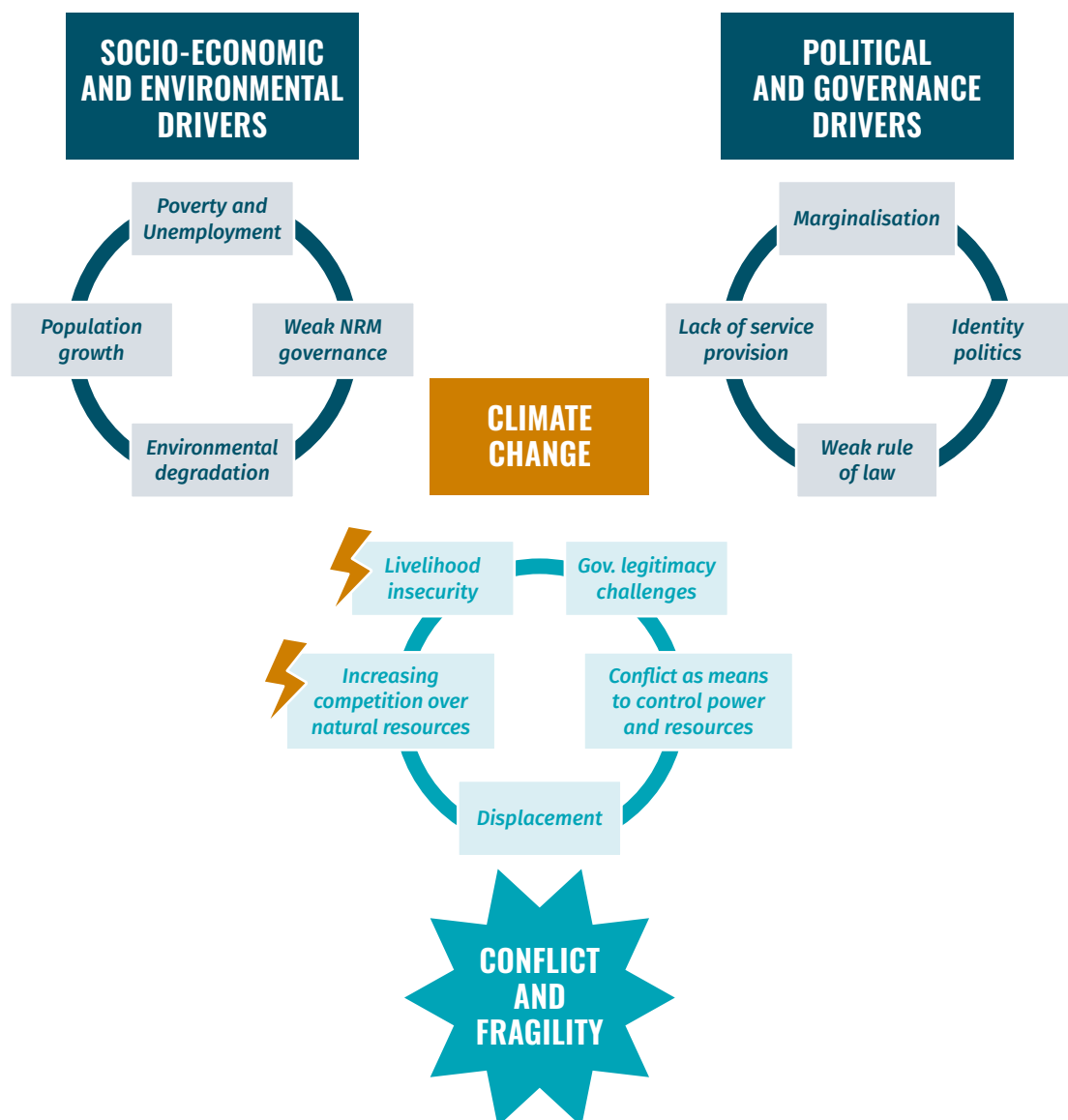
The utility of the DPSIR framework relies on the fact that it is simple and allows the participation of multiple stakeholders without the need of having an environmental or scientific-technical background and, thus, makes it an excellent tool for decision-making support. This is especially relevant because the framework inherently captures causal links from human activity in the environment.

Additionally, the DPSIR framework can be visualised in maps. These are called driver maps and can help the visualisation of the DPSIR components, which significantly ease their identification and understanding. For example:

- ➔ **IDENTIFY** the different pressures and shocks that are driving conflict and climate risks.
- ➔ **HIGHLIGHT** important structural factors and forces and how they interact with different pressures and shocks, as well as the links between climate impacts and conflict drivers and dynamics.
- ➔ **START** by identifying already existing or potential future conflict dynamics and the drivers of these conflict dynamics, for example, marginalisation, livelihood insecurity or weak governance. You can also group the drivers into different categories, for example, environmental, social, political and economic drivers. Use arrows to indicate the interactions between different drivers and conflict dynamics.
- ➔ **VISUALISE** potential climate change impacts and their interactions with different conflict drivers and dynamics.

