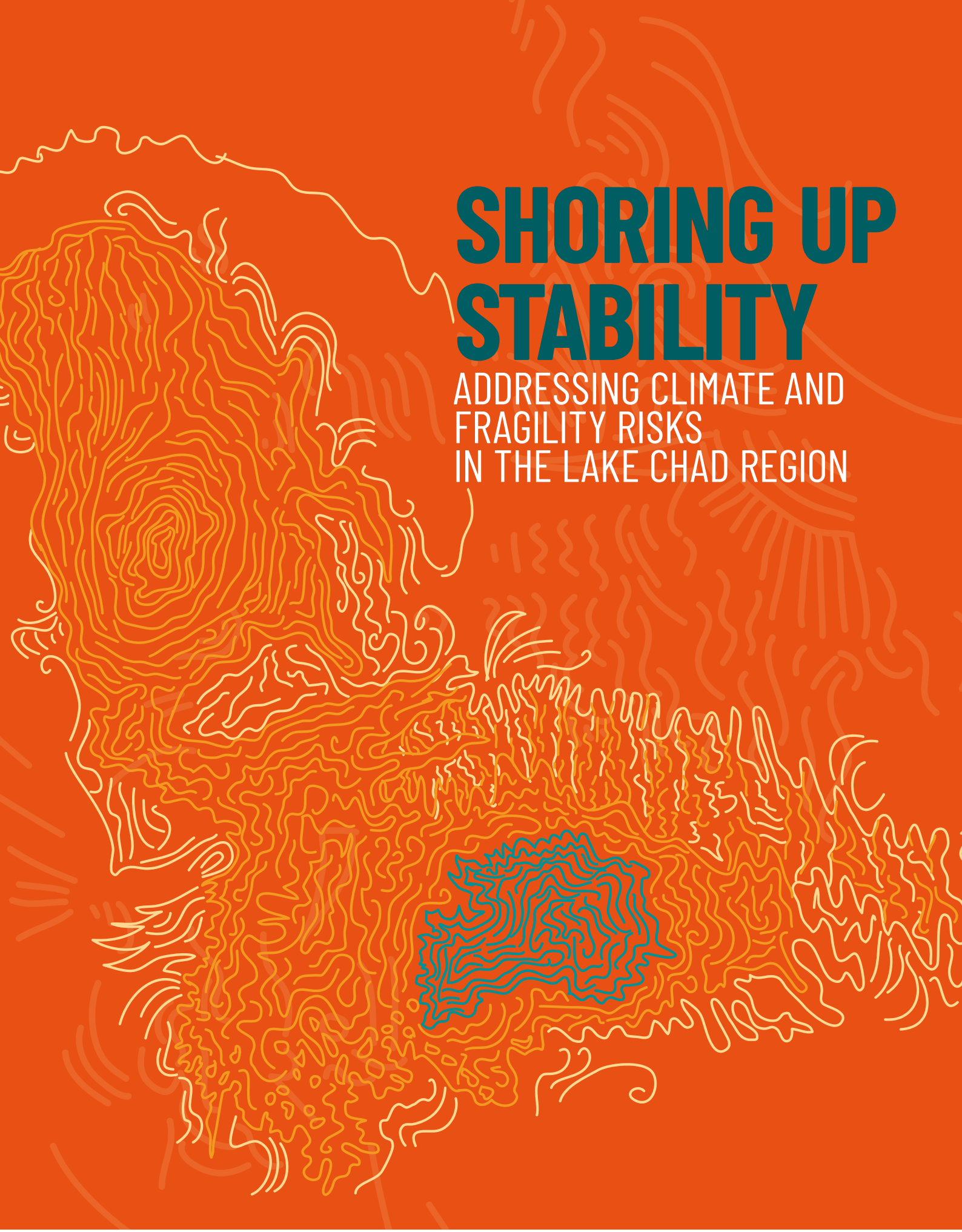

SHORING UP STABILITY

ADDRESSING CLIMATE AND FRAGILITY RISKS IN THE LAKE CHAD REGION

adelphi

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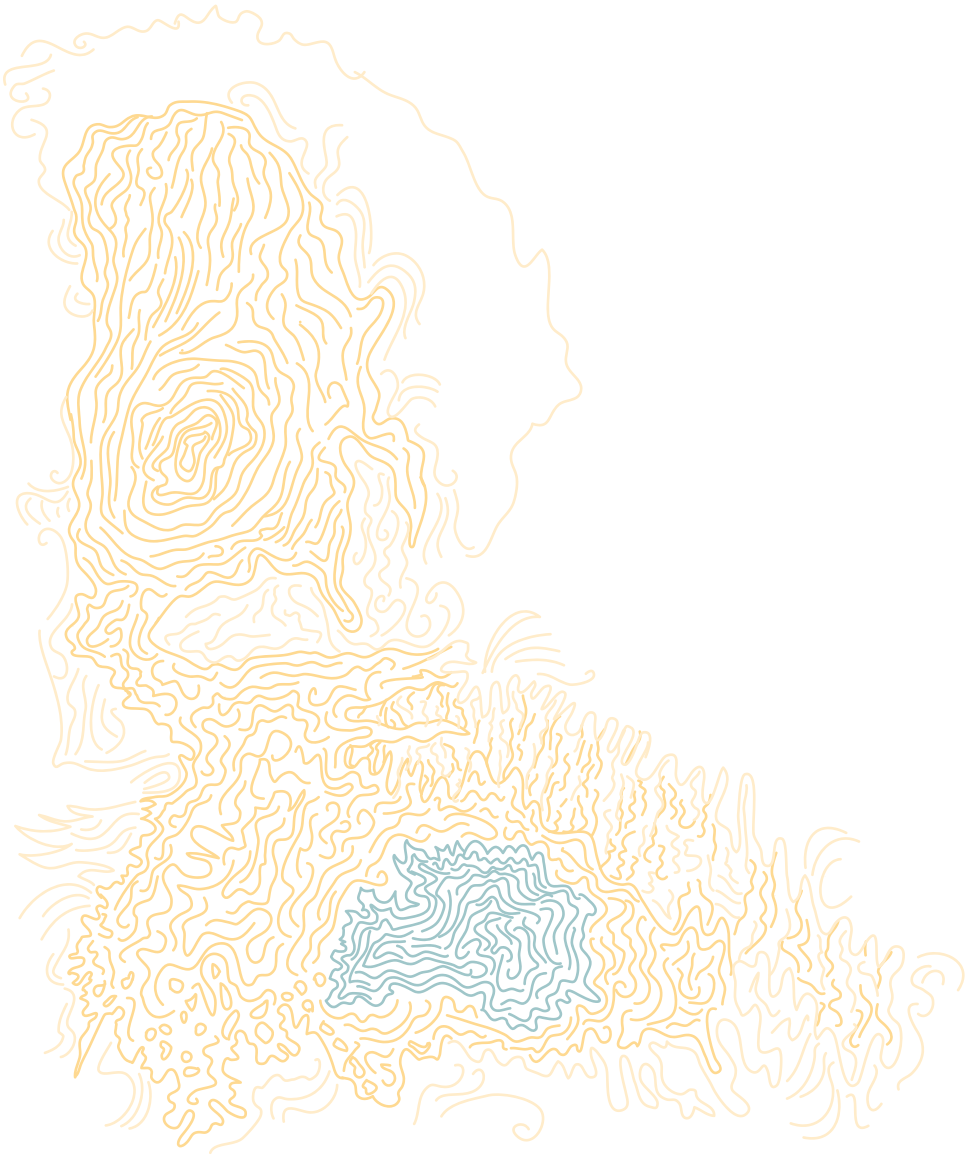

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FOREWORD

ASSESSING RISKS TO CREATE LASTING PEACE AND BUILD RESILIENCE IN THE LAKE CHAD REGION

For the past decade, the Lake Chad Basin—home to about 40 million people—has been enmeshed in crises. Years of conflict, poverty, high inequality, perceived social injustice, lack of basic services and inadequate economic opportunities have frayed social bonds among families and generations, and between the state and its citizens at all levels of governance. The region is caught in a conflict vortex, which has resulted in the displacement of over 2.5 million people and exposed 10.7 million to urgent humanitarian need. At the same time, the compounded effect of climate change is worsening the political and economic conditions that gave rise to the violence in the first place.

Shoring up Stability is an important contribution towards understanding the linked dimensions of risk underlying the crisis. Through a joint analysis of climate change and fragility risks, it offers evidence-based and novel approach to understand the various and connected dimensions of risk and inform appropriate risk management strategies.

UNDP country teams in Cameroon, Chad, Niger and Nigeria provided support to this study that involves more than two years of research, over 200 interviews and analyses of hundreds of satellite images to understand the linkages and dynamics of the drivers of risk, as well as dimensions of existing resilience.

This analysis offers new, nuanced insights into how climate and conflict affect the lives of the vulnerable and the prospects for peace in the region. It also identifies specific entry points for policy and programmatic responses which can strengthen resilience. This understanding can facilitate the African Union's and the Lake Chad Basin Commission's efforts to operationalize the Regional Strategy for the Stabilization, Recovery and Resilience of the Lake Chad Basin, as well as respective national recovery and development plans.

To date, responses to the crisis in the region have largely focused on addressing urgent humanitarian needs and improving stability through military means and peace keeping. This report shows that without due consideration to how climate change affects the risks of conflict and insecurity, these approaches are insufficient.

The report is a pathway to challenge conventional approaches to stabilization, while confirming the relevance of and need for addressing the root causes of the crisis. It makes abundantly clear that in the Lake Chad region, the impacts of climate change must be tackled alongside conflict and socio-economic challenges to ensure that the region successfully breaks out of the conflict trap.

We believe this assessment is a unique contribution to the field of risk analysis in fragile contexts affected by climate change. It provides an important framework for analysis, relevant not just to Lake Chad but also to a broad range of contexts across Africa, and beyond.

It underscores the global need to adopt a resilience-focused approach. I invite you to read on and urge us all to pay heed to the joint risks of climate change and conflict if we are to have a better chance of attaining the double dividends of risk-informed sustainable development and lasting peace.

Ahunna Eziakonwa
Assistant Administrator and Director
Regional Bureau for Africa, UNDP

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EXECUTIVE SUMMARY

The people of Lake Chad are caught in a conflict trap. Violent conflict between state security forces and armed opposition groups, poor governance, endemic corruption, serious environmental mismanagement and poverty have ruined the lives of local people. Some 2.5 million people have fled their homes, leaving vast areas insecure and tens of millions of people lack adequate services. Currently, an estimated 10.7 million people need humanitarian assistance: 5 million of them are acutely food insecure. Climate change is compounding these challenges.

This crisis is not simply collateral damage from harsh conditions in the Sahel. In fact, as a unique fresh water lake in the middle of the arid Sahara, Lake Chad is an ecological miracle. For millennia, it has been a source of life, resilience and even prosperity for the surrounding area. But since 2009, the parts of Nigeria, Niger, Chad and Cameroon bordering Lake Chad—which are home to more than 17.4 million people—have been locked into multiple and overlapping crises. Whether it will be possible for people to break out of this conflict trap will depend on a nuanced understanding of how climate change and conflict interact in this specific context. Through the joint analysis of climate change and conflict risks, the present assessment takes an evidence-based approach to understand the different and connected dimensions of risk and inform appropriate responses.

A "Miracle Lake": Lake Chad is a freshwater lake in middle of the dry Sahara. Its rich resources have long provided livelihoods for people. But the prolonged conflict and rising challenges of climate change have thrown the region into several overlapping crises.

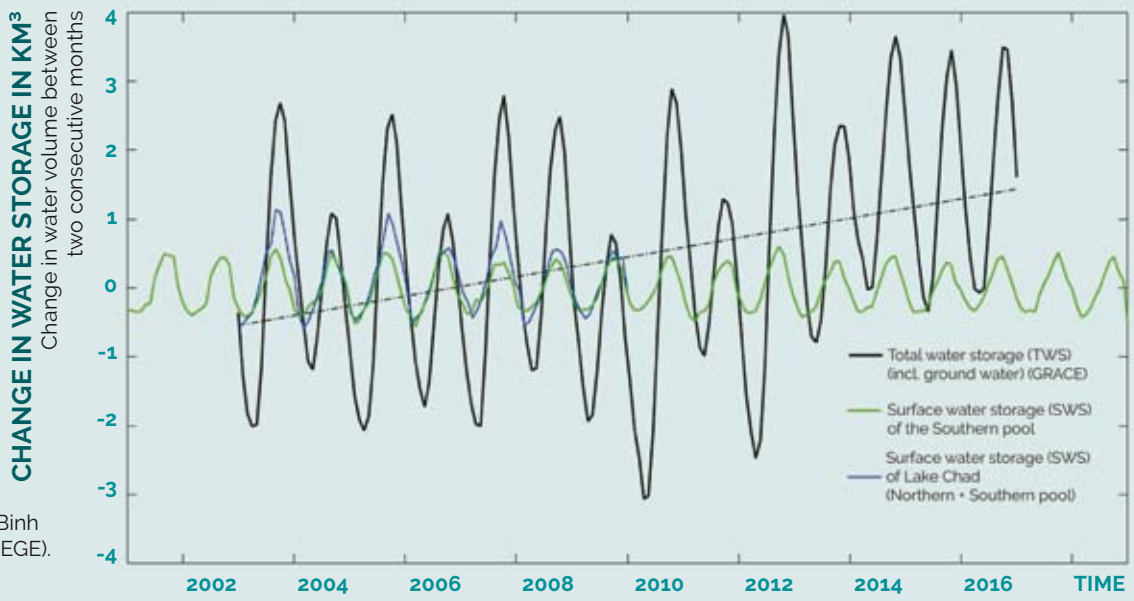
This report is the first of its kind on the Lake Chad region and a pioneer among climate-fragility risk assessments globally. It is the product of an intensive two-year period of research across all four countries. The assessment draws on long-term hydrological data from the Lake Chad basin, including ground measurements as well as brand new analysis of 20 years of satellite observations. It also builds on more than 200 interviews with community members, including past and present members of armed opposition groups, experts and officials, and an extensive review of the literature on Lake Chad. It aims to present a balanced, fact-driven conflict and climate risk assessment of the Lake Chad region that identifies key risks and proposes pragmatic solutions.

KEY FINDINGS

Contrary to popular belief, our research finds that the **lake is not shrinking.** That is not to say that Lake Chad is not affected by climate change. On the contrary, climate change is having profound adverse impacts on the conflict, intensifying existing dynamics and creating new risks. But an alleged shrinking of the lake is not the problem. However, high levels of rainfall and wide temperature variability are undermining people's lives and livelihoods. Temperatures in the region are rising one and a half times faster than the global average. And climate projections predict that weather conditions will only become more extreme and more unpredictable. In the case of Lake Chad, this is mainly playing out in the changing size of the northern pool of the lake and the increasing variability in the timing and amount of rainfall. The resulting uncertainty means that those who depend on the lake no longer know what to plant and when, and when to switch from one livelihood to another.

Communities in this region are thus vulnerable to both the impacts of climate change and the ongoing conflict—a pincer movement of forces which creates its own feedback loop. Years of conflict, poverty and persistent human rights violations from both governments and armed opposition groups have fragmented social bonds among families, among generations, among ethnic groups and between displaced people and host communities, making it harder for people to cope with and adapt to climate impacts than in the past. Meanwhile, climate change is aggravating the political and economic conditions that gave rise to the violence in the first place, undermining efforts to break the conflict trap.

TOTAL WATER STORAGE OF LAKE CHAD



Source:
Florence Sylvestre, Binh Pham Duc (IRD-CEREGE).
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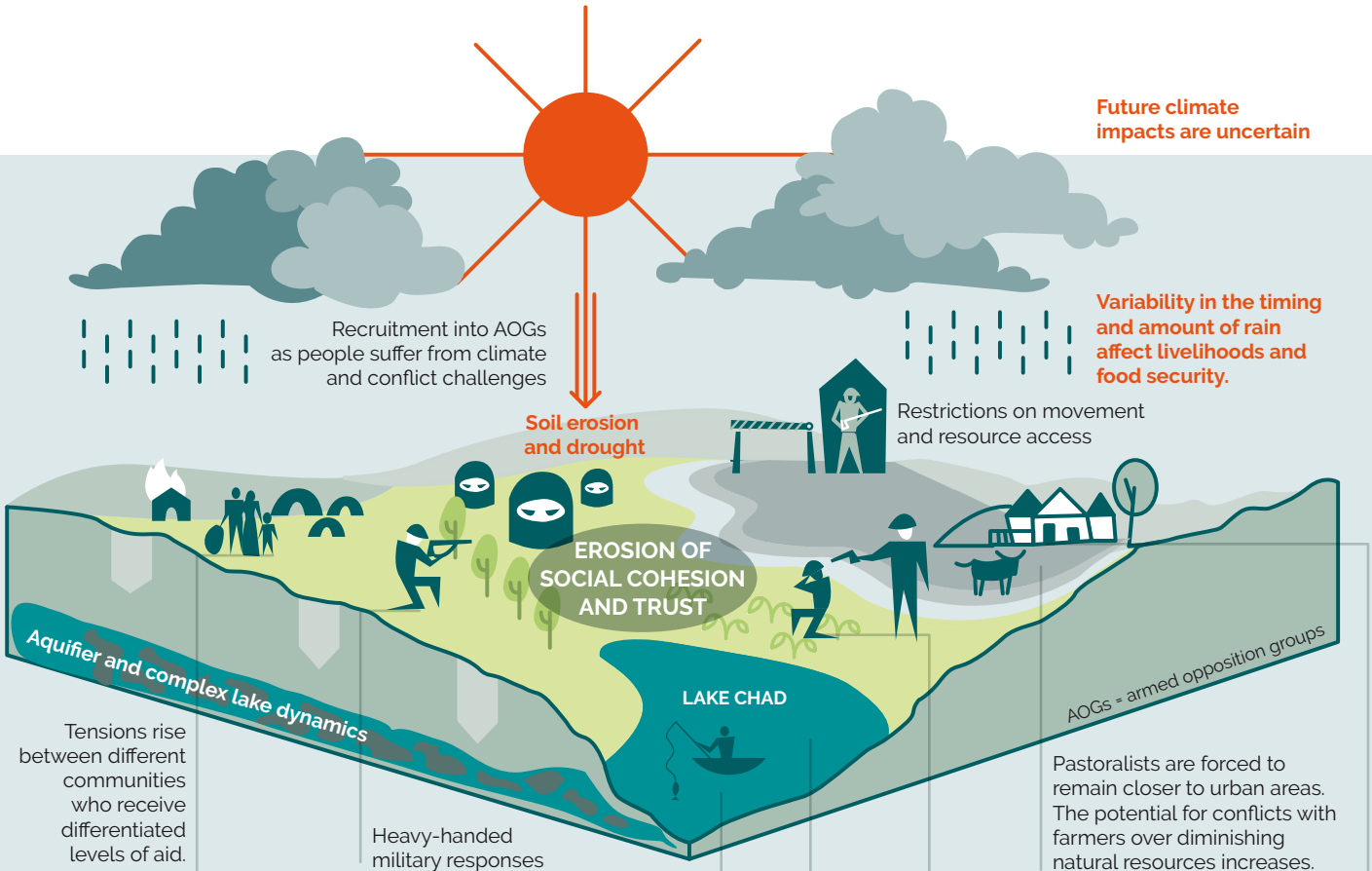
The latest bout of violence in the region began in Northeast Nigeria in 2009 with the rise of the current insurgency, which later spread into neighbouring Cameroon, Chad and Niger. But the root causes of the violence stretch back longer. They can be found in recurring economic crises, divisive reforms and weak governance in the region, coupled with rising inequality and dismay at corruption among the ruling elite. These helped to set the scene for intensifying religious fundamentalism and the rise of armed opposition groups.

Other significant factors were the severe droughts of the 1970s and 1980s. These droughts led to the lake shrinking from a high point of 25,000 km^2 in the 1960s, when it was the world's sixth largest freshwater body and a thriving commercial hub for the entire Sahel, to just 2,000 km^2 in the 1990s. By displacing communities and undermining state legitimacy, the droughts helped set in motion a train of events which is still being felt today. Whereas the lake's shrinking has indeed fed into the current crisis, the lake has since expanded to roughly 14,000 km^2. Its size has proven relatively stable over the past two decades. Indeed, the total water storage has actually increased, if one includes groundwater as well as surface water, which runs counter to the prevailing narrative of a lake in terminal decline.

This finding is critical because of its implications for what neighbouring governments and the international community should focus on in seeking to address the Lake Chad crisis. Supporting the people of the basin is not a function of saving Lake Chad from desiccation. Working from that premise may actually increase and spread regional vulnerabilities as it could further undermine livelihoods that rely on lake variability while implying significant opportunity costs in terms of diverting investment away from more important activities. Instead, funding as well as technical and governance support needs to address the interlinked climate-fragility risks and challenges as they are experienced by communities around the lake, as detailed below.

THE CLIMATE CONFLICT TRAP

CLIMATE CHANGE CONTRIBUTES TO THE DRIVERS OF CONFLICT AND CONFLICT AFFECTS PEOPLES' ADAPTATION CAPACITIES



FOUR RISKS

While the situation varies significantly between and within countries, the region as a whole faces four climate-conflict risks.

1 The first risk is the dynamics of ongoing conflict that undermine people's ability to deal with the consequences of an increasingly variable climate. The adaptive capacity of communities is being undermined by the large-scale displacement of people, restrictions to people's movement as a result of the conflict and weaker social cohesion after years of violence.

2 The second risk is the challenge of increased competition for natural resources. The combination of large numbers of displaced people, restricted access to resources and diminishing land availability and quality has led to competition over natural resources in some locations. The mixture of climate and conflict challenges has disrupted previous governance and restitution measures, which now either no longer exist or are too weak to defuse conflicts.

3 The third risk is the ongoing challenge of recruitment by armed opposition groups. This takes place in the context of stark social and economic inequality, perceived lack of state legitimacy, increasingly vulnerable livelihoods and the lure of financial incentives offered to potential recruits. Climate change compounds this risk as it undermines already fragile economies and livelihoods.

4 Finally, the fourth risk is heavy-handed military responses to the violence that can themselves undermine communities' resilience and their ability to adapt to climate change. Military measures taken by the region's governments in response to the crisis have not addressed the root causes of the crisis. In fact, it has at times had the opposite effect, undermining livelihoods and climate change adaptation potential through blanket restrictions of access to certain areas as well as damaging the social contract through human rights abuses and perceived impunity.

In short, climate change and conflict dynamics interact in a vicious circle where climate change impacts feed additional pressures and tensions while conflict undermines communities' abilities to cope and adapt. Therefore, a core conclusion of this assessment is that, **if the region is to break free of the conflict trap, we must tackle the impacts of climate change as part of peacebuilding efforts.**

To plan for stabilization, peacebuilding and sustainable development in the region, one must pay close attention to the root causes and drivers of the crisis. These are: increasing inequality, marginalisation, weak governance, social exclusion, dominant gender norms and inequalities, demographic shifts and human rights violations. But climate change is also an important factor: Because climate change is deepening existing vulnerabilities, in order to address these vulnerabilities and support peace, we must take climate change into account.

ENTRY POINTS

The security, development and climatic challenges facing the Lake Chad region are complex and daunting. But there is much that can be done. This assessment proposes 10 positive interventions that can and should begin now:

1 **Build social cohesion within and among communities.** This can be done by providing access to mechanisms for justice and dialogue among people in IDP/refugee camps and host communities, between former fighters and other communities and across different generations. Securing peoples' right to land can directly contribute to peacebuilding and enhanced social cohesion.

2 **Support resilient livelihoods that go beyond the simple provision of jobs.** Livelihood support needs to be holistic and address all sections of society in order to restore social cohesion and local governance.

3 **Broaden people's access to basic services such as education, health, water, sanitation and energy.** This is critical not just to support communities in building their resilience to crises, but also to rebuild fractured relations between the state and citizens.

4 **Address gender inequality and violations of human rights.** Gender inequality and human rights violations are a major challenge in the region. For example, facilitating access to land and other productive assets, particularly for women who face difficulties in owning land, should be an important element of development and peacebuilding.

5 **Support communities to adapt to climate change and improve natural resource management.** The growing risks of climate change can further entrench cycles of violence and hinder prospects of stability. Similarly, efforts to support climate change adaptation, enhance resilience to climate shocks and improve natural resource management can be a vehicle for peacebuilding.

10 ENTRY POINTS FOR ADDRESSING CLIMATE AND FRAGILITY RISKS IN THE LAKE CHAD REGION

POSITIVE INTERVENTIONS THAT CAN AND SHOULD BEGIN NOW

4 ADDRESS GENDER INEQUALITY AND HUMAN RIGHTS VIOLATIONS

5 ADAPT TO CLIMATE CHANGE AND MANAGE RESOURCES

Even in the midst of conflict, efforts to support climate change adaptation, enhance resilience to climate shocks and improve natural resource management can be a vehicle for peacebuilding.

3 BROADEN ACCESS TO AND SCOPE OF SERVICES

Access to social services such as education, health, water, sanitation and energy is critical not just to support communities in building their resilience to crises, but also to build fractured relations between the state and citizens.

6 INFORMATION AND COMMUNICATION TECHNOLOGIES

2 SUPPORT RESILIENT LIVELIHOODS

Programmes are needed to promote and provide access to new economic opportunities. In areas where violence persists, it requires addressing conflict issues and climate challenges simultaneously.

7 BETTER CLIMATE AND HYDROLOGICAL INFORMATION

8 INVEST IN GOVERNANCE AND INSTITUTIONAL DEVELOPMENT

1 BUILDING SOCIAL COHESION

This involves building up trust and relations among individuals, groups and communities. It further means building the social contract between the state and the local population.

