



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

NATURAL RESOURCES MANAGEMENT SYSTEMS REPORT

MANDERA CLUSTER



Banisa Youth have diversified land (the main natural resource in Mandera Cluster) use- to make bricks for sale as a means of diversifying their livelihoods from livestock dependency.

DISCLAIMER

This report was produced at the request of the Cross-Border Community Resilience (CBCR) Activity implemented by Chemonics and ACDI/VOCA through funding from the United States Agency for International Development (USAID). The report was prepared independently by ReachOut. The views expressed in this report do not necessarily reflect the views of the USAID or the United States Government.



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FOREWORD

This report provides a comprehensive overview of the existing resource sharing and natural resource management (NRM) systems in the Mandera cross-border cluster. The report has been produced within the context of the Cross-Border Community Resilience (CBCR) Activity, alongside the Applied Political Economy Analysis (APEA), Conflict and Climate assessment, labor markets assessment, and social network analysis (SNA) that collectively inform the CBCR's programming in the Mandera cluster.

Against the backdrop of the Mandera cross-border communities' heavy reliance on water and land for opportunistic agropastoralism, and the multiple threats these resources face from large-scale infrastructural development, extractive industries and climate change among others, this report explores the resilience of formal and informal natural resources sharing and management systems across the Mandera cluster.

Within this context, the report entails an examination of informal and formal governance structures, mechanisms and arrangements and relevant legislative frameworks, strategies and policies at the national, regional and international levels. Further, the assessment identifies the main gaps in equitable and peaceful resource sharing and NRM including capacity needs at various levels, how arrangements can be strengthened, and how cross-border policies can be harmonized.

Jebiwot Sumbeiywo, Chief of Party (CoP),

Cross Border Community Resilience Activity (CBCR).

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ACKNOWLEDGEMENTS

Various stakeholders made the assessment of cross-border natural resource sharing and management systems in the Mandera cluster possible. These include the Mandera County Government's Departments of Agriculture, Livestock, Water, Natural Resource Management; the National Drought Management Authority (NDMA); the Deputy County Commissioner; government representatives from the Gedo region's Departments of Agriculture, Livestock, and Water; government representatives from the Liben zone regional Bureaus of Agriculture, Water and Natural Resource Management, and the *woreda* (district) administrators. We are also grateful to civil society organizations, particularly Women for Peace and Development, and representatives of the communities that live across the borders of Liben zone, Mandera County, and Gedo region.

A special acknowledgement of the Cross-Border Community Resilience (CBCR) Activity officials who provided both financial and technical support to ReachOut Organization to undertake the assessment.

ReachOut acknowledges contributions from other stakeholders throughout the assessment, including:

- i. The ReachOut Organization assessment team leaders and enumerators for their tireless efforts in ensuring quality and reliable data.
- ii. The residents of Dollow Ado and Deka Suftu *woredas* in the Liben zone; Beled Hawo and Dollow Somalia districts in Gedo region; and Banissa and Mandera East sub-counties in Mandera County for their support and making the assessment a success.
- iii. Key stakeholders working on cross-border programming, including the CBCR Activity, Women for Peace and Development, Building Opportunities for Resilience in the Horn of Africa (BORESHA) Consortium, and the Rural Community Development Agency (RACIDA).

ACRONYMS

CBCR	Cross-Border Community Resilience
CSE	Conservation Strategy of Ethiopia
CMDRR	Community Managed Disaster Risk Reduction
COOPI	Cooperazione Internazionale
DRR	Disaster Risk Reduction
EIA	Environmental Impact Assessment
EMCA	Environment management and coordination action
FAO	Food and Agricultural Organization of the UN
FGD	Focused Group Discussion
FSNAU	Food Security and Nutrition Analysis Unit
IDP	Internally Displaced Person
IGAD	Intergovernmental Authority on Development
IPC	Integrated Food Security Phase Classification
KII	Key Informant Interview
MoAD	Somalia Ministry of Agriculture and Development
MoLFD	Somalia Ministry of Livestock and Fisheries Development
SMPND	Somalia Ministry of Planning and National development
NDMA	National Drought Management Authority
NEMA	Natural Environment Management Authority
NGO	Non-Government Organization
NR	Natural Resource
NRC	Norwegian Refugee Council
NRM	Natural Resource Management
PRA	Participatory Rural Appraisal
PSNP	Productive Safety Net Programme
SIA	Social Impact Assessment
SWALIM	Somalia Water and Land Information Management
USAID	United States Agency for International Development
WRMA	Water Resources Management Authority

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EXECUTIVE SUMMARY

The Mandera cluster consists of Mandera County in Kenya, the Liben zone in the Somali region of Ethiopia, and the Gedo region in Somalia. The Natural Resources Management assessment entails an examination of informal and formal governance structures, mechanisms and arrangements, relevant legislative frameworks, strategies, and policies at national, regional, and international levels. The assessment also identifies the main gaps in equitable and peaceful resource sharing and natural resource management (NRM), including capacity needs at various levels, how arrangements can be strengthened, and how cross-border policies can be harmonized.

The assessment was conducted from September 19 – October 12, 2022, and adopted mixed methods of data collection and analysis, including qualitative approaches (key informant interviews (KIIs) and focus group discussions (FGDs)) and quantitative approaches (household surveys). The data collection exercise was followed by a validation exercise.

A total of 26 KIIs and 16 FGDs were conducted across the Mandera cluster. Moreover, a total of 461 people (321 through household survey) were surveyed across the cluster. The research team also reviewed secondary literature on national resource systems in the cluster, including reports from governmental and non-governmental organizations (NGOs), journal articles, media reports, and online sources.

The assessment established that the Mandera cluster has a large variety of natural resources that include, but are not limited to, seasonal rivers and other water sources (shallow wells, boreholes, and water pans), rangelands, crops, hills, and forests. The natural resources are mostly communally owned, while a few, such as the farmlands, are owned by organized and formally registered associations of farmers. Individuals own specific sections of the farms, while some water infrastructure such as boreholes and shallow wells are owned and managed communally. In some instances, the local government has management responsibilities. This is more so for the high yielding strategic boreholes in Liben zone and Mandera County. Land is considered to be the largest natural resource, but most of it is underutilized for production or depleted in terms of grass and shrubs availability.

Despite the existence of the wide array of natural resources, there is differentiated access by the communities. This is dictated by a number of factors including the geographical location of the natural resources, international boundaries, sub-clan and clan boundaries, and rights of ownership as explained in detail under the findings section of this report. Additionally, women are less likely to own or access natural resources across the cluster because of cultural and religious dictates that limit their engagement in activities that take them away from the villages. In addition, there is increased sexual and gender-based violence linked with migration, and physical injury and death, especially of young men and women who herd livestock during dry season migration.

