

COMMUNITY VOICES ON CLIMATE, PEACE AND SECURITY

KENYA



FOCUS
Climate Security



INITIATIVE ON
Climate Resilience

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CGIAR aims to address gaps in knowledge about climate change and food security for peace and security policies and operations through a unique multidisciplinary approach. Our main objective is to align evidence from the realms of climate, land, and food systems science with peacebuilding efforts already underway that address conflict through evidence-based environmental, political, and socio-economic solutions.

AUTHOR ORGANISATIONS

CGIAR Climate Security Focus

CGIAR Climate Security Focus aims to address gaps in knowledge about climate change and food security for peace and security policies and operations through a unique multidisciplinary approach. Our main objective is to align evidence from the realms of climate, land, and food systems science with peacebuilding efforts already underway that address conflict through evidence-based environmental, political, and socio-economic solutions. For more information about CGIAR Climate Security Focus, please visit <https://climatesecurity.cgiar.org/>

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Resilient Agrifood Innovation
Systems in Latin America and
the Caribbean

EXECUTIVE SUMMARY

This Community Voices on Climate, Peace and Security series report, under [CGIAR's Climate Resilience Initiative](#), presents the results of a participatory appraisal conducted with residents of three localities across Kenya, including:

1. members of the **Yiaku** Indigenous Peoples in the Mukogodo Forest region, located in Laikipia County;
2. members of the **Endorois** Indigenous Peoples in the Lake Bogoria Game Reserve region, located in Baringo County; and
3. members of the **Banyala** Indigenous Peoples at the shores of Lake Victoria, in Busia County.

Climate-related security risks in Kenya

The effects of climate variability across Kenya are contributing to depleting the natural resource base on which many livelihoods rely. Under contexts where hostile relations prevail across neighbouring communities, political boundaries, cross-border settings, and at times within communities, these impacts interact with regional drivers of instability and overwhelmed institutions for conflict prevention and management, and have exacerbated a sense of insecurity in the everyday lives of resource-dependent populations.

Six climate security pathways, as experienced by local populations, were identified:

- **Pathway 1:** Increasingly scarce natural resources have led to a higher frequency and intensity of inter- and intra-community conflict.
- **Pathway 2:** Conflicts over political boundaries are exacerbated due to the effects of climate change on livelihoods and income strategies.
- **Pathway 3:** The interloping impacts of climate change and conflict undermine livelihoods, erode social cohesion within the community, and increase vulnerabilities to future climate threats.
- **Pathway 4:** Maladaptive income strategies adopted by some community members to cope with climate threats are perceived as negatively affecting others.
- **Pathway 5:** Limited institutional capacities to address climate threats, rent-seeking practices, indigenous peoples rights and the political instigation of violence impair efforts for conflict resolution and resilience building, exacerbate conflicts, and reduce trust in formal institutions.
- **Pathway 6:** The increasing frequency and intensity of rapid onset floods leads to community-wide temporary displacement.

Community-led policy recommendations to address climate-related security risks

Conflict-sensitive resilience building action urgently needs to be deployed in accordance with community-level priorities, in a way that builds upon local and Indigenous knowledge, everyday experience of problem dynamics, and perceptions around structural sources of vulnerability and conflict. Community members developed context-specific policy recommendations to turn climate-related security risks into opportunities for resilience and peacebuilding:

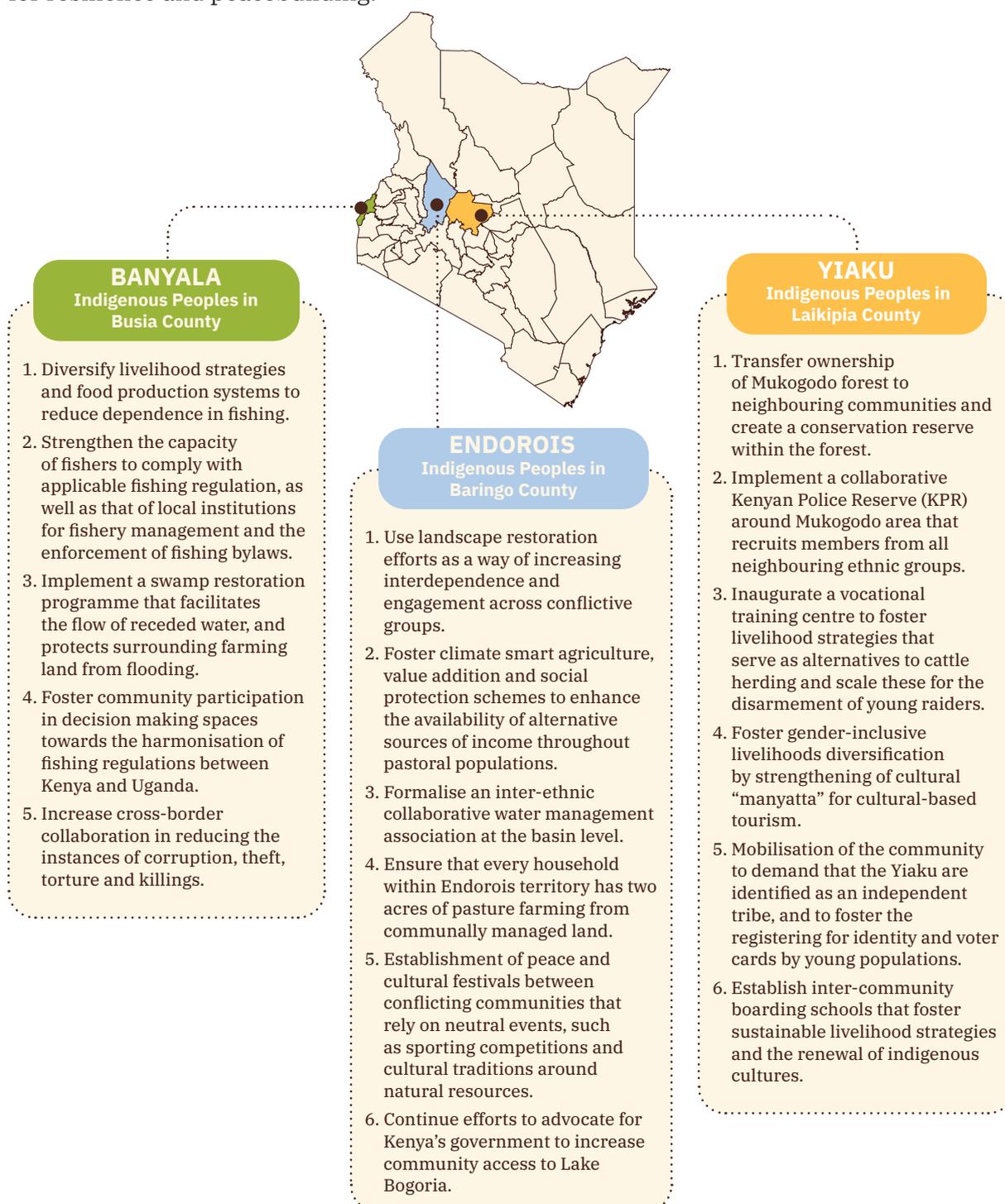


Figure 1. Case studies.

The policy prescriptions proposed by study participants suggest a set of high-level principles for the design of climate adaptation efforts that contribute to sustainable peacebuilding. Guiding principles for the deployment of policies for natural resource management and the protection of rural livelihoods based on their concrete lived experiences include:

1. adopt climate action programmatic strategies that consciously account for and address structural sources of vulnerability and marginalisation, such as land tenure;
2. promote collective action in natural resource management in ways that foster social cohesion across opposing groups;
3. address horizontal and vertical inequalities through inclusive natural resource management and climate smart agriculture;
4. ensure the support of formal policy processes and the willingness of government actors to advocate for required reforms;
5. in conflict and post-conflict settings, embed collaborative natural resource management and climate adaptation within broader reconciliation processes.



Photo: L. Medina / CGIAR

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INTRODUCTION

The effects of climate change and conflict act as compounding and interrelated stressors over people's wellbeing. Although there is a general consensus that climate change interacts with ongoing conflicts by reducing the adaptive capacity of societies and governments to manage them, many questions remain around the multiple ways in which climate and conflict are interlinked. There is insufficient localised and policy-relevant evidence on how exactly climate-related security risks may emerge across different geographic and social contexts. Furthermore, research on the complex linkages between climate change and conflict has frequently ignored local socio-cultural realities, including human rights, while resulting recommendations have prioritised technocratic solutions and top-down governance arrangements over people's understanding of, and priorities for, peace and resilience.

The recent IPCC report "Climate Change, Impacts, Adaptation and Vulnerability" recognises the role of climate in exacerbating vulnerabilities that are linked to conflict, and clearly asks for climate adaptation strategies to become an instrument for sustainable peacebuilding, especially via reducing inequities and inequalities, fostering social cohesion and shared identities, increasing people's agency to build resilience and manage natural resources, and enhancing state-society relations. With the goal of closing knowledge and programmatic gaps around climate-security linkages, the Community Voices on Climate, Peace and Security series, under CGIAR's Climate Resilience Initiative, conducted an assessment of climate-related security risks and conflict-sensitive climate adaptation strategies as conceived by local populations across five countries: Kenya, Senegal, Guatemala, Zambia and the Philippines.



Photo: L. Medina / CGIAR

The deployed method for gathering data is in line with a participatory appraisal tradition, in which community members are repositioned as citizen scientists and experts in understanding the different vulnerabilities and security-related challenges that afflict them, and in proposing required changes for the better. A diversity of collective reflection facilitation tools (Ruettinger et al., 2014; Ulrichs et al., 2015) were used to

design a participatory vulnerability assessment that integrated a lens on climate-related security risks. Tools which have been previously used for the participatory assessment of climate change vulnerability and conflict were merged in identifying potential linkages between climate, peace and security as experienced by people in their everyday lives. The process also meant to identify and develop resilience building solutions based on collective action that can potentially contribute to sustainable peacebuilding in accordance to local contexts.

A conceptual framework for climate security

A recent review of the climate security literature (Buhaug & von Uexkull, 2021) proposed to conceptualise the link between climate change impacts and conflict by accounting for three well-established fields of scientific inquiry: the determinants of social vulnerability to climate variability and extremes; the climatic effects over the socio-economic, cultural and political drivers of conflict; and the societal and environmental impacts of violent conflict. Under this framework (Fig. 1), socio-economic vulnerability influences risk and impacts from climatic change, these impacts in turn enhance the risk of armed conflict, and the consequences of armed conflict increase vulnerability to future climate hazards; hence potentially trapping a society in a “vicious circle” of conflict. It is important we recognise that social relations are shaped more commonly by collaboration and cohesion, rather than conflictive sentiments. Therefore, the vicious circle of climate-security is understood to be mediated by societies’ and governments’ responses to climate- and conflict- related threats. Institutional responses from international to community levels have the capacity to perpetuate or reverse the vicious circle.

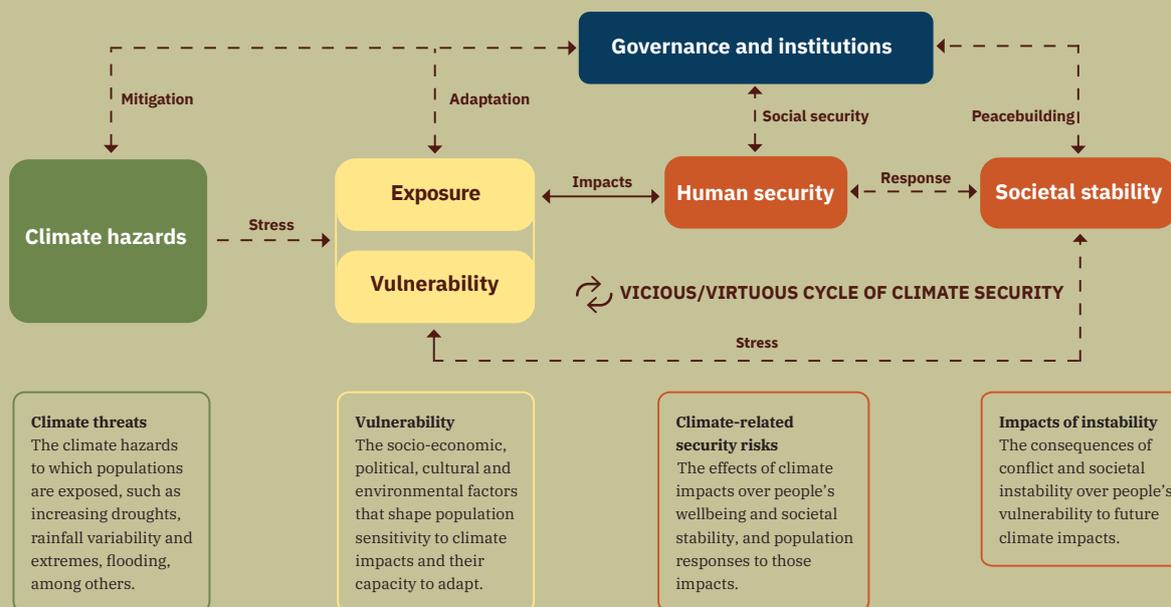


Figure 2. A conceptual framework for climate-related security risks.

Definitions

- **Adaptation:** In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities.
- **Adaptive capacity:** The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.
- **Climate Security:** Climate-related security risks are systemic risks emerging through interactions between ecological, social, political, and economic dimensions, and “driven by one or more climatic stressors that [directly or indirectly] challenge the peace and stability of states and societies” (Detges et al., 2020, p. 5).
- **Conflict-sensitive climate adaptation:** an approach to climate adaptation that seeks to avoid unintendedly making conflict situations worse and, when possible, aims to contribute to address the causes of conflict.
- **Exposure:** The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.
- **Human security:** A condition that is met when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity. In the context of climate change, the vital core of human lives includes the universal and culturally specific, material and non-material elements necessary for people to act on behalf of their interests and to live with dignity.
- **Maladaptation:** Actions that may lead to increased risk of adverse climate-related outcomes, including via increased GHG emissions, increased vulnerability to climate change, or diminished welfare, now or in the future. Maladaptation is usually an unintended consequence.
- **Pathways:** Context-specific interactions between climate impacts and peace and insecurity risks.
- **Resilience:** Capacity of social, economic, and environmental systems to cope with a hazardous event, trend or disturbance by responding or reorganising in ways that maintain their essential function, identity, and structure while maintaining their capacity for adaptation, learning, and transformation.
- **Vulnerability:** The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

METHODOLOGY

The appraisal method applied in this study expands our understanding of climate-related security risks in Kenya. It examined the way local actors capitalise on practical experience to develop shared understandings of the environmental- and conflict-related collective problems they face; to reflect on their action strategies in addressing such problems; and to challenge institutional structures that sustain underlying causes of vulnerability. The assessment took place through a multiple methods approach combining direct observation, focus group discussions, and open structure interviews. The appraisal method consists of an assessment integrating three phases, each with the respective goal of: 1) recognising gender-differentiated community-level knowledge around social-ecological and climate change; 2) defining drivers of vulnerability to climate hazards and security-related risks in terms that are grounded in local experiences and traditions; and 3) explore meaningful opportunities for collective action which account for local adaptive capacities and that simultaneously foster resilience and sustainable peacebuilding.

These phases included six steps (see Figure 3), each using different appraisal tools to facilitate a joint reflexive dialogue with community members. The first and second phases were conducted through focus group discussions (FGDs) held separately for women and men, with representatives of various social groups (e.g. youth, people with disabilities, widowed, etc), hence allowing to identify intersectional drivers of vulnerability and different perceptions of community-level responses to risk management strategies. Phase three on collective action planning was facilitated through working groups in which women and men worked together and were distributed equally. Qualitative key informant interviews were conducted to complement the analysis. Each case study assessment was conducted in four or five days. In-time translation to English was used to moderate the discussions. For further details on the method's process, adopted tools and limitations, readers can refer to the document "Community voices on Climate and Security: a social learning approach" (Medina et al., 2023).

This report presents the results of a participatory appraisal conducted with residents of three localities across Kenya, including 1) members of the Yiaku Indigenous Peoples in the Mukogodo Forest region, located in Laikipia County; 2) members of the Endorois Indigenous Peoples in the Lake Bogoria Game Reserve region, located in Baringo County; and 3) members of the Banyala Indigenous Peoples at the shores of Lake Victoria, in Busia County. A total of 73 community members (38 men, 35 women) participated in 18 FGDs, held throughout September of 2022 across the three localities.

The report is structured in five parts. Section 2 summarises the research context. Section 3 discusses climate and environmental change as perceived by community members throughout recent decades. It also assesses impacts of climate change over the community's wellbeing and ongoing adaptive responses. Section 4 discusses the different

causal pathways through which climate change and security-related risks may be interlinked. Section 5 details the recommendations developed by community members for resilience building action that can potentially serve as an instrument for peace and provides a reflection over findings and the way forward.

Phase 1: Recognising Community Knowledge

TOOL 1 Transect Walk

Context appraisal activity which includes a guided tour of the locality. Researchers ask community leaders to show them the most important sites for the community and its surroundings.

Output:

- Gain a better understanding of the main social, physical and ecological characteristics of the community and its surrounding area.
- Develop a profile of adaptive capacity and vulnerability in the community.

TOOL 2 Historical Timeline

Focus Group Discussion (FGD) meant to develop a graphical representation of most impactful events, changes and trends as recollected by community members.

Output:

- Map recent history of the community in terms of main political, socio-economic and environmental events as perceived by participants.
- Identify main trends in climate extremes and variability.
- Identify historical and recent trends in conflict dynamics.