9 ADAPT THE TACTICS USED TO COMBAT ARMED OPPOSITION GROUPS

The need to defeat terror in the interest of communities needs to be compatible with the goal of sustainable livelihoods as well as state legitimacy.

10 CLIMATE-PROOF ECONOMIC GROWTH AND DEVELOPMENT

Future growth in the Lake Chad region depends on climate proofing growth and development. There are two areas in particular that can be explored. First, a climate-fragility market assessment provides the chance to examine the opportunities to tackle unemployment. Second, planning and investment for the long-term infrastructure needs of the region is a priority.

6 **Improve information and communication technologies in the region.** Information and communication technologies (ICT) that support farmers, livestock herders and fisher folk with information on markets and prices can also support better early warning and preparedness against climate shocks, enable economic empowerment and help people determine their own futures.

7 **Provide better climate and hydrological information.** Better information is not only relevant to policy makers, but can also be a major resilience booster for community members, especially those whose livelihoods depend on the weather.

8 **Invest in governance and institutional development.** Local institutions in the region need support to strengthen policy, regulatory and oversight capacities, to tackle corruption, to provide quality social service delivery planning and to invest in the expansion of governance at local levels.

9 **Critically review and adapt the tactics used to combat armed opposition groups.** Whereas governments in the region need to end the instability in the interest of communities, the means for doing so need to be compatible with the goal of sustainable livelihoods for, and better relations between communities in the region as well as the state legitimacy that will grow from enabling these.

10 **Support climate-proof economic growth and development.** Future development in the Lake Chad region depends on making economic growth more resilient to climate change. This can be achieved if long-term infrastructure needs become an investment priority, and traditional markets in the region are revived, including those across international borders. A climate-fragility market assessment would not only examine the opportunities to tackle unemployment, but also address the severe environment and climate aspects behind this unemployment.

CONCLUSION

Lake Chad needs an integrated push on many fronts to halt the negative spiral and put the region on a more positive track. Once on a positive track, Lake Chad could be a major asset to peace and security in the region. Conventional approaches to stabilising volatile contexts have limitations when tackling resource conflict if they do not take climate change into account. Therefore, a core conclusion of this assessment is that the impacts of climate change have to be tackled alongside conflict challenges in stabilisation and peacebuilding efforts to ensure that the region successfully breaks out of the conflict trap.

Ultimately the Lake Chad region is emblematic of the global need to adopt a resilience-focused approach in areas affected by inter-related climate and security challenges. As well as afflicting the lives of the inhabitants of the lake and its surroundings, the impacts of this complex conflict are also reverberating further afield.

Yet Lake Chad need not and should not become a byword for doom and gloom. If peace is established and the lake is carefully managed by the four countries that share it, then Lake Chad could once again become an engine for sustainable livelihoods and stability in the region, increasing food security and reducing poverty.

While this assessment focuses on the Lake Chad basin, it should resonate beyond the region. The region's challenges and entry points are context-specific, but what the report demonstrates is of global import: climate-proof and conflict-sensitive interventions represent better value for the money and offer a better chance of delivering a lasting peace.

Working with community leaders, local government and other stakeholders is critical to tackling gender inequality and human rights violations.

GUIDING PRINCIPLES FOR EFFECTIVE ENGAGEMENT

1. **Ensure meaningful participation of civil society,** in particular of all women, young people, people with disabilities and those from other marginalised groups, in the planning and implementation of responses.

2. **Address governance deficits with conflict sensitivity.** It's not simply a humanitarian crisis; it is also a governance crisis. Avoid duplication through new structures, but where existing structures perpetuate inequalities and conflict risks, make sure these are not reinforced.

3. **Ensure that financing is more predictable, flexible, adaptable, and prepared to fail.** And importantly, not only focused on more stable areas. While access can be a challenge in "hot conflict" areas, piling funding into stable areas further exacerbates inequality of resources, with aid being a major conflict commodity. This also requires a cultural shift in the donor mind-set from risk averse programming to risk prevention and management in difficult contexts and a willingness to invest in volatile regions and be prepared to fail.

4. **Make sure that all programmes and strategies take account of both climate and conflict risks in a context-specific way.** Understanding the *local variation* of climate and societies needs to be the foundation of any effort to address climate-security risks. National, top-down assessments will not work. Local-level dynamics need to be considered in tandem to understand how changes in one place might affect outcomes elsewhere. More widespread use of climate-fragility assessments to inform strategies and programming in fragile contexts affected by climate change is a first step. A second is to keep assessments ongoing and up-to-date to reflect the dynamic nature of the risks involved.

5. **Monitor and evaluate all interventions for intended and unintended impacts on conflict and fragility risks** and be ready to adjust implementation to address changing conditions on the ground.

6. **Share ideas and lessons learned across the different sectors and countries** within the region, and facilitate relevant south-south cooperation from outside the region to identify pilots, new approaches, or tried and tested approaches to scale up.

1 INTRODUCTION

1.1 AIMS AND APPROACH

The violence and instability playing out across the Lake Chad region has far reaching consequences. Nearly 10 years of conflict have left an estimated 10.7 million people in need of humanitarian assistance. This includes 2.5 million people displaced by the conflict, 5 million people who are acutely food insecure and 490,000 severely malnourished children.[1] Violence and multiple forced displacement have destroyed people's ability to support themselves, eroding their resilience to cope with future risks.

As well as ruining the lives of the inhabitants of the lake and its surroundings, the impacts of this complex conflict have stretched further afield. The region is part of an arc of instability, spanning the Sahel, Horn of Africa and the Lake Chad Basin.[2] Violence in one country reverberates across borders, spurring broader instability across the region, and beyond - through the transfer of weapons, some merging of armed opposition groups, and widespread displacement. Stability in the Lake Chad Basin is a precondition for establishing stability across this wider zone.

If the conflict is not addressed, the need for humanitarian assistance will only continue to grow and prospects for development will not improve.

The conflict is not the only challenge facing the region. Prior to the conflict, the population had already confronted problems related to climate change. Now it is clear that climate change is exacerbating humanitarian challenges caused by conflict and violence, undermining the population's capacity to adapt. Many of the drivers of conflict are intensified by climate change, and we find that climate change is in fact creating new drivers of conflict. The path to peace may not be possible unless climate change and conflict effects are tackled together.

The national and international response across the four conflict-affected countries that border the lake (Cameroon, Chad, Niger and Nigeria) focuses primarily on a military campaign to root out and neutralize armed opposition groups, alongside humanitarian efforts to provide for the immediate needs of the local population and some development and peacebuilding initiatives to support longer term recovery.

1 United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) 2019: Lake Chad Basin Crisis Overview. Retrieved 5 April 2019, from https://reliefweb.int/sites/reliefweb.int/files/resources/Lake%20Chad%20Snapshot.pdf.

2 United Nations Security Council (UNSC) 2013: Statement by the President of the Security Council (S/PRST/2013/5). Retrieved 7 April 2019, from https://undocs.org/S/PRST/2013/5.

Research for this study is based on interviews with over 200 people across the four countries over two years.

However, as research for this assessment has found, these efforts are largely confined to sectoral silos. This assessment outlines the specific and complex ways in which the risks facing affected people are linked. Nevertheless, most of the national and international initiatives to bring peace and security to the Lake Chad region are unable to address the multifaceted nature of these risks. Moreover, very few factor in the past, current or future impacts of climate change that shape and compound these risks.

Just as climate change is deepening existing conflict risks, so the entry points to address these vulnerabilities and to support peace need to take account of climate change. The evidence base concerning how climate change and fragility pose joint risks—and what works in preventing or managing these risks— has to date been weak. Studies have focused primarily on establishing (or disproving) causality between climate change and violent conflict and failed to offer context-specific guidance for engagement.[3] This assessment represents a unique contribution to the field in supporting an evidence base that looks at the interaction between climate change and the dynamics of peace and security in the region.

It is clear then that any responses to the current situation in the Lake Chad region must pay closer attention to the root causes and drivers of the crisis. These are: increasing inequality, marginalisation, weak governance, social exclusion, dominant gender norms and inequalities, demographic shifts, human rights violations and the impact of climate change.

3 See for example the debate between Jan Selby et al. and others over the role of climate change as a cause of the Syrian civil war in *Political Geography,* Vol. 60, September 2017.

1.2 WHAT MAKES THIS REPORT UNIQUE

This report unpacks the acute social and development challenges of the Lake Chad region and their complex interaction with climate impacts. Unlike other risk assessments, it is based on state-of-the art climate and hydrological information about the lake and the region as well as in-depth, locally grounded conflict analysis.

It goes beyond traditional risk assessments by combining qualitative and quantitative data to identify multiple risks, and importantly, assess how they interact to produce new and compounded challenges.

Based on the identification of linked climate-fragility risks and resilience dimensions, the report provides concrete and scalable recommendations to policy makers, donor governments and implementing organizations on entry points to address the climate and conflict trap in the Lake Chad region. It analyses a broad range of current stabilisation, development and humanitarian policies and processes in the region and focuses on identifying gaps, challenges and pragmatic entry points for integrated responses that cross sectoral silos to address linked risks. The report builds upon the G7-mandated report *A New Climate For Peace.*

In addition, an accompanying website – *www.shoring-up-stability.org* – contains further information and resources on the study. It presents the main findings of this report, infographics, video and photo stories, plus additional resources pertaining to climate and fragility risks in the region.

BOX 1

RESILIENCE DEFINED

A resilient state or society is characterized by the ability to cope with increasingly complex, uncertain situations and to "manage and adapt to changing social needs and expectations," including the complex challenges arising from the interaction of climate change with other pressures. Resilience also includes the "ability to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term changes and uncertainty."[4]

4 Organisation for Economic Co-operation and Development (OECD) 2011: What does "resilience" mean for donors? Paris: OECD.

FIGURE 1
AREA OF STUDY: THE LAKE CHAD BASIN

1.3 METHODOLOGY

Data for this assessment were collated over 24 months, using a unique approach, combining locally-grounded, participatory conflict analysis on the ground in all four countries of the region with satellite climate data. The conflict analysis is based on more than 200 targeted interviews led by a local research team with affected communities around Lake Chad. The survey methods were intersectional and conflict sensitive. Interviewees represent the variety of religious, occupational and ethno-linguistic groups living around Lake Chad. In addition, talks with a wide range of stakeholders from all levels of government as well as traditional leaders were held (for more details, see Annex 2). Climate impacts on the hydrological cycle of Lake Chad are informed by the first ever satellite data-based long-term observation studies of the hydrology and climate variability of the lake assessed by four different types of satellite remote sensing imagery. These satellite-based models were "ground-truthed" through multiple field observations and data collected from weather stations around the lake.[5]

The research was led and developed by adelphi with local partners in the Lake Chad region. Climate and hydrological expertise and analysis of satellite data provided by the *Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE).* Conflict analysis has been conducted by local researchers based in the Lake Chad region.

More information on the methodology, including details on the research questions, respondents and lake hydrology can be found in annex 2.

5 For more detail on the methodology of this assessment, see Annex 2: Methodology.

1.4 STRUCTURE OF THIS REPORT

This report has three main chapters. Chapter 2 sets out the four compound risks the assessment identifies and projects future trends and trajectories. The risks cover both the challenges that climate change poses to the existing conflict; and the risks the conflict presents to people's ability to cope with climate shocks. Both sets of risks pose fundamental hurdles to peace. Chapter 3 offers ten entry points for addressing these risks, based on existing programming opportunities and current strategic priorities. It also suggests some guiding principles for that engagement and provides examples of the types of activities and approaches, which can build resilience to these compound risks. We believe that these findings will help inform a resilience-based approach to peacebuilding in Lake Chad that can address the need for short- and medium-term resilience and recovery efforts as well as support longer term transformation and sustainable development in the region. Chapter 4 concludes with a link back to the global context and underscores the universal need for risk-informed responses to complex crises if current development goals are ever to be met.

1.5 THE STATE OF THE CRISIS

For centuries, the Lake Chad basin was a thriving commercial hub for the entire Sahel. An ecological miracle, this fresh water lake sits in the middle of the Sahara. It used to provide food and water to more than 20 million people who were able to adapt their livelihood strategies to changing circumstances with varying levels of difficulty across the four basin countries.[6] But in 2009, pre-existing conflict dynamics in Nigeria flared into violence between state security forces and armed opposition groups, with civilians caught in the cross fire. The worsening security situation posed dangers and military restrictions for farmers, pastoralists and fisher folk. Traders found less produce while markets dwindled as governments closed them. Since 2009, violence has spread across the countries bordering Lake Chad. Many people have had to flee their homes, leaving behind produce, tools and equipment and exhausting their savings to reach and live in relative safety. Often, with few or no alternative options, people have turned to negative coping strategies such as selling sex for food or criminality. In Northeast Nigeria alone, the conflict has claimed 35,000 lives and displaced 1.7 million people. [7] At the same time, climate change has compounded the stresses people face. Roughly 80 per cent of the Sahel's[8] farmland is degraded.[9]

6 Magrin, Géraud; Jacques Lemoalle and Roland Pourtier (eds.) 2015: Atlas du lac Tchad. Paris: IRD Éditions/Passages.

7 Internal Displacement Monitoring Centre (IDMC) 2019: Nigeria. www.internaldisplacement. org/countries/nigeria). Figures are likely higher given the challenges of accurate reporting and recording in the region.

8 Whilst downscaled data on climate change impacts for the Lake Chad region is patchy, data on the Sahel generally is stronger and serves to illustrate the range of climate-related issues affecting the wider Sahel area, including the Lake Chad region.

9 Nana-Sinkam, Samuel C. 1995: The magnitude of the problem. In: Nana-Sinkam, Samuel C. (ed.) Land and environmental degradation and desertification in Africa: Issues and options for sustainable economic development with transformation. http://www.fao.org/docrep/X5318E/x5318e02.htm.

Temperatures in the Sahel are rising 1.5 times faster than the global average.[10] This trend is set to continue with temperatures in Africa projected to rise faster than the global average throughout the 21st century.[11] This is likely to have a significant and complex impact on patterns of rainfall in the region. Some studies suggest an increase in the number of extreme rainfall days over West Africa and the Sahel during May and July. As a result, droughts and floods are growing longer and more frequent, which is undermining food production.[12] According to the FAO, implications of climate change, along with the conflict, internal migration and increased pressure on natural resources in the Sahel have contributed to a 60 per cent decline in fish production, degradation of pasturelands, reduction in the livestock population, and a threat to biodiversity.[13]

BOX 2

PEOPLE IN NEED OF HUMANITARIAN ASSISTANCE

NIGERIA

7.1 million people (2.3 m girls, 1.9 m boys, 1.6 m women and 1.3 m men) need humanitarian assistance in Northeast Nigeria.[14]

NIGER:

104,000 people internally displaced 26,000 returnees and 119,000 refugees from Nigeria in the Diffa region.[15]

CHAD:

486,000 people need humanitarian assistance in Region du Lac.[16]

CAMEROON:

833,000 people need humanitarian assistance in the Far North.[17]

10 Climate Centre 2018: UN: Sahel region one of the most vulnerable to climate change. https://www.climatecentre.org/news/1066/un-sahel-region-one-of-the-most-vulnerable-to-climate-change
11 IPCC 2018, Special Report: Global Warming of 1.5 °C, Chap 3. https://www.ipcc.ch/sr15/
12 https://www.sciencedirect.com/science/article/pii/S2212094713000066
13 Lake Chad, a system under threat, FAO, available at http://www.fao.org/land-water/news-archive/news-detail/en/c/267309/
14 UNOCHA 2019: Nigeria: 2019-2021 Humanitarian Response Strategy (January 2019 - December 2021). Retrieved 07 April 2019 from https://reliefweb.int/report/nigeria/nigeria-2019-2021-humanitarian-response-strategy-january-2019-december-2021.
15 UNOCHA 2019: Niger: Plan de réponse humanitaire 2019. Retrieved 07 April 2019 from https://www.humanitarianresponse.info/en/operations/niger/document/niger-plan-de-r%C3%A9ponse-humanitaire-2019.
16 UNOCHA 2019: Tchad - Aperçu des besoins humanitaires 2019. Retrieved 07 April 2019 from https://www.humanitarianresponse.info/en/operations/chad/document/tchad-aper%C3%A7u-des-besoins-humanitaires-2019-hno-2019-21-dec-2018.
17 UNOCHA 2018b: Cameroon: Humanitarian Response Plan 2018 (Summary). Retrieved 07 April 2019 from https://www.humanitarianresponse.info/en/operations/cameroon/document/cameroon-humanitarian-response-plan%C2%A02018%C2%A0summary.

FIGURE 2 FROM CONFLICT TO PEACE

A SHORT HISTORY OF CONFLICT IN THE LAKE CHAD REGION AND PATHWAYS TO A PEACEFUL TOMORROW

1950/60s

PROSPERITY AROUND LAKE CHAD

The people of Lake Chad have long been politically marginalised, receiving little or no basic services such as health or education for generations. But the lake allowed them to prosper from access to fish, water and livelihoods.

1970/80s

SEVERE DROUGHTS

The entire Lake Chad region (Niger, Cameroon, Chad, Nigeria) suffers from intense droughts, and set in train events still being felt today.

1970/80s

POPULATION GROWTH

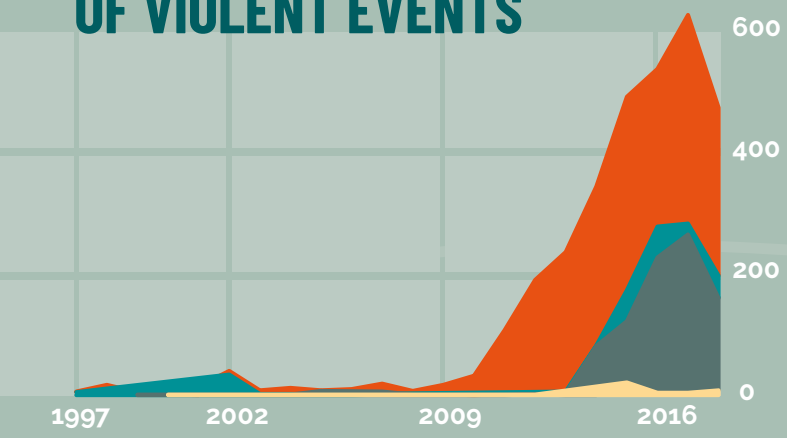
As the drought hits central regions, people migrate towards Lake Chad. The increasing population stresses density natural resource availability and governance.

1980s onwards

ECONOMIC UPHEAVALS

Fuelled by the oil price shock, Nigeria faces an economic slump. Jobs and economic prospects are threatened by structural adjustment programmes, the state's budgetary problems, population growth and urbanisation. Criminality, theft and rural banditry increase.

YEARLY NUMBER OF VIOLENT EVENTS



2002

BOKO HARAM EMERGES

Protesting corruption and inequality against backdrop of structural adjustment and corrupt democratic transition, a group known as Boko Haram promises better lives for everyone. Recruitment into armed opposition groups and religious extremism increases.

Source: ACLED data Armed Conflict Location & Event Data Project (ACLED). Retrieved 20 March 2019 from https://www.acleddata.com.

2009 BOKO HARAM RISES

Security forces kill the group founder and 800 followers. The group morphs from a Salafist movement into a jihadist armed opposition group. Its tactics become ever-more violent.

2009 CONFLICT ESCALATES

Terror attacks escalate and the insurgency spreads from Nigeria to Cameroon, Chad and Niger. Bombs are detonated, men and boys are executed, kidnapped or recruited. Many people flee their homes and violence against women and girls increases. Property and crops are looted and burned.

2009 onwards THE CLIMATE/CONFLICT TRAP

The conflict undermines communities' ability to adapt to climate change given restrictions on movement, diminished access to natural resources and the displacement of people. At the same time, climate change, including unpredictable weather, reinforce the root causes that led to the conflict.

2016 HUMANITARIAN AID

Humanitarian response now scales up. High levels of insecurity, military restrictions and climate change make the transition to sustainable livelihoods and development programming challenging.

2019 CURRENT SITUATION

Heavy-handed military responses to the armed opposition groups pose a risk to the security of the local population with overly strict regulations and restrictions (market access). Human rights violations continue.

A PEACEFUL TOMORROW

For truly sustainable peace, responses to the crisis need to address the interlinked climate-fragility risks and challenges as they are experienced by communities around the lake.

Research undertaken for this study suggests that increasingly variable weather patterns have emerged in the Lake Chad region over the last decade. This has increased uncertainty over the timing, longevity and strength of rainfall and drought as well as increased temperatures and wind speeds. Interviewees from across the region expressed concern at the increase in crop-damaging insects and birds and livestock diseases as well as the increased variability of the lake and linked water bodies. Collectively, these shifts are making it more difficult to plan livelihoods, to understand what land is suitable for agriculture and for pastoralism, and to sustain fish catches.

BOX 3 LEVELS OF DEVELOPMENT IN THE COUNTRIES OF THE LAKE CHAD REGION

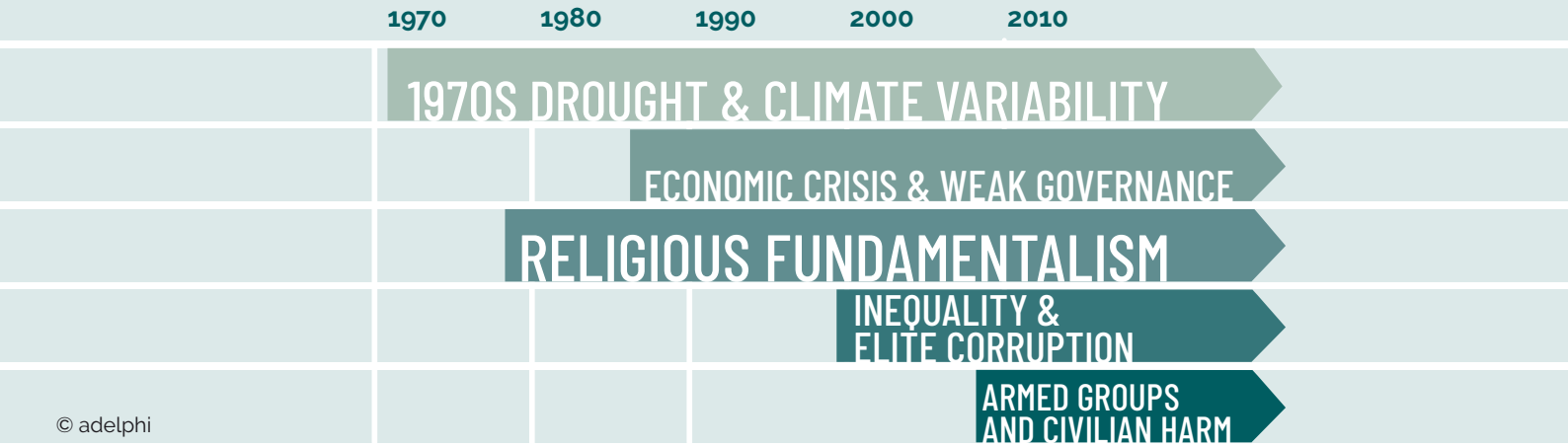
These figures give an indication of human development in the four countries of the Lake Chad region for 2016. Whilst at the national level, these values are among the lowest of all countries in the world, the figures are even lower in the provinces of each country bordering the lake.

	Countries			
Indicators	Cameroon	Chad	Niger	Nigeria
Infant mortality rate (per 1,000 live births)	56.6	75	49.9	66.6
Life expectancy at birth (years)	58.07	52.90	60.06	53.43
Unemployment (% of total labor force)	4.26	5.78	0.35	7.06

Source: World Bank. Unemployment percentages are modelled from International Labour Organization (ILO) estimates.

Despite efforts by the governments of the region to find a military solution to the armed opposition they face, the conflict is not over. Poverty, instability, inequality and weak governance—exacerbated by conflict and climate change—deny local populations, and particularly young people, the possibility of a decent future. They are among key factors forcing some people to resort to negative coping strategies, from survival sex and migration to criminality and joining armed opposition groups and community militias. Yet the population survives in the face of extreme adversity, mostly with insufficient aid. This chapter sets out the current context and dynamics of the conflict and how the changing climate is affecting the region.

FIGURE 3 THE ROOT CAUSES OF CONFLICT



1.6 THE ROOT CAUSES OF CONFLICT

In the Lake Chad region, the root causes of conflict are numerous. They include:

1. The impacts of the 1970s droughts and ongoing climate variability
2. Recurring economic crises, divisive reforms and weak governance
3. Intensifying religious fundamentalism
4. Rising inequality and perceptions of elite corruption
5. The rise of armed opposition groups
6. Growing civilian harm and grievances

Much of this account focuses on Nigeria as the violence started here before spreading to neighbouring countries.

1 THE DROUGHT IN THE 1970 AND 1980S

In the 1970s the Sahel experienced severe droughts that strained the livelihoods of agriculturalists and pastoralists across a huge area. They dramatically reduced water levels, dividing Lake Chad into two separate bodies of water, the northern and southern pools. By the 1980s the area of water had shrunk to 2,000 km2 (from 25,000 km2 in the 1960s). These droughts set in motion events which are still being felt today.

The droughts drove people from the region to migrate towards the lake. Prior to the conflict, many people around the northern parts of the lake left their villages because of climate change. Some moved to the lake's shore, but most chose to move to the numerous islands within the lake for their fertile farmlands, fishing opportunities, and also pastures. Since the contraction in the lake's size during the drought actually increased the amount of available productive land, this move was beneficial for those who sought water, pasture and fertile farmland, particularly in Niger and Chad.

A history of population growth, droughts and a shifting Lake Chad shoreline made communities adaptable and mobile. Unfortunately, conflict has disrupted these traditional livelihood methods while climate change creates uncertainty over the future.