Pastoralism is a complex land use and livelihood system that converts natural resources, which are patchily distributed across a wide landscape or rangeland into food and other livestock products. Almost all cases of violent conflict result from disagreements over access to browse and pasture by pastoralists, as well as land and water by both farmers and pastoralists. Thus, addressing cross-border conflict in the Mandera cluster needs to consider natural resource sharing and management, especially among the mobile pastoralists.

The assessment also found that despite the high levels of mobility by the population and subsequent natural resources related conflict, there are widely available community-managed- and -driven cross-border natural resource sharing mechanisms across the cluster. These are largely informal governance

structures that are built on the traditional Somali culture *xeer*, and are premised on the wet and dry season grazing areas, rangeland jurisdiction by sub-clans and clans, as well as type of land use. The informal natural resource sharing *xeer dhaqameedka diirta* is organized around structures premised on the assumption that all users of the natural resources are familiar with the traditional dictates and, by extension, would adhere to the unwritten rules and regulations, and abide by the predetermined deterrent measures in the form of collective clan punishments. The traditional natural resource sharing structures are regulated by clan elders and practiced uniformly across the three study locations.

Furthermore, there are formal natural resource sharing structures organized around NRM groups focused on specific natural resources. As in the informal structures, there is limited participation of women in the formal mechanisms. The formal structures are governed by written rules and regulations, and are anchored in either or both the federal and sub-national governance structures across the cluster. They are regulated through community selected committees that include NRM committees, rangelands management committees, grazing lands management committees, water users associations, water management committees, pastoralist associations, and farmers associations. The study participants stressed that more often than not, some members of the community ended up being the elected officials of more than one structure. This denies opportunity of representation for the rest of community members who are also users of the natural resources.

The formal and informal NRM structures have limited areas of influence, as they govern defined geographical boundaries and, more often than not, a particular natural resource. The NRM structures are anchored on community participation in their formation to develop legitimacy. This was substantiated by household survey respondents, where only 38 percent in Liben zone, 27 percent in Mandera County, and 46 percent in Gedo region felt that the NRM structures were not anchored on community participation.

The formal and informal frameworks are often not limited to NRM, but are also instrumental in natural resource-based conflict prevention and peace-building among communities. The assessment attempted to determine the effectiveness of the natural resource agreements in quelling incidents of violent conflict. They were found to be ineffective as 42 percent, 44 percent, and 32 percent of respondents in Liben zone, Mandera County, and Gedo region, respectively, confirmed to have experienced incidents of violent conflict related to natural resources over the last ten years.

The main changes witnessed in natural resource availability across the cluster were largely attributed to the impact of climate change. Climate change has resulted in the increased frequency and recurrence of drought emergencies, loss of rangelands and biodiversity, and shifts in nature-based production strategies. In addition to the witnessed losses of rangelands and biodiversity, the large-scale use of charcoal (by 29 percent of the population) and firewood (on average by 71 percent of the population) as the main source of energy has also contributed to the changes in natural resource availability. To this end, 97 percent, 77 percent, and 72 percent of the respondents in the study locations in Liben zone, Mandera County, and Gedo region, respectively, mentioned an increase in the time and distance taken to collect firewood. This points to a reduction in trees and forest availability.

Browse and pasture availability is another key change witnessed in natural resources in the cross-border area. This is explained to have been caused both by overgrazing, loss of traditional rangelands management practices, and climate change. This is also confirmed from the assessment where 73 percent of the respondents in Mandera County cited climate change as the main cause of the environment change, 53 percent of the Liben zone respondents stated overgrazing was the main cause, while 53 percent of respondents' in Gedo region mentioned population pressures as the main cause of environmental changes.

Whereas the Mandera cluster has witnessed numerous efforts to streamline gender in NRM, women, youth, and other traditionally marginalized groups are still sidelined in natural resource sharing and management systems. Since 2008, there have been increased efforts, especially by NGOs such as Cooperazione Internazionale (COOPI) in the Gedo region, the Norwegian Refugee Council (NRC) and the Islamic Relief Kenya (IRK) in Mandera County, and the United Nations Development Programme (UNDP) and RACIDA in Liben zone on gender-sensitive NRM. Despite these efforts, decision-making in the formal NRM structures largely remains adult and elderly male dominated, with the few women and youth in leadership roles often not challenging the elderly male dominance. The role of women and youth in NRM leadership structures is curtailed by the patriarchal societal norms that dictate leadership is the domain of men. Additionally, technical know-how of NRM practices still remains low among communities in the cluster, despite most groups having confirmed participation in various training programs.

Based on these key findings, the assessment makes the following recommendations that are further elaborated at the end of the report.

- 1) The presence of natural resource sharing and management structures is evident in the three study locations. The effectiveness in natural resource sharing could be improved through increased inclusion and representation by all cadres of the community in these structures. Community participation during the establishment or review of membership of these structures should also be improved. As such, it is recommended that in the design of its activities, the CBCR Activity should take this process into account and build on existing structures and processes, which are largely disjointed at present.
- 2) Natural resource sharing and management is closely interlinked with conflict management in the cross-border area. An effective natural resource sharing system plays a crucial role in the peaceful coexistence among communities, while the reverse is true. The assessment recommends that investments by the CBCR Activity in NRM need to take a conflict-sensitive approach. By taking a do-no-harm and conflict sensitivity lens, the Activity will ensure that there are no unintended consequences of violent conflict arising from the NRM interventions.
- 3) The impact of climate change on natural resources, primarily seen through the recurrent and frequent drought emergencies, remains a key challenge facing communities across the border. It is largely noted that NRM interventions as standalone activities that do not consider community resilience to climate change will not bear positive results. As such, it is recommended that the CBCR Activity should factor in disaster risk reduction approaches in the implementation of the NRM and conflict interventions. This can be achieved by:
 - Integrating water management interventions at local, district/county, and national levels to ensure fair and sustainable access to water sources and, thereby, build resilience, strengthen livelihoods, and reduce instability. Scarcity of water and pasture came out as one of the causes of conflict.
 - Conducting a cross-border livestock disease control and surveillance program to counter the spread of trans-boundary animal diseases, and promote better cross-border control. This is informed by the type of shocks that the respondents mentioned, which included livestock diseases.
 - Capacity building in smart agriculture among the agro-pastoralists in the cross-border areas.
- 4) The CBCR Activity can target to work on renewable energy projects that tap into the natural resources to generate a green and sustainable energy supply, in particular solar and wind energy.
- 5) Finally, the CBCR Activity needs to consider gender transformative programming in its interventions to ensure the support to communities does not disempower different genders, but

rather results in beneficial impact that is inclusive. This should not only include participation of women and youth in the NRM structures, but also increased ownership and decision-making by women and youth in the cross-border natural resource sharing processes.