The graphic below shows an example of a **driver map**.

FIGURE 5
Driver map



4.3.3 – ACTOR MAPPING

Actor or stakeholder mapping can be a useful tool to get a graphic snapshot of actors' relative power in the conflict, their relationships and the conflict issues between them. It is specifically of great utility to start analysing a given conflict. Power asymmetry can be represented by the relative size of the actors' circles. Animosity and alliances are symbolised with lines. Different mappings representing different perspectives can be useful to understand different perspectives (see figure below).

STEP BY STEP INSTRUCTIONS FOR ACTOR MAPPING	
1	Set the system boundaries of the conflict that will be evaluated.
2	Form groups of two or more people. Although a conflict map can be done by oneself, an inclusive group provides more opportunities to capture a different perspective. If there are people in the group that know nothing of the conflict, others can help by clarifying questions, by being a person the involved actor can talk to and test ideas on.
3	In a large sheet of paper, draw the actors as circles on the paper. Alternatively, actors can be drawn on cards that can be pinned on the paper. The size of the circle represents the power of an actor. Do not forget to include oneself as an actor on the page, if either yourself or the organisation that you represent is involved in the context. Other third parties can be listed as semi-circles.
4	Draw lines (see symbols below) between the circles representing the relationship between the actors.
5	In square boxes, or at the top of the map, list the main themes.
6	Add a title and date to the conflict map, and if not confidential, the name or organisation of the person mapping.

FIGURE 6
Actor mapping³⁴

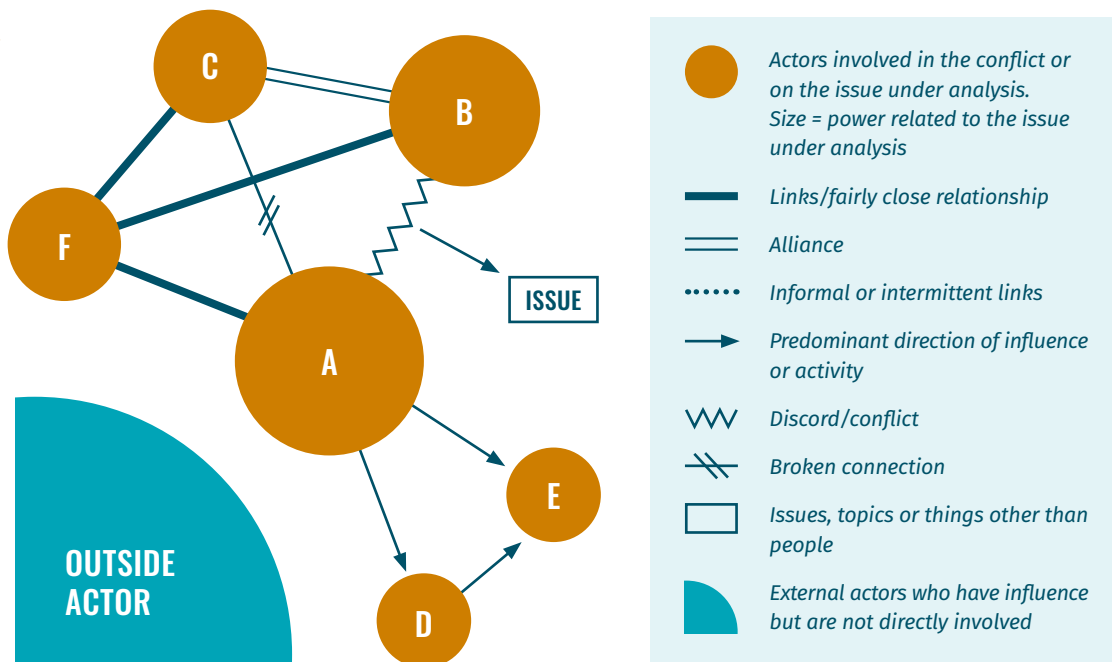
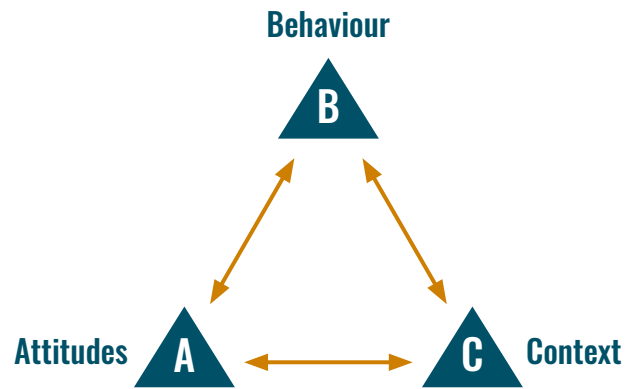