People followed the lake as its shores withdrew from their villages, going to new settlements to farm, fish and graze their livestock, while sending food back to relatives who stayed behind. People moved from other parts of the Lake Chad countries to the lake, particularly parts of Nigeria, Cameroon and Chad bordering the southern pool which offered more reliable livelihoods. The local population around the lake grew fast as a result of this drought-related in migration and lower levels of child mortality[18] but population centres became concentrated in areas of relatively high soil fertility. Between 1976 and today, the number of people living around the lake rose from 700,000 people to approximately 2.2 million people. This number is projected to reach 3 million in 2025, with 49 million people likely to depend on the lake's resources.[19] In all four countries, moving continues to be the key way that populations adapt to changes in the climate.

18 See for example Niger Data Portal : http://niger.opendataforafrica.org/apps/atlas/Diffa.

19 International Crisis Group 2017: Fighting Boko Haram in Chad: Beyond Military Measures. Retrieved 07 April 2019 from https://www.crisisgroup.org/africa/central-africa/chad/246-fighting-boko-haram-chad-beyond-military-measures; and Magrin, Géraud; Jacques Lemoalle and Roland Pourtier (eds.) 2015: Atlas du lac Tchad. Paris: IRD Éditions/Passages.

BOX 4

THE GREAT GREEN WALL

Launched in 2007 by the African Union, The Great Green Wall initiative aims to restore Africa's degraded landscapes and preventing desertification across the Sahel. It aims to achieve this by planting trees across an 8,000km stretch of the Sahel, from Senegal in the west through to Djibouti in the east. The vision is to restore 100 million hectares of degraded land, sequester 250 million tonnes of carbon and create 350,000 jobs in rural areas by 2030. The initiative, now being implemented in more than 20 countries with more than $8 billion either mobilised or pledged, has been heralded as a panacea for many of the regions challenges, from climate change and desertification, to famine, conflict and migration. The Great Green Wall has the potential to enhance food security and resilience to climate change while creating jobs for those who live along its path, particularly women and youth. But much of the scheme's success depends on its ability not simply to plant trees, but through this to address governance and social issues which underpin many of the risks facing the region. Given the instability in the Lake Chad region, there is currently limited implementation of this initiative in areas affected by the conflict. But bypassing pockets of fragility for more stable areas could inadvertently create new asymmetries by restoring degraded land for some and not others. Given the potential for addressing some of the root causes of the insurgency, and indeed bolstering social cohesion and the social contract, there could be peacebuilding value to expanding implementation areas to fragile zones, provided implementation is thoroughly conflict sensitive and takes account of conflict dynamics affecting the region.

2 ECONOMIC UPHEAVAL

While the drought was taking its toll through the mid-1980s, Nigeria was simultaneously facing an economic slump, mainly driven by the global oil crisis which hit the oil-dependent Nigerian economy hard. Amid increasing corruption, ordinary Nigerians further witnessed decreasing economic prospects and livelihoods from the 1980s onwards due to the structural adjustment programme prescribed by the International Monetary Fund and World Bank, states' budgetary problems, population growth, urbanisation, and political changes.[21] Since 2014 Chad has also faced a socioeconomic crisis due to the fall in oil prices and heavy austerity measures.

21 International Crisis Group 2017: "Watchmen of Lake Chad: Vigilante Groups Fighting Boko Haram." Retrieved 07 April 2019 from https://www.crisisgroup.org/africa/west-africa/nigeria/244-watchmen-lake-chad-vigilante-groups-fighting-boko-haram.

3 RELIGIOUS SHIFTS AND FUNDAMENTALISM

This period also saw increasing religious fundamentalism in Nigeria.[22] Since the 11th century, a plurality of Islamic practices and fusion with indigenous religions was the norm. But this began to change in the 1970s, as many Muslims increasingly identified the state with a failed imported secular western model.[23] Students in particular were inspired by the Iranian revolution while the influence and financial support from groups in Saudi Arabia, Libya, Sudan and Iran changed the religious discourse. Religious affiliation diversified and fragmented,[24] sectarianism increased, and several incidents of sectarian violence took place.[25] Levels of religious intolerance and fundamentalism increased with different religious interpretations seen as incorrect, and actions and beliefs deemed permissible narrowed, while acts of subversive violence or invasion of privacy justified in the name of God increased.[26] Religious competition linked to Nigerian electoral politics intensified, entrenching fundamentalism tendencies within both Christianity and Islam in the country further.

4 DEMOCRATIC TRANSITION

Perceptions of inequality and support for fundamentalist Islam deepened with the democratic transition in 1999 which came after decades of military rule mixed with intermittent civilian rule. Democratic politics lent themselves to exploitation by corrupt leaders and led to increased disappointment and alienation with democratic governance among the population. Politicians seized on drafting and implementing sharia codes to mobilise the electorate and win votes, posing "sharia" as a solution to corruption, injustice, poverty, unemployment and inequality. Additionally they took advantage of fears of a shift of authority to a southern Christian President in Goodluck Jonathan (in office May 2010 – May 2015) and resentment over the perceived marginalisation of northern areas to consolidate power.[27] However, the introduction of sharia codes has not met these high expectations, as it failed to bring

22 The term, "religious fundamentalism," is used here as distinct from religious conservatism and to signify the project whereby those engaged in it "construct tradition" in a way that is highly selective, at the same time dogmatically insisting that their reconstructions of text are "sacred" and therefore cannot be questioned: Stephen Cowden and Gita Sahgal 2017: Why fundamentalism? In Feminist Dissent 2, pp. 7–38. They deny "the possibility of interpretation and reinterpretation even while its adherents engage in both and note the importance of control over women's bodies, sexuality and rigid gender norms": Bennoune, Karima 2013: Your fatwa does not apply here : Untold stories from the fight against Muslim fundamentalism. New York: Norton Books, p. 16.

23 Mustapha, A.R. 2015: Introduction: Interpreting Islam: Sufis, Salafists, Shi'ites and Islamists in Northern Nigeria. In Mustapha, A.R. (ed.): Sects and Social Disorder: Muslim Identities and Conflict in Northern Nigeria. Woodbridge: James Currey, pp. 10–11.

24 Mustapha, A.R. 2015: Understanding Boko Haram. In Mustapha, A.R. (ed.): Sects and Social Disorder: Muslim Identities and Conflict in Northern Nigeria, Woodbridge: James Currey.

25 Ostien, P. 2018: The Muslim Majority in Northern Nigeria: Sects and Trends. In Mustapha, A.R. and D. Ehrhardt. (eds.): Creed and Grievance: Muslim-Christian Relations and Conflict Resolution in Northern Nigeria. Woodbridge: James Currey.

26 Nagarajan, Chitra 2018: Culture/ Religion/ Tradition vs Modern/ Secular/ Foreign: Implications of Binary Framings for Women's Rights in Nigeria. In: Feminist Dissent 3, and Mustapha, A.R. 2015: Introduction: Interpreting Islam: Sufis, Salafists, Shi'ites and Islamists in Northern Nigeria. In: Mustapha, A.R. (ed.) Sects and Social Disorder: Muslim Identities and Conflict in Northern Nigeria. Woodbridge: James Currey, p. 9.

27 Hoffmann, L. 2014: Who Speaks for the North? Politics and Influence in Northern Nigeria, Research Paper, Chatham House. Retrieved 07 April 2019 from https://www.chathamhouse.org/publication/who-speaks-north-politics-and-influence-northern-nigeria.

about deep and transformative change to reduce poverty, inequality, corruption and injustice.[28] Inequality, both vertical (between individuals) and horizontal (between groups and regions) continued to rise, and corruption continued unabated over the past 20 years of democratic rule. While the Nigerian economy grew at least 15-fold between 1999 and 2010, unemployment rose from 6 per cent to 12 percent between 1987 and 2008.[29] It continues to increase: while the unemployment rate averaged 12 per cent from 2006 until 2018, it reached an all-time high of 23 per cent in the third quarter of 2018.[30]

These economic and social shifts had repercussions on perceptions of security too. Due to depressed livelihoods and increasing inequality and poverty, criminality, theft and rural banditry increased from the mid-1980s onwards. In many communities across northern Nigeria, communities decided to form self-defence groups.

28 Mustapha, A.R., D. Ehrhardt and R. Diprose 2018: Historical Contexts of Muslim-Christian Encounters in Northern Nigeria. In: Mustapha, A.R. and D. Ehrhardt. (eds.) Creed and Grievance: Muslim-Christian Relations and Conflict Resolution in Northern Nigeria. Woodbridge: James Currey; Kendhammer, B. 2016: Muslims Talking Politics: Framing Islam, Democracy and Law in Northern Nigeria. University of Chicago Press.; Nagarajan, Chitra 2018: Culture/ Religion/ Tradition vs Modern/ Secular/ Foreign: Implications of Binary Framings for Women's Rights in Nigeria. In: Feminist Dissent 3.

29 British Council 2012: Gender in Nigeria: Improving the Lives of Girls and Women in Nigeria. 2nd edition, pp. 9–10.

30 Trading Economics 2019: Nigeria Unemployment Rate. Retrieved 02 Feb. 2019 from https://tradingeconomics.com/nigeria/unemployment-rate.

5 CONFLICT DYNAMICS TURN VIOLENT – THE RISE OF ARMED OPPOSITION GROUPS

Against this backdrop, Mohammed Yusuf, a charismatic Islamic scholar and teacher, started gathering a large following in Maiduguri, the capital of Borno state in Northeast Nigeria. Yusuf preached against the corruption and inequality of the state, called for a return to a "purer," more Islamic way of life and rejected western influenced culture, institutions and education, including "secular" governance and democracy. His followers came to call themselves Jama'atu Ahl al -Sunna li -l- Da'wa wa-l-Jihad (JAS[31]), translated as People Committed to the Propagation of the Prophet's Teachings and Jihad. This group came to be (mis)labelled as 'Boko Haram' by the media in reference to one of the slogans members would chant at their rallies.[32]

Confrontation between this group and state security forces led to the wounding and killing of members and the summary execution of Yusuf by the police in 2009. These actions marked a turning point. Under Yusuf's deputy, Abubakar Shekau, JAS returned to Maiduguri after regrouping and arming. They became increasingly exclusionary and violent, engaging in targeted killings. Civilians were caught between JAS and security forces whose personnel, unable to distinguish JAS members, committed human rights violations and made mass arrests. The Civilian Joint Taskforce (CJTF), a self-defence militia that emerged in the city during this time, was in large part responsible for pushing JAS out of Maiduguri.[33]

JAS captured and occupied much of the territory of Borno state, some of the territory of neighbouring states and spread progressively across the border into neighbouring, Cameroon Chad and Niger. In Chad, JAS activity started in 2015. Whilst violence is largely concentrated in Nigeria, kidnappings, killings and recruitment are now occurring in all four countries. The lack of strong governance, distance (real and perceived) from the centre and from decision making and financial incentives, heightened JAS's ability to recruit, for example, in the islands of Lake Chad where inhabitants are often unclear to which country their island belongs.

Many communities formed militias in response. What had been a war against the state turned into more of a civil war, with the presence of community militias becoming one of the factors that affected whether

31 Given the number of Jama'atu hlis Ahl al Sunna groups, the acronym JASDJ is also sometimes used to refer to this group.

32 Boko originally meant fraud, sham, inauthentic or hoodwinking and came to be associated with westernised people and elites and western style frameworks, culture, institutions and education: Thurston, Alexander 2017: Boko Haram: The History of an African Jihadist Movement, Princeton: Princeton University Press; and Mustapha, A.R. 2015: Understanding Boko Haram. In Mustapha, A.R. (ed.) Sects and Social Disorder: Muslim Identities and Conflict in Northern Nigeria. Woodbridge: James Currey.

33 Nagarajan, Chitra 2018:Civilian Perceptions of the Yan Gora (CJTF) in Borno State, Nigeria. Center for Civilians in Conflict. Retrieved 07 April 2019 from https://civiliansinconflict.org/wp-content/uploads/2018/06/2018.06.CJTF-Report.Africa-Program.Web_..pdf

a community was attacked.[34] Abductions from Government Girls' Secondary School in Chibok in April 2014 drew international attention and were one of the factors that led to the internationalisation of the military response. The Multi-National Joint Taskforce (MNJTF), drawn from Benin, Cameroon, Chad, Niger and Nigeria, was instituted in 2014 and, working together with community militias, recovered significant territory from JAS in 2014 and 2015.

August 2016 saw JAS split into two distinct groups. This was prompted by a disagreement over who was a legitimate target of violence, unhappiness in the ranks at the targeting of fellow Muslims not linked to the group, and the Islamic State's announcement that Abu Musab al Barnawi would be the leader of their West African province Province (ISWAP). The result is that there are now two groups - JAS where Shekau remains as leader, and ISWAP.

Since summer 2018, ISWAP has staged a number of attacks on military bases. From late December onwards, Borno in Nigeria, Diffa in Niger and the Far North of Cameroon have seen several attacks, evidence of the group's growing capabilities. ISWAP attacks tend to be marked

34 Nagarajan, Chitra 2018: Conflict Analysis of Northeast Focal States: Biu, Bursari, Gombi, Hawul, Hong, Jakusko, Jere and Kaga Local Government Areas. Catholic Relief Services; Chukwuma, O.A. 2017: Nigeria: Volunteer Vigilantism and Counter-Insurgency in the North-East. In: Conflict Studies Quarterly 20: 34–55; International Crisis Group, The Watchmen of Lake Chad: Vigilante Groups Fighting Boko Haram. Africa Report No. 244, 23.

by fewer civilian casualties as the group is thought to try to minimise civilian harm. JAS attacks are more indiscriminate. Now more than ever, resolution of this conflict seems to be contingent not on an outright military victory on the field of battle, but on winning the hearts and minds of local populations.

BOX 5 SMALL ARMS AND WEAPONS

A feature of the conflict that enabled the conflict to rapidly turn violent has been the influx of weapons into the region. The Arab Spring, the collapse of Libya, the conflicts in Chad and Mali as well as now in the Lake Chad region have increased the availability of arms and weapons.[35] The porous borderlands of the region play an important role in expediting the proliferation of weapons. The countries of the region have now become simultaneously a source, transit point and destination for small arms and weapons.[36] While the exact number of small arms and weapons in the Lake Chad region is impossible to quantify, it is clear that they have had a major impact on peace and everyday life.

35 36

6 CIVILIAN HARM AND GRIEVANCES GROW

All parties to the conflict have harmed civilians. Armed opposition groups have detonated bombs, including through the use of 'suicide' bombers, engaged in forced recruitment and kidnapping, including of children, and committed violence against women and girls, which has included sexual violence and forced marriage.[37] Nigerian security forces have committed human rights violations, caused indirect harm during the course of operations and failed to protect civilians from harm.[38] While civilians credit the CJTF for bringing back some stability and safety and working to protect them, they also point to assaults and killings of those thought to be associated with armed opposition groups, restrictions of movement, gender-based violence, intimidation and diversion of humanitarian aid.[39]

35 de Tessières, Savannah 2017: Measuring illicit arms flows Niger. Retrieved 25 March 2019 from http://www.smallarmssurvey.org/fileadmin/docs/T-Briefing-Papers/SAS-BP1-Niger.pdf; and International Crisis Group 2017: Fighting Boko Haram in Chad: Beyond military measures. Retrieved 25 March 2019 from www.crisisgroup.org/africa/central-africa/chad/246-fighting-boko-haram-chad-beyond-military-measures.

36 Moses, J.M. and J.L. Ngomba 2017: Small arms and light weapons proliferation in the early 21st century: The Nigerian case. In International Journal of Development and Sustainability 6: 11, p.1642.

37 Amnesty International 2015: Our job Is to shoot, slaughter and kill: Boko Haram's reign of terror in North-East Nigeria. Retrieved 07 April 2019 from https://www.amnesty.org/download/Documents/AFR4413602015ENGLISH.PDF

38 Dietrich, Kyle 2015: When You Can't See the Enemy: Civilians Become the Enemy: Living Through Nigeria's Six Year Insurgency. Center for Civilians in Conflict.

39 Nagarajan, Chitra 2018: Civilian Perceptions of the Yan Gora (CJTF) in Borno State, Nigeria. Center for Civilians in Conflict.

Lake Chad has historically fluctuated in size and at the seasonal, inter-annual and decadal timescales. The key impact of climate change on Lake Chad has not been the shrinking of the lake itself but its variability and uncertainty of water levels that affects the lives and resilience of the communities around it.

While displacement and humanitarian needs existed for years previously, the humanitarian response scaled up in 2016. While a humanitarian crisis continues, conversations in recent months have focused on building community resilience and long-term development. However, it is unclear how much aid will be provided and for how long. The stakes are high. For example, in the Northeast Nigerian town of Ngala, near the Cameroon border, food assistance to the host community was cut from 53,000 to 38,000 individuals from September to October 2018 with plans to cut even further to 14,000 in January 2019 in order to transition them to livelihoods programming before development programming was able to assure livelihoods and food security.

The high levels of insecurity and military restrictions in the context of the increased uncertainty as a result of climate change make the transition to livelihoods and development programming particularly challenging. In Niger for example, the Nigerien military has declared that the area around Lake Chad is a red zone that is off limits to civilians, although it is the only area that can effectively support livelihoods. This policy forced civilians to go back to areas that stopped being productive years ago, with some individuals and groups now deciding to back to the Lake Chad area, regardless of the risk.

1.7 THE CLIMATE AND HYDROLOGICAL CONTEXT

Ninety per cent of Lake Chad's water comes from the Chari River (which flows from the Central African Republic through Chad) and the Logone River (which rises in Cameroon and joins the Chari River around N'Djamena before joining Lake Chad). This river system drains more than 610,000 km2 of a huge catchment located in the Sudanese areas. The lake's level is highly linked to the variation in the runoff from the rivers, which themselves rely on rainfall.

Lake Chad has been held up as a potent symbol of the impacts of global climate change occurring in the region. After being ranked the world's sixth largest inland water body with an open water area of 25,000 km2 in the 1960s, it shrank dramatically at the beginning of the 1970s and reached less than 2,000 km2 during the 1980s, decreasing by more 90 per cent in area. The 1970s and 1980s droughts split the lake into a southern and a northern pool, and the regular drying of the northern pool of the lake alerted the international community to the possible disappearance of the lake.[40] Since the 1990s, people have observed that the surface water of the lake has increased due to more favourable rainfall in the western Sahel.[41] However, the regular dryness of the northern pool and the consequent spread of vegetation cover perpetuated a perception of a shrinking lake which holds strong and is much repeated among policy makers.

The lake's unique topography plays a role here. It is extremely shallow, with an average depth of only three to four meters, the average intra-annual variation of one meter translates into huge variations in surface area between summer and winter months. This helps explain the strong perception that the lake is shrinking.

40 This article contributed to the common perception that Lake Chad would be shrinking: Chandler, Lynn 2001: Africa's Lake Chad shrinks by 20 times due to irrigation demands, climate change. Note 01-17. Goddard Space Flight Center. Greenbelt, MD: NASA. Retrieved 04.04.2019 from http://geoalliance.asu.edu/sites/default/files/LessonFiles/Martin/Chad/GSFC_Press_Release_01_17.pdf.

41 Nicholson, Sharon E. 2001: Climatic and environmental change in Africa during the last two centuries. In: Climate Research 17, pp. 123-144, and Lebel, Thierry and Abdou Ali 2009: Recent trends in the Central and Western Sahel rainfall regime (1990–2007). In: Journal of Hydrology 375, pp. 52-64.

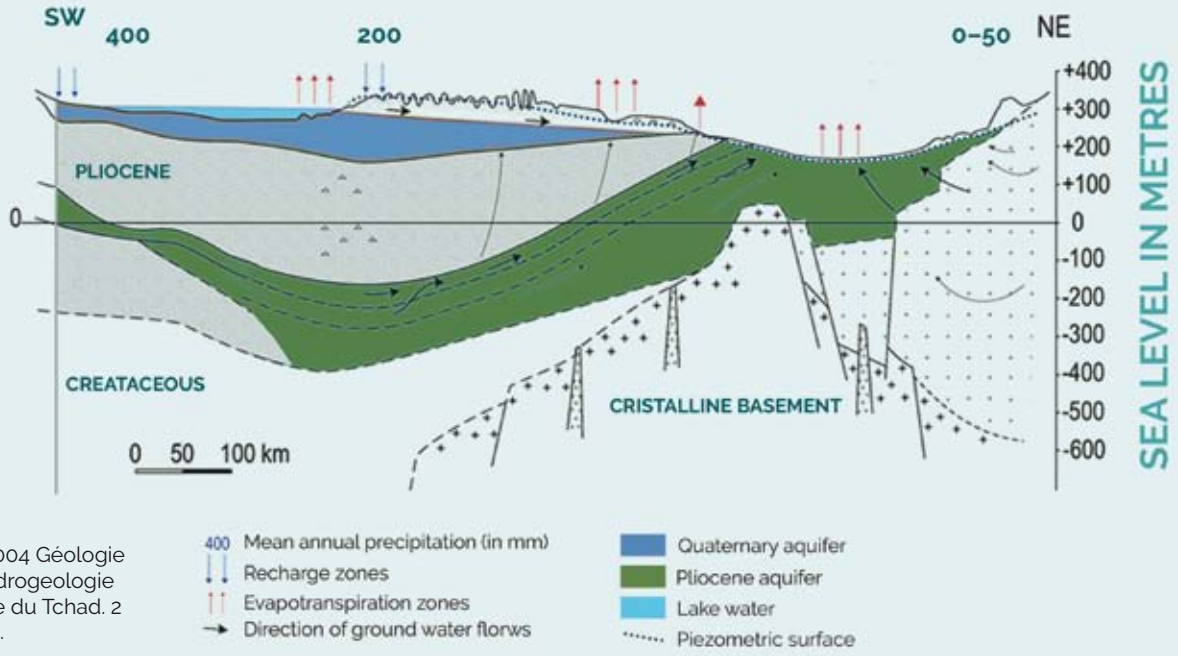
However, this assessment finds that this position is no longer accurate based on recent data. Insufficiently documented analyses of satellite observations have been used to illustrate this supposed vanishing Lake Chad and have persisted in part because of a lack of accurate and recurrent ground observations. New research for this assessment based on continuous satellite observations from the last 20 years has been able to address this evidence gap and show instead that overall, **the lake is not shrinking.** In the southern pool, the surface water extent and its seasonality are quite stable. In fact, the actual size of the southern pool has not changed over the last 20 years. In the northern pool, the surface water extent is decreasing slightly, with recurrent dry out punctuated by recovery periods. The important point to note is that water returns to the northern pool every rainy season. Compared with the period during the drought of the 1970s and 1980s when even during the rainy season the northern pool was not revived, presently, even if some parts of the northern pool dry out in the dry season, they fill again in rainy season.

However, when we consider the total water storage which includes lake surface area, soil moisture and groundwater—which is a more relevant measure than just surface water for the people living around the lake, given the importance of soil moisture and groundwater for agriculture—we see that **total water storage is increasing.** Eighty per cent of total water storage is due to the expanding quantities of groundwater, and 20 per cent is due to surface water.

In sum, the lake is not disappearing or decreasing in size; the lake's size varies a lot between seasons, between years, and over the decades. Since the beginning of the 2000s, its open water surface has actually been quite stable, and if you include the water that is overgrown by vegetation (where the water is not visible by satellite), it has actually grown considerably reaching more than 13,000 km2.

Furthermore, a shrinking lake does not necessarily imply loss of livelihoods; people in the Lake's vicinity have traditionally shifted their livelihoods in accordance with the lake's rhythm. So an intermediate shrinking has actually often been beneficial as it meant better opportunities for recession agriculture, where people could grow different crops. It is the increasing variability of the lake's size and frequency of extreme and more intense weather events in recent years due to climate change which is increasing livelihood insecurity and natural resource conflicts and decreasing coping capacity to deal with shocks.

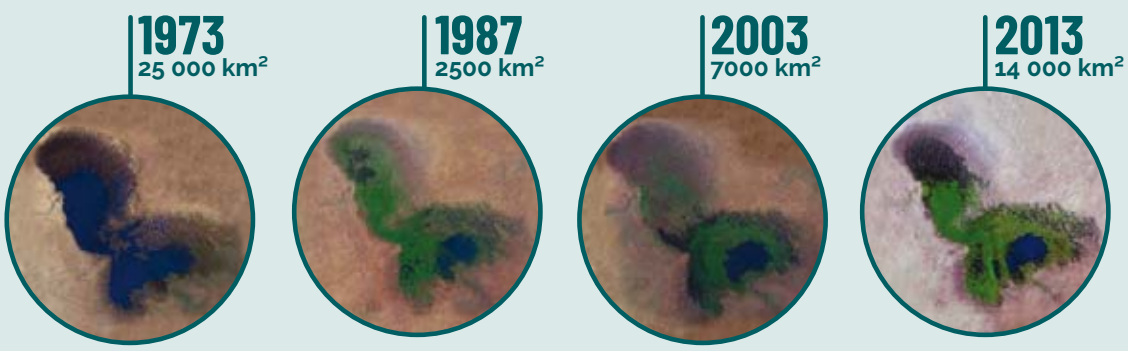
FIGURE 4 LAKE CHAD IS A MULTI-LAYER AND COMPLEX GROUNDWATER SYSTEM



Source:
Schneider. J.L. 2004 Géologie Archéologie, Hydrogeologie de la République du Tchad. 2 volumes. 693 pp.

Lake Chad sits above two vast aquifers. The upper, shallower Quaternary aquifer is recharged from run-off water and rainfall. It is accessible to local people through hand-dug wells and shallow boreholes who use it for domestic use, growing vegetables and watering livestock. Over-extraction of water from the Quaternary aquifer in some areas causes a deterioration of water quality, for example through increased salination. The deeper, Pliocene aquifer is an ancient fossil aquifer and a much larger and purer source of fresh water. It is less documented, with only very sparse information available. This study recommends further research on the potential for carefully managed extraction of water from the Pliocene aquifer.