1. INTRODUCTION

The cross-border cluster communities in the Horn of Africa have historically suffered from under-investment by their respective governments and, as a result, face marginalization related challenges. As a result of being at the periphery of their respective countries, the cross-border areas often attract low national policy attention and investments, thus degenerating into high levels of vulnerability and poverty¹.

The cross-border areas are largely arid and semi-arid lands (ASALs), and mainly inhabited by pastoralist and agro-pastoralist communities. Communities living in the Mandera cross-border cluster face numerous climatic shocks and stresses that are compounded by frequent incidences of violent conflict, mostly over the sharing and access to natural resources. The shocks and stresses include drought, flooding, pest infestations, animal and human diseases, extreme levels of poverty and inequality, and corruption, all of which destabilize communities.

The Mandera cluster is predominantly populated by the Somali community, which constantly moves across the international boundaries that were established in the late 19th century. They are primarily pastoralists, with over 60 percent of the population practicing free range livestock production, 20 percent engaged in rain-fed and irrigation crop production, while the remaining population is engaged in urban and peri-urban, market-based employment and value chains. The communities' residence and geographical distribution is along clan and sub-clans, with often large territories across the borders of Kenya, Ethiopia, and Somalia occupied by the same clan and sub-clan. The communities are primarily Muslim, with the Islamic culture and traditions heavily intertwined with Somali cultural practices that collectively shape their way of life.

The Mandera cluster covers a vast area estimated at 135,798 square kilometers. The cluster has a population of 2,852,332 people distributed across Mandera County (867,457²), the Gedo region (508,000), and the Liben zone (476,881). The large geographical area means that the Mandera cluster is sparsely populated, with an average of 21 people per square kilometer, thus enabling the successful practice of free-range pastoralism. Considering that the cluster is largely arid, the human and livestock population have congregated in smaller areas, thus causing friction among communities and the frequent cases of conflict over scarce natural resources.

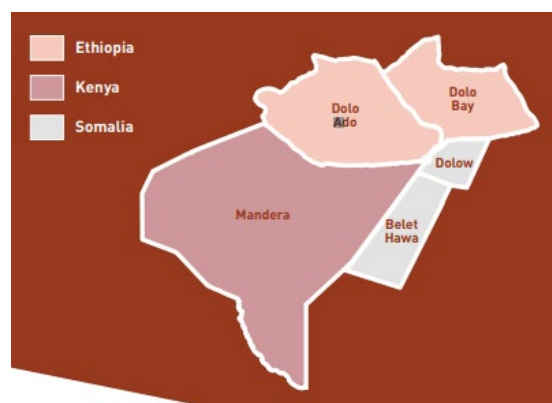


Figure SEQ Figure * ARABIC 1 Assessment area showing Mandera cluster

The Cross-Border Community Resilience (CBCR) Activity was designed to enhance resilience and reduce the need for humanitarian assistance among communities in the Mandera cross-border cluster, as well as in Karamoja and Moyale clusters. The CBCR Activity aims to empower local entities,

¹ Food and Agriculture Organization, 'Enhancing resilience of cross-border communities- the Mandera cluster,' 2017, <https://www.fao.org/3/I7168EN/i7168en.pdf> (accessed 8 June 2023).

² Republic of Kenya, 'Population and Housing Census, Volume 1: Population by County and Sub County,' 2019, <https://www.knbs.or.ke/download/2019-kenya-population-and-housing-census-volume-i-population-by-county-and-sub> (accessed 8 June 2023).

including communities, civil society, the private sector, and governments, to chart their own pathways for addressing conflict, improving livelihoods, and reducing the risks of shocks and stresses. The CBCR Activity also works to foster local ownership by supporting local leadership in work planning, implementation, and monitoring of development investments.

By empowering local communities in the Karamoja, Moyale, and Mandera clusters, and placing ownership of development interests in their hands, the CBCR Activity strives to foster and reinforce resilience for these cross-border communities. The project goals include:

- 1) Building capacity for locally-led and managed programming.
- 2) Strengthening social cohesion as a foundation for resilience programming.
- 3) Expanding conflict-sensitive livelihood and employment opportunities in cross-border areas.
- 4) Improving conflict-sensitive and equitable natural resource management and sharing in cross-border areas
- 5) Enhancing collaboration and learning across all activities and investments, inclusive of cluster stakeholders

Consequently, this report presents a comprehensive overview of the existing natural resource management (NRM) and sharing systems in the Mandera cross-border cluster. Given that the cluster is expansive, this NRM systems analysis was carried out in a few locations. These include Banissa and Mandera East sub-counties in Kenya; Dolow and Beled Hawo districts in the Gedo region of Somalia; and Dollo Ado and Deka Suftu *woredas* (districts) in the Liben zone of Ethiopia. The assessment entails an examination of informal and formal governance structures, mechanisms and arrangements, and relevant legislative frameworks, strategies, and policies at the national, regional, and international levels. The assessment also identifies the main gaps in equitable and peaceful NRM, including capacity needs at various levels, how arrangements can be strengthened, and how cross-border policies can be harmonized.

The report established that the natural resources in Mandera County are mostly communally-owned, while a few, such as the farmlands, are owned by organized and formally registered associations of farmers. Despite the existence of the wide array of natural resources, there is differentiated access by the communities. This is dictated by a number of factors including geographical location of the natural resources, international boundaries, sub-clan and clan boundaries, and rights of ownership. Additionally, women are less likely to own or access natural resources across the cluster because of cultural and religious dictates that limit their engagement in activities that take them away from the villages.

Almost all the cases of violent conflict in the cluster result from disagreements over access to browse and pasture by pastoralists, as well as land and water by both farmers and pastoralists. The assessment also found that despite the high levels of mobility by the population and subsequent natural resource-related conflict, there are widely available community-managed- and -driven cross-border natural resource sharing mechanisms across the cluster. These are largely informal governance structures that are built on the traditional Somali culture *xeer*, and are premised on the wet and dry season grazing areas, rangeland jurisdiction by sub-clans and clans, as well as type of land use.

Furthermore, there are formal NRM groups focused on management and sharing of specific natural resources. As in the informal natural resource sharing structures, there is limited participation of women in these formal mechanisms.

Whereas the Mandera cluster has witnessed numerous efforts to mainstream gender in NRM, women, youth, and other traditionally marginalized groups are still sidelined in NRM and sharing systems. Since 2008, there have been increased efforts on gender-sensitive NRM, especially by non-governmental organizations (NGOs) such as Cooperazione Internazionale (COOPI) in the Gedo region, the Norwegian Refugee Council (NRC) and the Islamic Relief Kenya (IRK) in Mandera County, and the United Nations Development Programme (UNDP) and RACIDA in Liben zone. Despite these efforts, decision-making in the formal NRM structures largely remain adult and elderly male dominated, with the few women and youth in leadership roles often not challenging the elderly male dominance. The role of women and youth in NRM leadership structures is curtailed by the patriarchal societal norms that dictate leadership as the domain of men.