Phase 2: Conceptualising Climate Security Risks

TOOL 3 Seasonal Calendar

Risk assessment tool that situates vulnerability in seasonal patterns. Participants map livelihood strategies throughout the year and identify risks to security in terms of access to resources, health, financial assets, safety and conflict.

Output:

- Profile of livelihoods and main socio-economic and environmental challenges.
- Characterise climate impacts over livelihood strategies and wellbeing.
- Map seasonal nature of risks, including conflict risks.

TOOL 4 Problem & Solution Tree

The problem tree defines the main conflict risks, and determines their direct and root causes. The solutions tree asks participants to identify ongoing community responses to the main causes of conflict.

Output:

- Shared understanding of underlying causes of conflict, and identification of structural drivers of conflict.
- Assessment of the potential role of climate impacts on the drivers of conflict.
- Identify ongoing adaptive responses, their operation and effectiveness.

Phase 3: Collective Action Planning

TOOL 5 Collective Action Planning

Working groups focus on prioritised security challenges and propose adaptive solutions that account for ongoing responses and rely on collective action.

Output:

- Potential solutions for prioritised security challenges.
- Actions to implement each solution, along with responsible actors and required external support.

TOOL 6 Evaluation

Participants are asked what they liked and disliked the most about the method.

Output:

- Participants perspective on the method's usefulness and impact as a tool to assess vulnerability and plan adaptive action.

Figure 3. Research method phases and tools.

RESEARCH CONTEXT

Climate change in Kenya

A potential mean temperature increase in Kenya's Rift Valley and Western regions of 2.5°C by 2060 and over 3.5°C by 2100, under a high-emissions scenario (Ministry of Foreign Affairs, 2018), would entail an unprecedented increase of climate-related hazards, such as more intense and frequent droughts and floods, hence threatening the climatic and environmental conditions upon which populations broadly rely. Decreasing availability of natural resources, as foreshadowed by climate change effects throughout Kenya, would imperil the capacity of Indigenous Peoples and agriculture-dependent populations for development and self-determination. In fact, these effects have already begun to materialise and are currently causing devastating impacts for Kenya's most vulnerable populations. Rising precipitation variability and average surface temperatures have led to more intense and frequent droughts, plus increased risk of flooding, throughout the country. The physical exposure to increased climate hazards in turn interacts with underlying socio-economic, political and cultural drivers of vulnerability, which threaten human security.

Droughts have affected more people and caused more economic impacts than any other form of climate disaster. Especially in arid and semi-arid lands (ASALs), which occupy close to 90% of the country's territory, stronger and more recurrent droughts have led to widespread crop failure, livestock death, and severe food shortages. As of 2023, people in Kenya's ASAL regions, such as Laikipia and Baringo counties, had experienced a fifth consecutive below-average rainy season. This ongoing drought is the longest reported in the country for over 40 years, and has left at least 4 million people experiencing acute food insecurity (OCHA, 2022). The amount of people without access to water has increased by 50% in the last year alone, and pastoral communities have faced significant losses in livestock, with more than 1.5 million cattle having died as a result of drought. This not only forces herder populations to move farther afield in search of resources, but threatens their traditional lifestyles and livelihoods under conditions that offer few alternatives for income.

Longer periods of drought and harsher storms in non-ASAL regions, such as Bunyala sub-county in the Lake Victoria Basin (LVB), have led to lower agricultural productivity and increasing flooding events since before the turn of the century (UNECA, 2014). Populations in Bunyala have suffered from disastrous flooding repeatedly during the last two decades (MoALF, 2016), undermining community capacity to recover and deploy suitable coping strategies (Gabrielsson et al., 2013). In fact, a high flood discharge from River Nzoia, combined with an increasing high-water level in Lake Victoria, make Lake Victoria Basin (LVB) the most flood-prone region in Kenya (GoK, 2007). More intense flooding threatens livelihood support systems, such as food shortages that affect households several months per year during rainy seasons, plus widespread displacement, destruction of property and infrastructure, disease outbreaks, and a disruption of cultural and social practices

embedded in traditional ways of life (Odida & Nabiswa, 2020). Under future climate change threats, thousands of people currently living in flood prone areas are at risk of being forced to relocate to higher grounds, which would imply the need for many of them to look for alternative livelihood strategies.

The LVB is ecologically sensitive to climatic variation, and future climate change is not properly integrated into cross-border water catchment management. Over the past 60 years, numerous drought and flood events have caused fluctuations in lake levels, which have affected ecosystem functioning through changes in fish species distributions and habitat degradation. Climate and environmental changes related to agricultural activity have also increased surface water runoff and the rates of soil erosion and sediment transport into the lake, significantly impacting fishery conditions and affecting important breeding sites (Githui, 2008). Coupled with overfishing, these impacts impair people's capacity to maintain a fishing-based livelihood. Furthermore, the incidence of malaria cases are positively related to temperature, rainfall and water runoff, all of which are expected to increase in coming decades (Ototo et al., 2022).

Insecurity and conflict in Kenya

Kenya's capacity to cope with and recover from climate shocks is further compromised by internal social and political tensions, largely fueled by pre- and post-election tensions (Ladekjaer & Muriu, 2022), weakened administration and traditional governance systems, gaps in national land management regulations (Ministry of Foreign Affairs, 2018), and politicised and ethnicised competition over scarce farmland and natural resources (Theisen, 2012). Historically, instability in these regions has been fueled by a variety of interconnected and compounding factors, including ethnic intolerance, border disputes, and competition over land and other resources (Huho & Mugalavai, 2010). Other factors also threaten stability, including the presence of non-state armed groups (NSAGs), institutional gaps to maintain security at the local level, reduced trust in formal and traditional authorities, poverty and underdevelopment, marginalisation and widespread presence of firearms. Kenya continues to face challenges related to poverty, inequality, weak investments, and corruption, as well as internal and external shocks (World Bank, 2021). A majority of the population lives in poverty, and there is a widening gap between rich and poor. Over two-thirds of families in Kenya experience vulnerabilities due to food insecurity and poor nutrition and health (USAID, 2021).

Under an ethnically and culturally diverse context, violence in Kenya has usually been found to be associated with the occurrence of elections (Theisen, 2012). In 2007, Kenya made global headlines due to widespread violence following a presidential election. The legitimacy of the election was marred by accusations of fraud, which led to nationwide protests and violent uprisings, causing the loss of numerous lives and the displacement of hundreds of thousands of people. The outbreak of violence was primarily due to deeply entrenched political and economic grievances, ethnic tensions, frustrations over unequal distribution of power and benefits, as well as other issues such as land disputes and

corruption (Cheeseman, 2008). The passage of a new constitution in 2010 introduced an ambitious decentralisation process, which aimed to transfer autonomy and decision-making power to subnational governments (Kebede et al., 2021; World Bank, 2022). Devolution remains a key factor for Kenya, with implications for shaping local decisions and adaptive capacities of vulnerable communities in the face of worsening climatic shocks and stresses.

The political instigation of violence at subnational contexts is perceived to be among the most significant drivers of conflict across Kenya. Current political systems frequently lead to the unequal allocation of natural resources, which consequently leads to division among ethnic groups and exacerbates inter-community resentment. Economic and political elites have been evidenced to be responsible for organising violent practices such as cattle rustling, primarily driven by their desire to control land, thus further escalating tensions between ethnic groups. The Endorois Indigenous Peoples, for example, have observed an increase in cattle raiding in recent years, linking it to political strategies aimed at influencing political boundaries, asserting control over land, and enhancing political influence within the region.

The political, cultural and socio-economic marginalisation of local populations also contributes to the escalation of conflicts in the country (Kumssa et al., 2009). Due to the lack of employment opportunities and conditions that make it difficult to sustain traditional livelihoods, young people often leave educational institutions and engage in illegal activities. Economic instability, and hence poverty and marginalisation, are thought to be amongst the most important drivers of conflict since these factors enhance communities' propensity to engage in violence as an alternative source of revenue. These threats are only exacerbated by increasing drug use among young populations, which is associated with early pregnancies, domestic violence, divorce, and family disintegration, thus threatening peace and social cohesion (NCIC & Interpeace, 2021).

Disputes over limited resources such as water, pasture, and livestock, combined with the easy access to illegal firearms, contribute to risks of insecurity and conflicts



Photo: C. Shubert / CCAFS

such as livestock raids within the region (Scheffran et al., 2014). In Kenya, for example, a considerable portion of the population residing in arid and semi-arid regions (ASALs) are nomadic pastoralists. Inconsistent rainfall affects the availability of water, pasture, crop yields and livestock production including milk and meat. This scarcity-driven pressure raises the likelihood of conflicts arising from competition over access to these essential resources. Due to these challenges, pastoralists are constantly compelled to migrate with their cattle across the region in search of green pastures and water, leading to disputes over resources. As a result, these disputes can escalate into violent inter-ethnic conflicts, expressed through cattle herding and village raiding (Adano et al., 2012; Yamano & Deininger, 2006). However, it is important to acknowledge that cattle raiding is deeply ingrained in the culture of many regions in Kenya. This practice is a longstanding tradition in the North Rift region, perceived as a divine obligation and a rite of passage for young warriors. Young raiders who participate in successful raids are received as heroes by their communities and this act is celebrated as a victory, thus motivating them to participate in further cattle thefts and killings. In addition, marriage customs also contribute to cattle rustling, as grooms are required to provide dowry payments for brides. Given the lack of consistent income among many grooms, they may feel compelled to engage in cattle raiding and other illicit activities (NCIC & Interpeace, 2021).

Another driver of conflict in Kenya is related to land tenure. Land conflicts have a deep-rooted history dating back to the colonial era, where policies and practices by colonial authorities led to people losing their customary land and created ethnic divisions. Due to this system, which denied Kenyans ownership of the land they had historically occupied, land was alienated from customary systems without appropriate compensation for the use of white settlers. Consequently, leading to the displacement of many ethnic groups such as the Massai, who were forced to leave their traditional grazing lands, and the Kikuyu, who were severely impacted by land excisions (Kumssa et al., 2009). Since Kenya's independence, the formal registration of land tenure under multiple mechanisms is an ongoing process. While the establishment of resource and land management laws have increased tenure security, it also gave rise to new types of disputes, such as challenges to registered land and conflicts over communal management and privatisation.

Case studies

This report presents findings from fieldwork research conducted in collaboration with three communities across Kenya: 1) the Yiaku Indigenous Peoples around Mukogodo Forest, in Laikipia County; 2) the Endorois Indigenous Peoples around Lake Bogoria Game Reserve, in Baringo County; and 3) the Banyala Indigenous Peoples in Bunyala sub-county, in Busia County.

Yiaku Indigenous Peoples of Mukogodo Forest, Laikipia

The Yiaku tribe is an Indigenous Peoples community that lives around and within Mukogodo Forest, located at the southern edge of Laikipia County, Kenya. The Yiaku were originally a Cushitic-speaking population who migrated from Ethiopia, and have been living within and around Mukogodo Forest since the 18th century, where they largely depended on hunting-gathering, beekeeping, foraging and small-scale livestock keeping. During the first half of the 20th century, the Yiaku were assimilated into Maasai culture through conflict, intermarriages, and as a result of British colonial displacement and resettlement policies (Brahms-Shaughnessy, 2019; Carrier, 2011). They hence shifted from Yiakunte-speaking foragers to Maa-speaking pastoralists. Kenya's 2009 population census recorded the Yiaku ethnicity in the "other" category, hence complicating an accurate measurement of population numbers, though it is estimated that about 4,000 Yiakus remain (KNBS, 2010). A community-led census in 2019 estimated a Yiaku population of 6,100. Mukogodo Forest holds a population of close to 17,000 people distributed across 7 sublocations (KNBS, 2019). A recent socio-economic survey conducted by the local Community Forest Association (Illmamusi, non-published) indicates that 60% of the population living within and around Mukogodo forest derive their main incomes from livestock herding, and more than 60% of households report a monthly income of less than 5,000 Kenyan shillings (KES).

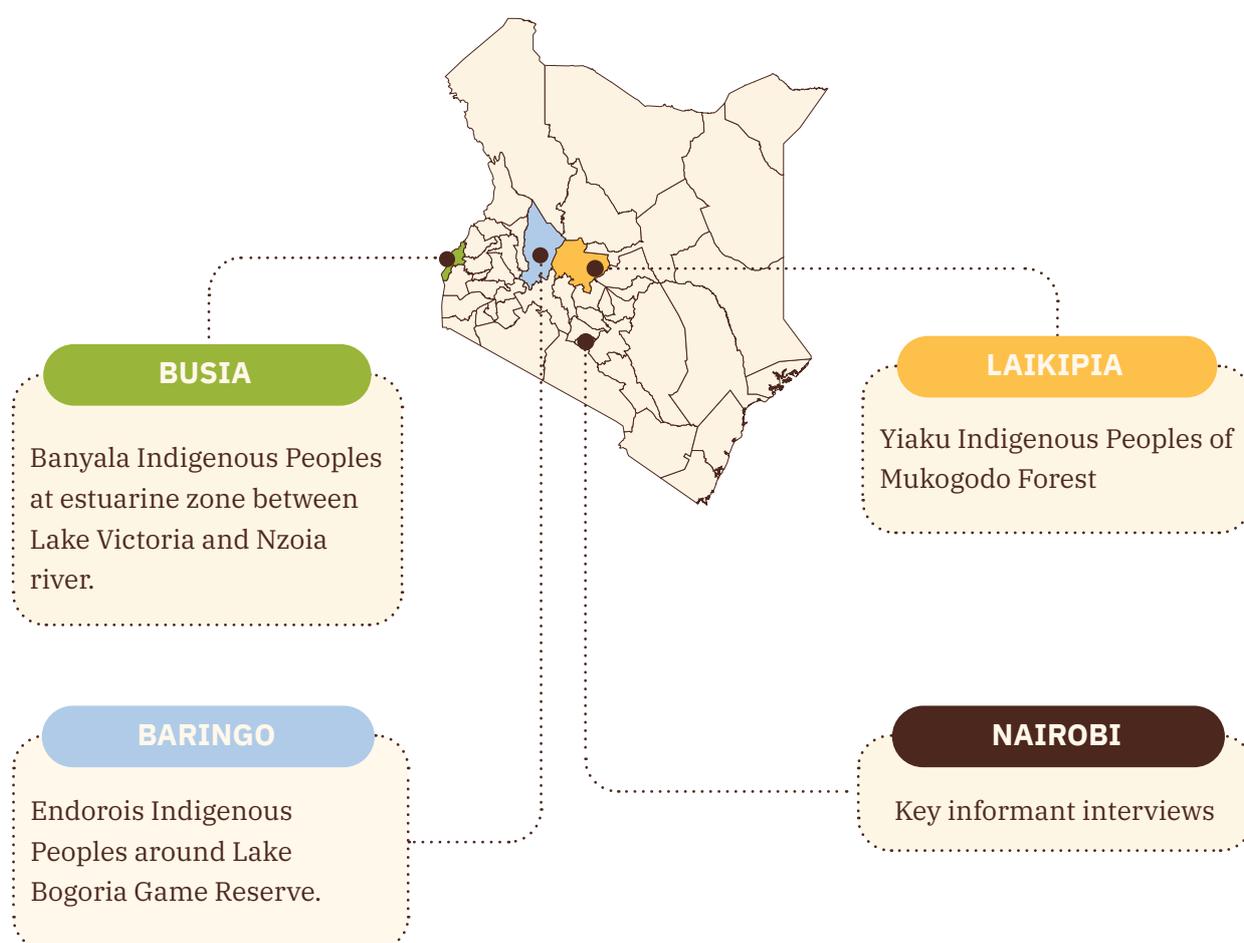


Figure 4. Case studies.

Mukogodo forest is a government gazetted reserve of about 300 km² that sits at the northern foothills of Mount Kenya. The forest was converted into a reserve by the British colonial government in 1932, and gazetted by the Kenyan government in 1977 for wildlife conservation. It is one of the few remaining dry forests of significant size in Kenya and the only one under exclusive management of an Indigenous community. It serves as a natural habitat for over 45 species of mammals, 200 birds and 100 butterfly species, many of which are endangered. Mukogodo lies within the Laikipia-Samburu ecosystem, which holds one of the highest concentrations of wildlife in Kenya, including the largest concentration of elephants outside of protected areas (Laikipia Wildlife Forum, 2020). The ecosystem serves as a wildlife corridor between Samburu and Isiolo drylands and higher lands in the Aberdares and Mount Kenya. The forest also provides food and subsistence materials for the Yiaku, as well as livelihood opportunities, such as livestock grazing, ecotourism, beekeeping and honey harvesting (a long-time tradition coupled with medicinal, spiritual and cultural customs of the Yiaku).

According to Kenya's legislation, forests are owned by the Kenyan government and generally administered through Kenya Forest Service (KFS) (Kenya The Forest Act, 2005). In 2003, representatives from the main group ranches -group ranches are land converted from communal to group tenure under Kenya's Land Act of 1968- surrounding Mukogodo Forest Reserve formed a decision-making body called Illmamusi, a Community Forest Association (CFA) registered under Kenya's Forest Conservation and Management Act (2016), and entered into an official partnership with the KFS to manage forest resources (Laikipia Wildlife Forum, 2020). These recent developments in jurisprudence have recognised stewardship rights to ancestral lands, including forests, by Indigenous Peoples in Kenya. The Yiaku community is entitled to stewardship, access and use of forest resources. It still, however, experiences user restrictions by KFS which limit forest-related livelihood opportunities.