FIGURE 5 LAKE CHAD'S WATER LEVEL FLUCTUATIONS



Source:
NASA Goddard Space Flight

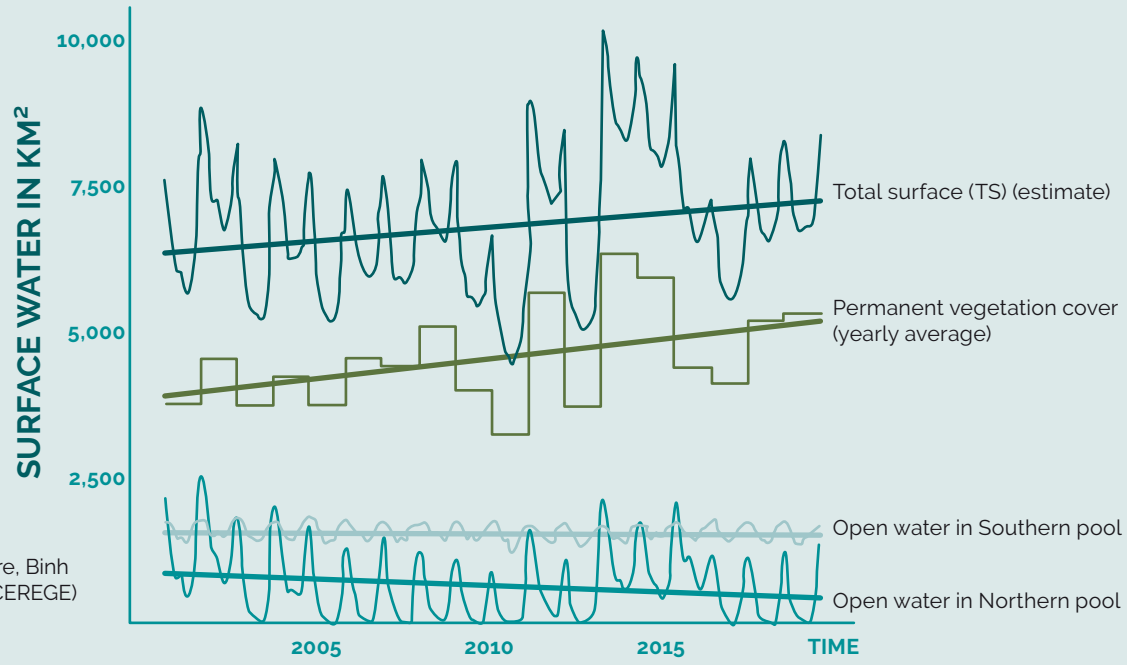
The shallowness of Lake Chad and the high ambient temperatures have led to an increase in vegetation in the Lake, especially in shallow areas. This has led to a misperception that parts of the Lake have disappeared or turned into swamp lands.

Although total water storage is increasing, Lake Chad is still affected by climate change. The assessment findings underline the strong climate variability that is affecting all of the central Sahel. In the case of Lake Chad this mainly plays out in the fluctuating size of the northern pool and increasing unpredictability of when and how much rain falls. Moreover because of the shallowness of the lake and higher ambient temperatures, vegetation cover is increasing, particularly in shallow areas. This, in turn, is slowing water movement across the lake, and hampering fishing and boat transport across the lake. These changes are feeding a misleading perception that large parts of the lake have disappeared or become a vast swamp.

**“The weather has been changing.
Sometimes it is windy, sometimes it is sunny.
And not only that, even in the rainy times, sometimes
the water will be so much that it will even destroy
land, houses and other things.”**

– Young male farmer in Monguno, Nigeria

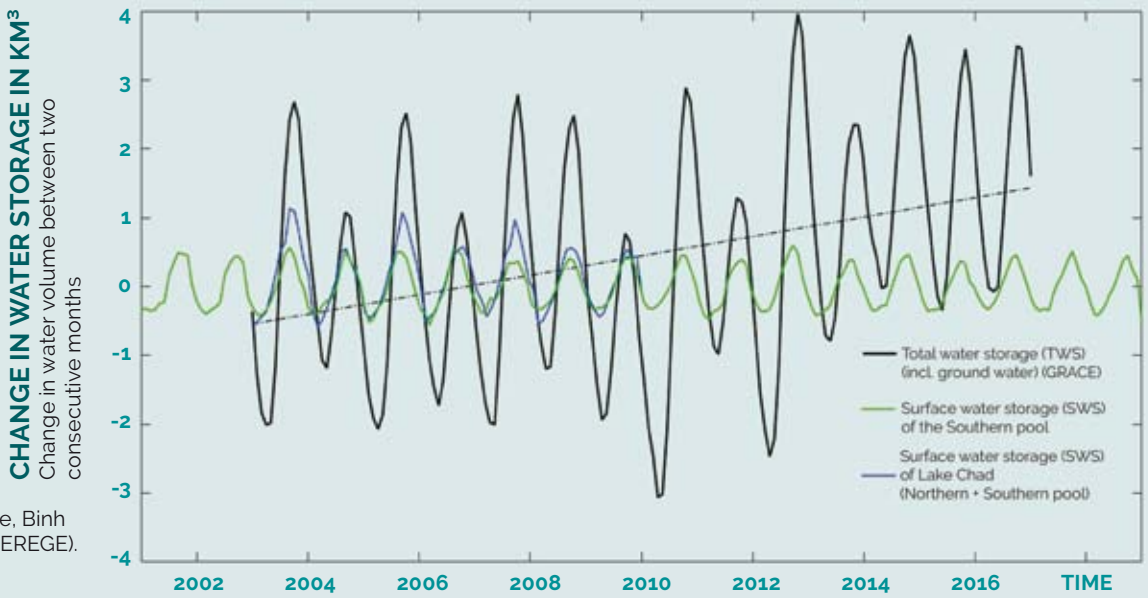
FIGURE 6 SURFACE WATER EXTENT OF LAKE CHAD



Source:
Florence Sylvestre, Binh Pham Duc (IRD-CEREGE)

The second line from the bottom in this graph shows that the water in the southern pool is stable. A significant increase in vegetation (represented by the green line) could partly compensate for the decrease in water in the northern pool. The vegetation, which obscures the surface of the water, gives the misleading impression from satellite views that the northern pool is smaller than it really is. At the same time, the increased vegetation could prevent water from the southern pool entering the northern pool. Because the vegetation increases evapotranspiration, there is some decrease in the water in the northern pool. But taking both pools together, and accounting for the vegetation cover, the overall surface water of the lake is increasing (top line).

FIGURE 7 TOTAL WATER STORAGE OF LAKE CHAD



Source:
Florence Sylvestre, Binh Pham Duc (IRD-CEREGE).

This graph shows that the surface water storage is stable. The lake's size, measured as total water storage (black line), takes account of all the water of the lake, including surface water, subsurface water and ground water, which accounts for over 80% of the lake's water, is clearly increasing. This denotes that the lake's groundwater is increasing. Surface water storage accounts for only 20% of the lake's water. Whilst this surface water is what is visible and is significant for livelihoods such as fishing, groundwater is extracted via boreholes for farming, livestock and domestic use and highly pertinent to the communities around the lake.

BOX 6 NOT A SHRINKING LAKE, BUT A FLUCTUATING ONE

Whilst Lake Chad shrank dramatically in the 1970s and 1980s**, Lake Chad is not currently shrinking.** Overall, taking account of the surface water extent of the northern and southern pool together, plus the total water storage, ground water and soil moisture, the lake is actually in a period of expansion, and has been for the past two decades. However, the lake is highly affected by seasonal and inter-annual variability in response to higher climate variability. It is this variability and uncertainty that is affecting the lives and resilience of the people who depend on the lake.

Data collected for this assessment show that this volatility is affecting people's resilience and increasing fragility in the Lake Chad area. According to respondents to our study, the three ways in which these climate change implications affecting people's day-to-day lives are:

1. Increased livelihood and food insecurity. For example, changes in temperature and rainfall patterns lead to an increase in diseases which affect crops and cattle.
2. Increased livelihood insecurity and decreased coping capacity to deal with shocks and increased natural resource conflicts due to more unpredictable changes in lake levels affecting people's ability to plan how, when and what to graze, fish and cultivate.
3. New conflicts over fertile land arise when changes in rainfall alter the fertility of different areas.

FUTURE CLIMATE IMPACTS

Since the beginning of the 1990s, weather stations have recorded an increase in average annual rainfall in the region. The Central Sahel seems to have become progressively wetter, but it is highly unclear whether this trend will continue. While this might appear to be a positive trend, the uncertainty over and variability of when the rains will come, and how much rain will fall, pose significant risks to livelihood security.

Most climate models predict increased rainfall coupled with higher inter-annual variability and more frequent extreme events. However, countervailing mechanisms such as a cooling of the Atlantic as a result of accelerated ice sheet melting around Greenland might equally cause a large decrease in the amount of rain falling on the Sahel.[42] The net effects are unclear at this point but there seems to be a trend towards increasing unpredictability. Since 1990 extreme rainfall events have become more intense and frequent, increasing flooding risks and making it harder to retain and use the water.[43]

Knowledge of the scale of the variation in rainfall over multiple decades is limited. The current wet period has seen less abundant rainfall than the last wet period half a century ago, and one important question is whether the next dry period will also be drier than the last. At the same time, it is also unclear when that next dry period will begin.

Global models predict warming in the Sahel that is faster and higher than the predicted global averages. Although global models show some uncertainty regarding future climate projections, the majority—approximately 75 per cent —forecast that precipitation will increase across most of the Sahel, including the areas around Lake Chad.[44] This forecast is consistent with historical records, where warm periods have been associated with a larger lake. However, more research is needed to understand the variability of Lake Chad and the interaction between different forcing mechanisms.

In short, the crucial climate vulnerabilities do not derive from the lake's shrinking, but from significant uncertainties over variability and, hence, future water availability – at the seasonal, inter-annual and multi-decadal timescales.

42 Defrance, Dimitri, Gilles Ramstein, Sylvie Charbit, Mathieu Vrac, Adjoua Moïse Famien, Benjamin Sultan, Didier Swingedouw, Christophe Dumas, François Gemenne, Jorge Alvarez-Solas and Jean-Paul Vanderlinden 2017: Consequences of rapid ice sheet melting on the Sahelian population vulnerability. In: Proceedings of the National Academy of Sciences 114: 25, pp. 6533–38.

43 Taylor, C.M., D. Belušić, F. Guichard, D.J. Parker, T. Vischel, O. Bock, P.P. Harris, S. Janicot, C. Klein and G. Panthou 2017: Frequency of extreme Sahelian s tripled since 1982 in satellite observations. In: Nature 544, pp. 475–478.

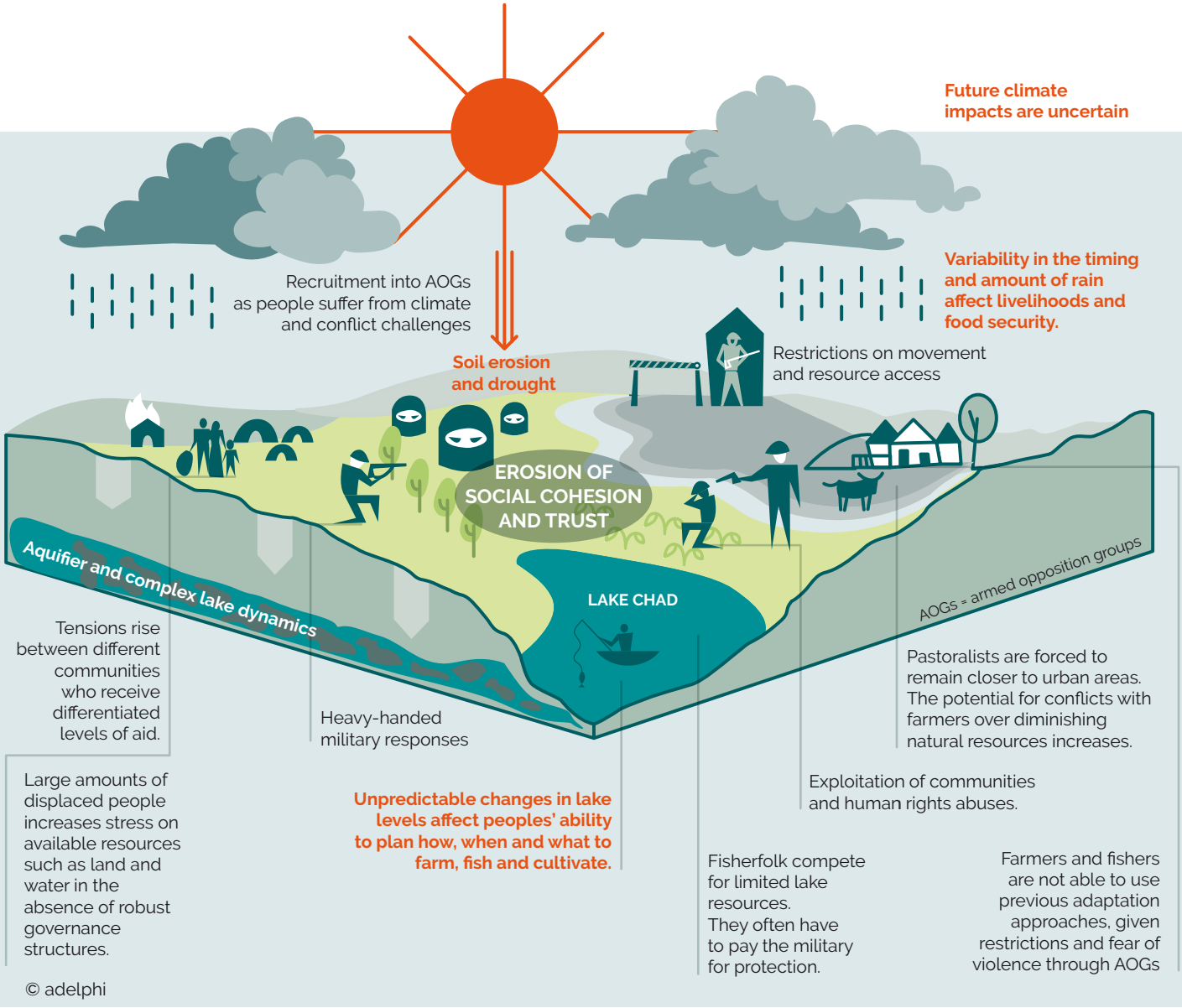
44 Roehrig, Romain, Dominique Bouniol and Francoise Guichard 2013: The present and future of the West African monsoon: A process-oriented assessment of CMIP simulations along the AMMA transect. In: Journal of Climate 26, 17, pp. 6471–6505.

1 CAUGHT IN A CONFLICT TRAP: THE DOUBLE-HEADED RISKS OF CONFLICT AND CLIMATE CHANGE

FIGURE 8

LAKE CHAD'S CLIMATE CONFLICT TRAP

CLIMATE CHANGE CONTRIBUTES TO THE DRIVERS OF CONFLICT AND CONFLICT AFFECTS PEOPLES' ADAPTATION CAPACITIES



The impacts of man-made climate change were visible in the Lake Chad region before the current violence started. More extreme weather events, in particular heavy rains, prolonged droughts and changing rainfall patterns increased the pressure on livelihoods, particularly in rural areas. The violence since 2009 has compounded these challenges with high numbers of displaced people within and across national borders, restricted mobility and undermined social cohesion. Communities in this region are vulnerable to both the rising impacts of climate change and the ongoing conflict – a pincer movement of forces that has the region locked in a conflict trap.

This creates its own feedback loop: violence undercuts communities' capacity to adapt to climate change, but climate change undermines efforts to escape the conflict trap. How this manifests is extremely complex. Climate change can compound existing conflict drivers, deepen fragility and make it harder to envision peace. In Lake Chad it can contribute to increased incidence of natural resource conflict and armed opposition recruitment. On the other hand, the impact of the conflict on livelihoods and the heavy-handed military responses illustrate how conflict increases people's core vulnerability, removing existing coping mechanisms, leaving them less able to cope with the volatility presented by climate change. Each dynamic hinders peace and resilience.

The following chapter sets out four key risks emerging from the assessment which keep the people of Lake Chad caught in a conflict trap:

1. **Climate and conflict dynamics undermine livelihoods:** The adaptive capacity of communities is simultaneously undermined by climate change and conflict. The displacement of people, restricted movement and weakened social cohesion weaken adaptive capacity.

2. **Increased competition for natural resources:** The combination of large amounts of displaced people, restricted access to resources and diminishing land availability and quality has led to competition over natural resources in some locations. The mixture of climate and conflict challenges has disrupted previous governance and restitution measures that had already weakened prior to violence and now either no longer exist or are not sufficient to manage conflict.

3. **Recruitment into armed opposition groups:** This takes place in the context of stark social and economic inequality, increasingly vulnerable livelihoods and the lure of financial incentives that are offered to potential recruits. Climate change compounds this risk as it affects already fragile economies and livelihoods.

4. **Heavy handed military response:** While the region's governments used military measures to respond to the crisis, their efforts did not address the root causes of the crisis. In fact, the opposite was the case as the military response led to livelihood restrictions and human rights abuses. This compounded vulnerabilities to violent conflict and reduced people's capacity to adapt to climate change.

RISK 1

CLIMATE AND CONFLICT DYNAMICS UNDERMINING LIVELIHOODS

Prior to the outbreak of violence in 2009, there was a rich tapestry of cross-border market trade in the Lake Chad region. Built around a dense network of markets going back to the age of trans-Saharan trade, these informal links continued in spite of the differences in official languages, currencies, laws and regulations.[45] Even with the increasing impact of climate change on food security, these livelihood systems enabled local populations to adapt. People would move to new areas (often following the lake's shifting shores), grow different crops, take different grazing routes and mix farming, pastoralism and fishing. Fisher folk developed new fishing techniques to adapt to the spread of vegetation in the lake caused by the shrinking and expansion of the southern pool of Lake Chad. The resilience of populations around Lake Chad was reflected in their ability to cope with environmental stress over many generations, particularly during droughts in the 1970s and 1980s when the lake shrank to its lowest levels.[46]

Since 2009, the violence has prevented people in many communities from pursuing former livelihood activities. This has forced them to resort to negative coping strategies and has severely disrupted and, in many instances, blocked the flow of regional trade across the borderlands of Lake Chad. Violence and trade disruption have combined to undermine food security. For example, between 2007 and 2017 in Borno state, those who have gone without enough food to eat has risen from 18 per cent up to 50 per cent.[47]

The conflict has undermined adaptive capacity in three ways:

- Displacement of people;
- Restriction of movement reducing access to natural resources;
- Reduced social cohesion and trust.

45 Abdoul, M. and M. Trémolières 2007: Micro-regionalism in West Africa. Cross-border co-operation between Niger and Nigeria: The case of the Maradi Micro-region. In Micro- regionalism in West Africa, Evidence from two case studies, Discussion Paper 34, Nordiska Afrikainstitutet, Uppsala, p. 31. Retrieved 21 Jan. 2019 from http://nai.diva-portal.org/smash/get/diva2:240826/FULLTEXT01.pdf.

46 See for example Kolawole, Are 1988: Cultivation of the floor of Lake Chad: A response to environmental hazard in Eastern Borno, Nigeria. In: The Geographic Journal 154, 2, pp. 243–250.

47 Afrobarometer 2007 and 2018: Nigeria, Rounds 3.5 and 7. Retrieved 28 Jan. 2019 from http://www.afrobarometer.org/.

The combination of the displacement of people, military restrictions on movement as well as reduced social cohesion and trust have undermined livelihoods and weakened the adaptive capacity of the population around Lake Chad.

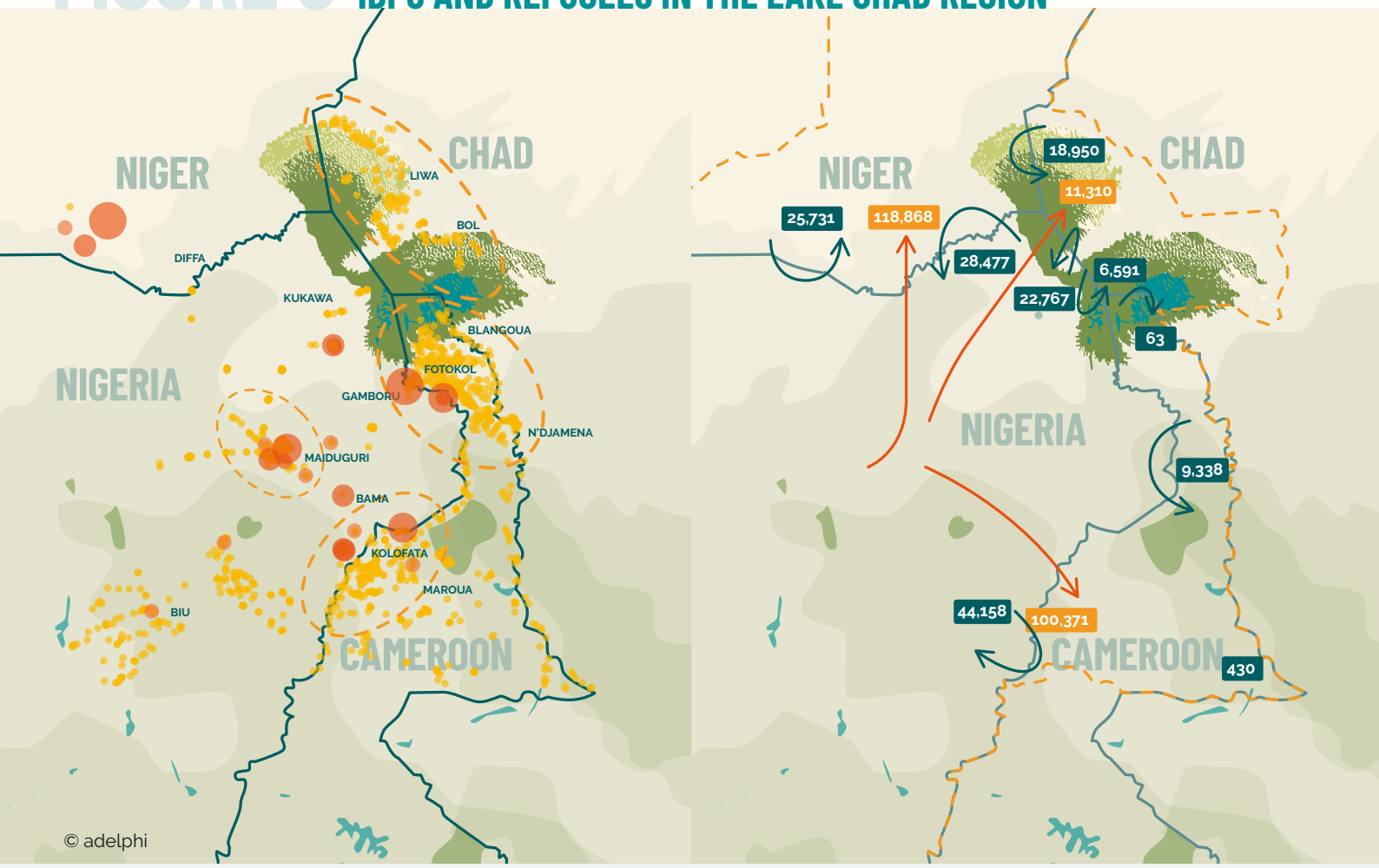
DISPLACEMENT

With the region already experiencing one of the fastest population growth rates in the world,[48] the surge in numbers of internally displaced people (IDPs) and refugees has resulted in the movement and clustering of large numbers of people into already resource stressed and/or deficient areas in search of safety. The numbers are stark. The United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) has estimated that these four countries are hosting more than 2.5 million displaced individuals including IDPs, refugees, returnees in addition to other displaced individuals that have come from outside of the four Lake Chad basin countries, principally the Central African Republic and South Sudan. Eighty-one per cent of these are located in Nigeria.[49]

48 UNFPA 2017: Demographic dynamics and the crisis of countries around Lake Chad. Retrieved 28 Jan. 2019 from https://wcaro.unfpa.org/sites/default/files/pub-pdf/UNFPA-WCARO-BLT-EN-LAKE%20CHAD-DYNAMICS-WEB.pdf.

49 OCHA 2019: Lake Chad Basin Crisis Overview. Retrieved 22 Jan. 2019 from https://reliefweb.int/sites/reliefweb.int/files/resources/Lake%20Chad%20Snapshot.pdf; and International Organization for Migration 2018: Regional Displacement Tracking Matrix/Lake Chad Basin Crisis – Monthly Dashboard. https://displacement.iom.int/system/tdf/reports/LCBC_Monthly_Dashboard_December_2018_v1.pdf?file=1&type=node&id=4876 [Accessed 22 January 2019].

FIGURE 9 IDPS AND REFUGEES IN THE LAKE CHAD REGION



LEGEND
Internally Displaced People (IDPs)
- 0–10.000
- 10.000–20.000
- 20.000–30.000
- 30.000–40.000
- 40.000–40.855

LEGEND
- International border
- Area affected by the crisis

CROSS BORDER MOVEMENTS
- Returnees from abroad
- Refugees

The increase in numbers of internally displaced people (IDPs) has resulted in the clustering of large numbers of people into already resource stressed and/or deficient areas in search of safety. This places significant pressure on locally limited resources and existing resource governance systems, increasing the potential for escalating conflict (see section 2.2). Notably, IPD sites are clustered around Maiduguri (Nigeria), southeast of Maiduguri along the Nigerian-Cameroonian border, in the border region between Gamboru (Nigeria) and N'Djamena (Chad), and to a lesser extent northeast of Lake Chad across the Chadian border.