The assessment report is organized in three broad sections. These include an elaborate description of the methodology used (section two), interpretation of the findings (section three), and a conclusion and recommendations section (section four).

2. METHODOLOGY

The assessment used a mixed approach - both qualitative and quantitative methods - in data collection and analysis. This section of the report explains the sampling process and organization of the data collection exercise that inform the study findings.

2.1. Sampling frame and sample size for household survey

The assessment sample design drew from a sampling frame consisting of the list of all villages, with their respective number of households prepared by the consultants in close consultation with local administration.

$$n_0 = \frac{Z^2 pq}{e^2}$$

Sample size calculation was done using Cochran sample calculation with a sample size of 384 derived using the formula. Probability proportional sampling was done to allocate samples per the three border clusters. Participants were randomly selected from the target locations that were selected.

2.2. Purposive sampling for qualitative data collection

Purposive sampling was done to identify key stakeholders working in the NRM sector. A total of 26 key informant interviews (KIIs) and 16 focus group discussions (FGDs) were conducted across the Mandera cluster from September 19 – October 12, 2022. For selection prior to the assessment, the research team worked with key stakeholders to identify key informants and community representatives to conduct the FGDs in Dollow Ado and Deku Suftu *woredas* in Liben zone of Ethiopia; Beled Hawo and Dollow districts in Gedo region of Somalia; and Banissa and Mandera East sub-counties in Mandera County, Kenya. First, the team conducted consultative meetings with project stakeholders to get buy-in into the processes and for proper targeting. Second, the research team carried out the participatory rural appraisal (PRA), including social mapping.

The project targeted key informants who play a key role in NRM in the cross-border areas. These include the Mandera County Government's Departments of Agriculture, Livestock, Water, and Natural Resource Management, the National Drought Management Authority (NDMA), the Deputy County Commissioner; government representatives from the Gedo region's Departments of Agriculture, Livestock, and Water; and government representatives from Liben zone regional Bureaus of Agriculture, Water, and Natural Resource Management, and the *woreda* administrators. These key informants were instrumental in assessing the status of NRM and documenting best practices as well as barriers, in order to inform recommendations for the implementation of the CBCR Activity.

2.3. Data collection tools

The data collection tool for the assessment consisted of a quantitative tool that had eight modules, including:

- Module 1: Respondent background
- Module 2: Population trends, livelihoods, and natural resources/environment
- Module 3: Community response on changes in natural resources/environment
- Module 4: Sources of livelihoods and resource use
- Module 5: Land-use and land-use change(s)

- Module 6: NRM institutional analysis
- Module 7: Natural resource conflict
- Module 8: Gender and NRM

2.4. Organization of Survey

Survey enumerators and field supervisors were drawn from the Mandera cross-border communities. This was to ensure the team’s understanding of the region’s context, language, culture, and resources. However, in order to minimize bias, the team ensured that no enumerator was surveying his or her own area of residence.

The study was conducted with support of a team of five enumerators from Gedo region, Somalia, seven enumerators in Liben zone, Ethiopia, and ten enumerators in Mandera County, Kenya. The enumerators were recruited to represent the diverse clans and sub-clans in each study location and were supervised by two research assistants and one consultant in each of the three study locations.

For data quality management, the enumerators were taken through a two-day training on the administration of the tools that included a pre-test. The data collection teams met at the end of each day to review the data collected and make relevant adjustments in line with the terms of reference.

2.5. Training and Pre-Test

Enumerators underwent a one-day training and pre-test to ensure adequate understanding. The training of the enumerators and supervisors also included training/certification on research ethics. The evaluation team ensured that all evaluation activities were conducted in the best interest of the beneficiaries involved, implementing the do-no-harm principle and ensuring that respondents were safeguarded in all the evaluation activities, including data collection and analysis, report writing, and dissemination.

During the data collection process, the evaluation team upheld the integrity of the process including fidelity to the tools, rights of the beneficiaries to participate (including voluntary participation), informed consent from the respondents, and confidentiality of the respondents. Anonymity was and remains a high priority, and all materials in the evaluation process will solely remain the property of the project.

2.6. Field work activities and timeframe

Field data collection activities took five days in each of the study locations in Mandera County, Liben zone, and Gedo region. Each enumerator interviewed a maximum of 12 participants per day. The consultants maintained close supervision of field staff during the fieldwork. Considerable care was taken in trying to achieve a high response rate and obtain complete and good quality.

Following the submission of field reports by the groups of enumerators, the core team spent approximately one week finalizing the content, structure and analysis of this final report. Research was carried out at the clusters according to the timetables below:

Table 1: Data collection clusters

Cluster	Dates in the field
Cluster 1: Banissa and Mandera East sub-county (Mandera County, Kenya)	September 19– 23
Cluster 2: Dolow and Beled Hawo districts (Gedo region, Somalia)	September 19– 23
Cluster 3: Dollo Ado and Deka Suftu <i>woredas</i> in the (Somali region, Ethiopia)	September 19– 23

The above study locations were identified in consultation with the CBCR Activity team during the approval of the methodology. The locations were deemed to be representative of the three countries, with each located in the cross-border area and with experience of natural resource-based conflict over the past five years. The sites were also identified based on recommendations from government officials from the three countries to represent areas with significant natural resource-related activities affecting the cross-border area.

2.7. Response rate

The target sample for this survey was 525 households, which included an allowance for a 5 percent non-response rate. By the end of the survey, 327 households had been sampled, translating to a response rate of 63 percent. This is satisfactory, given some insecurity in the region limited the research team from reaching the projected 95 percent of targeted population. The findings are also augmented by qualitative data which was collected through in-depth KIIs, FGDs, and observations.

A validation workshop was conducted in Mandera town in Mandera County in October 2022. The workshop brought together 37 participants, including 20 study participants and 17 individuals identified from among key stakeholders involved in NRM in the cluster.

3. FINDINGS

This section is organized to provide information on the organization of natural resources management (NRM) structures (both formal and informal) in the Mandera cluster, changes in natural resources over the years, capacity gaps in equitable and peaceful natural resource sharing, and gender and social inclusion considerations in NRM systems.

3.1. Respondent representation

The Mandera cluster comprises a diverse group of people, including agro-pastoralists and residents of major urban centers. Understanding the status of NRM requires the inclusion of perspectives from all categories of the study population. Respondents included men (59 percent), women (41 percent), internally displaced persons (IDPs) (about 10 percent), and host communities (83 percent). The respondents also included people with disability (PWDs) (24 percent, 34 percent, and 38 percent in Liben zone, Mandera County, and Gedo region, respectively).