Notably, under Illmamusi management, deforestation, illegal poaching and excessive grazing are reported to have decreased within Mukogodo (Kavilu, 2018). Through KFS, Illmamusi trains scouts and forest managers whose main purpose is to supervise forest use activities and patrol the area for illegal poachers or loggers. Despite recent progress in integrated forest management, the Yiaku community faces significant challenges in sustainably managing Mukogodo forest. Illmamusi has limited institutional capacities to monitor and enforce user restrictions. More intense and frequent droughts, rapid population growth, and high competition over water and pasture drive surrounding pastoral communities into the forest, effectively displacing the Yiaku across the protected land and increasing inter-communal conflict. Although Illmamusi's forest management plan accounts for designated grazing areas during drought periods, these mechanisms have been insufficient to ensure both the supply of required fodder and sustainable forest use. Furthermore, pressures from surrounding conservancies, agricultural expansion, illegal logging, charcoal burning, and unclear forest zonation also push pastoralists, agro-pastoralists, private ranchers, and community members into the forest, frequently overcoming Illmamusi's capacity to control illegal encroachment and enhancing deforestation and excessive grazing.

Endorois Indigenous Peoples of Lake Bogoria, Baringo

The Endorois Indigenous Peoples inhabit the area around Lake Bogoria Game Reserve, in Baringo South and Mogotio sub-Counties, Baringo County. The Endorois have a strong link to Lake Bogoria and the surrounding area, known as Mochongoi forest, through cultural and religious practices (CEMIRIDE & MRG, 2010). The community is spread across 15 locations in Baringo, plus one in Nakuru and another in Laikipia counties. Although Kenya's 2019 census estimates the Endorois population slightly over 45,000 (KNBS, 2019), the Endorois Welfare Council (EWC), a civil society organisation that advocates for the rights of the community, believes the Endorois population to be at least 75,000 (Ohenjo, 2022). The Endorois are traditional semi-nomadic pastoralists whose members have partly shifted towards subsistence and cash crop agriculture in recent decades.

During the 1970s, the Kenyan government evicted thousands of Endorois households from their homeland around Lake Bogoria to create a protected national reserve. The government promised compensation, of which only a small fraction was actually delivered. After unsuccessful efforts to reclaim their land at a national level, the EWC filed in 2003 a case before the African Commission on Human and Peoples' Rights (ACHPR), claiming the displacement violated their cultural and property rights. The Kenya government in turn argued against the Endorois' status as a distinct Indigenous Peoples group, claiming that they were part of the larger Kalenjin community, and that the community had received enough financial compensation through past retribution and continuous benefit from the reserve. In 2010, the ACHPR ruled in favour of the Endorois, recommending the government to recognise their status as an independent Indigenous Peoples group, grant unrestricted access to natural resources around Lake Bogoria, payment of adequate compensation and royalties from the game reserve, as well as the registration of The Endorois Welfare Council as a formal civil society organisation (Ashamu, 2011).

To this date, only the registration of the Endorois Welfare Council has been fully implemented, leaving the Endorois without justice for their displacement and marginalisation. The failing of the Kenyan government to implement the African Commission's recommendations has significantly affected well-being and development among the Endorois community. Unemployment, illiteracy, poverty, food insecurity, lack of access to healthcare, natural resource scarcity, all affect the Endorois in higher degrees as compared to regional averages. Furthermore, the lack of implementation of the decision has exacerbated antagonistic feelings towards the state by the Endorois, hence complicating the implementation of collaborative governance arrangements and increasing the risk of violence around the management of natural resources. Despite the landmark decision of the African Commission, all development related indicators seem to have deteriorated in recent years. This situation is reported to be worsened by a lack of government support and policies that effectively align with pastoralists needs, along with a lack of recognition of Indigenous knowledge and traditional institutions in policy implementation. In addition, similarly to other

agriculture-dependent communities in Kenya's arid and semi-arid lands, the Endorois community has been subjected to increasingly severe droughts and floods, thus exacerbating poverty and marginalisation (MoALF, 2018a).

Banyala Indigenous Peoples in Lake Victoria, Busia

The Banyala Indigenous Peoples are a Bantu ethnic community originated from Uganda. After migration towards Kenya, they have mostly settled in Busia and Kakamega counties. According to a 2019 census, the Banyala population surpassed 850,000 members, the majority of which live in Busia county (KNBS, 2019). Their traditional language is Nyala, which is well preserved and widely used, plus the use of Luhya and Kiswahili are also common. Banyala populations settled at the edge of Lake Victoria in the Bunyala sub-county, Busia, are a small community of fisherfolk who have adopted a diversity of livelihood strategies during the last two decades, mainly transitioning towards crop farming and livestock herding. They are spread throughout eight locations within and around Port Bunyala town.

The main source of income among Banyala populations at the shore of Lake Victoria has traditionally been fishing. However, anthropogenic perturbations in Lake Victoria and the Nzoia river within Busia County, including climate change, brought significant biophysical changes to inland aquatic ecosystems with negative impacts on fishery productivity, risks of flooding, and livelihoods as practised by Banyala populations. The plummeting of fishery stocks and the introduction of more stringent regulation on fishing practices has fostered a shift towards agriculture since the 1990s, accelerating thereafter during the 2000s. The planting of sweet potatoes, cassava, sorghum, beans, millet, maize, plus fruit trees have all become common practice. The production of crops occurs mostly at the homestead level, as the average Banyala household owns only around 0.5 hectares of land. Land titling is reported as an issue, given that land is still for the most part registered under grandparent's name. In addition to the lack of sufficient land for farming, the more frequent occurrence of floods have increased the loss of crops and livestock diseases.

Species introductions and increased eutrophication altered ecological conditions in the Lake Victoria fishery, changing species composition and reducing catches of several native species. The introduction of Nile perch contributed to the decline or disappearance of many native fish species and ultimately shifted the fishery from a multi-species system to one dominated by a few species. This highly productive Nile perch fishery fueled the development of a large export industry through the 1990s, bringing about an economic boost for fishing communities. These ecological and social shifts spurred changes in fishing practices and management policies, and the valuable open-access fishery drew great numbers of people into fishing.

Over the last two decades, however, continuous intense fishing and other changes in the LVB have led to an apparent reduction of Nile perch populations in Lake Victoria. Dwindling stocks have motivated illegal fishing practices that further reduced stock. As a response, governments from the three riparian countries shifted authority away

from central governments towards fishing communities through locally regulated Beach Management Units (BMUs), co-management structures established to increase community participation. Although initially successful, BMUs have not been wholly effective partly because of inconsistent leadership, inadequate power transfer and insufficient capacities (Obiero et al., 2015). Fishery management along LVB has reversed more centralised and militarised models in the control of illegal activities. The criminalisation of fishers has increased during the last decades.

As a result, Banyala populations have adopted mostly farming and livestock rearing as main livelihood strategies (Odida & Nabiswa, 2020). However, increasing frequency and intensity of unexpected wet events, like floods, has undermined local capacities to develop alternative livelihood strategies (MoALF, 2016). Many fishers in Lake Victoria have opted to increase their fishing efforts, or covered a larger area of the lake in search of fish. Migrating to new fishing grounds or changing the target species are both common strategies also. These strategies usually lead to the further overfishing of already strained populations. Within the community, individuals who own boats, have access to land, and are permanent residents (as opposed to migrants) have a higher degree of adaptive capacity (Gabrielsson et al., 2013). The owning of boats allows for a higher access to financial services, and implies influence over decision-making at community level. Migrants, traders, crew members, female trader-processors, housewives are all reported to be more vulnerable within the larger Lake Victoria Basin.



Photo: A participatory appraisal of climate-related security risks and adaptive capacities.

CLIMATE EXPOSURE AND VULNERABILITY

How are people affected by climate change?

Context-specific climate impacts over livelihoods, food and water security, health, ecosystem service provision, infrastructure, and societal relations are the product of contingent root causes of vulnerability, which in turn manifest themselves across counties, wards, communities, households and individuals in relation to socio-economic, political, ethnic, gendered and environmental factors. This section summarises community-level perceptions around climate change and its effects over livelihoods and human security.

Although the assessment sites exhibit a wide range of climatic profiles, small-scale food production is the mainstay economic activity of the three Indigenous Peoples groups which participated in this study, and it is central to the survival of their traditional lifestyles and general wellbeing. The Endorois are semi-nomadic agro-pastoralists whose way of life is intrinsically reliant on access to fertile land for subsistence and cash crops, along with pasture and water for livestock raising. The Yiaku, of Mukogodo forest, have recently adopted herder livelihoods, but rely on a wider diversity of resource-dependent activities, such as honey harvesting, ecotourism and hunting. Bunyala populations in Busia depend on Lake Victoria's small-scale fisheries for an income, plus farm subsistence crops and practise small-scale livestock herding. They also greatly rely on locally supplied markets for food. In short, people's livelihood strategies in all sites are greatly dependent on predictable seasonal conditions, availability of land and natural resources, and a reliable ebb and flow of ecosystem services from soils, forests, lakes or grasslands.

People in the three assessment sites also rely on numerous commercial activities which are not influenced by seasonal change, and are to different degrees dependent on the availability of natural resources. These activities are discussed as income strategies which are commonly adopted once agricultural-based livelihoods are not sufficient for sustenance and revenue. The youth frequently partake in sand harvesting from river banks. Women more commonly produce artisanal beads, burn charcoal or sell manure. Many men adopt poultry keeping, blacksmithing, and carpentry. Other common jobs in the communities include those related to eco-tourism, or the production of tree seedlings for sale. Despite common adoption of non-agricultural livelihoods, members from all communities expressed that high degrees of illiteracy, mainly in older people, a low availability of alternative employment opportunities, low provision of public services, and the lack of social protection schemes that supports people in the face of hardship are among the main constraints to developing alternative livelihoods.

Historical Community Timeline

Community members were asked to discuss the events which they remember have had the most positive or negative impact on the community's development. These events could be political, social, economic or environmental. Remembering the community's history hence allowed the groups to recreate a historical account of the community's evolution, and to situate climate change throughout recent decades. All of the communities selected the 1990s as the period in which they can remember the climate began evidencing increasing variability. *Four out of six participating groups selected the 1997 El Niño event as the point in time when climate variability increased.*

Pastoral livelihoods

Since 2019, Laikipia, Baringo, and other ASAL counties in Kenya have experienced the longest drought recorded in over 40 years, with at least five consecutive below-average rainy seasons (OCHA, 2022). This severe drought is not considered by Yiaku and Endorois community members an isolated incident, but is in fact compounding to the effects of long-term below seasonal rainfall averages and unevenly distributed precipitation across the region. The severity of current drought conditions were considered to surpass those recorded during a devastating drought in 2010/2011 in northern Kenya. Endorois participants emphasised the lack of rain throughout March, which used to evidence the beginning of the rainy season; and the disappearance of the "Christmas drizzles", which were light but reliable rains during December. More intense droughts, however, are not the only factor which continues to impact population wellbeing, given that poor trading conditions, disruption of supply chains, the effects of COVID-19 and increasing agricultural input prices have all compounded towards higher food prices and loss of pastoral revenues.

As a dry forest, Mukogodo is a fragile ecosystem that is highly susceptible to increasing precipitation variability. Pastoralists within the Yiaku community are currently experiencing a reduction in pasture productivity within the forest. Longer dry-spells lead to reduced flower blooms, significantly impacting bee populations and herb species. The most frequented water points in Mukogodo now dry up during longer periods of the year, hence forcing people to buy water by walking far distances into larger settlements. As a result, water doubled in price during the previous two years. Due to diminished availability and higher prices of water, people report having to reduce their daily consumption. Staple food products have also doubled in price during this timeframe, including maize flour and sugar. On the other hand, the market price of important cash produce on which Yiaku populations rely, mainly honey, has experienced reductions. Below-average livestock productivity has furthermore affected people's ability to secure food through subsistence production.

Testimony from an elder man during FGD in Laikipia

15/09/2022

“Before, severe droughts were rare and rains very common. There wouldn’t be a long period without rains, and it was enough and reliable and well distributed. Today, all of these seasons are very unpredictable and the rains are very concentrated. For example, it rains very heavily during two straight days, which leads to flooding. In the past, there were indications of the coming of the rains, like the blooming of flowers and the shooting of leaves from the ground; there were other signs, like the long weeds that spring around trees, birds migration, like swift birds which came in large numbers, and butterflies. People could tell when the rains were coming. Looking into goat intestines was used to predict rain patterns. There were people capable of reading intestines, but today they are not able to do this.”

Due to changing prices and dropping productivity, many people report having reduced food consumption from two or three meals per day to just one. Women and young adolescents, in particular, frequently skip a meal to secure food for another member of their household. Participant’s perception on food prices and food security coincides with recent analyses, which estimate that between 3.5 and 4.1 million people across Kenya, particularly in ASAL counties, are currently facing acute food insecurity, representing an increase of close to 50% since the harvesting season in December 2021 (IPC, 2022a; OCHA, 2022).

Community members, accounting for both men and women participants, agreed that the most direct effect of erratic rainfall is an increased rate of livestock death. In fact, there was a general agreement among Yiaku and Endorois participants that one of the most pressing challenges faced today by members of their communities is the realisation that they cannot rely on livestock herding as a main source of livelihood for the future. Droughts have also resulted in lower levels of livestock conception and, consequently, below-normal calving rates. Feeding animals now requires the buying of fodder, which has close to doubled its price in recent years. Furthermore, animals that make it to the market are frequently weakened or sick, hence shrinking their value. Many cattle are also likely to die after being sold, hence increasing local perceptions that buying cattle is a high-risk activity, and further decreasing demand along with prices.

Testimony from a young pastoralist during FGD in Laikipia

15/09/2022

“Drought periods during the year only lasted for a few months, which were short enough for the animals to recover. Today dry spells are so long that they have become the normal. Droughts today are not only more frequent or intense, drought is basically what it is.”

A scarcity of forage and water resources forces pastoralists to migrate deeper into the forest in search of pasture. Particularly during dry seasons, herders typically move closer to higher grounds nearing Mount Kenya. However, increased trekking distances, higher altitudes, and colder weathers were discussed as being a source of risk to livestock, leading to deteriorated health conditions and productivity, increased susceptibility to diseases and attacks by predators, and further increasing death rates. Pastoralist communities from outside Mukogodo forest are also moving further into the forest in search of sustenance for their cattle. Although the use of forest land for grazing is a long-term practice which has been historically coordinated between the Yiaku and other ethnic groups, severe drought conditions north of the forest are currently pushing pastoralists from Samburu, Marsabit, Turkana and Isiolo counties further into protected forest land and communally managed ranches in hopes of accessing pasture-richer areas. This has increased pressures over already scarce natural resources in the region and undermined the capacity of civil society groups, particularly the Illmamusi community forest association, to protect forest resources and biodiversity.

Testimony from an elder man during FGD in Nanyuki

Quoted from in-time translation from Maa to English · 16/09/2022

“We used to be hunter-gatherers and honey harvesters. It took a long time for us to assimilate into a Maasai lifestyle and adopt herding as a main livelihood strategy. And now that it is there, livestock is no longer working for us. The current drought may end, but how do we know that another one will not start in a few years?”

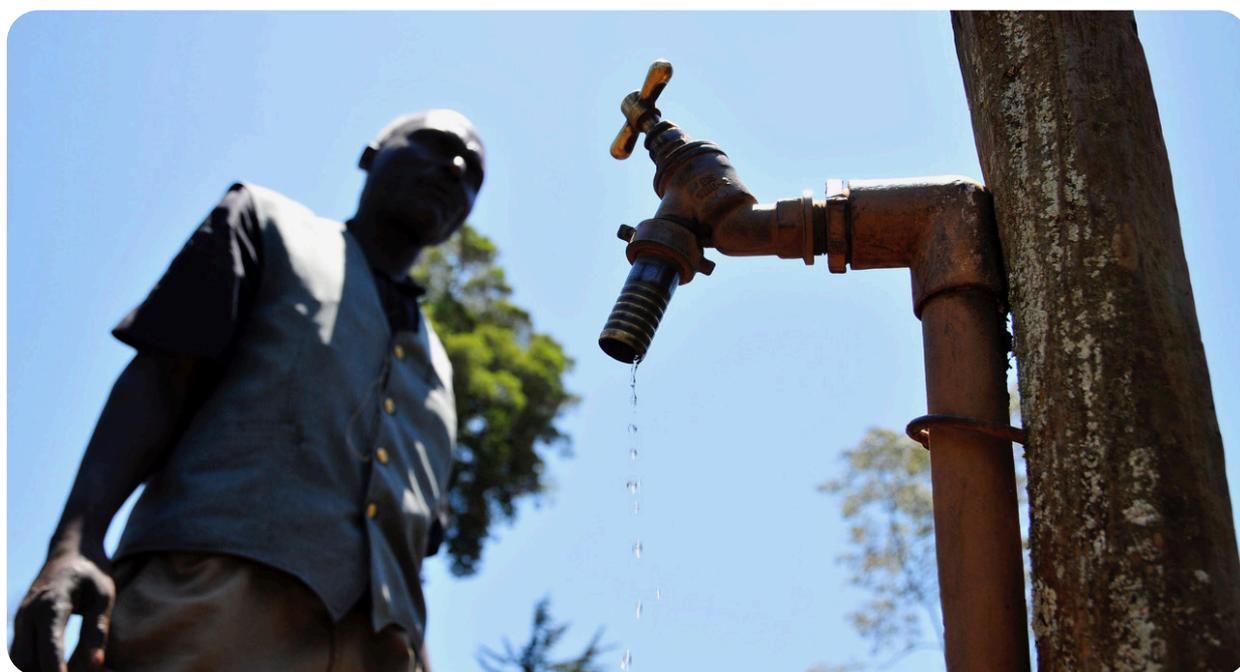


Photo: N. Palmer / CIAT

Seasonal calendar of Yiaku populations

Study participants were asked to describe livelihood activities and associated risks based on typical yearly seasonal patterns, accounting for climate, health, food security, and conflict-related risks.