People have had to leave their homes, leaving behind produce, tools and equipment. Many of them have moved a number of times and their financial capacity to respond and adapt to their changing circumstances has been eroded. Whilst the majority of displaced persons have sought safety within their own country, a considerable number have also fled to neighbouring countries; most notably from Nigeria to Niger and Cameroon and to a lesser extent to Chad. Furthermore, an estimated 157,000 people have moved back and forth between the four countries, with limited possibilities to rebuild an existence.

IDP sites in late 2018 (left) and cross-border refugee movements as of early 2019 (right). Source: IOM 2019: Displacement Tracking Matrix (DTM). IDP data. Retrieved 05 February 2019 from https://displacement.iom.int/; IOM 2019: Displacement Tracking Matrix (DTM). Lake Chad Basin Crisis Monthly Dashboard #8. Retrieved 05 March 2019 from https://displacement.iom.int/.

Many of these populations have been displaced a number of times and their financial capacity to respond and adapt to their changing circumstances has been completely eroded as savings have often been used to escape violence, sometimes multiple times. In this way, crop diversification, one of the key ways populations guarded against unpredictable weather, is less possible as farmers no longer have the financial resources or land to engage in planting multiple crops and/ or in different locations.

This movement has placed significant pressure on limited land resources. This, in turn, increases the potential for escalating natural resource conflict (see section 2.2) as more people attempt to survive in less space. Finding farmland that is both fertile and safe (because of insecurity levels) proves intensely challenging, particularly given that host communities tend to have prior claim. Women face particular difficulties when it comes to accessing land, especially if their husbands or fathers have been killed, detained or separated from them.

Pastoralists too face severe challenges as their animals die from hunger and thirst due to lack of water and pasture or are stolen by criminals or armed opposition groups. Moreover, like other occupation groups, they are moved by government security forces or move to escape areas of fighting and clashes between government security forces and armed opposition groups. As a result, pastoralists, and their animals, are remaining closer to more populated areas, compounding the stress on accessible, fertile land. Research for this assessment found that many people who previously made their livelihoods from fishing have been moved away from water bodies by security forces and often no longer have working fishing boats, nets and other equipment to resume fishing if they ever manage to return.

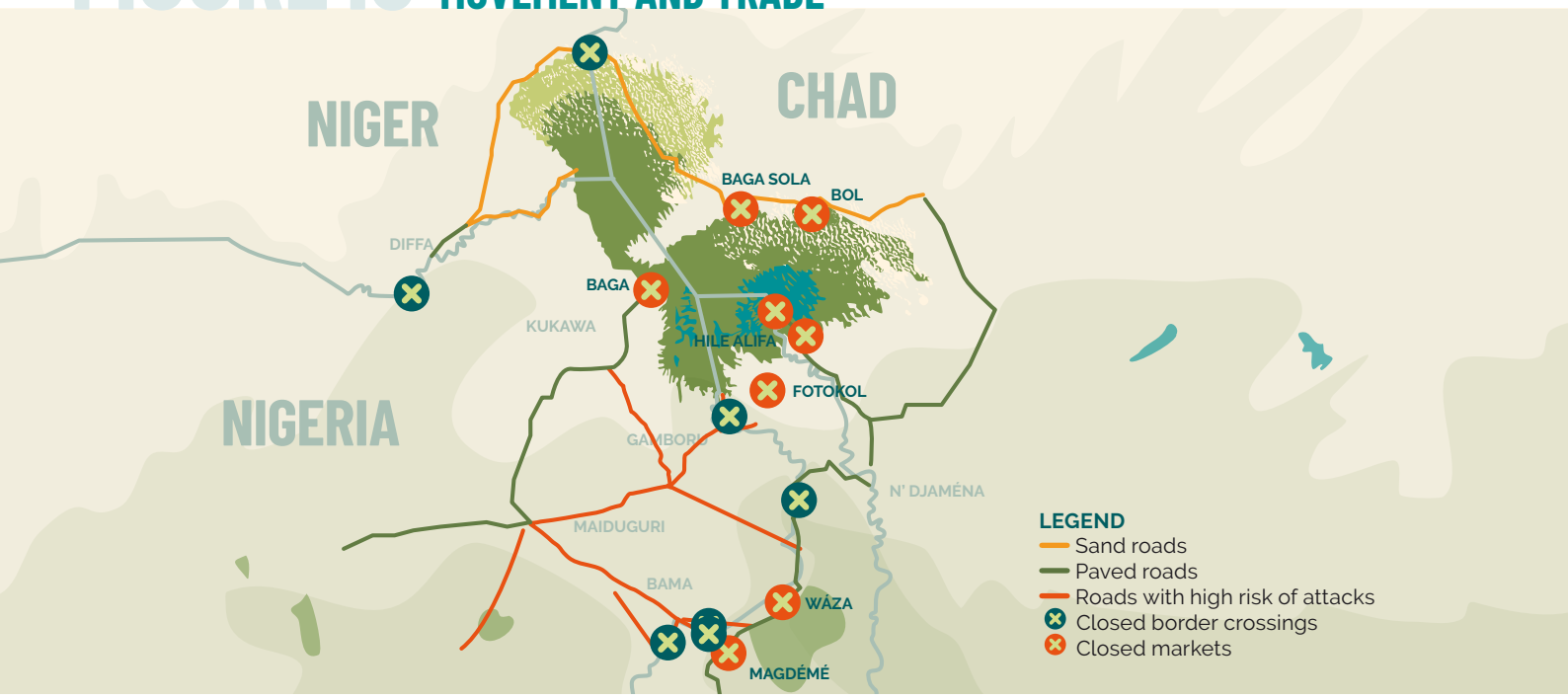
> **"Before, we had three options for farming. The first was during the rainy season. If the rain stopped, we were okay because we could go for our second option: farming irrigated by the stream, which does not require rain. If the stream dried up, we could go to the third – to Lake Chad to plant rice. Of course, the lake keeps changing so that is never certain, but all three disasters would not hit you in the same year. But now, we cannot do this. Due to the crisis, every economic avenue has been destroyed and virtually all economic activities have collapsed. If one options fails - which is likely because of rainfall, security restrictions and armed fighters - you cannot do others."**
>
> *– Young male farmer in Monguno, Nigeria.*

RESTRICTIONS ON MOVEMENT AND ACCESS TO RESOURCES

> **"Members of Boko Haram are living on the western side so people cannot go to the western side to look for another thing or people were working before but now they cannot go because Boko Haram can kill them. And any kind of assistance we can get we are ready to take and eat."**
>
> *– Female craft person, Bol, Chad*

A second risk factor - restrictions on the places that people can live and travel – is compounding the impacts of displacement and population growth on livelihoods and natural resources. While the fear of violence has made populations reluctant to travel for trade and work, security forces too have closed markets, disrupting internal and cross border trade and travel, banned livelihoods in certain areas and restricted the movement of items such as fertilisers and the height to which crops can grow (see section 2.4). The outcome has heavily affected many people's livelihoods in areas where populations can no longer move to new (fertile) areas where they can farm, herd or fish. In this way, a key climate change adaptation strategy is no longer open to them. With access to resources cut off all across the region, the population's ability to make a livelihood but also to sell or buy produce has diminished.

FIGURE 10 RESTRICTIONS ON CROSS-BORDER MOVEMENT AND TRADE



The map shows a selection of restrictions for illustrative purposes rather than a comprehensive assessment. The selection is based on field research.
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by adelphi or any of the funding parties.

Restrictions on movement and access to resources, namely around internally displaced and refugee camps and settlements, have already resulted in widespread deforestation around these areas driven by the search for firewood for cooking. The destruction of the trees around Minawawo refugee camp in Cameroon, accommodating nearly 60,000 Nigerian refugees, is just one of numerous sobering examples across the region. While many humanitarian agencies provide food and some are starting to distribute fuel efficient cook stoves, few agencies are providing the fuel needed to use the cook stoves to cook food.

This also poses a security challenge for people. Particularly in Nigeria, people need to go further from populated areas to collect this firewood. This evidently results in more widespread deforestation but also puts people at risk of attack, abduction, rape and killing by armed opposition group fighters, and being suspected by the military of passing information to armed opposition groups and being otherwise associated with them. Communities are well aware of the potential impact of deforestation on soil fertility and increased wind speeds but have few alternatives with which to cook food. In this way, these consequences of deforestation further reduce the adaptive capacity of communities.

Areas that are not as affected by the conflict have suffered as well. For example, in Cameroon, farmers who have traditionally grown crops for export to the valuable Nigerian market now have to find alternative markets in their own country. In particular, blocked access to the market at Baga in Nigeria – a key strategic trade centre due to its proximity to Niger, Chad and Cameroon, represented a huge loss for traders, fishermen, cattle herders and transporters in Niger. The conflict has also reduced imports to Nigeria's neighbours of vital boat parts needed by fisher folk. Countries can no longer source products from Northeast Nigeria or rely on traditional trade links through that region. People interviewed said that prices had sharply changed as a result.

"My main challenge as a woman who sells fish is there are no markets now. There is only one until Diffa; they have closed all the other markets. If you fish, you are not able to go to a far place like Nigeria to sell it. It is the main challenge we are facing."

– Female market trader, Bosso, Niger

> **When Nigerian borders are closed, the economy of Niger is blocked."**
> *– Woman in Bosso, Niger*

It is also important to note that there are many people circulating between the four countries, without a national identity card. They do not know which is their country. In Cameroon for example, there are many people living in cross-border communities who do not have identity documents because they have not been registered at the birth registry center. During the crisis, this seriously restricted their freedom of movement.

These dynamics affect everyone, regardless of their livelihood, but in different ways. Those who still engage in cross-border trade need to take longer routes that cut into profits due to increased transportation costs and the money extorted at security force checkpoints in the region. Women face particular challenges due to social norms and gendered power relations, but the nature of these challenges can differ according to intersections of different forms of oppression and marginalisation. Ethno-linguistic groups such as the Buduma, Kanuri and Fulbe tend to be associated with armed opposition groups in the minds of security forces and government officials. As a result, Buduma, Kanuri and Fulbe are stigmatized and face restrictions on movement and suspicious government forces when they encounter them in areas government forces do not control. The many people who have acquired a disability during the violence face particular challenges in providing for themselves given their abilities to resume livelihood activities have been affected by the disability, in the absence of much of a social safety net and a result of stigma, marginalisation and weakened social networks. As a result, people with disabilities are even less able to recover livelihoods than their able-bodied counterparts.

EROSION OF SOCIAL COHESION

The third factor that has undermined adaptive capacities has been the effect of the conflict on social cohesion. Field data for this assessment clearly showed that relationships and trust are weakened on different levels including:

- At the individual level
- At the family level
- At the community level
- Between communities and government.

At the individual level, respondents spoke of their own reduced ability to cope. Levels of trauma and psychological distress are high. Respondents spoke of a growing use of drugs, particularly the cheap opioid painkiller, Tramadol, in response to depression linked to violence, unemployment and conflict. For individuals, such as people with disabilities, who face stigma and marginalisation or rely on support being separated from those who used to provide love and care before the violence has been particularly devastating.

At the family level, relations between generations have become especially strained due to parents' inability to provide for their children, and the older generation's propensity to see young people as a problem. Some young people interviewed said they felt let down by the corruption, neglect or inaction of the older generation whom they see as responsible for the current situation of conflict and crisis. Many young people are unable to marry as men cannot pay the bride price and the women's family cannot provide bride gifts. Many women and girls whose husbands have been killed, detained or are missing, are forced to find ways for themselves and their dependent family members to survive. Even when husbands are around, the breakdown of marriages is commonplace. There have been several reports of increased gender-based violence, including domestic violence and forced sex work as women and girls struggle to obtain food or money. This underlines the different capacity to adapt between men and women, with men more able to leave in search of work. Women, meanwhile, find it less easy to adapt or move due to social norms which tie them to home and childcare.

> **"Sometimes husbands get angry and we do not know why.
> If there has been a conflict outside with a farmer,
> the mood at home is not good and we fear to even speak.
> We hear arguments and violence from neighbours,
> so we know there is trouble in other houses too."**
> *– Fulbe woman in Daram, Cameroon*

At the community level, inter-communal tensions have risen in some places. In areas with high IDP and refugee populations, relations have been strained by the perception that the refugee communities are benefiting more from the incoming humanitarian aid than host communities.

Finally, trust between the government and local communities has diminished in many areas across the region.

Amnesty International has reported that state security forces in Northeast Nigeria have treated local populations with suspicion and neglect. Women especially suffer from violence and abuse by state security forces as discussed in detail below.[50] However, it is important to be aware that the relationship between state and local communities is a complex issue and is differentiated across the region and even within countries. For example, many Chadians praise the military for providing security while complaining about them for taking money at checkpoints while the extent to which security forces protect or harm civilians can depend in great deal on the skills and attitudes of individual military commanders.

Differentiation across the region is a key feature of this assessment. Certain ethnic groups are targeted by country. In Chad for example, security forces target the Buduma tribe.The impact of a decade of violence on the social fabric of the region also varies from place to place. For example, Cameroon sees higher levels of social cohesion and resilience compared to Nigeria with a high incidence of intermarriage between different ethno-linguistic and religious groups, engagement in joint and mutually dependent livelihood activities and higher levels of religious tolerance including for indigenous religions. The other three countries are not as accepting. In Niger, community and government conflict management mechanisms tend to be stronger. In Chad, the military was considered relatively effective in protecting communities from attacks.

Even within each country, inter-communal relations vary drastically, and the violence has also led to closer relations between groups in some locations while dividing them in others. For example, in Nigeria, conflict between Christians and Muslims in Gwoza in Borno was exacerbated by the actions of armed opposition groups and perceptions among Christians that their Muslim neighbours were shunning them due to preaching by JAS. Christians also thought the Muslims were identifying their homes, schools and businesses as targets for JAS attacks. Conversely, in Biu (which is also in Borno state), the entire community came together across ethnic and religious lines to fight a common enemy that was perceived to be sowing religious divisions.[51]

50 Amnesty International 2018: They took our husbands and forced us to be their girlfriends: Women in North East Nigeria starved and raped by those claiming to rescue them.

51 Nagarajan, Chitra 2017: Conflict Analysis of Northeast Focal States: Biu, Bursari, Gombi, Hawul, Hong, Jakusko, Jere and Kaga Local Government Areas. Catholic Relief Services.

Climate variability, the absence of strong institutions and restrictions on movement combine to increase the likelihood of conflict over natural resources such as fishing grounds.

2 RISK

NATURAL RESOURCE CONFLICTS

Conflict over resources such as land, water and forests is not specific to, nor a new phenomenon in the Lake Chad region. The difference between now and the past is that the capacity to find peaceful resolutions has diminished. Conflict management systems that previously worked at the interpersonal level or included the involvement of community leaders no longer work, according to many interviewees. The breakdown of community governance mechanisms has contributed to this as many community leaders were seen to have become politicised, even before the conflict. Moreover, many leaders have been killed, moved away, lost the trust of the community, are suspected of involvement in humanitarian diversion of aid or been overwhelmed by the numbers of people now living within their jurisdiction.

These dynamics have been further exacerbated by the violent conflict related to fighting between armed opposition groups and security forces. A potent combination of military restrictions on movement, fear of armed opposition groups and security forces, the breakdown of conflict resolution measures and climate change have meant more people depend on fewer of the same resources in and around highly populated areas. As the map in Figure 11 demonstrates, people use land around Lake Chad in many ways. This allows populations to make a living using a variety of methods. But it also means that as people use a mix of farming, herding and fishing, tensions are not always due to different livelihood groups directly competing for the land. The groups may instead quarrel over who can access and use land at different times in the face of changing weather patterns.

FIGURE 11 MULTIFUNCTIONAL SPACES OF LAKE CHAD

FISHING PREDOMINANT
- Fishing important from January to June
- Landlocked, rarely visited area
- Temporary fishing stations (source of fresh fish) and seasonal concentration of herds

FLOOD RECESSION AGRICULTUR PREDOMINANT, TRANSHUMANT STOCK BREEDING
- Dense agriculture, fishing secondary
- Isolated traditional land use, high seasonal migration

AGRICULTURAL LAND USE INTEGRATED INTO THE MULTI-USER SYSTEMS

Modern agricultural land use
- Functional
- Non-functional
- --- Small-scale irrigation

PREDOMINANT TRANSHUMANT STOCK BREEDING TOGETHER WITH
- Considerable fishing and flood recession agriculture
- Unpredictable rainfed, Wadi, and flood recession agriculture, logging
- Rainfed agriculture, local logging

OTHER SYSTEMS
- Agriculture or fishing depending on flooding, considerable temporary migration, transhumant stock breeding
- Buduma multi-activity and transhumant stock breeding, "logging"
- Large fishing centre
- Conflict over the resource

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by adelphi or any of the funding parties.
Raimond, Christine and Charline Rangé 2015: Les systèmes d'activité des populations riveraines. In: Magrin, Géraud; Jacques Lemoalle and Roland Pourtier (eds.) 2015: Atlas du lac Tchad. Paris: IRD Éditions/Passages, pp. 120-123.

> **"The crisis exists between the farmers and the herders because when a farmer finishes his product ... the herds will come and eat all the products and leave the farm empty thereby causing crisis between the farmers and the herders."**
>
> *– Elderly woman in Baga, Nigeria*

Respondents in all four countries spoke of conflict between farmers and pastoralists over access and use of land, particularly as populations increase due to natural growth and in-migration. Such incidents of violent conflict are not limited to those between farmers and pastoralists. Recent decades have also seen violence between people who pursue the same livelihoods. The Diffa region of Niger has seen a number of violent clashes between pastoralists of different ethno-linguistic groups at water sources against a backdrop of pastoralists moving from northern parts of Niger which are experiencing increasing desertification in search of water. In Chad, Buduma pastoralists of different sub-groups have intermittently clashed over ownership of islands in Lake Chad.

"Years before there was not much conflict amongst fishers, but nowadays if you want to catch fish you can have trouble because there are some fishermen who can say that this place belongs to me ... you cannot fish in my place, you have to go and fish in your place."

– Elderly fisherman in Zimado, Cameroon

Fisher folk in Cameroon spoke of conflict arising from the impacts of dams and water projects which reduced fish stocks in some of the rivers feeding Lake Chad. These livelihoods have also been influenced by variability in rainfall. When rainfall is low, rivers do not contain as much fish as when rains are abundant. Fisher folk now must travel further afield than before in search of fish and are now encountering resistance from more local fisher folk, who threaten the newcomers with violence and insist the area "belongs" to them. In Chad, fisher folk, particularly refugees from Nigeria, said they were asked to pay higher fees to local communities for permission to fish in certain areas. These fisher folk are not allowed to fish near certain islands even if they offer to pay. Tension has risen too between IDPs, refugees and pastoralists in Niger as IDPs and refugees are cutting grass to sell to the pastoralists who would normally be able to graze their animals without charge.

Natural resource conflicts can vary in severity from increased tension and the breakdown of community relationships to violent conflict. They can have a number of different drivers and can be the tipping point for escalation of pre-existing conflict dynamics. Climate change may not solely or directly lead to conflict over resources. These disputes take place in the context of a variety of other factors which can be exacerbated by climate change.

This study found that the frequency and severity of resource conflicts varies across and within countries according to context. In some cases, violent conflict linked to the fighting between government security forces, armed opposition groups and community militias led to temporary reduction of conflict over natural resources whilst livelihoods were essentially halted, but these conflicts show signs of resurgence as locations become more stable. This trend is something to carefully monitor and plan for in post-stabilisation peacebuilding strategies.

BOX 7 LAND USE POLICY

Land use around Lake Chad over the last 70 years is predominantly based on customary norms and has depended on a number of factors including the lake's size, population trends, technological factors and, most recently a changing climate and the ongoing conflict. Many of the lake's residents have made their living through a combination of fishing, agriculture and livestock farming. These combinations varied depending on the season or the year, where they live, their geographic and cultural roots, their access to natural resources (including their tenure rights) and the availability of capital and labour. A key element underpinning this system has been the possibility to migrate, particularly in the northern basin where flood variability is at its highest.

A central issue in land use management, therefore, is how to regulate access to resources. Currently, access to resources largely depends on customary systems. The changing shorelines of the lake since the 1960s added an extra layer of rules that govern the allocation of fishing sites, livestock corridors and floodplains. This was accompanied by increasing inequality and the exclusion of certain groups such as young people, recent migrants and pastoralists. With the increasing impacts of climate change, it is critical that future land management and land use policies confront these multiple challenges. An immediate priority is to develop clearer, more legitimate rules for access to resources.[52]

Space around the lake is used in different ways to maximise its value. Depending on water levels, the same land can be used for fishing, agriculture and livestock. Close to the lake, where the risk of flooding is highest, occupations switch from farming to pastoralism and fishing depending on the lake level. Further away from the lake, land cultivation becomes less prevalent and pastoralism again increases. With growing population density, pressure on land has been increasing as have conflicts between activities, particularly when the lake level changes more than in previous years.[53]

With the emergence of the conflict, an already complex situation has become even more challenging. Land and resource access rights are largely uncodified, often stored in the living memory of community leaders. While there were perceptions of bias and politicisation beforehand, with the conflict, many of these leaders fled, were killed or became seen to be diverting humanitarian aid, impacting the effectiveness of and trust in these systems. Furthermore, the entry of large numbers of displaced persons and their movement to urban areas or IDP camps further strain the capacity of community governance systems.[54]

52 Lemoalle J. and G. Magrin (eds.) 2014: Development of Lake Chad: current situation and possible outcomes. Marseille: IRD Editions, Expert group review collection, bilingual French/English edition, p. 154.
53 Lemoalle J., Magrin G. (eds.), 2014 – Development of Lake Chad: current situation and possible outcomes. Marseille, IRD Editions, Expert group review collection, bilingual French/English edition. pp. 153-154.
54 FAO 2017: Lake Chad Basin Crisis Response Strategy (2017–2019). Retrieved 25 March 2019 from http://www.fao.org/3/a-i7078e.pdf.

RISK 3 RECRUITMENT AND RETENTION INTO ARMED OPPOSITION GROUPS

Violence has undermined communities' capacity to adapt to climate change, while climate change has compounded core drivers of the conflict and deepened the humanitarian crisis. The result is that the root causes of violence in the Lake Chad region remain unaddressed and are even deepening. This feedback loop plays into the ability of armed opposition groups efforts to recruit, retain and re-recruit people.

Five inter-related factors are critical to understanding the rise of armed opposition groups in the region: religious doctrines; poverty and inequality; the political context of electoral competition post democratic transition in 1999; the geographical and international context; and personal agency of those involved.[55] Motivations for joining vary by country and region. In Chad, when members of majority ethnic groups socially ostracised people in minority ethnic groups, they likely also fueled the minority's interest in joining armed opposition groups. In Niger, economic advancement motivated people, whereas in Nigeria, persuasive religious preaching played a stronger role.

Membership in JAS or ISWAP provides recruits with not just a wage but also a larger religious purpose, the chance to gain respect, belonging and community in societies often dominated by entrenched ethnic, gender and age hierarchies.[56] As the violence dragged on, a desire for revenge for real or perceived human rights violations committed by Nigerian security forces also became a key factor in recruitment.[57] Of fighters surveyed in one study, 57 per cent said the desire for revenge had either a strong influence on their decision to join or was the only reason for it with their focus being the military. [58]

> **"(Armed opposition groups) are pursuing youth. When they abduct, they always take youth because you have a long life, and if you join them, then they spare you. If you don't, they will just kill you."**
> *- Interviewee in Monguno, Nigeria*

55 Mustapha, A.R. 2015: Understanding Boko Haram. In Mustapha, A.R. (ed.) Sects and Social Disorder: Muslim Identities and Conflict in Northern Nigeria, Woodbridge: James Currey.
56 Nagarajan, Chitra 2018: We were changing the world: Radicalisation and empowerment among young people associated with armed opposition groups in Northeast Nigeria. Equal Access.
57 As noted by President Buhari during his inauguration speech in May 2015.
58 Botha, Anneli and Mahdi Abdile 2016: New evidence: Neighbours not firebrand imams recruit fighters to Boko Haram: summary of study by Finn Church Aid. Retrieved 02 June 2019 from https://www.kirkonulkomaanapu.fi/en/latest-news/news/new-evidence-friends-not-firebrand-imams-recruit-fighters-to-boko-haram/.

Gender norms can be further mobilising factors that operate in different ways for girls, women, boys and men. Women and girls have joined armed opposition groups to seek some (relative) empowerment, status and religious knowledge and to be part of political and societal change.[59] Some women and girls joined these groups, assuming they would get the access to education promised or more social mobility. Instead some women said that they were subsequently disappointed by the groups' strict rules, which limited their roles and possibilities. In many cases women were not allowed to leave the house and interact with other people. They have experienced high levels of violence and domestic abuse. Meanwhile, young men face social pressure to get married, get a job, and head a household—all activities that typically confer respect and status and are seen as life-stages boys pass through to attain manhood. Yet meeting these ideals of masculinity has become difficult given limited livelihood options, with access to livelihoods often determined by corruption, nepotism and inequality, and played a role in mobilising men and boys to join. [60]

For decades, the Lake Chad Basin has been one of the most neglected regions in all four countries in terms of the provision of health and education services. Armed opposition groups have been able to take advantage of the gap by providing services governments do not. Members value the religious education, healthcare, food and access to funding the armed opposition groups provide.[61]

The response of state security forces in restricting livelihoods is also be a factor that pushes people towards armed opposition groups. In Niger, the government declared the area around Lake Chad, the most fertile area of the Diffa region, a red zone off limits to civilians. It also limited fishing and red pepper farming. These are among factors pushing civilians towards at least trading with armed opposition groups to earn money, even if they have no affinity or connection to them and their aims.