There was a considerably high level of migrants from other locations observed among the respondents, as shown in the figure below. This was attributed to the heightened drought emergency situation that led to significant population movements in the study location. The population movement was heightened among pastoralist communities who moved in search of water, and browse and pasture. The movement included populations that moved within the Mandera cluster and others who moved into the study area from other locations in Kenya, Ethiopia, and Somalia.

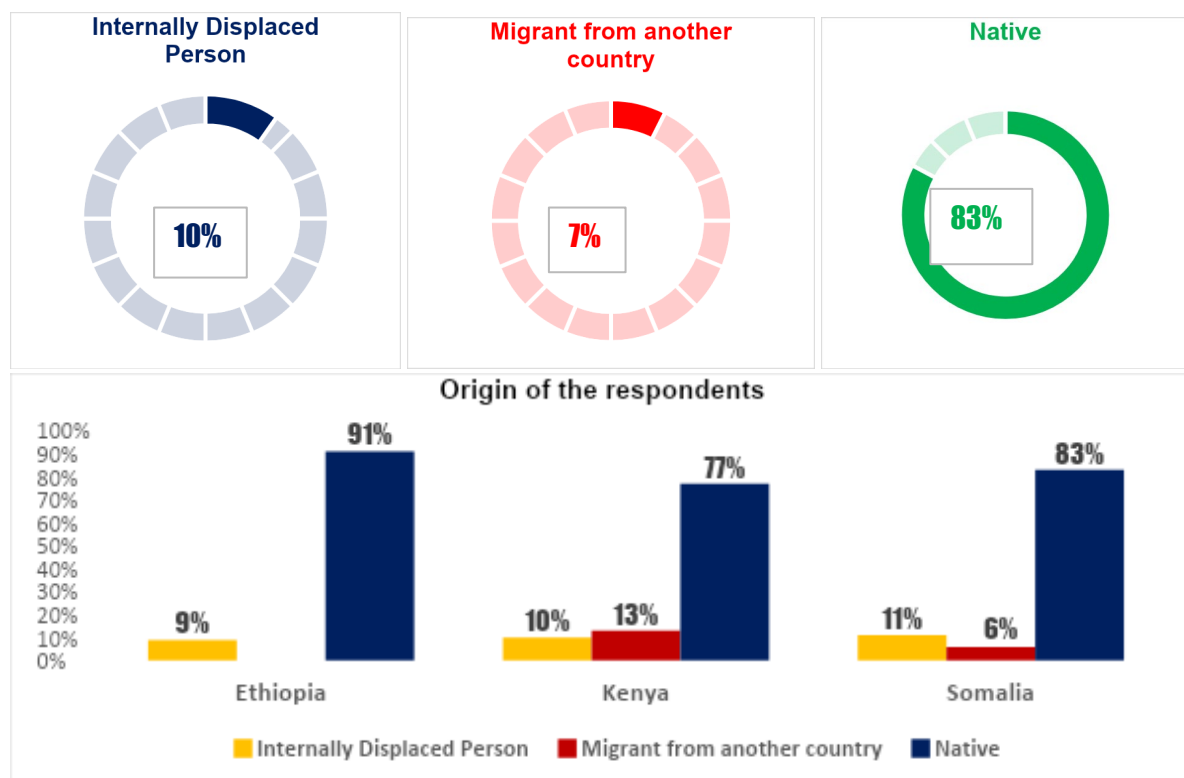


Figure 2 Origin of the respondents

3.2. The ecological and socio-economic context of the Mandera cluster

The Mandera cluster is an arid and semi-arid land (ASAL) with dry sub-humid climate, where precipitation is low and uncertain with 100 - 600 mm of rainfall received annually³. Because of the arid and semi-arid conditions, free range pastoralism is the dominant mode of production in the area. In order to adapt to the variable conditions, the pastoralist communities in the Mandera cluster have used mobility of people and livestock as a key strategy to adapt to variable resources, manage uncertainties found in the rangelands, and the regeneration of browse and pasture⁴.

The mobility of the Somali population inhabiting the cross-border cluster has had an impact on the population dynamics in the cluster. Equally, the status of natural resources is affected by the movement of people and their livestock, as the ASALs are subjected to more environmental degradation. In focus group discussions (FGDs), it was highlighted that pastoralists from Mandera County, Kenya and Gedo region, Somalia occasionally migrate to Liben zone, Ethiopia in search of pasture and water. This results in the population increase in the zone and a corresponding decrease in the former regions. Such a population increase corresponds to increased pressure on the natural resources on the receiving end.

Further, study respondents in Mandera County noted that there are new settlements developing in their localities, which is affecting the traditional NRM systems in different ways. These include over-utilization of water infrastructure and firewood/charcoal, as well as having livestock movement routes changed due to search for pasture. Communities are increasingly seeing people who have lost livestock settling in their villages as they come in search of health services, water services, cash, and food assistance. The increased loss of livestock has contributed to high levels of dependence on charcoal burning and firewood collection; activities that are detrimental to the natural resources in the cross-border cluster.

Drought emergencies in the cluster have resulted in a high number of IDPs settling in Somalia's Gedo region. Respondents noted that the IDPs have increased the dependency among an already poor population, and there is a stretch on the service centers, especially for water and pasture by IDPs with some livestock. Host communities also noted that they are no longer targeted for cash transfers as the IDPs are given priority.

In Ethiopia's Liben zone, there has been an increase in settlements, especially with many nomadic pastoralists moving closer and settling permanently along the riverine areas. This has been exacerbated since the drought of 2011, and resulted in competition for pasture, browse (vegetation, such as twigs and young shoots, eaten by animals) and water. Study respondents also stated that when the migrants settle and establish farms, it affects livestock migration routes. Pastoralist-farmer conflict was identified as an important cross-border natural resource conflict that takes place not only during the drought emergency, but also in the long dry seasons.

The pastoralist communities in Mandera County confirmed the prevalence of migration, with Banissa communities migrating as far as Moyale in Marsabit County, Bute in Wajir County, and City and Liben zones in Ethiopia, while Mandera East pastoralists migrate mostly to Gedo region in Somalia. In-migration is very common especially among the agro-pastoral farming communities within Mandera County and Liben zone. The acceptance of such migrants differs from one community to another, and

³ Erni Niemi and Jacob Manyindo, 'Economic Importance of Goods and Services Derived from Dryland Ecosystems in the IGAD Region,' IUCN, April 2010, <https://www.dlci-hoa.org/assets/upload/key-resilience-and-climate-change/20200804014334402.pdf> (accessed 8 June 2023).