The area around Mukogodo forest serves as a transition region from dryer and warmer lowlands in northern Laikipia and Isiolo County, to wetter and colder highland regions towards the east and south of Mukogodo, bordering the Aberdares and Mount Kenya. Mukogodo landscape is regarded as semi-arid and receives an annual mean rainfall of 400-600 mm, which is unevenly distributed across the region. While annual precipitation in areas bordering highland regions to the south nears 1000 mm, drier northern areas perceive between 250 and 500 mm. The region experiences bimodal rainfall, namely, long (known by the Yiaku as Nkakua) and short (Itumiren) rains which respectively occur between mid-March to June and mid-October to November. Dry seasons occur from December to mid-March (Somison), and between July and mid-October (Lorikine). Bimodal precipitation patterns were found to constitute a main factor shaping pastoral livelihood activities in the region.

Season	Nkakua	Lorikine		Itumiren	Somison
Months	March - May	June	July - August	October - November	December - February
Weather	Long rains	Short dry season	Dry season	Short rains	Dry season
Livelihoods	<ul style="list-style-type: none"> • Livestock birthing • Honey harvesting • Purchase of weakened cattle • Wild fruit gathering 	<ul style="list-style-type: none"> • Pastoral migration • Selling of fattened livestock • Preparation of bee hives 		<ul style="list-style-type: none"> • Livestock birthing • Honey harvesting • Purchase of weakened cattle • Wild fruit gathering 	<ul style="list-style-type: none"> • Pastoral migration • Sheep mating season • Preparation of bee hives • Selling of fattened cattle
Climate risks	<ul style="list-style-type: none"> • Failed or erratic rains • Prolonged drought • Pests 	<ul style="list-style-type: none"> • Prolonged dry-spells • Low pasture yield • Strong winds • Drop in bee populations 		<ul style="list-style-type: none"> • Failed or erratic rains • Prolonged drought • Flooding • Pests 	<ul style="list-style-type: none"> • Prolonged dry-spells • Low pasture yield • Strong winds • Drop in bee populations
Security risks	<ul style="list-style-type: none"> • Food insecurity • Human and cattle diseases • Theft of private property 	<ul style="list-style-type: none"> • Community raiding • Cattle rustling • Loss of livestock • Cattle price inflation 		<ul style="list-style-type: none"> • Food insecurity • Human and cattle diseases 	<ul style="list-style-type: none"> • Community raiding • Cattle rustling • Loss of livestock • Food insecurity • Cattle price inflation • Theft of private property

Figure 5. Seasonal calendar of Yiaku populations.

Adaptive responses

The effects of drought over the availability of pasture have negatively impacted livestock productivity, milk production and the spreading of disease among cattle, thereby reducing the incomes and food security of pastoralist Yiaku households. People have responded to these impacts through different means and in accordance to household and individual degrees of capabilities. Members of the Yiaku have adapted by changing herding techniques, liquidating assets through substitute strategies, altering mobility patterns, and seeking for alternative income sources, like traditional bead production and carpentry. Significant gaps in people's adaptive capacity and the lack of institutional support to foster adaptation, however, imply that the majority of livestock-dependent households have not been able to effectively cope with increasing climate variability and the extensive loss of cattle. Although some coping strategies enable households to endure stress in the short-term, these have frequently led to a reduced capacity to sustain an income and preferred lifestyle in the future.

Community members perceive a lack of government support to enhance households' adaptation capacities. This gap in public intervention increases households' vulnerability and forces individuals to make difficult choices regarding asset management. For example, responding to the widespread death of livestock, the government of Kenya has implemented a programme to buy dying or weakened cattle. However, participant populations get a notably lower value than typical market prices for a healthy animal. Furthermore, government staff charged with programme implementation have only sporadically appeared in the community, hence leading to low and unreliable access to the benefit. Many pastoralists instead decide to sell their animals for slaughter, for which they receive significantly less than they would otherwise get when selling a healthy animal in the market.

The search for alternative livelihood strategies, although allowing people and households to cope with climate change in the short term, can sometimes gradually undermine resilience in the long-term. For example, deforestation caused by increasing levels of charcoal burning and expansion of pastoralist migratory routes threaten the provision of ecosystem services in Endorois territory, on which the future livelihood hopes of many people rely. The burning of charcoal was discussed as the main driver of deforestation in both the Laikipia and Baringo sites.

Farming livelihoods

Variability in seasonal and precipitation patterns has always been a major risk across Kenya's ASAL regions, which have historically been the most affected in the country by recurrent dry-spells (MoALF, 2018b). Despite high levels of historical variability, for men and women that participated in the Laikipia and Baringo locations, climate change is most clearly experienced as unpredictable seasonal patterns, with recent years exhibiting steep changes in precipitation trends. Changing rain patterns were understood as the main cause of subsequent climatic hazards, mainly the onset of longer and more intense

droughts, along with increasing moisture stress and the sudden occurrence of heavy rains leading to destructive floods. All of these effects were understood as severely threatening agricultural productivity, a challenge that was also highlighted by members of the Banyala Indigenous Peoples in Busia County. Farmers are struggling to secure a profit under higher risks of crop losses and increasing prices of agricultural inputs. In Baringo, the long rains (Iwot, in Endorois) between April and mid-June are perceived as especially affected by increasing variability, evidencing both a reduction and a higher concentration of rainfall, which lead to increased risks of flood and crop losses. In fact, participants emphasised that, in the past, Iwot season typically also included March. This is in line with data reported by Ochieng et al. (2017), who evidence a downward trend in average precipitation during the long rainy season in Baringo County.

Rising temperatures and prolonged dry spells also have a detrimental impact on local water storage capacity and river flows, thereby compounding economic losses, particularly through reduced agricultural production. Land degradation and soil erosion, exacerbated by more frequent floods and lower agricultural productivity, disproportionately affect the poorest households and threaten long standing socio-cultural identities tied to place and production systems. For example, most of the available land within Endorois territory is managed as communal land. However, lower agricultural yields, increasing populations, and the widespread presence of internally displaced populations within the Endorois territory -due to violence in the northern regions of the territory-, are fostering household-level efforts towards securing access to privatised land, thereby spreading a preference among the Endorois community to formalise land ownership.

Although food insecurity is a constant threat for poorer households -those with the least amount of land, cows, goats or bee hives-, there are certain seasonal periods that allow for recovery. For example, participants reported that the months between June and September, and then again briefly in December, are periods of plenty after harvesting crops and honey, and the birthing of livestock. The time between January and April, and again from September to November, however, is characterised by hardship and food insecurity. Furthermore, periods of hardship are thought to be increasing in length due to the late and erratic coming of the rains. People in general greatly rely on other members of the community while facing periods of food insecurity and hardship.

Testimony from a farmer during FGD in Baringo

21/09/2022



“Rainfall today comes later and comes in more concentrated and intense occurrences. When people plant crops, seeds never germinate. During the rainy season, there is a lot of floods, which cause soil erosion and take away fertile soil.”

Community members in Laikipia and Baringo both report a concern for a growing presence of invasive species throughout their respective territories, which is currently posing an important threat to ecosystem functions and services, along with a reduction in land availability for farming. The most concerning invasive species in both regions were different varieties of prickly pear cactus and algaroba tree, which was introduced some 40 years ago as part of poverty alleviation efforts. The spreading of foreign species is further undermining forest productivity and reducing the availability of land, plus it is negatively impacting the natural habitat of endangered mammal species. Instances of homestead displacement due to plant encroachment were also reported by participants. Efforts to reduce the effects of charcoal burning, mainly in Baringo county, have centred around using algaroba rather than native trees, albeit these have been only partly successful.

Additionally, livelihood challenges related to bee-keeping and honey harvesting were a matter of grave concern for Yiaku and Endorois representatives. Flower productivity has plummeted during the current drought, leading to a significant reduction of wild bees and the production or harvesting of wild honey. Although Indigenous Peoples commonly rely on artificial bee hives, the production of honey still requires bees to pollinate an ever decreasing amount of flowers. These conditions do not allow for enough honey production to store during the dry season. Furthermore, the reduction in honey harvesting from wild sources has led to a wider use of fire to control bee colonies, implying a higher risk of forest fires.

Given the nature of honey as a commodity cash product, conditions of scarcity and poverty lead to a reduced demand, also threatening the viability of honey harvesting as a sustainable livelihood strategy. Due to lower yields, Yiaku and Endorois honey harvesters are incapable of competing with other honey producers, which are increasingly adopting non-traditional methods and offer lower prices. Trends in the reduction of harvested produce and its market price are threatening traditional ways of life, as the practice is intrinsically linked to Indigenous identities.

Water levels in Lake Bogoria have been increasing throughout the past decade, as is the case of other Rift Valley Lakes in the region (Seyoum et al., 2015). This has led to the loss of agricultural and communal land at the edge of the lake, coupled with the inundation of public health facilities and private property, which have led to the displacement of hundreds of people. Major cultural sites have been submerged, and the hot springs and geysers which were major tourist attractions are also under water. Under reduced agricultural yields and increasing population density, the loss of land due to a rise in lake levels has also driven disputes among neighbours.

Seasonal calendar of Endorois populations

Study participants were asked to describe livelihood activities and associated risks based on typical yearly seasonal patterns, accounting for climate, health, food security, and conflict-related risks.

Endorois territory across Baringo South and Mogotio sub-counties receives an average rainfall of around 600 mm per annum, which is erratic and unevenly distributed across the region. This climatic variability considerably affects the settlement patterns and economic activities across the territory, with farming activities being common in the South, while pastoralism is most widespread in the North. The rainfall is bimodal with long rains occurring from April to mid-June and short rains run from mid-July to mid-September. Evapotranspiration exceeds precipitation in every month of the year.

Season	Iwot	Sielbey	Kipsunden netai	Telelo
Months	April – June	June - July	July - September	Mid-September - December
Weather	Long rains Rainfall used to begin in March but this is no longer common.	Short dry season	Short rains High water availability	Dry season Sporadic and unpredictable light rain
Livelihoods	<ul style="list-style-type: none"> • Pastoralists return • Purchase of weakened cattle • Crop planting • Beehives are prepared for swarming • First honey harvest 	<ul style="list-style-type: none"> • Mating of livestock • Harvest of maize, millet, sorghum and beans • Wild fruit gathering • Bee swarm 	<ul style="list-style-type: none"> • Selling of fattened animals • Harvest of long season crops • Main cultural ceremonies 	<ul style="list-style-type: none"> • Pastoral migration • Preparation of land for farming • Selling of animals • Off-farm activities and temporary migration
Climate risks	<ul style="list-style-type: none"> • Failed or erratic rains • Prolonged drought and lack of water availability • Flooding • Rising levels of Lake Bogoria • Low pasture yield 		<ul style="list-style-type: none"> • Failed or erratic rains • Prolonged drought • Low pasture yield • Low flower bloom • Failed environmental indicators for land preparation • Low honey production 	
Security risks	<ul style="list-style-type: none"> • Food insecurity • Human and cattle diseases • Failing of crops • No irrigation • Community raiding • Cattle rustling 		<ul style="list-style-type: none"> • Loss of livestock • Failure of farmed grass • Increased food prices and food insecurity • Lack of cash • Community raiding • Cattle rustling 	

Figure 6. Seasonal calendar of Endorois populations.

Adaptive responses

A reduction in yields and incomes from agriculture is incentivising the transition to cash crops across the Endorois community. Private companies provide seeds and farming inputs, while ensuring the buying of harvest at a fixed price. The selling of seeds was also an increasingly common income source for Endorois populations. Income from cash crops was reported as increasing the available cash throughout the community, which is also tied with increasing microfinance services, and assistance with land preparation, fertiliser application, and transportation to markets, all of which farmers can pay through their harvest.

In addition to cash crops, the adoption of agroecological and agroforestry practices, mainly the farming of higher-value crops like mango, has been increasing throughout the community as a response to reducing agricultural yields and loss of livelihoods. These crops, however, only grow suitably in the southernmost regions of the territory, which evidence higher rainfall averages, and also demand the use of irrigation water for a profitable harvest.

Testimony from a community leader during FGD in Baringo

21/09/2022



“Private farms and ranchers have also secured access to water upstream, leaving little water for the community downhill. There have been some demonstrations against this, which have forced them to open dams, but they just close them again. There is a lot of illegal water along the river.”

Government interventions for the construction of irrigation canals have allowed farmers to access irrigation water, required for cash and high-value crop farming. However, study participants reported that the increasing availability of irrigation water has led to overexploitation by households with easy access to the canals, thereby reducing water flows and exacerbating inequalities in access to water. Furthermore, concerns regarding increasing water pollution due to excessive use of agricultural inputs were widely voiced by all study participants. While the construction of irrigation canals with constant flow is a positive adaptation measure for the Endorois, the lack of suitable water management arrangements could lead to overexploitation and conflict within the community.

Fishing livelihoods

Commonly perceived environmental and climatic changes among fishing Banyala communities in Port Bunyala include the increased frequency of unpredictable dry seasons or longer dry-spells, which lead to crop failure, and a reduction in fish catches. Although rainy seasons are considered to be presently shorter, rainfall is often more concentrated and intense. For example, the occurrence of long rains between March and

May were perceived as presently being shorter, and the short rains round September were thought to be more unpredictable than in the past. The occurrence of traditional indicators for the coming of rains, mainly the shifting of wind patterns, were thought to no longer work as a reliable method to predict seasonal changes.

Testimony from a young man during FGD in Busia

25/09/2022



“In the past, the community had a normal weather calendar. Now we have a variable weather calendar. Normal weather calendar implies well defined seasons. Today, the rain patterns have really changed. We cannot really describe the pattern, as it is not predictable anymore. By this time, farmers should have already planted their crops, but they have not yet begun to do this because of the lack of rains.”

Bunyala sub-county is considered among the most flood prone regions in Kenya (MoALF, 2016), and the frequency and intensity of flood events are also thought to have increased during recent decades. The locality lies between Lake Victoria and the Nzoia river estuary, and has been subjected to harsh flooding almost every two years since the turn of the millennium. In fact, along with rainfall variability, more frequent and intense flooding were perceived as the most significant climate threat being faced by the community.

Sudden intense rains commonly lead to the displacement of people into temporary camps and threaten security, destruction of crops, diseases among humans and livestock, damaged infrastructure at landing sites, post-harvest losses (rotting fish), and the blocking of transportation routes. The occurrence of mild floods, as perceived by community members, can sometimes increase catch rates and strengthen incomes, given that fish tend to follow freshwater inputs in the lake. Overall, however, flooding was perceived as a highly destructive threat which poses numerous challenges to the community’s development.

Waterlogging from previous floods was also a matter of significant concern. Stagnated water in the locality’s lower zones can frequently surpass one metre in height, and often cause the destruction of buildings and commonly used boreholes, thereby representing a significant challenge to water availability. Furthermore, non-receded water is often polluted by organic content, increasing the incidence of water-borne diseases, and contains high concentrations of chemical pollutants, such as fertilisers and pesticides, which poses a health challenge to which children are highly vulnerable. Participants from the male FGDs highlighted a government-led rice irrigation programme implemented across the region, which incentivised the adoption of rice as a cash crop and the use of fertiliser to increase production, leading to excessive application in upstream areas and increasing pollution downstream.

Among the negative impacts of rainfall variability and floods are also reduced incomes and high food insecurity. Intense floods lead to a higher incidence of hunger due to the destruction of subsistence crops, the disruption of income-generating activities, a higher incidence of water-borne diseases, the imposition of high recovery costs, and a disrupted access to markets and public services. Local populations reported to be highly dependent on humanitarian support for food during flooding events.

Testimony from an elder fisherman during FGD in Busia



25/09/2022

“Wind patterns are more unpredictable today. Fishermen used predictable wind patterns to identify the location of fish. It was wind current that bring fish to specific locations, as fish follow water currents created by winds. But currently, it is harder for fishermen to identify fish because of unpredictable winds patterns.”

Testimony from a young fisherman during FGD in Busia

26/09/2022

“...people are desperate to increase their catches, they use trawling, mesh sizes that are smaller, seke seke [a method through which a diver disrupts a natural environment, usually an important habitat, to make fish swim into a net], some other people are using chemicals. Before, people who fish used a hook and get fish to cook. But today, even the breeding places are overfished and very little fish are caught.”

Members from the Banyala Indigenous Peoples report a reduction in the catches of Nile perch and Nile tilapia from Lake Victoria. There is a general agreement that fish sizes and abundances tend to decrease during droughts and increase during floods, and that fish movement patterns are tightly connected to changes in wind and precipitation. Due to stronger and more unpredictable wind patterns, fish populations alter their movement, plus fishers experience more dangerous conditions when going deep into the lake. Climate effects, however, were not considered the main driver of reducing fish stocks in the lake. Catch reductions were mainly attributed to overfishing, along with changing ecological conditions in the lake as a result of wetland and forest degradation, and increasing runoff of agricultural inputs from upstream.

Seasonal calendar of Banyala populations

Study participants were asked to describe livelihood activities and associated risks based on typical yearly seasonal patterns, accounting for climate, health, food security, and conflict-related risks.

Bunyala sub-county receives an annual rainfall of about 900-1,100mm. The major agricultural activities practised in the County include crop production (mainly cassava, sorghum, maize, groundnuts, sugar cane and some horticultural crops such as local vegetables and mangoes), livestock keeping mainly free range poultry, sheep and goats as well as cattle and fish production. The rainfall is bimodal with long rains occurring from March to May and short rains running from mid August to September. Strong precipitation events are very common, leading to frequent flooding in the areas lying between Lake Victoria and the Nzoia river.