59 Mercy Corps 2016: Motivations and empty promises: Voices of former Boko Haram combatants and Nigerian Youth. Retrieved 07 April 2019 from https://www.mercycorps.org/research/motivations-and-empty-promises-voices-former-boko-haram-combatants-and-nigerian.

60 Nagarajan, Chitra 2018: We were changing the world. Radicalisation and empowerment among young people associated with armed opposition groups in Northeast Nigeria. Equal Access.

61 Nagarajan, Chitra 2018: We were changing the world; Mercy Corps 2016: Motivations and empty promises. Voices of former Boko Haram combatants and Nigerian youth.

Armed opposition groups have been able to take advantage of decades of neglect and the absence of social services to recruit new members.

Re-joining armed opposition groups has become common, often due to better material conditions available compared with people's lives before and current life prospects for those living in an IDP camp with no employment prospects.[62] Despite restrictions imposed on them by armed opposition groups, some, particularly young women, see a life in the forest with the group as more dignified than living in a camp, which they associate with sexual exploitation, rape and dependence on aid organisations for food.[63] On the other hand, for young men who have tasted the status, power and respect that comes from carrying weapons and engaging in violence, it is often very difficult to return to mainstream society only to find that they are just another unemployed young man who is sometimes actively disrespected, without food or shelter and forced to engage in tasks they find demeaning in order to survive.

62 Nagarajan, Chitra 2018: We Were Changing the World.

63 Moaveni, Azadeh 2019: What would make a woman go back to Boko Haram? Despair. In: The Guardian 14.01.2019. Retrieved on 07 April 2019 from https://www.theguardian.com/commentisfree/2019/jan/14/woman-boko-haram-nigeria-militant-group.

4 RISK

HEAVY-HANDED MILITARY RESPONSES

While national militaries and the multinational joint task force (MNTJF), working with community militias, have had some success in bringing relative peace to the region, their heavily militarised approaches have often undermined livelihoods directly and indirectly and resulted in human rights abuses, direct and indirect harm and failure to protect civilians. Often their approaches, which are first and foremost centred on conquering territory and engaging armed opposition group fighters in battle, has lacked sensitivity to the livelihoods, climate coping strategies and other needs of local populations. A large number of affected respondents in our research cited security forces' harassment and the community's mistrust and frustration with security measures as reasons for re-joining armed opposition groups.

The sections above have already outlined how restriction of movement cut off trade routes and closed markets. On top of this, the military restricted livelihoods directly. For example, in Niger, the military curbed fishing and growing red pepper in areas near the lake because it believed profits were used to support armed opposition groups. In other areas, tall crops were destroyed and banned due to concerns they might provide hiding places for armed opposition groups. In Nigeria too, there have been restrictions on fishing in Lake Chad for some time.

> **"You know the military have been torturing us? ...But I am afraid to mention that because... of what they're doing now. If you are able to catch fish... then you automatically will have to give [the military] 3,000 naira [local currency equal to US $8.35].**
> *– Interviewee in Doron Baga, Nigeria*

Similarly, in Chad, the military has banned fishing, farming and movement in certain areas—in particular, the highly fertile and productive islands on the lake. If people go into these restricted areas, then they are regarded as collaborators with armed opposition groups. This too occurs in the other Lake Chad countries as people venture further from population centres in search of firewood. Across the region, it is common for the military to suspect and detain people from certain ethnic groups like the Buduma and Kanuri or demographic groups, such as young men. Civilians are stuck between needing to earn money, including by engaging in banned activities and selling to armed opposition groups, and being seen as collaborators with the armed opposition groups and targeted by security forces.

In other ways, the increased security offered by the military has not always been directed in the most effective way. For example, the Cameroonian government has been reluctant to provide escorts to humanitarian actors trying to access vulnerable people despite the high need for assistance. [64]

The dependence on military solutions has resulted in human rights abuses. The forcible return of Nigerian refugees by the Cameroonian military has led to human rights violations and undermined the capacity of people to recover from displacement.

> **"Interviewer: Are the soldiers paying women to sleep with them or promising them food in exchange for sleeping with them? Respondent: Yeah but the soldiers are deceiving them."**
> *– Young woman, Monguno Nigeria*

Women and girls have been subjected to violence and abuse from the military. In Northeast Nigeria, their position has been made more vulnerable as many of their fathers, brothers, husbands and sons have been detained by the military and they and their dependents are restricted to camps. Often struggling to provide for their families, these women are at risk of sexual exploitation and abuse.[65] Again, this varies across the region. In 2017, the International Crisis Group found that while its military had committed abuses, the Nigerien army had behaved better than its counterparts in the MNJTF. [66] The combined effect of this overly militarised response has been to undermine adaptive capacity through many avenues, including by eroding state-citizen relations. Trust between the state and the populations around Lake Chad needs to be rebuilt and a social contract created to enable future resilience and development.

64 International Crisis Group (ICG) 2018: Cameroon's Far North: A new chapter in the fight against Boko Haram. Retrieved on 08 April 2019 from https://www.crisisgroup.org/africa/central-africa/cameroon/263-extreme-nord-du-cameroun-nouveau-chapitre-dans-la-lutte-contre-boko-haram.

65 Amnesty International 2018: They took our husbands and forced us to be their girlfriends.

66 ICG 2017: Niger and Boko Haram: Beyond Counter Insurgency. Retrieved 08 April 2019 from https://www.crisisgroup.org/africa/west-africa/niger/245-niger-and-boko-haram-beyond-counter-insurgency

Future planning for stabilisation, peacebuilding and sustainable development in the Lake Chad region needs to address the role of climate-fragility.

FUTURE OUTLOOK

Each of the climate-fragility risks set out above feeds into the others as well as the already fragile context, creating a vicious circle of climate change vulnerability, conflict and fragility. This negative feedback loop threatens to perpetuate the current crisis and makes it harder to move the region away from the path of intractable conflict and fragility.

Any future planning around stabilization, peacebuilding and sustainable development in the region must consider how climate change will interact with future scenarios such as those set out above and plan its responses according. On-going climate-fragility risk assessments will be an important part of this process.

- Climate change further compounds community challenges: As food insecurity is a critical driver of human vulnerability in the region, rising temperatures will mean that staple crops will become less viable and current cropping patterns will become less effective. Soil will lose fertility due to the combined effect of anthropogenic land degradation and heat-related loss of soil moisture and biomass. All this will combine to decrease food yields while feeding the conditions that led to the conflict in the first place. Accordingly, the challenges of climate change need to be tackled alongside the conflict in order to break out of the conflict trap and contribute to peacebuilding in the region.

- The ability of armed opposition groups to adapt: armed opposition groups have shown that they are resilient and able to change and adapt their identities, strategies, tactics and organizational structures. ISWAP's ability to mitigate civilian harm during the course of its operations and proactive community engagement measures is a potential game changer. Future conflict trajectories will largely depend on how seriously state security forces take proactive measures to protect civilians, protection and harm mitigation and engage with communities. The ability of armed opposition groups to recruit in the future will depend on how the factors that drive recruitment are addressed. This involves tackling both the causes of conflict and climate change.

- The future of self-defence militias: A number of self-defence militias have emerged as a reaction to armed opposition groups. The role they will play in future conflict and fragility dynamics is unclear, particularly regarding whether they will be willing to demobilize and disarm once the threat from armed opposition groups has diminished.

- Increasing urbanization and resettlement issues: The movement of people has been primarily from rural areas to urban centres. Key challenges will involve providing sustainable livelihoods in urban and semi-urban areas as well as implementing return and resettlement programmes.

- The role of humanitarian aid and development cooperation: A large part of the assistance to the region takes the form of humanitarian aid. The predictability and transparency of aid will be critical. So will a move towards better linkages to long-term development cooperation to address the root causes of the crisis.

- Increasing in-country migration heightens pressure and competition around natural resources: An increasingly fragile ecosystem, worsening climate change, an inability to restart livelihoods and decreasing levels of humanitarian aid are likely to frustrate people, decrease their resilience and amplify conflict over natural resources in Lake Chad. Increasingly desperate situations may lead populations to adopt negative coping strategies, such as survival sex, with attendant spikes in sexual exploitation and abuse and deforestation. These dynamics may also increase migration out of the Lake Chad region, for example among pastoralists to the south of Chad, where farmers and pastoralists are already clashing. Alternatively, the impact of climate change and desertification in other parts of Chad and Niger could increase migration into lake adjacent regions if the security situation improves. Yet if not matched with inclusive and effective natural resource governance and conflict management systems, any migration may increase pressure and competition over natural resources and lead to violent conflict.

- Re-integrating ex-combatants into society: This is an urgent and critical task facing the governments of the region. Without the successful reintegration of former armed opposition group members, social cohesion will continue to be weak, violence may flare at the community level and dynamics may lead to prolongation of the conflict. A key component of reintegration involves viable livelihoods for ex-combatants to take up. How to provide ex-combatants with livelihoods in a changing climate is fundamental to the sustainability of reintegration and rehabilitation planning, but is as yet not considered. Adequate resources need to be allocated for this purpose both for re-integration programmes and for restorative and transitional justice measures.

- Natural resource competition: In the future, competition over resources, in the absence of concerted efforts at land management, governance and the distributional inequities that are prominent in the region, is likely to proliferate. This conflict over natural resources may well gain in prominence after armed opposition group-related conflict ends, given how communities have been affected by reduced resilience, reduced access to capital, such as land and finance, and also increased fertility of land due to the period it has laid fallow. These conflicts are set to widen and deepen given issues of access to land that underpin them are unlikely to be solved any time soon. Once these narratives and grievances take root, it will be very difficult to change them. Throughout the rest of Nigeria and Chad, pastoralist-farmer conflict is on the rise. In the future, particularly if people are able to go back to their land and livelihoods, tensions, conflict and violence could rise unless the underlying causes, which include climate change, are addressed. Niger could provide some lessons for the rest of the region. Here, government officials seem to take a more proactive and even-handed approach to natural resource conflict. For example, they facilitate the setting of dates by which farmers need to harvest crops and after which pastoralists can take their animals onto farmland. This process involves representatives from farmer and pastoralist communities as well as government officials. Government officials also wish to build water points, such as wells or watering holes, in the north so pastoralists do not need to migrate south towards Lake Chad to access water.

III BREAKING THE CONFLICT TRAP
POINTS AND PRINCIPLES FOR ENGAGEMENT

"HOW," NOT HOW MUCH

Chapter two described how climate change interacts with other elements of the crisis. This chapter suggests ways to approach these challenges.

At the September 2018 conference in Berlin, international donors pledged over US $2.17 billion towards scaling up humanitarian assistance, crisis prevention and stabilisation, and development cooperation in the Lake Chad region. Whilst this is certainly a positive step, this report highlights the importance not just of how much aid flows in, but rather of **how** interventions are planned and implemented. And linked to this, importantly, the information upon which interventions is based.

This assessment finds that many of the strategies and programmes, military responses and stabilisation initiatives that have been rolled out in the region have not taken sufficient account of climate risks or are based on inaccurate hydrological information—namely the outdated but oft-repeated notion that Lake Chad is shrinking.

Some of the military responses have even undermined the ability of people to cope with climate shocks. In Nigeria, an estimated 823,000 people are in areas that humanitarian groups cannot access.[67] Conservation and biodiversity projects, for their part, have tended to exclude social factors such as conflict. [68] An analysis of 15 current large scale interventions in the region for this report (for a selection see Annex 1) found that the large majority of strategies and programming responses either fail to take adequate account of climate change impacts on the context or are based on inaccurate or outdated climate change information about the alleged disappearing lake.

Original data and analysis compiled for this study (in chapter 1) reveals a different and more nuanced climate and hydrological context of increased variability and fluctuations in rainfall, but not of shrinkage. At the same time, the conflict analyses that exist are not only few but of varying quality across the four countries, particularly on community level dynamics.

So far, none of the initiatives and conferences have managed to break the Lake Chad region out of this conflict trap. What is now required is an integrated push that brings together development, security and sustainability to set the region on a more positive track. No single organisation or entity is able to tackle the multidimensional crisis in the Lake Chad region alone. However, many organisations working in the Lake Chad region can contribute towards building resilience and ensure, at the very least, that their interventions "do no harm."

This report recommends developing integrated interventions that go beyond short-term stabilisation and humanitarian concerns. In doing so, it argues for a resilience-based approach, informed by careful climate and conflict analysis that delivers meaningful interventions over the short and medium term while endeavouring to meet the many long-term needs of the region.

67 See, for example, Nigeria Humanitarian Response Plan 2019-2021.
68 E.g., the GEF Transboundary Diagnostic Analysis/Strategic Action Programme (TDA/SAP) approach for Lake Chad does not take account of the conflict and governance context as part of its diagnostic approach.

FIGURE 12 10 ENTRY POINTS FOR ADDRESSING CLIMATE AND FRAGILITY RISKS IN THE LAKE CHAD REGION

POSITIVE INTERVENTIONS THAT CAN AND SHOULD BEGIN NOW

4 ADDRESS GENDER INEQUALITY AND HUMAN RIGHTS VIOLATIONS

5 ADAPT TO CLIMATE CHANGE AND MANAGE RESOURCES

Even in the midst of conflict, efforts to support climate change adaptation, enhance resilience to climate shocks and improve natural resource management can be a vehicle for peacebuilding.

3 BROADEN ACCESS TO AND SCOPE OF SERVICES

Access to social services such as education, health, water, sanitation and energy is critical not just to support communities in building their resilience to crises, but also to build fractured relations between the state and citizens.

6 INFORMATION AND COMMUNICATION TECHNOLOGIES

2 SUPPORT RESILIENT LIVELIHOODS

Programmes are needed to promote and provide access to new economic opportunities. In areas where violence persists, it requires addressing conflict issues and climate challenges simultaneously.

7 BETTER CLIMATE AND HYDROLOGICAL INFORMATION

8 INVEST IN GOVERNANCE AND INSTITUTIONAL DEVELOPMENT

1 BUILDING SOCIAL COHESION

This involves building up trust and relations among individuals, groups and communities. It further means building the social contract between the state and the local population.

9 ADAPT THE TACTICS USED TO COMBAT ARMED OPPOSITION GROUPS

The need to defeat terror in the interest of communities needs to be compatible with the goal of sustainable livelihoods as well as state legitimacy.

10 CLIMATE-PROOF ECONOMIC GROWTH AND DEVELOPMENT

Future growth in the Lake Chad region depends on climate proofing growth and development. There are two areas in particular that can be explored. First, a climate-fragility market assessment provides the chance to examine the opportunities to tackle unemployment. Second, planning and investment for the long-term infrastructure needs of the region is a priority.

ENTRY POINTS FOR PROMOTING RESILIENCE AND RECOVERY IN LAKE CHAD

Responses to risks posed by climate change and the current crisis may not always look and feel like they are directly addressing climate change or fragility. This assessment calls for approaches that build social cohesion between individuals, groups and communities, the social contract between the state and the local population where it has broken down, and institutional and infrastructural capacity. This can be done by building on existing plans to address the immediate humanitarian, educational and employment needs of individuals and communities as well as engaging in broader conflict management and peacebuilding interventions. To be effective, these initiatives should aim to understand and address the root causes of the crisis, including the emerging challenges of climate fragility.

Below we set out ten broad entry points, including specific illustrative examples, of areas of engagement which could go towards addressing the risks set out in the preceding chapter.

Of course, the volatility of the region means that not all entry points will be appropriate in every context. In areas where security conditions and local authorities are unstable, the focus might need to be on support for establishing livelihoods and access to social services, above all education, health, water, sanitation, energy and agro-meteorological information. In areas which are more stable, ambitious, longer-term transformation, peacebuilding and sustainable development efforts such as infrastructure redevelopment can be set in motion.

1 BUILDING SOCIAL COHESION

Social cohesion within and between households and communities and between the state and local population has been weakened across the region. The conflict has altered relations between families, between different age and occupation groups, between IDPs/refugees and host communities and between ethnic groups. Social cohesion is further strained by increasing natural resource conflicts over land rights and resources access. Displacement, security force behaviour and climate change also undermine social cohesion. Even in locations where social cohesion has increased, it has often been in response to armed opposition groups or even military action and can be seen as a response to the breakdown of cohesion at a higher level.

Social cohesion is thus a crucial part of building resilience to these risks. This involves building up trust and relations among individuals, groups and communities such as IDPs, refugees and host communities. It also includes efforts that build the social contract between the state and the local population and that support institutional capacity among local and national governments. Ultimately, a people-centred crisis needs a people-centred response.

An over-dependence on unproductive farming makes the need for climate proof and/or non-agricultural livelihoods even more important around Lake Chad.

Specifically, this could entail processes to ensure access to justice and dialogue between people in IDP/refugee camps and host communities, between former fighters and other communities and across different generations.

Securing peoples' right to land can directly contribute to peacebuilding and building social cohesion but these policies need to be climate and conflict sensitive. There are several challenges for local institutions when it comes to land tenure. One is the socioeconomic differences between host communities, IDPs and refugees. These communities should be invited to activities and meetings that facilitate regular interaction and exchange that open up dialogue and foster reintegration, with particular attention paid to the meaningful participation of groups usually marginalised from decision making including all women, men with disabilities and young men. When designing these programmes, be sure to integrate climate awareness. For example, when designing land tenure proposals, policy makers need to be aware of the climate vulnerability of particular areas and people. These policies can be augmented with support through climate smart-agriculture techniques, equipment and seeds for people in areas that are vulnerable to climate change.

The shortage of livelihood opportunities for a youthful and growing population is a major challenge for young people living in the region.

2 SUPPORT RESILIENT LIVELIHOODS

A lack of jobs and money is a major strain on resilience for the young, growing population in an area with endemic unemployment and underemployment. But it is also a risk as unemployed, marginalised and frustrated young people are highly susceptible to recruitment by armed opposition groups. Resilience is not just about livelihoods, but also about dignity and a sense of belonging. For a generation more familiar with exclusion, where a sense of "otherness" has become entrenched, it is vital that efforts to restore livelihoods also consider how to foster a sense of ownership, inclusion and worth.

Establishing resilient livelihoods needs to go beyond the simple provision of jobs. Livelihood support needs to be holistic and address all sections of society in order to restore social cohesion and local governance. This would require being responsive to different needs and experiences. For example, women's adaptive capacities are weakened by gendered social norms. People with disabilities struggle due to stigma and, those who have acquired disabilities due to violence, with decreased physical capabilities. Young men are often viewed with suspicion as potential perpetrators of violence. Interventions must aim to transform underlying social exclusion, inequalities, marginalisation and power dynamics.

In both IDP/refugee camps, settlements and host communities, programmes must address these problems by promoting new economic opportunities and access that do not depend on networks or money. This can take the form of training for new livelihoods, both primary and non-primary.

In areas where violence persists, conflict issues must be addressed, including security restrictions and climate challenges such as varying rainfall.

The dependence on increasingly unproductive pastoralism and agriculture has been undermined by degraded soil, weak value chains, inadequate physical and financial infrastructure and poor entrepreneurial capacity. This makes climate-proof and/or non-agricultural livelihoods all the more important. Alternative forms of farming that involve climate resilient, non-traditional products could help diversify rural incomes. Typha and spirulina are examples of alternative sources of food, energy and livelihoods (see box 9).

BOX 9 BEST PRACTICE: ALTERNATIVE CLIMATE-SMART AGRICULTURAL APPROACHES

Typha, a type of reed (known as bulrush or cattail), grows in many parts of Lake Chad and poses a major obstacle for boats navigating and fishing on the lake, and an occasional security challenge for government security forces since it provides cover for armed opposition groups. Yet it is also a source of protein, an efficient biofuel and building material. Harvesting and making productive use of this otherwise unwanted plant provides a quick win in tackling livelihood and energy insecurity.

Spirulina, a nutritious alga, widespread in Lake Chad, is collected and eaten by the local population. Increasing production of spirulina could improve the nutrition and employment opportunities for the local population. In the past an EU/FAO project supported vulnerable women in Chad so that they could scale up the collection and processing of spirulina, which they sold country-wide, providing an income for the women.[69]

Polders are an effective way to control floods and create productive land for food production, well suited to the shore areas around Lake Chad. Polders, land reclaimed from a body of water by building dikes and drainage canals, require some initial infrastructure investment for drainage and irrigation. They have been successfully used in the region, especially around Bol, in Chad, since the 1960s, to grow cash crops.

69 FAO 2010: Nutrient-rich algae from Chad could help fight malnutrition. Retrieved 10 Feb. 2019 from http://www.fao.org/news/story/en/item/44388/icode/).

Clearly such initiatives need to be informed by the context in which they are operating, and particularly the climatic changes of the region. They also depend on creating a safe and secure market and adequate market linkage. The importance of climate sensitive planning is underlined by the experience of the Propcom Mai-Karfi project in Northern Nigeria, supported by the UK's Department for International Development between 2012 and 2017. The project introduced a scheme that aimed to help farmers grow sesame for the high value export market. However, the scheme was not able to fully achieve its goals. In their post project assessment, they learned that sesame production was new to the area and that average rainfall was too high for the crop. A climate assessment carried out beforehand would have prevented this result and helped to identify more appropriate crops.[70]

Creating new or improving existing polders, drained crop land reclaimed from the lake, can also positively impact livelihoods in the region. Again, it is essential to design them in a conflict and climate sensitive manner.

To do so, ensure that polders:

- do no harm to agricultural activities by decreasing the amount of fertile land;
- do not create new disputes over territory, given existing uncertainty over land rights;
- are planned in a way that they ensure equitable access to land around polders, that land distribution does not favour one group over another and compensation for previous land owners is fair;
- do not create a new opportunity for rent-seeking behaviour by high-ranking administrators or the military and that ordinary citizens are protected from farmland grabbing by powerful elites, armed opposition groups, or security forces (which is already happening).
- benefit women and men equally in terms of land ownership and access, inheritance rights, water and irrigation systems, agricultural inputs provided and types of crops supported by interventions
- do not contribute to rent seeking or resource capture for example by selling land around polders for unreasonably high prices or with land given to those with power, money and influence; and
- are protected from wind and desertification in conjunction with, for example, reforestation activities.

Given the climate variability and restrictions on land, pathways for non-agricultural employment are critical too. Non-agricultural work may aim to add value to the agricultural industry through food processing, bio-enterprises in urban areas and connecting suppliers, wholesalers and traders through community or occupation-based groups and technology.

70 Propcorn 2018: Propcom Mai-karfi. Lessons Learned, 2012–2017. Retrieved 10 Feb 2019 from http://www.propcommaikarfi.org/wp-content/uploads/2018/07/Propcom_Lessons_Learned_WEB_FINAL.pdf, p. 24–25).

Tackling climate-fragility requires building social cohesion, the social contract as well as institutional and infrastructural capacity. The entry points set out in this report can help address this challenge.

3 BROADEN ACCESS TO AND SCOPE OF SERVICES

Access to social services such as education, health, water, sanitation and energy is critical not just to support communities building resilience to crises, but also to build fractured relations between the state and citizens.

For example, women in the region face particular challenges in accessing healthcare. The high levels of maternal mortality in the region (Chad has one of the highest in the world at 1,200 per 100,000 live births[71]) are, in part, due to lack of female health workers and social norms that do not allow women and girls to see male health workers. Girls also have less access to education due to gender inequality and so are unable to meet the educational requirements to attend health training institutes. The Women for Health programme provides an intensive programme for girls in northern Nigeria to bring them to the education level of secondary school graduates and works with health training institutes to make teaching, infrastructure and institutional practices more gender sensitive.[72]

The Lake Chad Basin Commission's Lake Chad Development and Climate Resilience Action Plan (2015) highlights the need to be innovative in this area. It offers suggestions such as mini-networks to supply drinking water and creative education approaches to mobile populations. The strategy also feeds into efforts to promote economic empowerment by providing rural electrification schemes, ideally through renewable energy such as wind and solar energy, that can support both agricultural livelihoods (e.g., conservation of produce such as drying vegetables and smoking fish) and non-agricultural livelihoods (e.g., crafts). This strategy could potentially create its own new value chain for the construction, repair and maintenance of this infrastructure. This type of project would have to be carefully implemented with the support and engagement of communities. Care will also have to be taken as the project could become a target for armed opposition groups.

71 World Bank 2019: Data for Nigeria, Niger, Chad, Cameroon. Retrieved 8 April 2019 from https://data.worldbank.org/?locations=NG-NE-CM-TD.

72 Women4Health (2018) 'Women 4 Health – addressing the shortage of female health workers in Nigeria'. Retrieved 10 Feb 2019 from http://women4healthnigeria.org/.

Lake Chad can become a driver for sustainable livelihoods and stability in the region again but requires careful management by the four countries that surround it. Tackling climate impacts alongside conflict challenges is central to any efforts.

4 ADDRESS GENDER INEQUALITY AND HUMAN RIGHTS VIOLATIONS

Gender inequality and human rights violations are a major challenge in the region. For example, facilitating access to land and other productive assets, particularly for women who face difficulties in owning land, should be an important element of development and peacebuilding. Doing so could take place by working with community leaders, local government and others with influence and could form a key strategy in resettling IDPs and refugees. It could be combined with training in climate-sensitive agricultural approaches. Any intervention developed should also be based on a gender analysis and action plan on how to ensure it is of benefit for the whole community. This analysis should include an assessment of potential impact of the intervention on levels of violence against women and girls so as to mitigate potential risks and maximise possibilities for tackling violence.

Another immediate action that could be taken is to de-militarise current approaches and provide better access to justice for those who have been subject to military human rights abuses. Nigeria's commitment to adopting a National Policy on Civilian Protection and Civilian Harm Mitigation, integrating human rights and protection of civilians into military training and establishing a human rights desk are positive initial steps. Now these steps need to be implemented with emphasis on ensuring access for civilians to report harm and transparent processes that allow people to learn what's happening.

Improvements in natural resource management, investments in land rehabilitation and better agronomic practices can assist with peacebuilding and tackle the growing risks associated with climate change to improve the prospects for stability.