⁴ Mather Turner and Eva Schlecht, 'Livestock Mobility in Sub-Saharan Africa-A Critical Review,' *Pastoralism* 9 (13) (2019): 1-15.

also depends on the clans migrating in. Some accept the migrants while others engage in violent conflict with the migrants⁵. During droughts, the farmers are open to welcoming such migrating pastoralists due to severity of the drought. Pastoralist communities in Mandera County confirmed that they rarely receive any in-migration from Liben zone or Gedo region, largely because these locations have better browse and pasture.

The most common challenges faced by communities along River Dawa both in Mandera County and Liben zone are related to farm invasions by pastoralists when crops are ready for harvest, and when farmers have incurred huge costs in terms of money and time to produce such crops. This is often a cause of conflict, though they are usually not long-lasting.

In Gedo region, migration takes place among the local Somali communities (the Marehan, Murulle, Garre, Dagodia, and “corner” clans) mostly by moving southwards within the region or eastwards towards Bay region of Somalia⁶. Rarely do they need to move to Mandera County or the Liben zone. This is because they have better browse and pasture for their livestock and only migrate to Ethiopia whenever there is a severe drought such as was being experienced at the time of this study. Whenever Gedo communities migrate, they move mostly across the river to Dollow Ado district in Ethiopia. Conversely, Gedo region often receives other communities migrating in two forms: 1) IDPs from within other parts of Somalia who have lost their livestock or remained with very few livestock as a result of an ongoing drought emergency, and 2) pastoralists from both Mandera County and Liben zone whenever there is poor rainfall performance⁷.

In Liben zone, communities move around in attempts to access natural resources. These include movements to City, Afdheer, and Godey zones where they seek access to water and pasture and browse for their livestock, as well as getting closer to secondary and tertiary markets for their livestock. Sometimes, they go as far as West Imay zone where there is a river. At times, they go to Mandera in Kenya and sometimes as far as Garbaharey in Somalia⁸. This happens after they have utilized their dry season grazing areas along the riverine and the accessible mountains. At times, such as during the recent severe drought, they are forced to migrate to the more dangerous Afdeer and Godey zones in the Somali region and expose themselves to possible attacks by the Oromo.

For their part, pastoralists from Afdeer and Godey zones often migrate to the Liben zone, while pastoralists, especially from Mandera County, migrate to both Gedo and Liben zone⁹. While there are sometimes negotiations for migration, people mostly just migrate, which explains why it is a risky affair.

More often than not, there is conflict associated with the inward and outward migration among communities across the international borders, as well as among communities within the same country. Some of these conflicts are often resolved through existing community- and government-led peace-building initiatives before they escalate to violent conflict. At times, there have been reported cases of violent conflict that last between a week and six months before they were resolved. At the heart of these violent conflicts are different perspectives on who owns which natural resources, especially those that are categorized as community or public natural resources. The concept of international boundaries has also contributed to these debates and drives conflict among communities. The in-migrating community

⁵ Maurice Amutabi, ‘Land and Conflict in the Ilemi Triangle,’ *Kenya Studies Review*, 1(2) (2010): 20-36.

⁶ Focus group discussion, Lo’leys village, Gedo region, Somalia, 22 September 2022.

⁷ Ibid.

⁸ Focus group discussion, Sigalow Kebelle, Dollo Ado, Ethiopia, 20 September 2022.

⁹ Focus group discussion, Shambal Kebelle, Dollo Ado, Ethiopia, 20 September 2022.

is often driven by the understanding that the pasture and browse should be accessible to all Somali pastoralist clans, irrespective of the communal land boundaries, while the resident communities feel this is a transgression on their pastures and browse, often leading to the start of conflict.

3.3. Natural resource profile in the Mandera cluster

A large variety of natural resources in the Mandera cluster include, but are not limited to, seasonal rivers and other water sources (shallow wells, boreholes, water pans), rangelands, crops, hills, and natural forests. The natural resources are mostly communally-owned, while a few such as farmlands are owned by organized farmers' associations, with individuals owning specific sections of the farm. These associations are mostly formally registered with the respective government agencies, and are thus often targeted for development assistance by the government and civil society. Some water infrastructure, such as boreholes, are managed by the different levels of devolved government. Land is considered to be the largest natural resource, but most of it is underutilized for production or depleted in terms of grass and shrubs availability.

In Mandera County, some of the natural resources include seasonal rivers and water sources, including shallow wells, boreholes, and water pans. There are various rangelands, some of which are communally-owned¹⁰. Several crop varieties are common in both Banissa and Mandera East sub-counties. These include onions, tomatoes, maize, beans, mangoes, pawpaw, spinach, kales, capsicum, and watermelon. Livestock was cited by study participants as the most common natural resource. On average, most households reported that their livestock were wiped out by the current drought, with only a few goats and sheep remaining. On average, 5-10 goats and sheep per household and 1-2 camels per household were remaining. Most cattle were reported to have been wiped out by the drought emergency.

There is inclusivity in terms of access and ownership of the natural resources that includes men, women, youth and elderly. The natural resources are not adequate, as the populations keep growing while the resources are subjected to other vulnerabilities such as climate change-induced droughts. Except for water infrastructure like boreholes, societies, groups, or communities own all other natural resources. A section of the land is owned by the national government as trust land, on behalf of the communities¹¹. Individually owned land is limited to settled villages and towns with limited experience of natural resource-based violent conflict. The communities settling along River Dawa in the cross-border locations are increasingly undertaking individual ownership and registration of large tracts of farms along the riverine.

In Somalia's Gedo region, land is considered to be the largest natural resource¹². Moreover, the browse and pasture in the Gedo region is considered better than in neighboring cross-border areas of Kenya and Ethiopia. Besides the land, the Gedo region has River Dawa, which is seasonal but still useful for livestock and crop production. The region also has other water sources such as shallow wells and water pans. Livestock is also an important resource in the region. According to the household survey there are, on average, 2-3 cows and 5-10 sheep and goats per household. Currently, sheep and goats are the most important animals as more cattle have been lost to the drought. The respondents mentioned how

¹⁰ Focus group discussion, Mandera County, Kenya, 22 September 2022.

¹¹ Guyio Haro, Godana Doyo and John McPeak, 'Linkages between Community, Environmental and Conflict Management: Experiences from Northern Kenya,' *World Development*, 33(2) (2005):285-299.

¹² Tobias Hagmann, 'Stabilization, Extraversion and Political Settlements in Somalia,' Rift Valley Institute, 2016, https://riftvalley.net/sites/default/files/publication-documents/Stabilization%2C%20Extraversion%20and%20Political%20Settlements%20in%20Somalia%20by%20Tobias%20Hagmann%20-%20RVI%20PSRP%20%282016%29_0.pdf (accessed 8 June 2023).

they are losing their traditionally most valued animal - the camel - because of increased incidences of drought and livestock diseases that are driven primarily by reduction in the grazing fields accessible to the camels. One camel herd of 80-100 animals in the cross-border area now requires a daily grazing distance of 15-20 kilometers¹³.