Season	Riraka Dry season	Irotso Rainy season	Simunyu Dry season	Hula ye Sirumbi Short rains	Ngunula Masino Dry season
Months	February - Mid-March	Mid-March - May	June - Mid-August	Mid-August - September	December - January
Weather	Long dry season	Long rainy season	Dry season	Short rainy season Sporadic and unpredictable light rain	Dry season with brief and sporadic rains during December. Warmer water in the lake
Livelihoods	<ul style="list-style-type: none"> • Dry planting • Less availability of fish • Free roaming of animals (limited pasture) 	<ul style="list-style-type: none"> • Caring for crops • Increasing fishing activities • Pasture increase • Increased milk production and incomes • Mating of livestock • Hunting and gathering 	<ul style="list-style-type: none"> • Harvest of beans and potatoes • Low prices of food and commodities • Reduced fish catches • Reduced pasture 	<ul style="list-style-type: none"> • Harvesting of sorghum, maize, millet and cowpeas • Land preparation and planting for short rains 	<ul style="list-style-type: none"> • Preparation of land for farming • Less availability of fish • Free roaming of animals (limited pasture) • Selling of animals
Climate risks	Rainy Seasons <ul style="list-style-type: none"> • Failed or erratic rains • Prolonged drought and lack of water availability • Flooding • Displacement of beaches and markets due to rising water levels • Rotting of fish and loss of harvest • Reduced price of fish 		Dry Seasons <ul style="list-style-type: none"> • Prolonged drought • Low pasture yield • Failed environmental indicators for land preparation and planting • Reduced agricultural yields and weakened animals • Increased deforestation • Reduced fish catches and incomes • Algal blooms and eutrophication 		
Security risks	Rainy Seasons <ul style="list-style-type: none"> • Food insecurity • Human and cattle diseases • Conflicts between fishermen • Strong winds and currents in Lake Victoria • Displacement due to intense floods 		Dry Seasons <ul style="list-style-type: none"> • Intra-community conflict over access to land • Farmer-herder conflicts • Cross-border security risks from going deeper into the lake 		

Figure 6. Seasonal calendar of Banyala populations.

Adaptive responses

As a response to reducing incomes from the Lake Victoria fishery, many people among the Banyala shifted their focus towards farming and livestock rearing. Land throughout Bunyala sub-county is highly fertile and water is readily available if irrigation infrastructure is deployed. However, the increasing incidence of floods and a higher rainfall variability has led to challenges in maintaining agriculture as a main source of livelihood. This has led to a return, mainly of young populations, to fishing as a main income strategy, thereby exacerbating the challenges posed by a failing fishery.

Adaptive responses to dropping fish stocks in the lake are discussed as limited to increasing fishing efforts. Many fishers in Lake Victoria have opted to cover a larger area of the lake in search of fish, or to increase the amount of time they spend fishing. Migrating to new fishing grounds or changing the target species are also common strategies. All of these responses, however, usually lead to an increase in catches, hence further overfishing already strained populations. By increasing fishing efforts, fishers report that they are more likely to revert to illegal practices and harvest juvenile fishes with negative long-term consequences.

Fishers that employ short-term coping strategies such as borrowing capital (e.g. money, seeds, fishing gear), selling off livestock and assets, relying on support from community groups or exiting the fishery often report that these strategies incur negative long-term impacts on livelihoods. Except for relying on social groups, most reactive or emergency response strategies decrease the long-term well-being of households. Some community members report making more sustainable efforts related to improving fish processing, saving money, planting fruit trees as a source of income, building storage facilities for food, digging trenches to prepare for floods or investing in irrigation infrastructure. Planned strategies can actually have long-term positive effects on food security and income, but very little effects are systematically assessed and have not been collectively scaled throughout the community. Many fishers also reported a substantial positive impact from diversifying to farming and livestock rearing. However, these strategies may be impaired under a Bunyala context, in which farming and livestock is already widespread, thereby leading to reducing availability of land, and the effects of flooding have also greatly impacted mixed-farming livelihoods.

How rural populations in Kenya cope with climate and insecurity shocks

Although coping strategies may contribute to short-term safety, these frequently carry consequences that can potentially reduce the adaptive capacity of households and communities in the long-term. Resulting impacts from investing in short-term responses to crises will likely worsen the underlying drivers of vulnerability, such as poverty and illiteracy, thereby increasing climate-related security risks in the future. On the other hand, adaptive strategies that are based on collective management of resources, increasing the degree of agency and representation of communities in natural resource management, and the protection of sustainable livelihoods -such as climate-smart agriculture or tourism-based incomes- were found to currently enhance the adaptive capacities of communities.

PASTORAL ADAPTATIONS

- Expansion and diversification of herding migratory routes
- Access to new areas with better pasture
- Split herds and sell cattle earlier to hedge risk
- Planning expenses in accordance to periods of hardship and relief
- Farming of grass and construction of storage facilities

FARMING ADAPTATIONS

- Diversify crops, mainly towards fruit trees
- Adopt drought-resistant varieties
- Build storage facilities for harvest
- Adopt mixed-farming methods
- Conservation agriculture
- Invest in irrigation
- Farm-level flood management

FISHING ADAPTATIONS

- Increase fish processing capacities
- Travel further into fishing zones
- Diversify income strategies, e.g. employment in fish farms
- Shift to non-fishing livelihoods, e.g. farming and herding

SOCIO-CULTURAL ADAPTATIONS

- Intermarriages and assimilation with neighbouring ethnic groups
- Travelling farther for trade and markets
- Maintaining good interrelationships with neighbours
- The culture of sharing resources by the community
- Concerted efforts to preserve Indigenous cultures

PEACEBUILDING ADAPTATIONS

- Peace dialogues between elders and youths during conflict
- Cultural and traditional mechanisms for conflict management, e.g. administering curses in case dialogue fails
- Increasing ownership of firearms
- Faster coordination to contact security forces

POLITICAL ADAPTATIONS

- Increasing incidence of community organisations for political representations, e.g. Endorois Welfare Council
- Registering and development of community-based associations for resource management, e.g. Ilmamsi Community Forest Associations and Beach Management Units.
- Development of community-based organisations for livelihood protection, such as a community cultural manyatta for tourism incomes
- Involvement of women in leadership roles and decision making processes

ECONOMIC ADAPTATIONS

- Borrowing capital
- Save money
- Migration to urban areas in search of employment
- Search for non-agricultural livelihoods, e.g. based on resource extraction

CLIMATE-RELATED SECURITY RISKS

The effects of climate change variability across Kenya are contributing to depleting the natural resource base on which many livelihoods rely. Under a context whereby antagonistic relations prevail across neighbouring communities, political boundaries, or cross-border settings, these impacts interact with regional drivers of instability and have exacerbated a sense of insecurity in the everyday lives of resource-dependent populations. Kenyan populations in the ASAL regions, for example, are experiencing multiple forms of conflict – including natural resource-based conflict, inter-ethnic violence, cattle rustling, border and land disputes, drug trafficking, and terrorism – that are deeply rooted in the long history of marginalisation, ethnic-based violence, and instability that has characterised the broader East African context (FCDC & DLCI, 2020). Instability in these regions has been fuelled by a variety of interconnected and compounding factors, including ethnic intolerance, border disputes, and competition over land and other resources. Furthermore, institutional gaps to maintain security at local levels, reduced trust in formal and traditional authorities, poverty and underdevelopment, have all compounded towards worsening instability. In this sense, climate change interacts with a variety of environmental, socio-economic, political and cultural factors that act as structural and underlying drivers of conflict. Although there are many similarities in the socio-economic characteristics of the assessed sites, and on the climate hazards that participating communities experience, we found clearly distinguishable narratives on the compounding risks between climate, peace and human insecurity.

Pathway 1: Increasingly scarce natural resources have led to a higher frequency and intensity of inter-community and intra-community conflict

Rising temperatures and rainfall variability are directly linked to increasingly intense, frequent, and prolonged droughts as well as sudden and destructive floods. These effects can undermine the availability and access to natural and productive resources such as water and pastureland in the ASALs, where resource-dependent agro-pastoral activities are the primary source of livelihood. Fishery and farming dependent populations in the Lake Victoria Basin are similarly facing the degradation of their natural resource base due to the increasing effects of floods and changing weather patterns. Climate impacts such as overfishing and pollution directly affect the availability of fish. Communities in Kenya, whose livelihoods are resource-dependent, face a major challenge in ensuring regular and equitable access to natural resources for livestock, crop production, and fishing.

While reduced resource availability does not necessarily lead to conflict, climate-induced natural resource scarcity is indirectly connected with a higher incidence of inter-communal conflict and tensions over access to natural resources. Increased incidence of cattle rustling, banditry, and attacks by armed groups are common manifestations of these conflicts in Kenya's ASAL regions. Similarly, in Kenya's flood-prone regions, a high reliance on fishery resources across national borders is interrelated with drivers of violence and insecurity. These risks are amplified by the fact that – as a consequence

of climate-related impacts – communities are forced to increasingly rely on the same narrow set of available resources.

In order to cope with the scarcity of available natural resources, some communities are forced to adopt other resource-based livelihoods, such as harvesting sand from river banks and the extraction of timber for charcoal. However, this shift in activities results in conflicts due to the unequal access to sand extraction points, which are primarily dominated by private ranchers, and arrests resulting from illegal timber extraction from the forests. These dynamics are increasingly contributing to tensions across livelihood and ethnic divides, both within and between communities.

Given their occupancy of a transition ecosystem from northern arid lands to fertile rangelands bordering Kenya's centre highlands, the Yiaku and Endorois communities, respectively in Laikipia and Baringo counties, have always experienced incoming transhumant herders and cattle rustling. This practice has been traditionally used as a culturally accepted form of livestock replenishment, securing of dowry payments, and as a rite of passage for youth warriors. Due to this cultural aspect, sparse and low-intensity instances perpetrated by neighbouring groups are not deemed an act of conflict between communities. However, the common occurrence of cattle rustling at present is more often linked to conflicts over territory, linkages with international black markets, and violence over water resources, instead of cultural norms. In a context whereby long-standing rivalries and mistrust between ethnic groups prevail, the loss of cattle due to scarcity of pasture and water are thought to instigate competition for natural resources, mostly expressed as increasing occurrences of rustling and village raiding.

Pastoral communities have historically engaged in cattle rustling culture, raiding weaker communities and taking away their animals as a means of expanding grazing lands, restocking livestock and obtaining cattle for dowries. The practice, however, has become a major security risk for pastoral communities across Kenya. Raiding has implications for relations with neighbouring political entities as 'warriors' cross territories in search of cattle and weapons. In the absence of an adequate or prompt state response, and as pastoralists arm themselves for the protection of their lives and livelihoods, the stage is set for increased levels of violence.

Testimony from an elder man during FGD in Baringo

20/09/2022



“In 2009, one person walked with 272 livestock from home, and after 6 months of searching for pasture, they came back with 14 cows. People are losing cows by the dozens and hundreds. In 2021, from the month of January, up to May, every time you move your cattle in search of pasture, very few animals survive. Lamayue village is an example. Because of the terrain which is a hill, during an intense dry season there is pasture there due to the water running. It is common to take cows there and this is where the insecurity issues come in, because raiders can find you there easily. Even when pasture is available there, one cannot access it because of a lack of protection from bandits. Many people have died there.”

Since 2015, members of the Yiaku, in Laikipia County, report a noticeable increase in the frequency and intensity of rustling conducted by neighbouring communities, particularly emphasising violence perpetrated by Samburu pastoralists to the north of Mukogodo. Community members inform that, accounting for Yiaku populations across the multiple settlements within the forest, instances of violence occur today around once per week. Beyond this increasing frequency, rustling strategies are perceived as reliant on more violent and impactful means, hence further threatening people's safety and wellbeing.

Attackers are perceived to have a well-coordinated mode of operation and access to required information while executing rustling and raiding. In fact, the existence of informants within the Yiaku community, who collaborate with external raiders, was widely recognised among participants. During a raid, a group of attackers does not target a random village or homestead, but rather focus attacks on a previously surveyed location. The group usually carries the necessary arms and tools to counter any security measures in place, and are aware in advance of any firearms located in the premises. Raiders often steal cattle while dwellers are outside, suggesting a familiarity with their schedule.

Conflicts involving the rights to manage natural resources are also present among communities. Longer migratory routes, adopted by pastoralists to compensate for a lack of pasture in the more arid regions to the north, imply that a higher number of pastoralists now come in contact with Yiaku populations within Mukogodo and the surrounding group ranches. Given the legal status of the forest as protected land owned by the government, outsider communities do not recognise any legitimate claim by the Yiaku over the use of resources, nor the authority of Illmamusi to oversee their sustainable use, including water points and pasture lands contained within. Through cattle rustling, village raiding and resource grabbing, members from other ethnic groups have forced the displacement of numerous families settled within the forest.

Testimony from an elder pastoralist man during FGD in Laikipia



“In the past, cattle rustling did not occur between Maa ethnicities, correct? [general agreement from the group] But today, cattle rustling takes place regardless of ethnicities. Yes, there are more intense forms of attacks from external communities, but the theft of cattle through rustling today involves populations living throughout Mukogodo.”

In Busia, the displacement of people from more frequently flooded areas has increased population density in higher, less flood-prone areas. Under a context in which the majority of available land is managed communally, the keeping of livestock interacting with crops has led to an increase in land-based disputes among neighbours. Additionally, rising levels of Lake Victoria during recent years have submerged land previously used for farming. Because land deeds survey ownership of land in relation to the lake, private

lands at the lake’s edge have been displaced and now overlap with land upstream, further fuelling conflict among community members. These conflicts are most frequently resolved by involving the elders, the chief, or the Church. When this fails, government land surveyors get involved to provide a technical and formal solution to the conflict. However, community members also report that at times these conflicts turn violent.

The direct and structural drivers of natural resource-based conflict in ASAL case studies

Participants discussed the main forms of conflict and insecurity that the community has experienced during recent years, and reflected on dynamics of conflict, impacts, direct causes and underlying causes. The image below shows the result in relation to inter-community conflict over natural resources as perceived by Yiaku populations in Laikipia county.

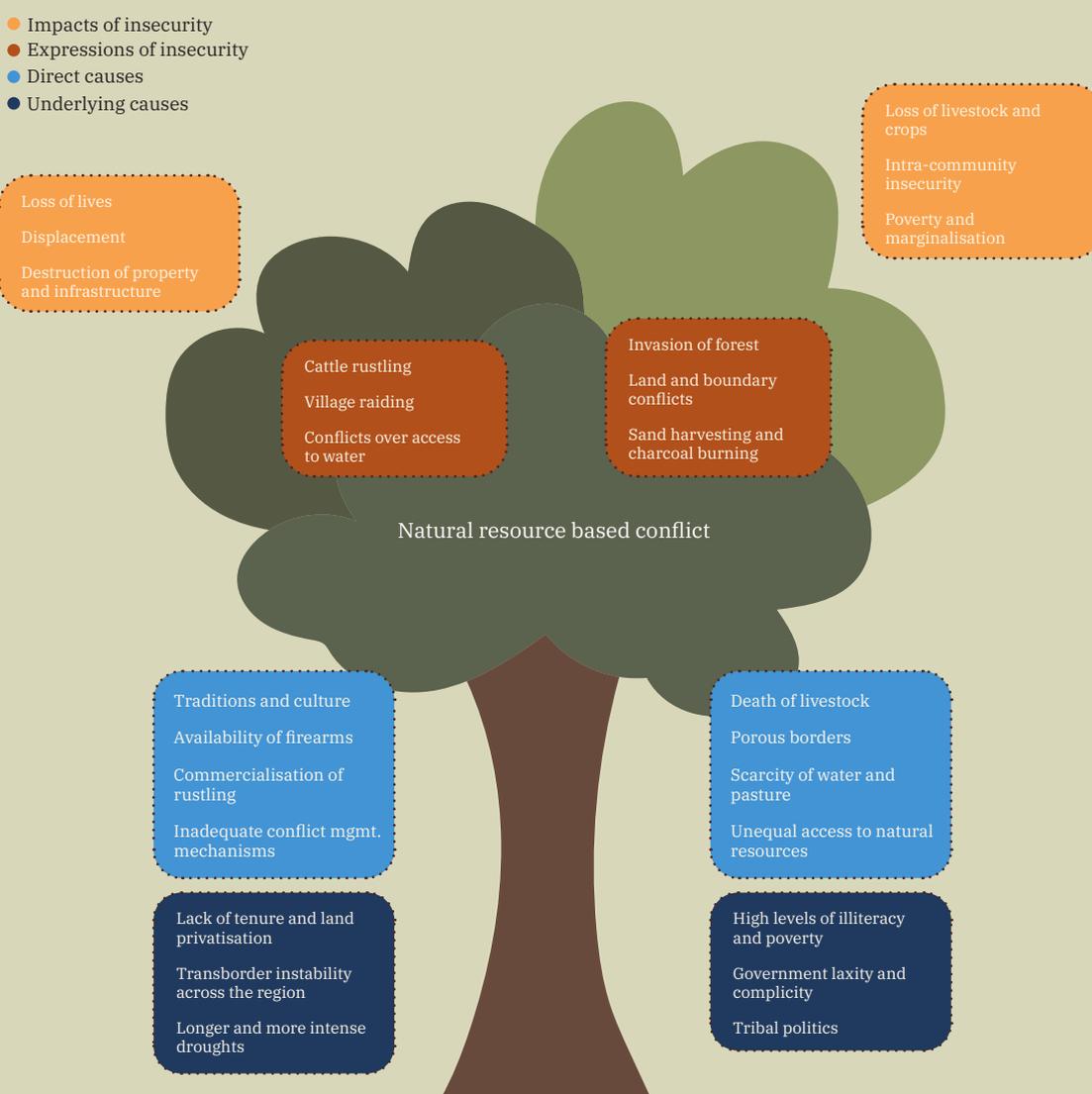


Figure 7. Problem tree diagram.