FIGURE 7

ABC triangle graphic tool³⁵

The **ABC triangle graphic tool** is used to examine actors' attitudes, behaviours and context (depicted graphically in a triangle) and compare the different perspectives. This tool can be applied to consider and understand the positions and actions of different parties.



The **onion graphic tool** is used to examine actors' public positions (the outer layer), interests (the middle layer), and needs (inner layer). It can be used to examine actors' competing interests and to identify possible trade-offs.

FIGURE 8

Onion graphic tool³⁶

Indigenous peasant organisations

Bosses and landowners



The **pyramid graphic tool** is used to examine the different levels of stakeholders in a conflict – starting with key conflict actors at the top level. The tool suggests focusing more on actors at mid-level in conflict resolution activities as these actors are connected to both the grassroots and the top levels.

FIGURE 9

Pyramid graphic tool³⁷



4.4

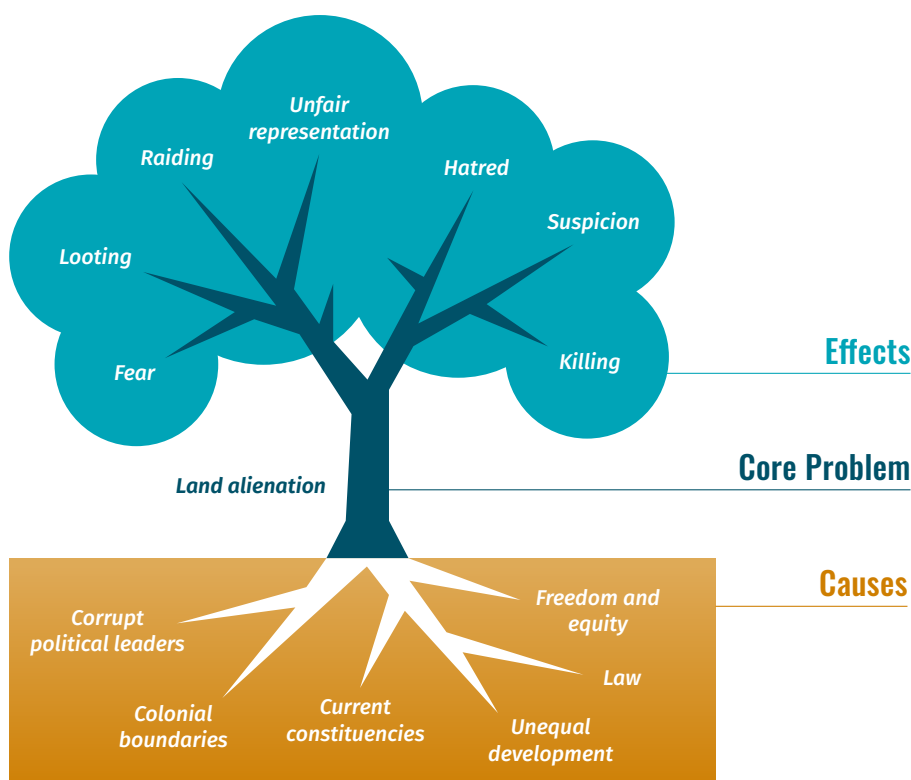
CONFLICT ANALYSIS TOOLS

Conflict analysis tools provide a systematic way to identify the underlying causes and consequences of conflicts. The tools below provide a good starting point for finding entry points to address Climate-security risks. The tools are all well suited to be applied and developed during participatory vulnerability assessments.

4.4.1 – CONFLICT TREE

The **conflict tree graphic tool** is used to examine core problem(s) (the tree trunk), causes (the roots) and effects (the branches and leaves). It visualises how structural and dynamic factors interact and lead to conflict (see figure below).