Despite the Gedo communities having abundant land, most of it is under-utilized or depleted without grass and shrubs for livestock. In Gedo, all natural resources are collectively owned by the communities¹⁴.

In Ethiopia's Liben zone, the types of natural resources available include water resources – rivers, shallow wells, water pans, rock catchments, and boreholes. There are also forest resources, which include various tree varieties and shrub lands, especially on the mountains and along River Dawa. The area also has browse and pasture. Land is also another resource, which is vastly available and owned by the communities. The area has minerals and other land-based resources, including sand and construction stones. Moreover, Liben zone has a large variety of wildlife including birds, wild animals, and bees. The area also has mountain ranges.

Though Liben zone has these natural resources in abundance, they have largely remained mismanaged. Whereas the communities feel responsible for their management, increasing droughts have denied them an opportunity to manage them well. The communities in Liben zone have various dry season grazing areas including along the riverine and neighboring zones of City, Afdheer, and Godey. These dry season zones are shared and accessed through traditional means of engagement since they are occupied by the same Somali community.

3.4. Natural resource management institutional analysis

Natural resources management (NRM) institutions in the Mandera cluster are categorized as either formal or informal structures. The delineation of these structures is determined by the type of authority that enables them to function. While the formal structures are anchored on the modern legal dictates of respective national and sub-national governance systems, the informal structures are derived from traditional cultures.

3.4.1. Formal natural resource management structures

Formal NRM structures are formed through the influence of external stakeholders such as government and civil society organizations (CSOs). The formal structures rely on written rules and regulations, their authority is derived from existing legal mechanisms, and their functions are informed by different modes of trainings by government and CSOs.

Institutionalization of environmental rights is now one of the universally accepted approaches to environmental conservation and management, in line with the rights-based approaches to development¹⁵.

¹³ Anastasia Kagunyu and Josephy Wanjohi, 'Camel Rearing Replacing Cattle Production Among the Borana Community in Isiolo County of Northern Kenya, as Climate Variability Bites,' *Pastoralism*, 4 (13) (2014): 2-5.

¹⁴ Focus group discussion, Qansaxley village, Gedo region, Somalia, 23 September 2023.

¹⁵ David Boyd, 'The Effectiveness of Constitutional Environmental Rights,' 2013, <https://environment.yale.edu/content/documents/00003438/Boyd-Effectiveness-ofConstitutional-Environmental-Rights.docx?1389969747> (accessed 22 June 2023).

As such, in Kenya, the Constitution of 2010 provides for obligations meant to ensure sustainable management of natural resources and the environment, which lie both at the state and individual levels. These include overseeing the sustainable exploitation, utilization, management, and conservation of the environment and natural resources.

State level administrative frameworks on NRM include the Ministries of Water and Irrigation, and Environmental and Forestry, and related agencies such as the National Drought Management Authority (NDMA), the Water Resources Management Authority (WARMA), and the National Water Harvesting Authority, which have a presence in the counties. Additionally, some of the notable policies on NRM include the National Climate Change Response Strategy (NCCRS) 2010¹⁶, the National Climate Change Action Plan (NCCAP 2013-2017) 2013¹⁷, and the National Adaptation Plan¹⁸.

The Environment Management and Coordination Act (EMCA) of 1999 is Kenya's main policy on natural resource management. The EMCA outlines the functions of various institutions, including the Natural Environment Management Authority (NEMA). It mandates NEMA to exercise general supervision and coordination over all matters relating to the environment, and to be the government's principal instrument in the implementation of all policies relating to the environment and natural resources. NEMA has an office in Mandera County that implements the EMCA. It works closely with the Mandera County Government, particularly with the Departments of Water, and Environment and Natural Resources. The two departments have taken a leading role in environmental conservation and NRM efforts in Mandera County, and often serve as the coordinating platform for NRM actors.

The major challenge with the national and county policies on NRM revolves around limited resourcing to implement them, and most of them are not known to the public. For example, the monthly drought bulletin information is obtained on the NRA website, and security phase classification (IPC)¹⁹ colored flags, most of which are worn out, are only occasionally hoisted in schools and county administrative offices. These do not reach the public.

Communities, especially around Banissa, have been supported over the last 10 years by the NDMA, Save the Children, and RACIDA to establish community-managed disaster risk reduction groups that have committees leading their implementation. Though key informants mentioned the existence of the policies and strategies on NRM, the communities lack knowledge on the same and on how they directly impact their natural resource-based agricultural production systems.

In Somalia, the Food and Nutrition Security Analysis Unit (FSNAU) is the biggest actor in NRM, besides the Somalia Water and Land Information Management (SWALIM), the Somalia National Bureau of Statistics (SNBS), and many NGOs that share a lot of climate risk information, especially

¹⁶ Republic of Kenya, 'National Climate Change Response Strategy,' 2010, https://cdkn.org/sites/default/files/files/National-Climate-Change-Response-Strategy_April-2010.pdf (accessed 17 June 2023).

¹⁷ Republic of Kenya, 'National Climate Change Action Plan,' 2013, https://cdkn.org/sites/default/files/files/Kenya-Climate-Change-Action-Plan_Executive-Summary.pdf (accessed 17 June 2023).

¹⁸ Republic of Kenya, 'Kenya National Adaptation Plan 2015-2030: Enhanced climate resilience towards the attainment of Vision 2030 and beyond,' 2015, https://countytoolkit.devolution.go.ke/sites/default/files/resources/Kenya_NAP_Final.pdf (accessed 18 June 2023).

¹⁹ The Integrated Food Security Phase Classification (IPC) is an innovative multi-partner initiative for improving food security and nutrition analysis and decision-making. By using the IPC classification and analytical approach, governments, UN agencies, civil society, and other relevant actors work together to determine the severity and magnitude of acute and chronic food insecurity, and acute malnutrition solutions in a country, according to internationally recognized scientific standards.

whenever there is a drought. In Gedo, the formal NRM institutions that work the most are the FSNAU of the United Nations and the Food and Agricultural Organization (FAO), both of which transmit a lot of climate risk information.

Besides NGO support, there are no specific policies around NRM; a fact that was validated during this assessment's validation workshop conducted in Mandera, Kenya. The Gedo region suffers a lot from limited government administration especially because of its proximity with Kismayo, the Jubaland State government headquarters. This means that there are not many government institutions and resources in Gedo region. Luckily, Gedo has very strong traditional NRM structures, which has seen a large area under browse and pasture with very good shrub lands.