Pathway 2: Conflicts over political boundaries are exacerbated due to the effects of climate change on livelihoods and income strategies

The effects of other socio-economic and political trends acting over Kenya's ASALs are also thought to compound towards increasing the impacts of cattle rustling and raiding across the region. Such factors include the commercialisation of cattle theft, understood by participants as the adoption of the practice not merely for restocking purposes, but as an illegal livelihood strategy assumed by young populations, whereby organised criminal organisations and international black markets play an ever increasing role; the extensive availability of illegal firearms; and the use of cattle rustling as a strategy to influence political boundaries, frequently instigated by economic elites with an interest over neighbouring lands, or by politicians looking for electoral support and enhanced political influence.

Similarly to Yiaku populations in Laikipia, members of the Endorois Indigenous Peoples report a higher occurrence of cattle rustling and village raiding in the northern areas of their territory around Lake Bogoria Game Reserve, in Baringo County. They also recognise drought, a diminishing availability of pasture, and the widespread death of livestock as important factors driving Pokot populations further into their land and adopting evermore violent strategies for cattle replenishment. However, they also believe that the main factors pushing violent attackers further south lie in the interests held by economic and political elites to control the land they occupy. Since 2005, the Endorois Indigenous Peoples have been subjected to violent attacks from neighbouring Pokot communities to the north of their land. The onset of this conflict coincided with territorial conflicts across Kenya, driven mainly by electoral-based violence, and has continued to revolve around political boundaries, access to land, and the interests of political and economic elites within Baringo County.

Testimony from a young man during FGD in Baringo

20/09/2022



“The outsiders use drought as an excuse to enter the land. These peoples come into the territory with the excuse of searching for pasture and water for their cattle, this is just a disguise, but in reality they are seeking to expand their territory.”

The Endorois mostly understand the conflict as fuelled by political and economic interests in the value of their land. They believe that Pokot raiders are recruited, armed and sent to attack Endorois populations with the underlying intention of forcing their displacement, thereby securing access to high-value minerals present within the land. They also recognise that cattle theft is used today as a profitable business managed through strategies more in line with international organised crime than with cultural practices. This shift towards commercial cattle theft was understood to be the result of changing priorities among young populations and the loss of respect towards livestock herding as a dignified livelihood; the proliferation of firearms across the region; and the

increasing connections of cattle trading with globalised black markets and economic elites.

The effects of the conflict on wellbeing among the Endorois have been significant, and clearly shape current intra-community relations and adaptive capacities. The conflict has caused the destruction of infrastructure and community facilities, such as schools, houses, hospitals, and water tanks in the northern regions. More than 120 Endorois have lost their lives, numerous residents suffered severe injuries and disabilities ¹, and over 10,000 people have been displaced from their lands. Additionally, the violence has forced many children to abandon their education. The substantial livestock losses have led to an increase in poverty levels and attackers have targeted natural resources such as water points and forests, either by overexploitation or deliberate destruction as part of their warfare strategies. Despite cattle rustling and village raiding being the primary forms of conflict, the Endorois community uses the term “terrorism” to more accurately convey the negative consequences of the violent attacks.

Study participants evidenced a belief that some of the main drivers for the violent attacks to their community are related to the lack of political pluralism and widespread ethnic-based politics in Baringo, which elites instigate through ethnically-targeted violence to strengthen their political influence across County territory. In this sense, discourses around the need of young warriors to replenish livestock through traditional cattle rustling practices, under harsher climatic conditions, is perceived to be used as a window of opportunity, or an excuse, to conduct highly violent attacks on neighbouring populations with expansionist purposes.

The effects of climate change on both Endorois and Pokot populations were perceived as indirectly impacting conflict dynamics. Study participants agreed that high levels of vulnerability, poverty and marginalisation among young Pokot populations makes them more susceptible to recruitment by elites instigating inter-ethnic violence. Pokot vulnerability to recruitment is thought to be enhanced by the effects of climate change, mainly through the loss of livelihoods during extreme droughts. For instance, Endorois community members perceive an increase in attacks during dry spells, suggesting that, despite ethnic politics acting as a main cause of conflict, the need to secure access to water and pasture for cattle still drives young Pokot pastoralists to engage in violence.

¹ Impact figures were estimated by the Endorois Welfare Council.

Testimony from a young man during FGD in Baringo



Quoted from in-time translation from Kiswahili to English · 21/09/2022

“Cattle rustling and the stealing of animals is more common during dry spells. There are more migrant pastoralists, who take the animals...The two main resources of concern during Telelo [dry season] are water and pasture. Pokots and Ilchamus cross into our territory looking for these resources. This is the time when there is a lot of conflict for resources, and some of these conflicts escalate into violence.”

Pathway 3: The interloping impacts of climate change and conflict undermine livelihoods, erode social cohesion within the community, and increase vulnerabilities to future climate threats

Economic instability, inequality, poverty and marginalisation, are thought to be amongst the most important drivers of insecurity, since these factors enhance an individual's propensity to engage in violence as an alternative source of revenue. As a result, most people believe that the weakening of pastoralist, agricultural and fishing livelihood options increases the risk of conflict, violence and various forms of criminal activity. Scarce employment opportunities and limited labour skills, along with limited access to infrastructure, basic services, and social protection, are critical contributing conditions that exacerbate the risk of conflict and food and nutrition insecurity.

Study participants from Laikipia, Baringo, and Busia regions unanimously expressed that the community's social cohesion has been negatively affected by the combined consequences of climate change and conflict, reducing people's willingness to collaborate with or support each other in adapting to a changing climate. During the discussions in all groups, particularly in the women's focus group, it was emphasised that young people face limited livelihood options. Participants across all groups linked various social issues such as school dropouts, early pregnancies, substance abuse, crime, and prostitution to the impacts of climate change, violence, and the loss of livelihoods. Furthermore, the loss of agriculture-related livelihoods is believed to contribute to the rise in illicit activities such as alcohol brewing, crime, and banditry within communities.

Banyala community members in Busia perceived rising food insecurity as associated with increasing trends towards individuality within the community, reducing a shared sense of belonging and collective adaptive capacities. Similarly, reduced incomes at the household level were directly linked to an increasing rate of wives leaving their husbands, due to their incapacity to provide for the family. Study participants in general agreed that trust amongst neighbours in Bunyala sub-county has been undermined due to increasing hardship.

Testimony from an adult man during FGD in Busia

25/09/2022



“In the past, people used to store their food outside the granaries. Today, this is not possible because the food would get stolen. In the current situation there is a shortage of food. Trust between people has been reduced due to increasing theft, population density, and land conflict.”

Furthermore, the presence of conflict in Endorois territory, in Baringo County, currently impairs the ability of local populations to cope with climate-related risks. The effects of conflict include dozens of thousands of internally displaced people (IDPs) within Endorois territory, many hundreds have been killed or maimed, and dozens of thousands livestock stolen or killed. As a consequence, family dysfunctionality, mental illness and crime rate have increased within the southern locations, where the majority of IDPs are settled. The effects of conflict have worsened the vulnerability of Endorois populations to climate threats. The impacts of droughts and lower agricultural productivity, they report, are today a lot higher due to the widespread presence of IDPs across the territory and the loss of life and livelihoods due to the impacts of violence. These impacts reduce people's capacity to cope with climate change, and have rendered populations unemployed and without any alternative income sources.

Testimony from an adult man during FGD in Laikipia

17/09/2022



“The men, who are supposed to be the head of the house, are not looking for other livelihoods and are more susceptible to drunkenness. With all this frustrations, they start fighting with the women. This has led to higher degrees of divorce and separation of families. Prostitution has also increased in Dol Dol. Women who lived before in the forest, they now come to town, and are forced to prostitute themselves.”

The linkages between climate change, insecure livelihoods and household-level violence also emerged consistently in both men and women groups across all communities. The loss of agricultural-based livelihood, due to the compounding effects of climate and conflict, has led to decreasing employment rates and income. Under a context whereby men are expected to provide for security and household income, this has rendered many young men with a sense of indignity and low capabilities. The task of finding alternative incomes has fallen to a larger extent on women, who commonly adopt the non-sustainable extraction of resources as a main income strategy, such as charcoal burning. Despite what is often reported in the literature, an increasing economic role of women in the household was not, in women's perception, contributing to gender parity. Women in all communities were excessively overburdened by work and the lack of income, while their influence over decision making processes at the community level, despite a more prominent role in household-level incomes, had not increased significantly. At the same time, the feeling of ineptness by men exposed women to higher risk of household violence, as men adopt abuse as the way of reasserting their authority.

The most vulnerable households within each community have increasingly experienced multiple forms of deprivation though to be exacerbated by the effects of drought and violence, including: overcrowding, lack of access to water and sanitation, difficulties in following recommendations to prevent contagion during the pandemic, stressful

situations like domestic violence and child abuse, and service interruptions such as disruptions in healthcare and education. The general perception among participants was that women, given their prominent role within household maintenance and child caring, are more susceptible to these problems. For example, during dry spells, water points within Mukogodo Forest, in Laikipia, are rapidly depleted due to overconsumption by livestock. A common response by populations within the forest is to walk far distances into Dol Dol town, where the community draws water from boreholes. It is mainly women who are responsible for the task of gathering water for domestic use, thereby frequently leading to overwhelming responsibilities for household keeping.

Pathway 4: Maladaptive income strategies adopted by some community members to cope with climate threats are perceived as negatively affecting others

Due to a limited availability of employment opportunities beyond agriculture, people's search for alternative sources of revenue commonly leads to maladaptive practices that rely on unsustainable natural resource extraction or illegal activities. Deforestation from charcoal burning, sand harvesting from river banks, illegal timber extraction, and the brewing of illegal alcohol were all perceived to have increased recently among all participating communities.

Unequal benefits from these activities, incompatible interests among populations in regard to environmental conservation, and different perceptions regarding the suitability of illegal means of incomes, have in turn led to an increase in conflicts within and beyond the community, mainly revolving around access to and control over natural resources. For example, the harvesting of sand from river banks is an increasingly common activity among the Yiaku, particularly adopted by the youth and women. However, there is an unequal access to points of extraction, which are dominated by private ranchers who have harvested sand for a longer time for land management purposes. Although violence from sand-harvesting related conflicts has been minimal, disputes among Yiaku populations and surrounding conservancies have increased. Furthermore, the unregulated extraction of sand from river banks is perceived as negatively altering water flows, ultimately increasing the risk of flooding during heavy rains.

Testimony from a young man during FGD in Nanyuki, Laikipia

Quoted from in-time translation from Kiswahili to English · 16/09/2022



“Before there was very little charcoal extraction from the forest, today more people have been going inside the forest for charcoal, increasing the destruction of the forest. Because the drought has affected livelihoods based on cattle, there is a need to go beyond livestock. Another typical activity today is sand extraction, which destroys the forest. Once the forest is destroyed, rainfall and water flows are more chaotic, because the sand is extracted directly from the rivers.”

Unsustainable resource use as a response to increasingly scarce natural resources and the loss of agricultural-based livelihoods is also frequent across all assessment sites. Charcoal burning, in the case of the Endorois territory and Mukogodo Forest, has led to accelerated rates of deforestation and heated disputes within and beyond each community over conservation priorities. In the case of the Yiaku Indigenous Peoples, increasing deforestation was linked with widespread fear of forced eviction by Kenya's government from Mukogodo, a protected dry forest. In Busia, overfishing and the violation of fishing regulations, mainly through the use of illegal mesh sizes and fishing outside of allowed days, has led to increasing worries by community members of evermore stringent regulations, which most Banyala fishers already find impossible to abide by.

Although there are well-coordinated efforts for the enforcement of resource-use by laws by community-level organisations in all assessment sites, these are currently being overwhelmed by populations relying on illegal resource extraction. Furthermore, the provision of sanctions to violators is perceived to be plagued with rent-seeking practices whereby people with the right connections within the community, as was exemplified by Banyala fishers explaining that sanctions are allocated “in a partial way depending on alliances with the BMU [Beach Management Unit] leaders”. An increasingly common practice in all sites, however, is for violations to be informed to the relevant government officials to ensure that the legal consequences are administered.

Testimony from an adult man during FGD in Mayu Mata, Baringo



Quoted from in-time translation from Kiswahili to English · 22/09/2022

“The attackers use those who are poor among the Endorois as informants. This includes the most vulnerable and poor in the community. These people are promised a share of the loot in the form of a gun or money, but not animals. Some of these people are also employed as herdsman for the Pokot.”

Pathway 5: Limited institutional capacities to address climate threats, rent-seeking practices, and the political instigation of violence, impair efforts for conflict resolution and resilience building, exacerbate conflicts, and reduce trust in formal institutions.

The limited capacity of state authorities and formal community-led organisations in addressing the needs of marginalised populations can intensify resentment among community members, particularly the youth who face barriers to education and employment. In all the assessment sites, factors that undermine the government's legitimacy as a peacekeeper include the absence of State presence, low provision of public services, exclusionary and discriminatory policies, corruption, and misuse of public funds. Additionally, efforts aimed at fostering peace and resilience unintentionally

contribute to conflict escalation. Institutional practices related to resource management, deemed exploitative and exclusionary, can also exacerbate existing climate vulnerabilities and escalate conflicts over land between local communities, conservancies, and government organisations. Consequently, the eroding trust in government not only increases the likelihood of conflict but also impedes institutions from effectively responding to instances of violence and supporting populations in adapting to climate change.

Community-level conflict management mechanisms, which have traditionally served to constrain the escalation of conflict within and between communities among the Yiaku and Endorois Indigenous Peoples, are today undermined by a series of factors. Through gerontocratic social norms, elders have been traditionally considered authority figures capable of keeping the youth at bay and serving as intermediation authorities during the onset of conflict. As part of conflict management practices, youth groups from neighbouring communities would meet to negotiate an agreement whenever rustling and other clashes risked an escalation of conflict. When negotiations failed, elders would get involved and seek alternative arrangements. Elder involvement would usually imply the casting of curses over misbehaving youth, an occurrence that the population took seriously and commonly abided by. Today, however, beliefs in the power of curses and respect for gerontocratic institutions have significantly eroded.

These rapid changes in local authority distribution, under conditions of fragility and low-State presence, have led to an institutional gap for conflict management. To illustrate, the Yiaku community implemented a strategy of assigning water access to specific households and periodically rotating entitlements to ensure fairness and prevent internal conflicts. Non-entitled households had to engage in negotiation and trade to gain access to water points. However, this practice was discontinued when the Mukogodo forest was declared a protected area in the 1990s. During the study, participants highlighted the absence of collective institutions responsible for handling conflicts and managing natural resources as a significant root cause of inter-community conflicts. Another contributing factor was the lack of well-defined boundaries between ethnic territories, which hindered peaceful negotiations to address conflicting interests.

For example, although resources within Mukogodo Forest are protected by the Kenyan Forest Service, and Illmamusi mandated to enforce the sustainable use of resources, regulations are not properly enforced, nor respected by both members of the Yiaku and external communities. While in the past, traditional mechanisms for resource use negotiation provided Samburu groups with access to grazing resources within the forest, current formal governance regimes are not complied with, and perceived as favouring certain communities over others. Similarly, Endorois representatives highlighted unclear territorial boundaries between their and Pokot territory as a main driver of conflict.

Rent seeking, corruption, active instigation of violence and conflict-insensitive interventions by government entities are all perceived as common behaviour amongst

community members. Peacebuilding interventions in Endorois territory, for example, have often exacerbated antagonistic sentiments due to perceptions of favoured groups. The unequal disarmament of Kenyan Police Reserves (KPR) across counties is an example of how peacebuilding interventions can undermine a sense of security by certain groups. The Kenya Police Service in Baringo has disarmed Endorois police reservists while leaving neighbouring aggressors armed. This renders minority populations unarmed and more vulnerable against attackers, who typically employ illegal weapons. Given that people mostly experience climatic and security threats as related to the State's low institutional capacity for social protection and political abuse, these threats tend to undermine State-society relations and the government's legitimacy to protect society. Previously organised dialogue processes have failed to produce peace agreements and usually result in further violence, leading to a low willingness by conflictive groups to formally engage in future dialogues.

Study participants also voiced out concerns of corruption and direct involvement of government officials in aiding or facilitating instances of violence through conscious inaction during and after attacks. This is evidenced in the responses of security forces to cattle theft, which are perceived as deliberately ineffective. Police forces often justify their lack of timely and proper response in addressing violence by citing the unavailability of essential resources like fuel for transportation and an insufficient number of security officers. Nonetheless, participants expressed their perception that the police are capable of promptly intervening when alerted about illegal alcohol brewing, an activity adopted by certain individuals within the Yiaku and Endorois communities after exhausting other income sources, and which is usually done by women.

Testimony from a young man during FGD in Baringo

22/09/2022



“People have seen the [stolen] animals themselves, while the military in choppers say that they were unable to find them.”

The effects of climate change over livelihoods and wellbeing also interact with historical grievances held by the community towards government authorities. The Endorois community have inhabited the area around Lake Bogoria for several centuries, but were forcefully displaced by Kenya's government in the 1970s for the creation of Lake Bogoria Game Reserve. The community has since the late 1980s mobilised, with iterative success and failure, for the protection of their rights and retribution for past injustices. The failure of the Kenyan government to implement the 2010 African Commission on Human and Peoples' Rights' recommendations in favour of the Endorois' claims to access Lake Bogoria Game Reserve, has significantly affected well-being and development among the Endorois community. Unemployment, illiteracy, poverty, food insecurity, lack of access to healthcare, natural resource scarcity, all affect the Endorois in above-average manners

as related to regional trends. These issues are also today exacerbated by the effects of climate change, which have compounded in increasing resentment towards government authorities.