FIGURE 10
Conflict tree³⁸



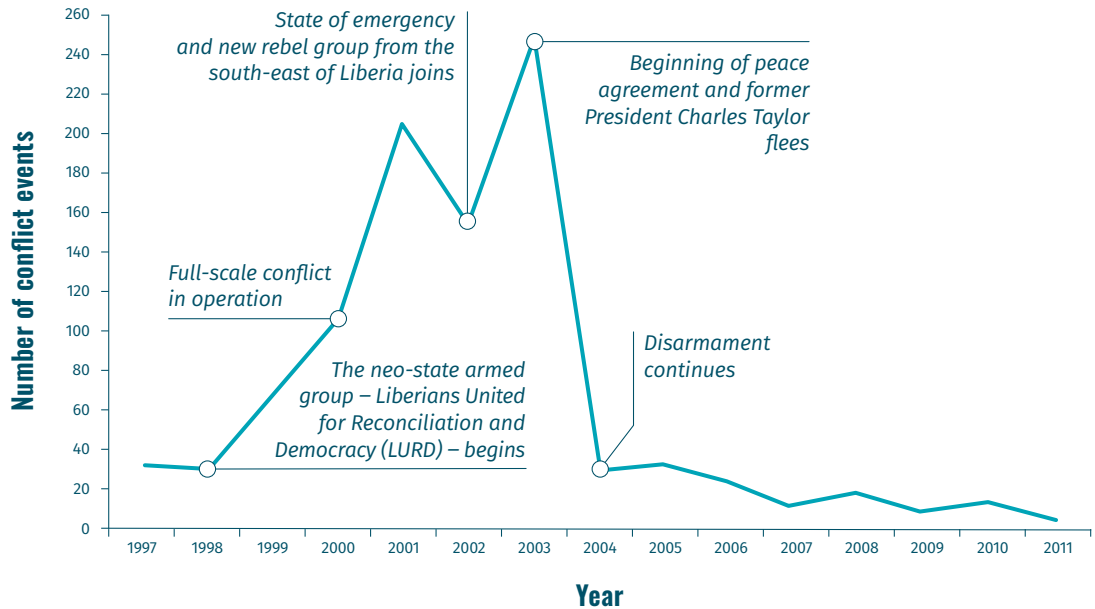
4.4.2 – PROFILE AND DYNAMICS

This tool helps to understand how a conflict has developed over time. Presenting events linked to a conflict graphically can help identify conflict dynamics better and the relations between conflict and other events.

- ➔ Plotting a graph of events gives a sense of time, frequency, trends and stages of the conflict. Conflict events can be disaggregated, e.g. by type of conflict act, perpetrator/ conflict actor, or conflict cause.
- ➔ Drawing a map or maps across periods to visualise trends, e.g. with conflict events or territorial control of different actors.

Altogether, drawing a timeline of historic conflict events, phases and triggers to help identify trends, temporal patterns and potential triggers. This can then be analysed against future events coming up (e.g. elections, reform processes, youth bulges).

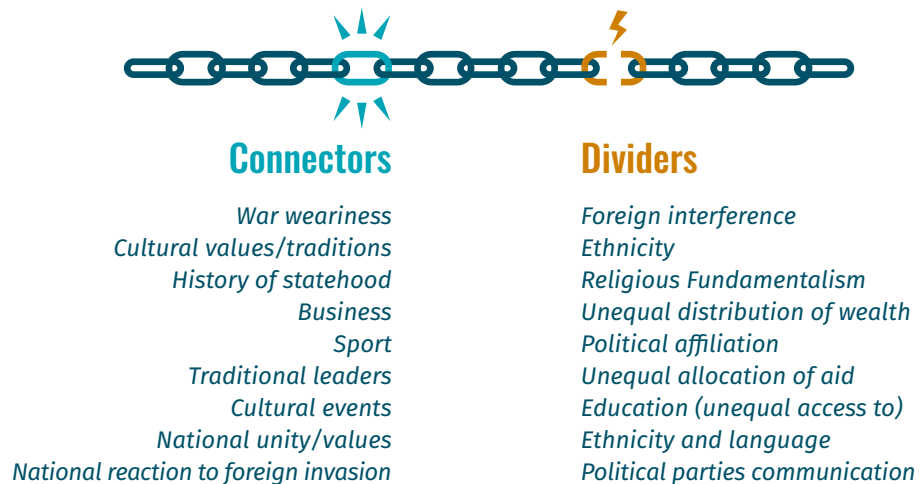
FIGURE 11
Profile and dynamics³⁹



4.4.3 – CONNECTORS AND DIVIDERS

Connectors and dividers are at the centre of every conflict situation. While connectors have a positive effect on actors across different groups, dividers contribute to tensions in society. Actors that are connectors in one situation/context can be dividers in another situation and vice versa. Conducting an analysis of connectors and dividers is essential for “do no harm” approaches. Analyses are often undertaken through brainstorming and discussions, and it can be useful to note down the results in a table.

FIGURE 12
Connectors and dividers⁴⁰



4.5

SCENARIO PLANNING

4.5.1 – WHAT IS SCENARIO BUILDING?