5 CLIMATE CHANGE ADAPTATION AND IMPROVED NATURAL RESOURCE MANAGEMENT

In the midst of conflict, adapting to climate change may not appear to be an urgent priority compared with the need to stabilise the region and end the violence. Yet this assessment has shown that the growing risks of climate change can further entrench cycles of violence and hinder prospects of stability. Similarly, efforts to support climate change adaptation, enhance resilience to climate shocks and improve natural resource management can be a vehicle for peacebuilding.

In particular, the Lake Chad Basin Commission can support climate adaptation by prioritising improvements to natural resource management and investing in land rehabilitation and improved agronomic practices. Perhaps in collaboration with others, it could immediately begin to work on several issues including:

- assessment of water quality;
- studying the run-off from the southern to the northern pool of the lake; and
- generating more information on the extraction of ground water across the region.

Respondents for this study stated that if they could see and feel how governments, including through the Lake Chad Basin Commission were helping them, they would feel better about the government. Another area where local governments and international organisations can be effective is in the area of forestry. Deforestation is prevalent around Lake Chad and poses a severe challenge around IDP and refugee camps.

The climate and security impacts of deforestation are already apparent in increasing wind speeds and longer journeys to unsafe areas to collect firewood. Reforestation can decrease the impacts for the environment and reduce tensions between communities.

At the policy level, the demarcation of grazing routes for pastoralists and their animals — and importantly efforts to secure acceptance of these demarcated routes— can help prevent further tensions over access to resources. However, it is critical to ensure that provisions around land rights and access to natural resources consider the needs and interests of all occupational groups and parts of society as well as the likely impacts of climate change. Again, this underlines the necessity of regular, trans-boundary climate vulnerability assessments in the region which could be led by the Lake Chad Basin Commission.

In areas where land rights or the use of other resources is contested between migrants, IDPs and host communities it is crucial to find participatory natural resource management approaches which address the needs of both migrants and host communities to defuse potential tensions. If the governments and populations of the four Lake Chad countries share conflict resolution approaches and best practices on natural resources management, they could further facilitate practical solutions as well as cross-border cooperation.

Long-term planning, based on credible and accurate scientific data, is therefore critical to preventing future disruption and potential conflict. Local and national governments must commit to evidence-based planning, with support from international organisations.

BOX 10 PASTORAL CODES CASE STUDY: THE LOGONE FLOODPLAIN, CAMEROON

Mobility is a feature of life in the Lake Chad region, particularly for pastoralists. There is increasing evidence of conflicts between pastoralists and other occupation groups in the region. However, research has shown that in North Cameroon on the Logone Floodplain, pastoralists co-exist with each other in an open access common-pool grazing system without conflict as pastoralists distribute themselves over the available grazing area. This open access system should not be seen as an absence of rules. Rather, open access is the rule. These open property regimes are similar to those employed by the Tuareg in Northern Mali, the Kababish Arabs in Sudan, the Turkana in Northwest Kenya and the Pashtun in Western Afghanistan. However, this open access system has its limitations as it does not regulate the shared resources of the Logone between the pastoralists and other occupation groups. As a result, conflicts arise between pastoralists and fisher folk over the use of other resources. So although there is a code of behaviour that is specific to a set of users, a broader, more inclusive land management system that can provide equitable access to land is critical to foster livelihood security in the region[73]

73 Moritz, Mark 2017: Misreading a pastoral property regime in the Logone floodplain, Cameroon'. In: Ecology and Society 22:1, p. 13.

6 INFORMATION AND COMMUNICATION TECHNOLOGIES

Information and communication technologies (ICT) for agriculture, pastoral and fishing initiatives can support economic empowerment with significant potential for services to address farmers' and traders' information and credit market constraints. ICT can also support better early warning and preparedness against climate shocks; enabling economic empowerment and helping people determine their own futures.

For example, the provision of mobile phones could help support a shift towards growing more climate sensitive crops. Research has shown that in Niger improved access to mobile phones, and even more importantly, learning how to use them, generates some economic benefits in rural agricultural settings for specific populations. Farmers who have access to a mobile phone and learn how to use it have increased the number of types of crops grown. Evidence also suggests that they are likely to sell two or more crops due to better access to weather information and market prices as opposed to just one crop. The effects were most noticeable in households that had not previously owned a mobile phone, where a woman was the primary beneficiary and where a market was not present. Consequently, in regions where markets are poorly integrated, improved access to information via mobile phones, could allow farmers to bargain for higher prices and make decisions on what to plant and when to sell at market for the best price. This would create incentives to use different inputs or produce more crops.[74]

While this has not necessarily translated into more crops grown or more crops sold, it does point to a way that mobile phones could be used to provide information that guides farmers towards climate resilient crops.

However, a number of challenges persist. First, ICT cannot overcome market failures on their own, and initiatives should seek to understand if information is a binding constraint before implementation. Second, success depends on access to the right information that takes account of different local conditions. Even if some information is missing, the rest should be high-quality and come from a trusted source. Third, services should be delivered on platforms that build upon existing ICT access and usage with particular attention paid to the gender digital divide [75] and the possibilities for jobs creation for people with disabilities, who may not be able to benefit from agriculture initiatives. And fourth, many ICT interventions rely on phone and data networks, yet the region's network connectivity is poor, particularly given the damage to telecommunications systems the conflict has caused.

74 Aker, Jenny C. and Christopher Ksoll 2016: Can mobile phones improve agricultural outcomes? Evidence from a randomized experiment in Niger. In: Food Policy 60, p. 44–45.
75 Aker, Jenny C., Ishita Ghosh and Jenna Burrell 2016: The promise (and pitfalls) of ICT for agriculture initiatives In: Agricultural Economics 47, pp. 35–48.

7 BETTER CLIMATE AND HYDROLOGICAL INFORMATION

Access to accurate scientific data is critical to inform policy decisions. If done correctly, this information can help build relationships across the region. If this data cannot be obtained, the wrong policy decision may be made. The proposal to redirect water from the Congo River to Lake Chad is a case in point of this failure to capture the actual climate, geographical and hydrological dynamics in the region.

The Lake Chad Basin Commission occupies a central role in understanding the hydrological, biological and cultural resources available. Its strategy recognises the need to build capacity to carry out its mandated duties which are to manage water resources and associated shared resources to promote sustainable development, peace and regional interactions. It could immediately begin to work on a number of issues:

- assessing the current level of water quality and the human/agricultural/industrial impact on this;
- a study of the run-off from the southern pool of the lake to the northern pool;
- more information on ground water extraction mapping availability across the region.

Better information is not only relevant to policy makers. It can also be a major resilience booster for community members, especially those whose livelihoods depend on weather. Specific measures could include the dissemination of forecasts by radio stations to provide better information to the population and prepare them for changes in the weather so that crops can be sown and harvested accordingly. This could be supplemented by the rehabilitation of weather stations around the region to provide real-time and accurate weather reports. These efforts need to respond to the broader challenges of introducing ICT systems mentioned above.

8 INVEST IN GOVERNANCE AND INSTITUTIONAL DEVELOPMENT

Local institutions in the region need support to strengthen policy, regulatory and oversight capacities, to tackle corruption, to provide quality social service delivery planning and to invest in the expansion of governance at local levels.

Overcoming historically weak governance in the Lake Chad region will require substantial investments in local institutions. Aims should include:

- strengthening policy, regulatory and oversight capacities;
- tackling corruption and rent-seeking behaviour;

Investment in local institutions to tackle corruption, provide social services and expand governance can help restore social cohesion and build the social contract around Lake Chad.

- providing quality social service delivery planning and management; and
- investing in expanding and strengthening institutional capacities and governance at local levels.

These approaches need to take account of the differences in governance systems and structures in each country. There are opportunities to be climate sensitive when designing these policies. For example, local planning processes can be used to facilitate the resolution of issues around land allocation for housing and agriculture/livestock production and to reflect changes in demographics. Building in climate assessments that integrate analysis of conflict, gender and social exclusion dynamics into these planning processes can help create an early warning system that identifies areas most at risk from climate change.

Efforts should be augmented by an integrated approach through transnational and international organisations such as Lake Chad Basin Commission and the African Union, which should adapt their strategies to account for climate and security challenges.

9 CRITICALLY REVIEW AND ADAPT THE TACTICS USED TO COMBAT ARMED OPPOSITION GROUPS

Whereas governments in the region need to end the instability in the interest of communities, the means for doing so need to be compatible with the goal of sustainable livelihoods for, and better relations between communities in the region as well as the state legitimacy that will grow from enabling these.

Militarised responses have been a main tactic of governments in tackling the violence in the region so far. In some respects, it has been successful, particularly as the MNJTF, local vigilante groups and the CJTF recovered territory taken by armed opposition groups in 2014 and 2015. However, by and large, the result has been the continued failure to defeat armed opposition groups and achieve peace while communities around the Lake continue to suffer. Indeed, this report has demonstrated the severe challenges that people living around the lake face as a result of restrictions on movement and ongoing violence which are, in part, caused by the over-militarised response of government security forces. Their approach, ultimately, has not been a success.

At this juncture, a review of and shift in tactics by the various governments is required to understand how they can better combat armed opposition groups without further undermining social cohesion and livelihoods. This requires better efforts to win the 'hearts and minds' of affected communities through actions which promote, for example, better service provision, safe and equitable access to natural resources and access to justice. It will necessitate a critical assessment how military actions across the region have undermined basic human needs and taking steps to safeguard further civilian collateral harm. Such a revised approach could help build the social contract.

10 CLIMATE-PROOF ECONOMIC GROWTH AND DEVELOPMENT

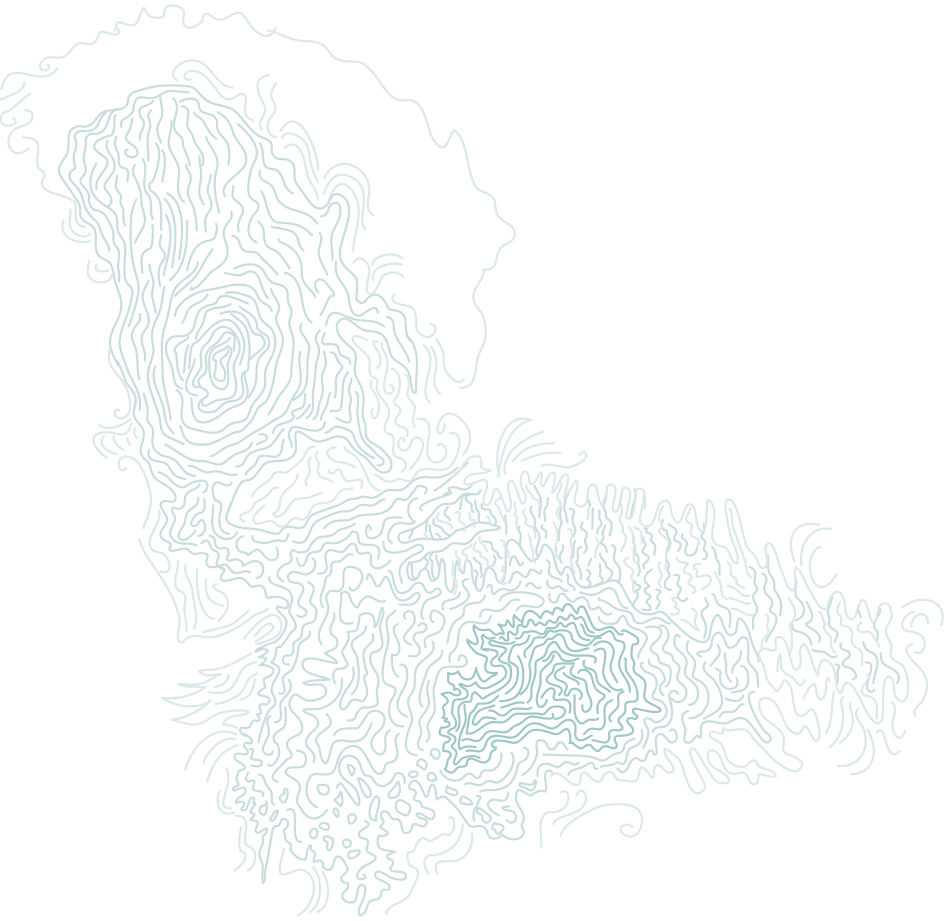
Future growth in the Lake Chad region depends on climate proofing growth and development. As we have seen throughout this report, without integrated climate change adaptation policies, the root causes of conflict remain unaddressed. Building a new social contract between government and communities will be an important first step, with support from intergovernmental organisations such as the African Union and Lake Chad Basin Commission. Long-term planning should be based on the accurate geographical, hydrological and climate data as informed forecasts are critical for long-term planning. Two areas in particular can be explored.

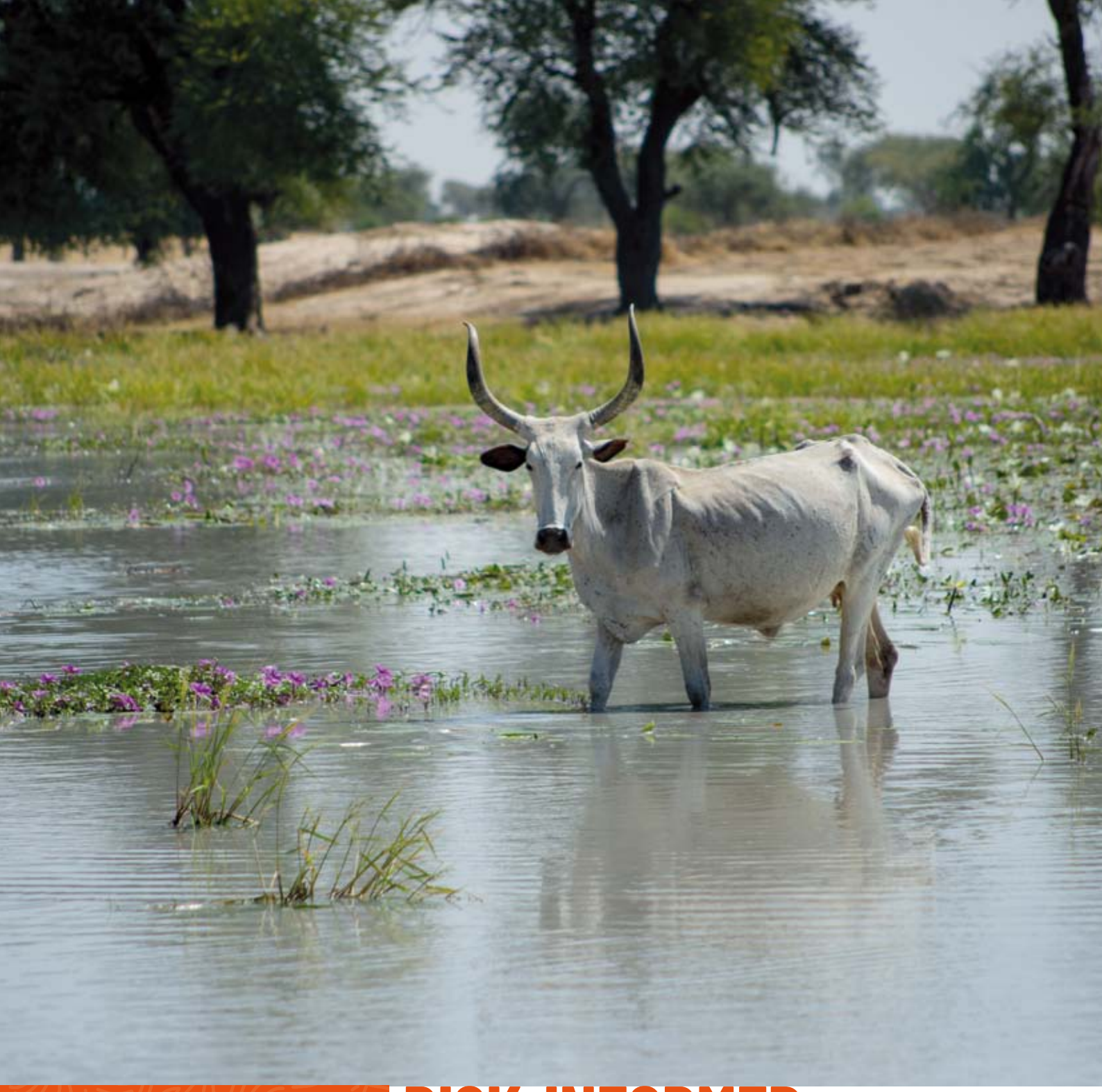
Future development in the Lake Chad region needs to be climate-proof in order to properly address the root causes of the conflict.

First, a climate-fragility market assessment could examine opportunities to reduce unemployment and address the related severe environment and climate aspects around this and fight the root causes of conflict. Providing alternative employment opportunities can benefit the environment and contribute to social cohesion by bringing together different ethnicities or religious and occupational groups.

Second, planning and investment for the long-term infrastructure needs of the region is a priority. New climate-proof roads and harbours, internet access and renewable electrification in the region will facilitate economic growth and connectivity. This will provide the underlying foundation upon which future development and stability can build. These features will also help build resilience in local populations to climate shocks. Local government, supported by international organisations, will need to consult to ensure that they do no harm and do not make populations even more vulnerable.

Linked to this, there is a need to revive traditional market access in the region, including transboundary trade. Both immediate action and longer-term planning will be needed. In the immediate sense, the priority is for markets to be restored and cross-border travel to be opened and made secure. In the longer term, infrastructure planning must enable economic activity across the region and be based on high-quality, targeted data, including climate data, conflict analysis that integrates gender and social exclusion analysis and environmental impact assessments.





IV RISK-INFORMED RESPONSES TO COMPLEX CRISES

4.1 TOWARDS A RESILIENT LAKE CHAD

The security, development and climatic challenges facing the Lake Chad region are complex and daunting. But there is much that can be done.

Lake Chad is a hydrological marvel: a huge freshwater lake in the middle of the Sahel whose unique hydrological make-up has meant that rapid evaporation from high daily temperatures has not dented its ability to supply fresh water. If peace prevails and the lake is carefully managed by the four countries that share it, then the lake could once again become an engine for sustainable livelihoods and stability in the region, increasing food security and reducing poverty.

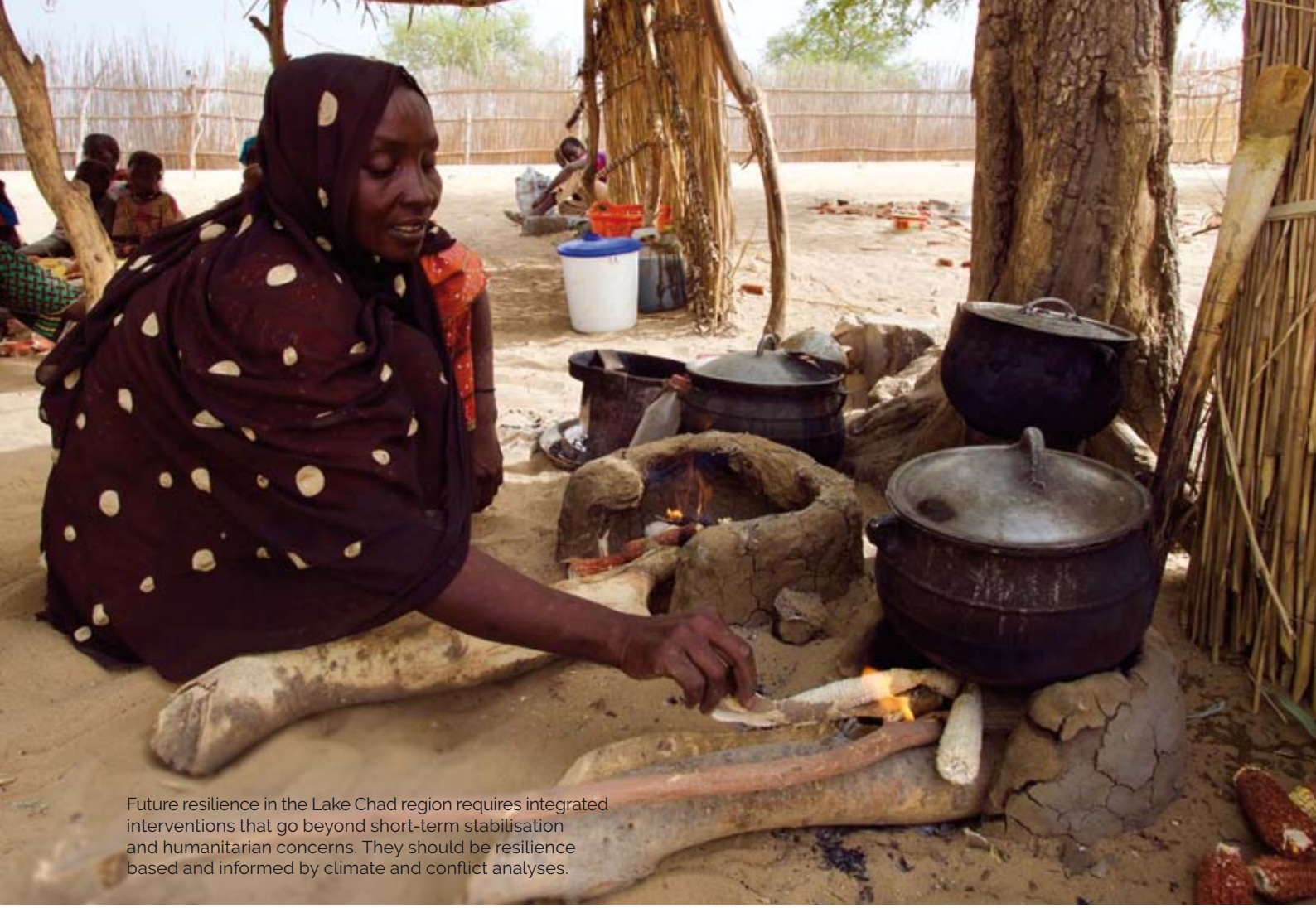
However, for the past decade, the area around Lake Chad has been enmeshed in multiple overlapping crises. Violent conflict, poor governance, endemic corruption, serious environmental mismanagement and grinding poverty have blighted the lives of local people, forced millions of people out of their homes and into camps, rendered vast areas insecure and left tens of millions without adequate health care or education services.

Climate change is already compounding these challenges. Temperatures in the region are rising faster than the global average. With more frequent floods and droughts and more unpredictable conditions around the lake, climate change is undermining people's ability to secure livelihoods and thrive. Many climate projections suggest that while overall amounts of rainfall may actually increase, weather conditions will become more extreme and more unpredictable. Based on these current trends, the impact of climate change on the lives of those who depend on the lake will only become more problematic.

Meanwhile, the conflict has left the local population more vulnerable than ever before to climate change. The violence has razed entire villages, disrupted markets, closed schools and destroyed clinics. And the frequently heavy-handed military response to the conflict has closed off large areas around the lake, disrupting people's way of making a living and leaving communities distrusted by each side, seen as collaborators with either armed opposition groups or the army.

The region is in a classic conflict trap. The conflict is worsening some of the political and economic conditions that gave rise to the violence in the first place. The violence has strained social bonds at the community level and between the state and local population across the region. Years of conflict, poverty and persistent human rights violations by both governments and armed opposition groups have fragmented social bonds among families, among generations, among ethnic groups and between IDPs/refugees and host communities.

Climate change and population growth are adding to the strain of providing sufficient food and basic services to the local population. Climate change is acting as a risk accelerator, compounding the many political, environmental, economic and security challenges that face the region.



Future resilience in the Lake Chad region requires integrated interventions that go beyond short-term stabilisation and humanitarian concerns. They should be resilience based and informed by climate and conflict analyses.

4.2 MOVING FROM RESILIENCE STRATEGIES TO RESILIENT REALITIES

The past few years have seen efforts by the international community, the Lake Chad Basin Commission and the governments of the region to keep the Lake Chad region on the international agenda, and to find solutions to what often appears to be an intractable crisis. Many transboundary meetings have tried to find ways to bring peace and security to the region: among them the Oslo Humanitarian Conference, in February 2017; the Consultative Group on Prevention and Stabilization in the Lake Chad Region in 2017; the Abuja Conference to Save Lake Chad, February 2018; the Lake Chad Governors' Forum in Maiduguri, May 2018 and, most recently, the High-Level Conference on the Lake Chad Region, held in Berlin in September 2018.

Most of these events have focused on a menu of possible short-term humanitarian and political responses. The Berlin 2018 conference did address both, the security and humanitarian crisis as well as resilience and sustainable development. The Abuja conference meanwhile discussed, among other things, the rather radical idea of transporting water several thousand kilometres from the Congo Basin to Lake Chad to counteract the supposed shrinking of the lake.

Several strategies and action plans have also been developed. The best known ones are the Lake Chad Development and Climate Resilience Action Plan, which was developed by the Lake Chad Basin Commission in 2015, the African Union's Regional Strategy for Stabilisation, Recovery and Resilience, published in 2018, and UNDP/OCHA's Resilience for Sustainable Development in the Lake Chad Basin, which was released 2018.[76] Their focus has been predominantly in the area of cross-border security collaboration between the four countries rather than addressing the root causes or impacts of the violence.

This assessment argues that many of the strategies and programmes, military responses and stabilisation initiatives that have been rolled out in the region have not taken sufficient account of climate risks or are based

BOX 11 THE REGIONAL STRATEGY FOR STABILISATION, RECOVERY AND RESILIENCE

The Regional Strategy for Stabilisation, Recovery and Resilience of the Boko Haram- affected Areas of the Lake Chad Basin Region, is a collective response to the crisis in the Lake Chad region, developed by the Lake Chad Basin Commission (LCBC), with the African Union Commission (AUC), and the financial and technical support of the United Nations Development Programme (UNDP). Validated by all LCBC countries in August 2018, its aim is to address the root causes of the crisis such as underdevelopment, poverty, poor governance and climate change, and ultimately end the crisis. Based on nine pillars, it aims to establish a common approach and an inclusive framework for all stakeholders to support a timely, coordinated, and effective transition from stabilization to early recovery and the resumption of stalled development processes in the region.