Climate impacts over livelihoods interact with institutions for natural resource management and act as important sources of grievance and insecurity. In order to preserve fish populations in Lake Victoria, the Ugandan and Kenyan governments have introduced harsh regulations regarding access to the lake and the use of specific fishing gear and mesh sizes. However, due to limited access to necessary resources, the Banyala fisherfolk have been facing difficulties in adapting to these new regulations, resulting in a decline in fish stocks. Consequently, community members are compelled to engage in illegal fishing activities both within Kenya and across the border with Uganda, where they are subjected to risk of arrest, torture, destruction of property, and death by Ugandan authorities, pirates and other fishers. In Ugandan waters, arrests are also associated with violations of human rights, like torture and arbitrary jailing. Banyala fishers have reported that Uganda authorities coerce them to pay up to 1 million Ugandan shillings per fishing season (every two months) in order to continue their livelihood activities. Additionally, conflicts arising between Ugandan and Kenyan fisherfolk are reported to be frequent, primarily due to competing interests for access to fish stocks and a growing number of incidents related to equipment theft.

Increasing risks from more stringent regulations and criminalisation, coupled with dwindling fish populations in Lake Victoria, are among the main drivers for Banyala populations seeking alternative livelihoods in farming and livestock herding. However, the loss of livestock and crops due to increasing flooding greatly impairs the capacity of Banyala community members to diversify their livelihoods. As a result, many young men have returned to fishing as a measure of last resort. In fact, community members and representatives from the local Beach Management Units perceive that, despite the security risks associated with fishing, the number of fishers in recent years has increased. In this sense, climate change may be forcing Banyala populations to go into a livelihood activity that is directly associated with cross-border insecurity.

The direct and structural drivers of fishing-related security risks in Busia.

Participants discussed the main forms of conflict and insecurity that the community has experienced during recent years, and reflected on dynamics of conflict, impacts, direct causes and underlying causes. The image below shows the result in relation to fishing-related security risks as defined by members of the Banyala Indigenous Peoples.

- Impacts of insecurity
- Expressions of insecurity
- Direct causes
- Underlying causes

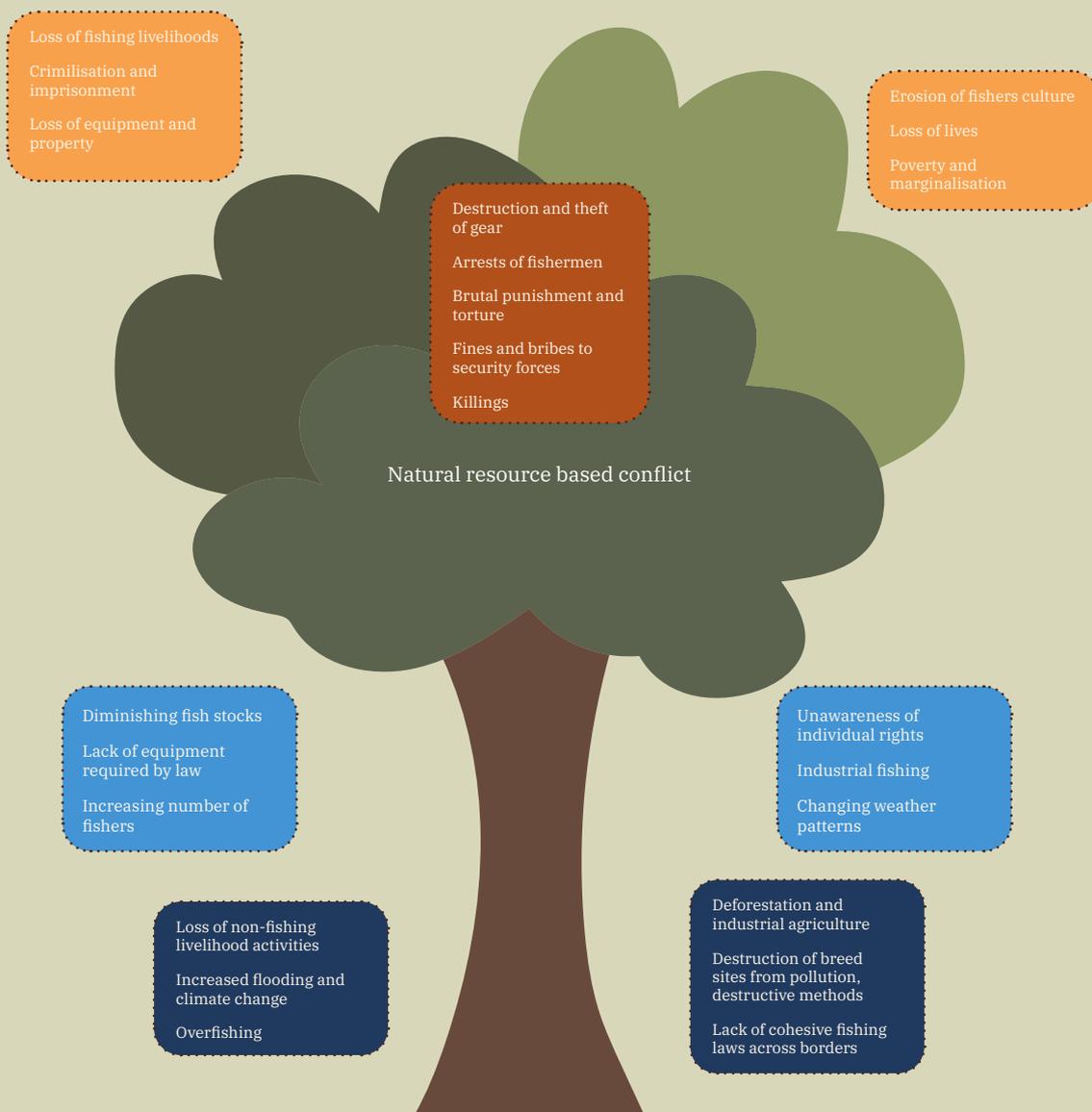


Figure 8. Problem tree diagram.

Pathway 6: The increasing frequency and intensity of rapid onset floods leads to community-wide temporary displacement.

Despite significant progress for disaster risk management across Kenya, many challenges remain to protect Banyala populations from recurring floods. More frequent and intense flooding is associated with the loss of lives and the widespread loss of property and infrastructure. Important community places, such as schools, have also been relocated due to recurring floods. Because water logging is common after flooding, the community faces an increased incidence of waterborne diseases, including outbreaks of cholera and typhoid. Furthermore, temporary settlement in displacement camps is associated with various forms of insecurity risks, including an increase in the incidence of crime and sexual abuse, substance abuse, among others. In addition, mosquitoes contribute to the spread of diseases.

The last intense flood that populations in Bunyala sub-county were subjected to occurred back in 2020. The flood caused significant impacts on the community such as the destruction of many buildings, particularly mud shacks, and the displacement of over 150 people, leading to the creation of temporary camps. The provision of food and supplies for the camps is usually funded by humanitarian organisations and the Kenyan government; although camps are managed in large part by community members. However, many people perceive food provision as not enough to adequately cover a household's subsistence, hence forcing people, mainly men, to return to their flooded homesteads in pursuit of their daily livelihoods and alternative incomes. This practice separates families for months and leaves people with little protection under highly vulnerable conditions.

In the vicinity of flood-affected regions, there are numerous temporary camps within elevated villages. Although it would be preferable to reside near to these camps, limitations in available space prevent such an arrangement, coupled with the fact that the camps are often established on privately owned properties. The majority of temporary camp dwellers return to their homes due to financial constraints, as poverty remains a significant driving factor. Conversely, those who remain in higher lands after a disruptive flood are typically more financially stable and can afford to secure alternative land.

Quote from an elderly man during FGD in Busia

25/09/2022



“One of the worst experiences occurs during resettlement on the way to the camp. When you are leaving your homestead, you don't even know where you are going, you have no choice, you just know it will be in a higher ground.”

The increasing prevalence of prostitution in displacement camps leads to a rise in perceived “immoral” activities. Vandalism among the youth and children becomes more widespread, and property loss due to encroachment is a pervasive issue during displacement processes. Due to high rates of teenage pregnancies, crimes and early marriages, participants reported that some parents even choose not to go to the camps. Cultural practices and traditions are considered very important for these communities. Since cases of immorality and petty crimes become more commonplace, this leads to a breakdown in family units. For instance, the Banyala people traditionally held great respect for in-laws, but this aspect has been negatively impacted. Family separations become prevalent during the camp period, with households registered on a per-wife basis, allowing men to marry additional wives during this time in order to secure extra rations.

Once people leave the camp, they must first rebuild their homesteads. However, many lack the necessary capital and materials to do so. Skilled labour, along with the cost and availability of natural resources, are adversely affected by flooding, making it difficult for people to rebuild and resettle. Due to these challenges, some families end up residing in partially collapsed houses, thus adapting their lifestyle accordingly. In addition, access to land, fishing gear, and livestock becomes limited or even nonexistent. Short-season crops are favoured to ensure food security, albeit their lower market cost and the increased challenge of obtaining agricultural inputs and materials further undermine livelihoods. Once outside a temporary displacement camp, people perceive limited support from the government or international organisations targeted for resettlement. During this period, people resort to illegal fishing techniques, for example, as a means of sustaining themselves, while also commonly engaging in theft and petty crimes.

RECOMMENDATIONS

The intersecting impacts of multiple crises in fragile settings, including food insecurity, conflict risks, increasing poverty and marginalisation, and the effects of climate change on population wellbeing, have compelled the international community to pay a renewed attention to the unintended effects of interventions at the humanitarian, peace, development and climate nexus. Indeed, there is increasing evidence that poorly designed interventions can exacerbate inequalities in societies, decrease the well-being of some groups and, sometimes, contribute to conflict. At the same time, international organisations manifest a growing demand to develop effective climate programmatic practices that effectively contribute to sustainable peacebuilding. However, they lack the means to operationalise climate action strategies that consciously address societal grievances acting as the root causes of conflict.

The effects of climate change over the availability of natural resources and people’s capabilities to sustain a secured livelihood can contribute to perpetuate, and at times exacerbate, broader social conflicts. Local, intercommunity and transboundary disputes

over land, water, forests and fisheries were perceived by community members in this study to be worsened by climate change. Similarly, processes of societal instability were found to be indirectly affected by the non-inclusive nature of decision-making institutions, the perceived legitimacy of authorities -both customary and formal-, and populations' trust over and access to social protection mechanisms. All of these factors were furthermore perceived to be impacted in complex and multidirectional ways by the effects of climate change. Likewise, the presence of societal instability and conflict under fragile settings undermines the ability of populations in adapting to changes in their climate and environmental surroundings, often forcing people to adopt coping measures which are likely to further undermine adaptive capacities in the long-term.

The climatic drivers of insecurity and conflict, as perceived by participants of this study, are expected to worsen in the coming decades. Average temperature, rainfall variability, and drought are all projected to rise as the climate continues to change. Under a scenario whereby adaptive capacities remain the same, these effects will further impact people's ability to maintain food security, stable livelihoods and a shared Indigenous identity. They will also increasingly undermine institutional capacities to provide public services and social protection. The results from this study suggest that, if left unaddressed, ongoing insecurity dynamics may worsen under more challenging climate conditions.

Nonetheless, the management of natural resources and efforts for climate adaptation can also be the source of cooperation across conflictive groups, thereby helping to build resilient institutions that can moderate and reduce the disruptive impacts of conflict. Participants in this study came up with actionable proposals which mostly rely on their own collective action, but require support from wider policy systems and the international community for their implementation. Their proposals build upon specific natural resources available in each region, the concrete climate threats that communities face, and the nature of conflictive relations between regional actors. This suggests that the high levels of risk and complexity encountered in fragile contexts, which currently discourage climate adaptation investment in these regions, can be addressed through reflexive dialogue with those most affected. International efforts for climate adaptation need to internalise the idea that people who are facing a problem are better positioned to understand it and address its underlying roots. Collaboration between different levels and types of actors –including practitioners, policymakers, researchers, and local actors– holds the best promise to empower communities and produce innovative solutions for climate adaptation to act as an instrument of peace.

The policy prescriptions proposed by study participants based on their concrete lived experiences can also suggest a set of high-level recommendations for the design of climate adaptation efforts that contribute to sustainable peacebuilding. Guiding principles for the deployment of policies for natural resource management and the protection of rural livelihoods include: 1) adopt climate action programmatic strategies that consciously account for and address structural sources of vulnerability and marginalisation, such as land tenure; 2) promote collective action in natural resource

management in ways that foster social cohesion across opposing groups; 3) address horizontal and vertical inequalities through inclusive natural resource management and climate smart agriculture; 4) ensure the support of formal policy processes and the willingness of government actors to advocate for required reforms; and 5) in conflict and post-conflict settings, embed collaborative natural resource management and climate adaptation within broader reconciliation processes. Ultimately, the main goal of these principles is to guide climate action in a manner capable of shifting local-level incentives towards the cooperative and equitable management of resource competition and climate risks, thereby reducing the likelihood of maladaptive responses and strengthening the foundations for social-ecological resilience.

Conflict-sensitive resilience building action urgently needs to be deployed in accordance with community-level priorities, in a way that builds upon local and Indigenous knowledge, understandings of problem dynamics, and perceptions around structural sources of vulnerability and conflict. This section summarises the policy recommendations developed and prioritised by community members to turn climate security risks into opportunities for resilience and peacebuilding.

Laikipia case study

For more programmatic details on the recommendations developed by Yiaku community members, refer to the Laikipia case study factsheet.

Yiaku community members proposed to develop collaborative arrangements between the ethnic groups for the collective management of forest resources, by transferring ownership of the land to communities and creating a conservation reserve within the forest, hence shifting towards tourism-based livelihoods and reducing their dependence on livestock. Multi-ethnic management committees for forest management would also work hand-in-hand with a community patrol reserve, conformed by recruits from all ethnic groups, which would be charged with monitoring violations to forest resource use bylaws and the occurrence of cattle rustling and village raiding.

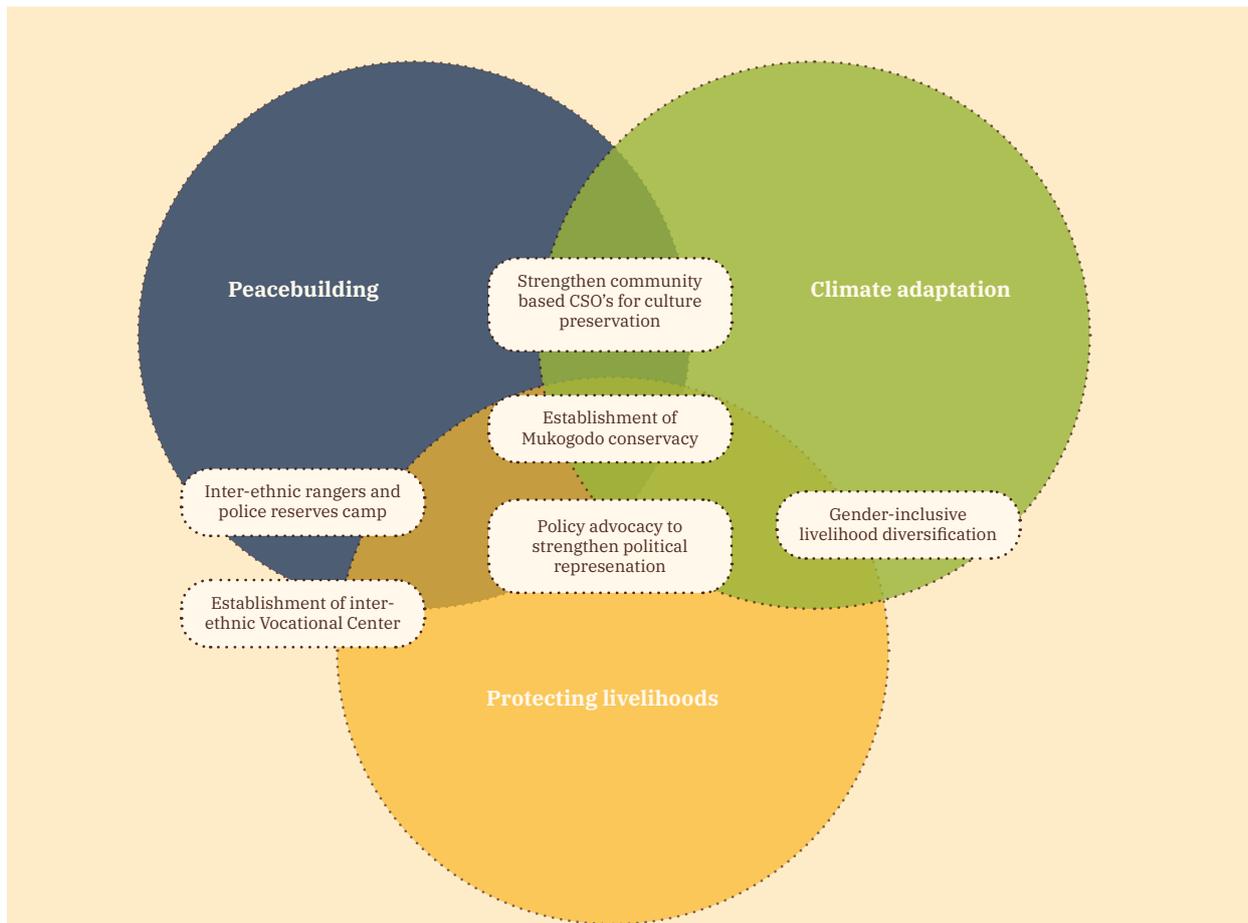


Figure 9. Classification of proposals developed by participating Yiaku Indigenous Peoples.