Scenario building is a process that involves describing a range of plausible futures. While the goal is not to predict the future, it is useful to present alternatives to potential future developments. In this sense, the scenarios should be used to describe future states, and consider the processes which lead to them. All scenarios developed are treated equally, and no probability is assigned for prediction of outcomes. However, the nature of the exercise is to capture more optimistic or pessimistic futures to support decision-making.

In this sense, based on the different scenarios considered, response strategies and interventions can be developed and tested. Typically, selecting three scenarios is a good compromise between a narrow-focused set of future alternatives and the risk of overcomplicating the subsequent analysis.

A VITAL ASPECT OF ANY SUCCESSFUL SCENARIO DEVELOPMENT EXERCISE IS TO FOSTER INTERACTION BETWEEN EXPERTS FROM DIFFERENT FIELDS AND BACKGROUNDS.

The more preferable or "best-case" scenarios can be used to identify and formulate concrete actions that are needed to help to improve a situation. The challenge, however, is to create robust descriptions based on both scientific understanding and widely held attitudes and perceptions. For this, scenario development helps to deal with the uncertainty of long-term forecasts, and to overcome our perceptive limitations when looking into the future. Scenarios can help channel uncertainty through the consideration of factors that are taken for granted. This exercise also helps to identify potentially unexamined assumptions that can leave an intervention or response vulnerable.

Regarding the process of scenario building itself, a vital aspect of any successful scenario development exercise is to foster interaction between experts from different fields and backgrounds. Besides, it can also help to create a shared vision and understanding of the future and as such support building networks and teams. Consequently, a scenario development exercise should be an essential part of the process to develop a new strategy, program, or project; and shall involve diverse stakeholders.

4.5.2 – BRIEF GUIDE TO DEVELOPING CLIMATE-SECURITY SCENARIOS

The following offers a fundamental five-step process for developing scenarios:

A FUNDAMENTAL FIVE-STEP PROCESS FOR DEVELOPING SCENARIOS	
<p>STEP 1 DEFINE THE QUESTION</p>	<ul style="list-style-type: none"> ➔ Ensure participants include a cross-section of disciplines, e.g. physical and social scientists, whose expertise can highlight the complexity of the issues under discussion. It can also be helpful to include key stakeholders such as civil society that are important for the overall goal. For example, when trying to identify climate-proof water policies, one can consider including water user groups. ➔ Identify the purpose and audience for the scenarios, e.g. to inform planning and policies? ➔ What is the time frame being explored? What is the geographic scope? And what are the starting conditions? ➔ Does the scenario include climate or environmental change?
<p>STEP 2 IDENTIFY DRIVERS</p>	<ul style="list-style-type: none"> ➔ Identify a broad range of drivers (both climate-related and non-climate-related), and consider which will be most important in the future, as well as those which are most important now. Use a Climate-security assessment and, in particular, drivers map as a starting point. Tailor these tools accordingly by adding and removing drivers specific to the context. A tool that can facilitate identifying drivers in this process is the so-called STEEP-matrix. This matrix helps to separate and structure the drivers into different categories: Social, Technological, Economic, Environmental, and Political. ➔ Systematically map the full range of known variation in the drivers and identify critical uncertainties. Include conditions at the extremes and ‘wild cards’. When working with climate projections, consider how representative they are of the uncertainty range (including significant tipping points). Involving climate science expertise, as well as social science expertise, is essential at this stage.
<p>STEP 3 SCENARIO PROJECTION AND BOUNDARY MAPPING</p>	<ul style="list-style-type: none"> ➔ Consider how the important drivers might interact in the future, including the dynamic interplay between drivers over time (e.g. how climate vulnerability and fragility might impact adaptive capacities and future fragility risks). ➔ Map the boundaries of the scenario by identifying the nature of the uncertainty and the range of possible outcomes.
<p>STEP 4 DEVELOP THE SCENARIOS INTO CONSISTENT NARRATIVES</p>	<ul style="list-style-type: none"> ➔ Generate plausible narratives that describe particular futures, drawing on the material from steps 2 and 3. ➔ These can describe ‘end states’ – what the context looks like at a point in the future – or ‘timelines’ – a description of how that future has evolved.
<p>STEP 5 TESTING STRATEGIES AND INTERVENTIONS</p>	<ul style="list-style-type: none"> ➔ As the last step, these scenarios can be used to test strategic entry-points or interventions. To assess the robustness of a strategic entry-point or intervention, evaluate how this strategy or intervention would perform in the different scenarios developed. Strategies or policies that work in most or all future scenarios are the most robust.

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