The conclusions of this report directly support the Regional Stabilisation Strategy, and offer tangible suggestions for implementation, specifically under the following three pillars:

Pillar 1 - Political Cooperation
- Objective 4 - Capacity of LCBC and AUC is Enhanced.

Pillar 5 - Governance and the Social Contract
- Objective 18 - Improving Service Delivery.
- Objective 21 - Improving Cross-Border Cooperation.

Pillar 6 - Socioeconomic Recovery and Environmental Sustainability
- Objective 22 - Supporting Sustainable Livelihoods.
- Objective 23 - Improving Infrastructure for Regional Economic Integration
- Objective 24 - Creating Conducive Business Environment.
- Objective 25 - Ensuring Environmental Sustainability.

76 UNDP/OCHA 2018: Resilience for Sustainable Development in the Lake Chad Basin. Retrieved 8 April 2019 from https://www.undp.org/content/dam/rba/docs/UNDP-OCHA-Lake-Chad-%20Resilience_spreads-EN.pdf.

on inaccurate hydrological information - namely the outdated but oft-repeated notion that Lake Chad is shrinking. Some of the military responses have even undermined the ability of people to cope with climate shocks. In Nigeria, an estimated 823,000 people are in areas humanitarian groups cannot access.[77] Conservation and biodiversity projects, for their part, have tended to exclude social factors such as conflict.[78]

So far none of the initiatives and conferences have managed to break the Lake Chad region out of this conflict trap. What is now required is an integrated push that brings together development, security and sustainability to set the region on a more positive track. No organisation or entity can tackle the multidimensional crisis in the Lake Chad basin alone. However, many organisations working in the Lake Chad region can contribute to building resilience and ensure, at the very least, that their interventions "do no harm."

This report recommends developing integrated interventions that go beyond short-term stabilisation and humanitarian concerns. In doing so, it argues for a resilience-based approach, informed by careful climate and conflict analysis that delivers meaningful interventions over the short and medium term while endeavouring to cater to the many long-term needs of the region.

TOWARDS A GLOBAL RESILIENCE AGENDA

Ultimately the Lake Chad region is emblematic of the global need to adopt a resilience-focused approach in areas affected by inter-related climate and security challenges. This assessment's findings illustrate the need for risk-informed responses to complex crises.

Why? Because this story does not begin and end with Lake Chad. Around the world, conflicts are becoming more complex and protracted, occurring in places increasingly impacted by climate change. Meanwhile, humanitarian needs are increasing: 2018 saw a record high of more than 134 million people globally in need of humanitarian assistance. The funding needed is higher than ever and the gap between funding required and available (US $25 billion and US $15 billion respectively in 2018) risks leaving millions of people behind.[79]

In principle, there is a broad commitment amongst relevant actors to becoming more effective, efficient and cost-effective in order to respond faster to crises and in ways more attuned to the needs of those they are trying to help. Genuine and encouraging strides have been made towards more comprehensive, cross-sectoral and impartial needs assessments and better linkage between short-term humanitarian response and long-term solutions to advance the resilience agenda.

77 Nigeria Humanitarian Response Plan 2019–2021.
78 E.g., the GEF Transboundary Diagnostic Analysis/Strategic Action Programme (TDA/SAP) approach for Lake Chad does not take into account the conflict and governance context as part of its diagnostic approach.
79 UNOCHA 2018: Global Humanitarian Overview – 2018. Retrieved 5 February 2019 from https://interactive.unocha.org/publication/globalhumanitarianoverview/.

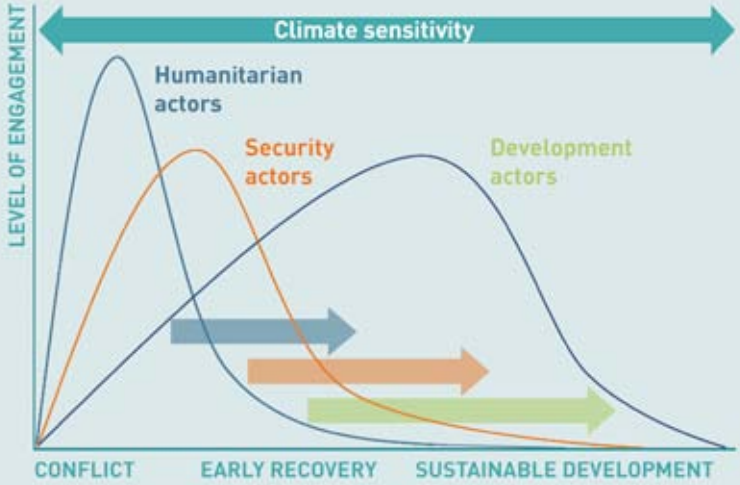
Understanding risk is a vital step in building resilience. But research for this assessment found that while risk assessments are ubiquitous, integrated risk assessments are rare, and none consider conflict and climate risks together. Responses to conflicts and humanitarian crises need to be informed by comprehensive risk assessments. Risk assessments need to take climate impacts into account and be climate sensitive. What's more, the risks identified in this assessment vary not just across the four countries but also within each country and by different respondent groups. It is thus clear that risk assessments need to be informed not just by state-of-the-art satellite climate data and national statistics, but also by as much locally grounded, qualitative contextual information as possible.

Now more than ever, we need greater coherence and coordination across organisations working on stabilisation, humanitarian assistance, peacebuilding and development.

In principle, there is a broad commitment amongst relevant actors to becoming more effective, efficient and cost-effective in order to respond faster to crises and in ways that are more attuned to the needs of those they are trying to help. Genuine and encouraging strides have been made towards more cross-sectoral and impartial needs assessments and better linkage between short-term humanitarian response and long-term solutions to advance the resilience agenda.

Understanding risk is a vital step in building resilience. Risks are linked. Just as resilience is multidimensional, so too are the risks that people and systems face. It is well known and often repeated that siloed responses and linear sequencing will not work. And yet in times of crises, interventions all too often fall into traditionally sequenced programming (first stabilisation and humanitarian assistance, and then everything else). Whilst recognising that the humanitarian crisis continues, ongoing humanitarian programming should be planned alongside scaling up recovery, peacebuilding, resilience and development efforts. Effective responses to the crisis need to address security, humanitarian, development and climate risks together, with immediate effect.

FIGURE 13 CLIMATE-SENSITIVE ENGAGEMENT: FROM RECOVERY TO SUSTAINABLE DEVELOPMENT



This assessment is the first of its kind in which both dimensions—conflict and climate change—are addressed in a specific context, offering principles and tangible entry points for targeted interventions. The report and the assessment process that led up to it have provided a valuable pilot that has served as a proof of concept for such a climate-fragility based risk assessment approach to become normal practice. Ideally, this will become standard practice in areas affected by climate change and violent conflict.

An approach that is based around building "resilience" could fundamentally reshape how development and stabilisation programmes are conducted. It requires a paradigm shift in the decades' old approach to foreign assistance towards an approach that is more suited to a world dealing with fast moving technological, political and environmental challenges. But such an approach could help align different national and international players around a common goal that involves helping people to define their own futures and, in so doing, acknowledges their own agency and dignity. As such, it could help bridge the current divide between humanitarian response and longer-term development by shifting to an approach focused on prevention. It could also help to broaden the aims of military action in situations of protracted conflict and humanitarian crisis.

Acknowledging climate change risks to peace and security within stabilisation plans and operations is an important part of this. Addressing social factors such as conflict in climate change, conservation and biodiversity projects is another. Climate-proof and conflict-sensitive interventions represent better value for money, and a better chance of delivering a lasting peace. These kinds of risk-informed programmes can help by addressing compound risks at the same time, saving money and, hopefully, improving outcomes. Examples include demobilization, disarmament and reintegration programmes which enhance climate adaptive capacity and climate sensitive livelihood programmes which promote social cohesion. It also represents a more coherent and coordinated way of working across the humanitarian, development and security communities. The ultimate aim is to support effective and inclusive governance structures that deliver resilient communities which leave no one behind.

4.3 PRINCIPLES FOR EFFECTIVE ENGAGEMENT

Those working in Lake Chad must guard against limiting responses to immediate stabilisation and humanitarian concerns only. It is clear that pathways to resilience need to address the climate and security challenges to deliver stability and development in the region. Building on UNDP/OCHA's Resilience for Sustainable Development in the Lake Chad Basin (2018), and grounded in the primary research for this study, this report identifies a set of guiding principles which aim to support a resilience-based approach that delivers meaningful interventions in the short/medium term while planning for long-term needs.

GUIDING PRINCIPLES

1. **Ensure meaningful participation of civil society**, in particular of all women, young people, people with disabilities and those from other marginalised groups, in the planning and implementation of responses.
2. **Address governance deficits with conflict sensitivity.** It's not simply a humanitarian crisis; it is also a governance crisis. Avoid duplicating new structures, but where existing structures perpetuate inequalities and conflict risks, make sure these are not reinforced.
3. **Ensure that financing is more predictable, flexible, adaptable, and prepared to fail.** And importantly, don't just focus on more stable areas. While access can be a challenge in "hot conflict" areas, piling funding into stable areas further exacerbates inequality of resources, with aid being a major conflict commodity. This also requires a cultural shift in the donor mind-set from risk-averse programming to risk prevention and management in difficult contexts and a willingness to invest in volatile regions where the risk of failure is high. Be willing to accept your losses.
4. **Make sure that all programmes and strategies take account of both climate and conflict risks in a context-specific way.** Understanding the local variation of climate and societies needs to be the foundation of any effort to address climate-security risks. National, top-down assessments will not work. Local-level dynamics need to be considered in tandem to understand how changes in one place might affect other places. More widespread use of climate-fragility assessments to inform strategies and programming in fragile contexts affected by climate change is a first step. A second is to keep assessments ongoing and up-to-date to reflect the dynamic nature of the risks involved.
5. **Monitor and evaluate all interventions for intended and unintended impacts on conflict and fragility risks** and be ready to adjust implementation to address changing conditions on the ground.
6. **Share ideas and lessons learned across the different sectors and countries** within the region, facilitate relevant south-south cooperation from outside the region to identify pilots, new approaches or tried and tested approaches to scale up.

While no single organisation is big enough to tackle the multidimensional crisis in the Lake Chad basin alone, individual organisations can do much to at least do no harm, and enhance their efforts in building resilience. At the same time, a multi-stakeholder response is needed to draw on collective expertise to provide humanitarian assistance, building social cohesion, protection, political engagement, early recovery, socioeconomic development, security provision and ecological conservation. This approach aligns with the recommendations of previous climate related risk assessments which called for regular climate risk assessments of foreign policy and security strategies in the Lake Chad region as well as reports on climate-related security risks for relevant institutions.

ANNEXES

ANNEX 1: **ONGOING RESPONSES**

The table below sets out some of the major ongoing or planned responses in the region

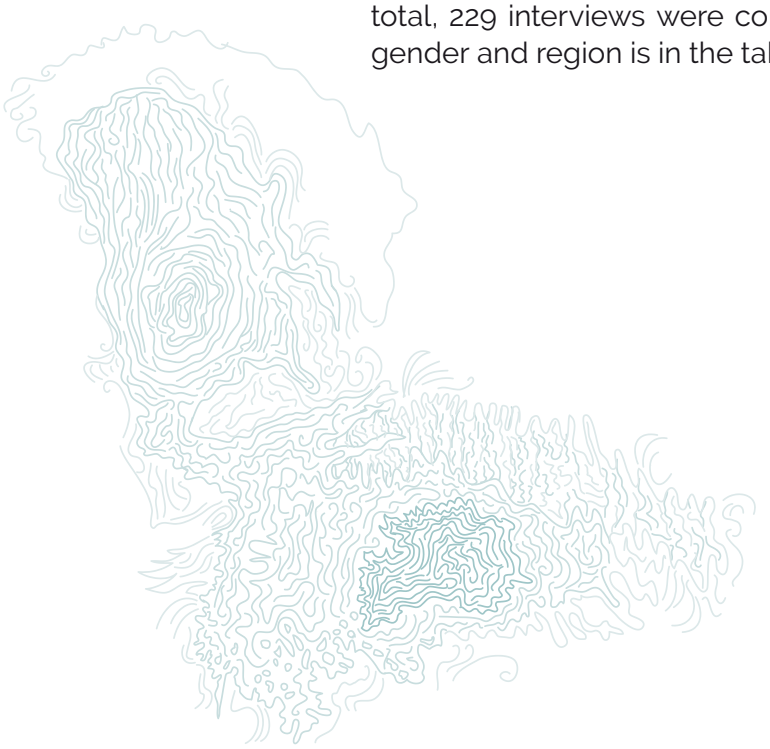
Program/ Initiative	Amount	Donor	Year	Implementer
FEED THE FUTURE *(agricultural livelihoods intervention implemented in Adamawa, Borno, FCTs, Kebbi, Sokoto, and Yobe)*	US $22m	USAID	2013–2018	Catholic Relief Services
MANAGING CONFLICT IN NORTHEAST NIGERIA *(state and community level conflict management to prevent escalation of conflict into violence in Adamawa, Borno and Yobe)*	€21m	EU	2018–2022	British Council
PROPCOM MAIKARFI *(markets strengthening focused on ensuring stability, resilience and economic recovery that improves livelihoods of the rural poor and especially IDPs in Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe)*	N/A	DfID	2018–2020	Palladium
RESILAC-REDRESSEMENT ECONOMIQUE ET SOCIAL INCLUSIF DU LAC TCHAD • Access to economic opportunities for vulnerable groups • Food security • WASH • Local governance & social cohesion Diffa Region (Niger); Borno State (Nigeria); Lake Chad region (Chad); Far-North region (Cameroon)	EU: €30m AFD: €5m	EU Emergency Trust Fund for stability & addressing root causes of irregular migration and displaced persons in Africa	48	Led by a consortium of 3 main partners: Action against Hunger CARE Groupe URD Coordination: AFD EU Delegation Chad
STRENGTHENING RESILIENCE IN NORTH-EASTERN NIGERIA Improve living conditions of IDPs, host communities and returnees in the states of Adamawa and Borno; Holistic approach to avoid resource conflicts	€42m EU: €37m Germany: €5m	EU Germany	2016–2021	GIZ Lead executing agency: Nigerian Ministry of Budget & National Planning
READY TO RESPOND NIGERIA, NIGER AND CHAD; Supports humanitarian partners to scale up their preparedness efforts, improving their emergency response capacities, advancing interagency coherence in humanitarian action and yielding long term cost savings	N/A	DfID	N/A	UNICEF, UNHCR, UNOCHA and WFP
ACTIVITIES BY SWISS DEVELOPMENT COOPERATION Focus on food security & nutrition, psychosocial support, WASH Education, school infrastructure & services for affected communities in Diffa region (Niger) Multilateral contributions to ICRC & UN	CHF 23.1m (2014-2016)	Swiss Development Confederation	N/A	ICRC UN agencies NGOs
THE LAKE CHAD DEVELOPMENT AND CLIMATE RESILIENCE ACTION PLAN (LCDAP) • Turning Lake Chad into a rural hub for regional development in parallel to the restoration of peace and security. • Food security, employment, and the social inclusion of the youth • Enhance capacities of LCBC	Est. cost of plan: €916m	Part of the World Bank's $16bn Africa Climate Business Plan	N/A	The four Lake Chad riparian states, the Central African Republic and Libya Local powers (local governments or customary authorities) Lake Chad Basin Commission (LCBC) Civil society
FAO LAKE CHAD RESPONSE STRATEGY Contribute to improving the food security and nutrition and to strengthening the resilience of vulnerable host communities and IDPs in crisis-affected areas in Cameroon, Chad, Niger and Nigeria	Budget: US $232m	FAO	2017–2019	Ministries of agriculture, livestock and fisheries and their decentralized services, United Nations agencies, food security sector partners, national and international NGOs, CILSS and LCBC
MULTI-SECTORAL CRISIS RECOVERY PROJECT FOR NORTH EASTERN NIGERIA • Support the Government of Nigeria towards rehabilitating and improving critical service delivery infrastructure, improve the livelihood opportunities of conflict and displacement-affected communities, and strengthen social cohesion • Provide immediate and effective response to eligible crisis or emergency	US $200m	World Bank	2017–2021	State governments of Borno, Adamawa and Yobe

ANNEX 2: **METHODOLOGY**

While a lot of assessments exist on particular issues and challenges in the Lake Chad region, no comprehensive analysis of climate-fragility risks based on primary data (field research and surveys) exists at the moment. Our approach began with an assessment of the full range of security risks in a given context and identifies the role of climate and environment in generating them. This analysis uses the high-quality, in-depth field research and consultations to fill any gaps in the current research literature, provide primary data and also the context with which current policies can be assessed. This study, therefore, is strongly interdisciplinary in its approach. This methodology section describes our data collection process (through interviews and hydrological and climate data collected during field research) before providing a brief outline of the writing process.

FIELD RESEARCH – STAKEHOLDER INTERVIEWS

Interviews were conducted with a range of different types of stakeholders across each of the four countries of Lake Chad. A local research team conducted the interviews with affected communities around Lake Chad. The people interviewed were a mix of different ages, genders, occupations, religion and ethno-linguistic groups across the region with a range of different experiences including refugees, internally displaced people and host communities. In addition, talks with a wide range of stakeholders from all levels of government as well as community leaders were held. They involved interviews with government and NGO officials, UNDP, UNHCR, UN OCHA and the Lake Chad Basin Commission. In total, 229 interviews were conducted. A more detailed breakdown by gender and region is in the tables below.



AREA/GENDER BREAKDOWN OF INTERVIEWS, NIGERIA

NIGERIA

TABLE 2

Locations		Gender	
Place	Total Interviewed	Female	Male
Doron Baga	20	10	10
Gamboru	7	3	4
Maiduguri (Baga)	6	3	3
Maiduguri (Monguno)	6	3	3
Maiduguri (Ngala)	6	3	3
Monguno	25	13	12
Ngala	20	8	12
Total	**90**	**43**	**47**

AREA/GENDER BREAKDOWN OF INTERVIEWS, NIGER

NIGER

TABLE 3

Locations		Gender	
Place	Total Interviewed	Female	Male
Diffa	8	1	7
N'guimi	9	2	7
Kabalewa	6	3	3
Bilabirin	5	2	3
Lisquedi	4	2	2
N'galewa/ Kirmira	5	2	3
Toumour	4	2	2
Bosso	3	1	2
Niamey	1	1	0
Phone	1	1	0
Total	**46**	**17**	**29**

AREA/GENDER BREAKDOWN OF INTERVIEWS, CHAD

CHAD

TABLE 4

Locations		Gender	
Place	Total Interviewed	Female	Male
Baga Sola	6	2	4
Bol	11[2]	3	7
Guite	4	1	3
Liwa	2	0	2
N'Djamena	4	1	3
Ngarangou	3	1	2
Ngomirom	6	3	3
Yakoua village and camp, near Bol	2	1	1
Yuronjikota *(village 52 km from Liwa on way to Bol)*	1	1	0
Total	**39**	**13**	**25**

AREA/GENDER BREAKDOWN OF INTERVIEWS, CAMEROON[80]

CAMEROON

TABLE 5

Locations		Gender	
Place	Total Interviewed	Female	Male
Daram	5	2	3
Girvidi	3	1	2
Kaele	4	1	3
Kousseri	4	1	3
Logone Birni	7	5	2
Maga	6	2	4
Maroua	6	1	5
Minawao camp	2	1	1
Mokolo (Zamai)	4	2	2
Mora	1	1	0
Mora Masif	1	0	1
Moulvoudaye	2	1	1
Pouss	4	1	3
Village near Mokolo	2	0	2
Zimado	6	2	4
Total	**57**	**21**	**36**

For the interviews, an interview guide was prepared with a number of indicative questions, which provided guidance and structure for the interviewers. They were not prescriptive in nature and not all questions were asked. The interviews themselves followed a semi-structured format. The indicative questions covered subjects including:

- Community identities and relations
- Livelihoods
- Conflict dynamics
- Perceptions of key actors
- Future trajectories

The interviews followed a number of guiding principles:

1. **Conflict Sensitivity:** Given the sensitive and contested nature of the subjects discussed, it was critical that the research be undertaken in a conflict sensitive manner. This is particularly important given the possibility that talking about conflict dynamics and trends, especially in those communities that are affected by the conflict, might actually exacerbate and create tensions. Consequently, the research methodology and indicative questions were designed and implemented with understanding for this dynamic.

2. **Awareness of and sensitivity to gender dynamics:** The research was undertaken in a way to ensure that women took active roles, that issues including women's participation, voice and economic empowerment and violence against women and girls as well as the different perceptions of women and men were understood. Additionally, the research aimed for as equal representation between men and women as possible.

3. **A robust ethical approach:** A robust ethical approach was followed, with systems in place to ensure the highest ethical standards were adhered to at all times and in every stage of the interview process. For the participants, this included a thorough pre-interview preparation period. During this stage, for example, interviewers ensured that the interviewees understood the nature and reason for the research, that their contributions would be anonymised and that they could end the interview at any point if they felt uncomfortable.

CLIMATE AND HYDROLOGICAL RESEARCH

A key aim of this study was to understand and produce new, state-of-the-art climate and hydrological data upon which analysis and recommendations could be credibly founded. As a result, the project benefited from the climate and hydrological expertise and analysis of satellite data provided by the *Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement* (CEREGE). This work package led by CEREGE had two aims. First, it sought to understand the hydrological dynamics that have caused variations in the size of Lake Chad over the last two decades, and second, it wanted to gain a better understanding of current and likely future effects of climate change.

Hydrological Data: Given the difficult conflict environment, the decrease in hydro meteorological stations and the challenges in gathering data consistently and accurately from remote regions, we made innovative use of satellite remote sensing. This requires combining different satellite observations from, for example, optical imagery from MODIS/LandSat-8/Sentinal-2, and satellite altimetry from ERS-2/ENVISAT/SARAL to reconstruct variations of the surface water extent and the surface water level of the lake. Subsequently, the variation of the surface water storage was estimated. Additionally, we investigated GRACE data for the variation of the total water storage and then broke it down into surface and sub-surface water storage variations. The multi-sensor approach used here is especially important as it can be used to more optimally evaluate and distinguish between open water surface water compared to water surface covered by vegetation and so overcome one of the main challenges when using remote sensing methodologies in the context of shallow lakes such as Lake Chad.

Climate Data: To understand the climate change dynamics that affect the region, CEREGE conducted a thorough review of the latest climate science literature related to Lake Chad, including the recent Intergovernmental Panel on Climate Change (IPCC) reports on the subject. This literature review informed the sections of the report on current and future climate impacts. These findings were also compared and contrasted with responses from the interviews in order to ascertain the accuracy of the perceptions of climate change by the local stakeholders.

CLIMATE FRAGILITY ASSESSMENT TOOL, WORKSHOP AND RECOMMENDATIONS

Based on the field studies described above, a comprehensive analysis of the interconnected and compound climate-fragility risks was undertaken. This analysis used a climate-fragility risk assessment tool that has been developed in-house by adelphi in conjunction with the UN Environmental Programme. The tool aims to increase resilience and decrease vulnerability and fragility by focusing on five different core asset categories or types of capital upon which livelihoods are built.

These are: human capital; social capital, natural capital, physical capital; and financial capital. The tool puts a "climate lens" on each of the different types of capital to analyse the long-term impacts of climate-related events and effects on the types of capital as well as the capacities of various actors to cope with these impacts. In a second step, the tool put a "conflict lens" on the different types of capital, looking at the short-term impacts of possible conflicts on the capital and actors' capacity to address them. In addition, a thorough review of existing policies of government, (including National Adaptation Programmes), the Lake Chad Basin Commission and international organisations and NGOs was conducted.

This assessment was primarily carried out during a workshop in November 2018 hosted by adelphi in Berlin. The workshop brought together the conflict and climate experts who conducted the field research described above as well as a number of adelphi staff who facilitated the climate-fragility risk assessment process. Through this process, a number of climate fragility clusters were identified and policy recommendations developed. Furthermore, a number of principles for future climate security approaches also emerged.

Following the workshop, a period of collaborative writing between the main authors was undertaken where the findings from the fieldwork and the outcomes of the workshop were integrated. The initial results of this report were presented at the Planetary Security Conference in The Hague on 20 February and feedback was sought and incorporated into the report. Following this, the report was sent to a number of external reviewers including stakeholders in Cameroon, Chad and Nigeria as well as UNDP. Their comments were then incorporated into this final report.

LIST OF ABBREVIATIONS

AFD	Agence Française de Developpement
AUC	African Union Commission
BMZ	German Federal Ministry for Economic Cooperation and Development
CEREGE	Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement
CHF	Swiss Francs
CILSS	Comité Permanent Inter-États de Lutte Contre la Sécheresse dans le Sahel
CJTF	Civilian Joint Taskforce
DfID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FCT	Federal Capital Territory
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit GmbH
ICRC	International Committee of the Red Cross
IDP	internally displaced people
IPCC	Intergovernmental Panel on Climate Change
ISWAP	Islamic State West Africa Province
JAS	Jama'atu Ahl al -Sunna li -l- Da'wa wa- l- Jihad (People Committed to the Propagation of the Prophet's Teachings and Jihad)
LCBC	Lake Chad Basin Commission
LCDAP	Lake Chad Development and Climate Resilience Action
MNTJF	Multinational Joint Task Force
NGO	nongovernmental organisation
RESILAC	Redressement Economique et Social Inclusif du Lac Tchad
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	United States Agency for International Development
WFP	World Food Programme

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