1. **Transfer ownership of Mukogodo forest to neighbouring communities and create a conservation reserve within the forest.** Formally implement Kenya’s Community Land Act (2016) in Mukogodo Forest through collaborative arrangements between ethnic groups, with the goal of transferring ownership of forest resources to communities, and formalise a collaborative conservation reserve managed by all ethnic groups to foster livelihood strategies based on sustainable tourism. The collaborative nature of land management arrangements between neighbouring ethnic groups and the Kenyan Forest Service, as proposed by the creation of a conservancy reserve, can potentially strengthen the preservation of forest resources and foster a sense of shared identity and interdependence between ethnic groups.

2. **Implement a collaborative Kenyan Police Reserve (KPR) around Mukogodo area that recruits members from all neighbouring ethnic groups.** A Mukogodo sub-county KPR would monitor and prevent both the occurrence of cattle rustling and illegal resource use and extraction from Mukogodo forest. Participants recognised that KPRs across Laikipia also face significant challenges in their ability to maintain security, including inefficient oversight and governing structures, the lack of operational policies, misuse of firearms and the absence of sanctions for any misdeeds. Instead, their proposal is to implement a collectively managed intercommunity KPR that incorporates members of

all tribes surrounding Mukogodo forest. This entity would be charged with monitoring violations to forest resource use bylaws and the occurrence of cattle rustling and village raiding.

3. **Inaugurate a vocational training centre (VTC) to foster livelihood strategies that serve as alternatives to cattle herding and scale these for the disarmament of young raiders.** The installation of a VTC would need to accept young people from all communities around Mukogodo forest, so as to foster engagement and a sense of shared identity amongst raiders, and be linked to the provision of jobs after the completion of training. This programme is meant to begin a process of disarmament of raiders and the provision of alternative livelihoods. The VTC should also integrate training programmes for women, to strengthen sources of income for both men and women.
4. **Foster gender-inclusive livelihood diversification by strengthening of cultural “manyatta” for cultural-based tourism.** The establishment of a cultural manyatta, a traditional Maa homestead, by women in the Yiaku community has led to the creation of income opportunities for women and the strengthening of Indigenous identities within the community. The site has also been used to organise awareness raising events regarding forest resource management, the preservation of the Yiaku culture, the reduction of domestic violence and sexual education talks. There is currently a need to strengthen the organisation so as to ensure its financial sustainability. It is necessary for this solution to adopt a gender-conscious approach to the creation of livelihood opportunities based on cultural and environmental tourism.
5. **Mobilisation of the community to demand that the Yiaku are identified as an independent tribe, and to foster the registering for identity and voter cards by young populations.** This proposal entails the use of important community-level events -such as events related to sports, culture, agricultural livelihoods, and the environment- to foster political participation through talks and communal meetings. Registration for voting and the issuance of identity cards would be prioritised during these events, as voting by the youth may increase the political representation of the Yiaku in the County government.
6. **Establish inter-community boarding schools that foster sustainable livelihood strategies and the renewal of Indigenous cultures.** Participants proposed that the government deploy boarding public schools located around Mukogodo forest and at the borders between inter-community territories. These schools would enrol children from neighbouring communities, where they can learn together about their different ethnic identities and their relation to surrounding natural resources, thereby fostering a shared sense of dependence, protecting Indigenous cultures, and breaking cycles of animosity among communities. Boarding schools should prioritise the enrollment of women, including those who become pregnant at an early age so as to ensure their continuing education.

Baringo case study

For more programmatic details on the recommendations developed by Endorois community members, refer to the Baringo case study factsheet.

The conflict between the Endorois and the Pokot evidenced traits of other protracted conflicts, such as culturally internalised resentment and low willingness for dialogue. The conflict is also highly intensive in its effects on population wellbeing. For these reasons, the Endorois were sceptical about deploying dialogue platforms meant to foster sustainable peacebuilding between the Pokot and Endorois communities. However, they still proposed promising solutions that are in line with environmental peacebuilding principles.

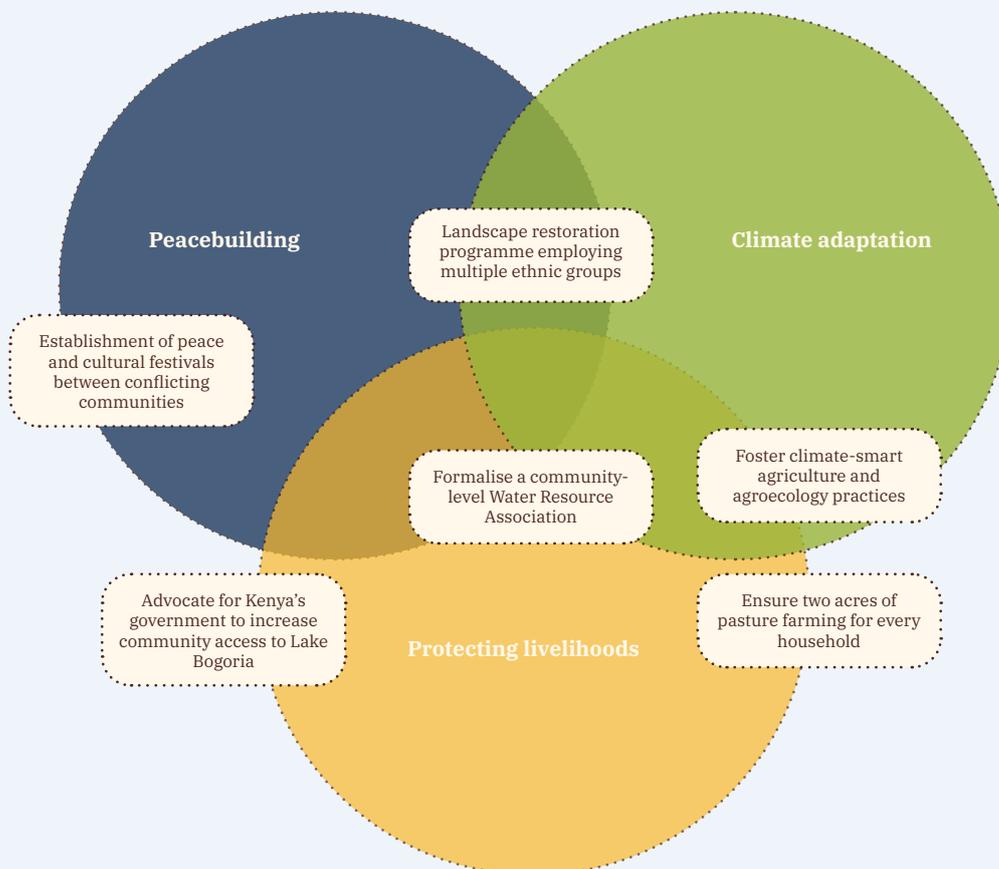


Figure 10. Classification of proposals developed by participating Endorois Indigenous Peoples.

1. **Use landscape restoration efforts as a way of increasing interdependence and engagement across conflictive groups.** Implement a landscape restoration programme that employs young people from both ethnic groups, and which operates in both sides of the boundary limit, hence fostering technical engagement between the two groups around the management of natural resources, increasing a sense of interdependence, and creating alternative livelihoods for those who reduce their dependency over cattle.

Although Pokot and Endorois communities are not currently willing to negotiate a peace agreement, “technical” programmes around natural resource management could incentivise neutral dialogues for activities that benefit both populations.

2. **Foster climate smart agriculture, value addition and social protection schemes to enhance the availability of alternative sources of income throughout pastoral populations.** A potential solution in managing livestock to create peace with the Pokot is to implement programmes to reduce the amount of animals in relation to the land’s carrying capacity. The reduction of animals would also imply a reduced risk of banditry, given that there is no sense of attacking a community without cattle. Endorois participants discussed climate-smart agriculture and agroforestry as a way of reducing dependencies on cattle, so as to make populations less susceptible to drought and rustling. Alternative sources of employment include the fostering of agroforestry practices, such as the planting of fruit trees and horticulture like the cultivation of mangoes. Diversifying agricultural livelihoods would also implicate the use of beekeeping and honey production as a main source of income, along with less traditional practices, such as rabbit keeping. Strengthening community participation in the cattle value-chain through value addition activities and increasing the social protection of agriculture-based livelihoods through credit and insurance-based programmes was also proposed.
3. **Formalise an inter-ethnic collaborative water management association at the basin level.** There is an opportunity to formalise a community-level Water Resource Association, such as has been implemented in other Kenyan regions. This association could be a potential institution made up of members from neighbouring and conflictive communities. The association would serve as a neutral space for engagement in solving issues around water pollution, access and scarcity, which all of the communities are currently facing.
4. Ensure that every household within Endorois territory has two acres of pasture farming from communally managed land. The widespread presence of internally displaced people (IDPs) across Endorois territory undermines people’s access to land and ability to sustain their livelihoods under the effects of climate change. Participants proposed to allocate communal land across the southern edges of the territory, and ensure that every household is assigned two acres of land for the farming of pasture.
5. **Establishment of peace and cultural festivals between conflicting communities that rely on neutral events, such as sporting competitions and cultural traditions around natural resources like Lake Bogoria.** Previously organised peacebuilding dialogue processes between the Endorois and Pokot have usually resulted in further violence, leading to a low willingness by both groups to formally engage in peace agreement dialogues. Participants proposed to rely on shared cultural traits, embedded in turn to local natural resources, to create spaces for collective reflection around antagonistic sentiments. These events should integrate peace dialogues and awareness raising activities that enhance interaction and cohesion amongst the conflicting communities.

6. **Continue efforts to advocate for Kenya’s government to increase community access to Lake Bogoria.** There is a need to increase the benefits from Lake Bogoria Game Reserve that are perceived by Endorois populations. The community needs to be better organised in demanding further access to the reserve and its tourism-based revenue. Additional income flows into the community, which would be mainly managed by the Endorois Welfare Council, an organisation with high-levels of legitimacy among the Endorois, would serve to implement other solutions proposed by the study participants, and to strengthen the community’s capacity to find alternative livelihoods that reduce dependence on cattle.



Photo: L. Medina / CGIAR

Busia case study

For more programmatic details on the recommendations developed by Bunyala community members, refer to the Busia case study factsheet.

Given the nature of insecurity problems faced by the Banyala community, participants in Bunyala sub-county opted for proposals meant to enhance State-society relations and protect livelihoods that reduce people’s need to fish across the border. Proposed solutions focused on increasing capacities to comply with fishing regulations on both sides of the border, maintain agricultural and off-farm livelihood strategies in the face of climate change, and collective action and participation in decision making spaces for fishery management and the protection of human rights. Reducing population dependence on fishing was deemed a priority strategy to avoid illegal border crossing.

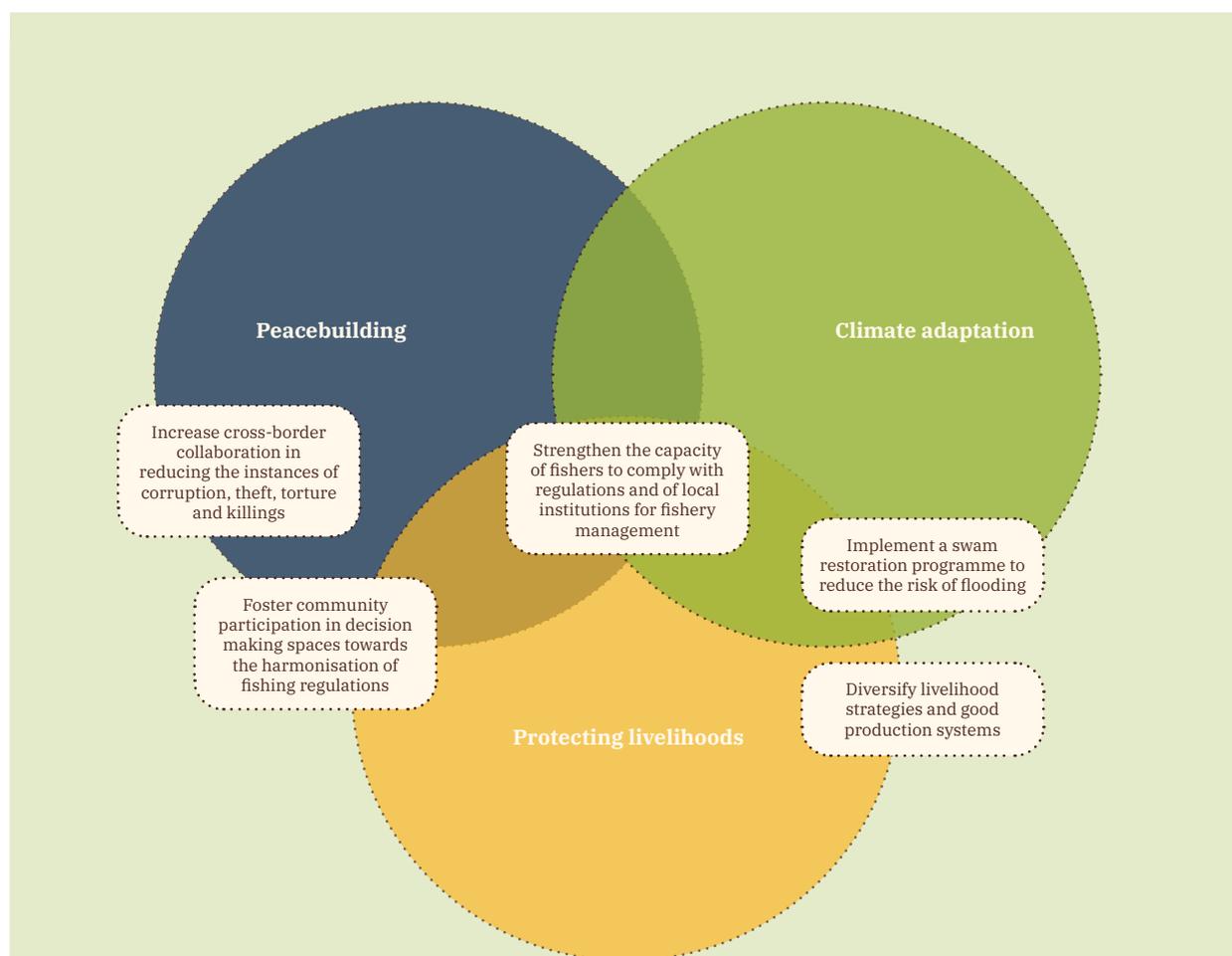


Figure 11. Classification of proposals developed by participating Banyala Indigenous Peoples.

1. **Diversify livelihood strategies and food production systems to reduce dependence on fishing.** An alternative livelihood option meant to reduce population dependence on fishing was proposed as the scaling of fish farming as a business model that is meant to benefit local populations, rather than only increase state revenue. This would imply the implementation of fish ponds and fish cages within Lake Victoria. The targeting of women regarding the investment and owning of cages and fish ponds was proposed to reduce the reliance over fish from the lake when selling harvest in local markets. Participants additionally proposed to foster livelihood diversification through conservation and climate smart agriculture, including the adoption of flood resistant crops, the planting of fruit trees, and agropastoral systems that reduce reliance on agricultural inputs.
2. **Strengthen the capacity of fishers to comply with applicable fishing regulation, as well as that of local institutions for fishery management and the enforcement of fishing bylaws.** Capacity building programmes that also offer subsidised fishing equipment in compliance with new regulations would contribute to reducing fishing-related insecurity risks, as better capacity to comply with laws and on proper methods could reduce the risk of fishers getting arrested. It would also strengthen livelihood strategies

of Banyala fishers. Capacity building and awareness should focus particularly on fishery sustainability and good management, regulation compliance, and business and financial training.

3. **Implement a swamp restoration programme that facilitates the flow of receded water, and protects surrounding farming land from flooding.** Restore the swamp's ecological state to ensure the constant provision of ecosystem services, mainly flood protection, irrigation water, and non-timber products. A selection of crops to be planted as part of the swamp restoration efforts could also increase the provision of ecosystem services and foster the diversification of livelihoods. The use of artificial ponds around farming land has been adopted as a means of reducing flood risk, protecting crops, collecting irrigation water, and preserving swamp conditions. This is a common practice that has presented many challenges due to high maintenance costs and labour. A swamp restoration programme should focus on supporting these previous adaptations which have proved to be effective.
4. **Foster community participation in decision making spaces towards the harmonisation of fishing regulations between Kenya and Uganda.** As a strategy to preserve dwindling fishery populations, Ugandan and Kenyan governments have introduced more stringent regulations regarding the use of specific fishing gear to prevent the catching of small fish. However, many Kenyan fisherfolk have been unable to comply with these new regulations. The East African Community has played a little role in harmonising the legal frameworks between the Lake Victoria riparian countries.
5. **Increase cross-border collaboration in reducing the instances of corruption, theft, torture and killings.** Being incapable of complying with the law, fisherfolk are forced to conduct illegal fishing both within Kenya and across the border with Uganda, where they are subjected to risk of arrest, torture, destruction of property and death by Ugandan authorities, pirates and other fishers. Fisher communities in Kenya need to mobilise towards demanding that the Kenyan government collaborate with authorities in Uganda in ensuring the respect of human rights in Lake Victoria. International cooperation agencies were perceived to play a crucial role in the development of institutional capacities meant to protect fishing populations.

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