In Ethiopia, the federal and regional governments make NRM laws, policies, and strategies. This includes contextualizing federal government laws, policies, and strategies which are then approved by the regional government and owned by the relevant regional government bureau. The policies include the Natural Resource Management policy and the Conservation Strategy of Ethiopia (CSE), which takes a holistic view of natural, human-made, and cultural resources, and their use and abuse. Ethiopia also has the Bureau of Disaster Management, which was designed to address disaster management in line with climate change adaptation. Moreover, the Productive Safety Net Programme (PSNP) is a key policy around natural resources and disaster management, with the large number of public works beneficiaries restoring natural resources around agriculture, pasture, and water resources.

In the Liben zone, the federal government of Ethiopia took a decision to resettle pastoralists in permanent villages as a key policy on natural resources and disaster management. This has not worked fully yet. The government shares a lot of climate risk information, but this is not mostly utilized because of limited coordination efforts by the government and development partners in conveying the information to climate shock-affected communities in a manner that can be interpreted and used to build community resilience to climate risks.

Besides the government administrative and policy frameworks, NRM committees have been established at the community level across the cross-border cluster. In Mandera County, most of the NRM committees are formally registered by the county government's Department of Environment and Natural Resources. The committees have received technical training from the department and NEMA. In Somalia and Ethiopia, the NRM committees are mostly formed through support from UN agencies and NGOs, and thus lack legally recognized authority to wield power. Overall, the NRM committees constitute elders, youth, men and women, people living with disability and, at times, representatives from government offices.

For example, in Kenya, water resource management committees/water resource users associations are formally developed as part of WARMA, and are mandated to regulate and control management of water resources at the community level. WARMA was established pursuant to the Water Resources Management Act No. 21 of 2011. Its main purpose is to serve as the regulatory body for the management and development of water resources in the whole country, and to ensure equal access to water for the various stakeholders. Based on the principles of Integrated Water Resources Management (IWRM), WARMA also takes gender and climate change dimensions into account.

In Somalia and Ethiopia, water management committees are responsible for water infrastructure at the community level. Moreover, pastoral field schools, farmer field schools, and agricultural societies have been established along River Dawa's riverine area by the county government's Department of

Agriculture, and NGOs. These groups play a leading role in undertaking improvement of livestock and crop production practices at the community, and thus are heavily invested in NRM.

Disaster risk reduction (DRR) or community-managed disaster risk reduction (CMDRR) committees are almost entirely formed with support from UN agencies and NGOs in Gedo region and Mandera County. They were formed as a response to drought emergencies in 2001 and 2006 in the cross-border areas. The committees share responsibilities with most other communal structures as they take lead in supporting community resilience, by ensuring better management, access, and utilization of natural resources to benefit both individual members of the community and the community as a whole. The DRR committees are guided by short- to medium-term development plans.

Local government administration in the form of villages, wards, sub-counties, *kebelles*, *woredas*, zones, and districts also form part of the formal NRM structures at the lowest levels of government. These play an important role in enforcing local laws and regulations on NRM and conflict resolution in the cross-border areas. The legal mandate of these structures is limited within the international boundaries of each of the three countries.

There are also a couple of cross-border initiatives on NRM, including those spearheaded by regional organizations such as the African Union (AU) and IGAD. IGAD has worked closely with the FAO in the Mandera cluster under the IGAD-FAO Partnership Program to bring communities to the center of the cross-border policy and investment discourse and actions, not only as beneficiaries but as key stakeholders defining the agenda of their future. This project has enhanced the resilience of communities in selected cross-border areas in Liben zone, Mandera County, and Gedo region. It has also strengthened IGAD's capacity to effectively lead and facilitate interaction among its member states on policy and investments, thereby fostering the delivery of cross-border resilience. A key achievement of the program includes interventions aimed at improving access to cross-border natural resources and increased resource-based agricultural production capacities.

3.4.2. Informal structures

Across the Mandera cluster, the informal NRM structures are established through the Somali traditional culture that has been in place for centuries. The elderly members of the FGD described these informal NRM structures -*xeer*- as being part of the sub-clan and clan elders and traditional authority hierarchies. The structures that include elders and religious leaders govern and dictate how each sub-clan and clan would use its natural resources and, in the process, define penalties that would be put in place in the event of violations to such guidelines.

The assessment found out practical cases of *xeer*'s applicability as captured in the following quote from one of the study respondents:

“Communities in the Gedo region have used age-old informal traditional natural resources management systems to define areas that are to be accessed during the dry season by pastoralist communities from Mandera County and Liben zone, as well as other communities from the Southwest State of Somalia. Access to these areas is attributed to the traditional natural resources system where communities living within these locations are prevailed upon by their

sub-clan and clan elders to cede the land and natural resources temporarily to the visiting communities who include their relatives and in-laws."²⁰

Despite the study locations being occupied by homogenous Somali communities, the informal traditional NRM systems are not uniform. The practice of the same system is different between communities in Gedo region, Mandera County, and Liben zone. The differences are attributed to the influence of local governance laws, experiences over the years by the respective communities, and the perception that one region has more natural resources than the other. In addition, the informal NRM regulations remain unwritten and are passed by oral tradition from one generation to another. This has led to adaptation of the same regulations and practices from one generation to another, as informed by specific experiences such as major droughts, violent conflicts, zoonotic disease outbreaks, and other climatic disasters.

The common practice of the informal traditional NRM system includes the following: 1) violation of these rules results in fines imposed by the elders, and applies both to the visitors and locals, 2) despite encouraging and hosting other communities whenever there is poor rainfall or droughts, the land and water resources are limited and are gradually shrinking, and 3) the migrating communities mostly end up sharing in host communities' crop harvests, thus increasing the duration of their hunger gap period.

Study participants in all the three study locations identified the waning power and influence of the informal traditional NRM systems. Their authority is undermined by the increasing presence of formal government authorities. For example, the limitations of *xeer* is seen in Gedo where the visiting communities from Mandera County and Liben zone often access more land and natural resources for longer periods than they are allowed. Often, the excuse used for this encroachment is that the natural resources are owned by the relevant governments and any community has equal rights to its access and utilization.

3.4.3. Participation and coordination within the NRM body/unit

As a public function at community level, NRM needs to be anchored on public participation and coordination with the existing government policies. Thirty-eight percent, 27 percent, and 46 percent of respondents in Liben zone, Mandera County, and Gedo region, respectively, mentioned that there are no efforts made in participation and coordination within the NRM bodies. This speaks to the fact that despite the existence of various NRM structures, there is still a significant gap between communal structures and government-led NRM-related institutions. The findings demonstrate the need to strengthen NRM by ensuring participation and coordination within the unit for effective and efficient performance in responding to NRM challenges as shown in the figure below.

²⁰ Focus group discussion, Gedo region, Somalia, 20 September 2022.

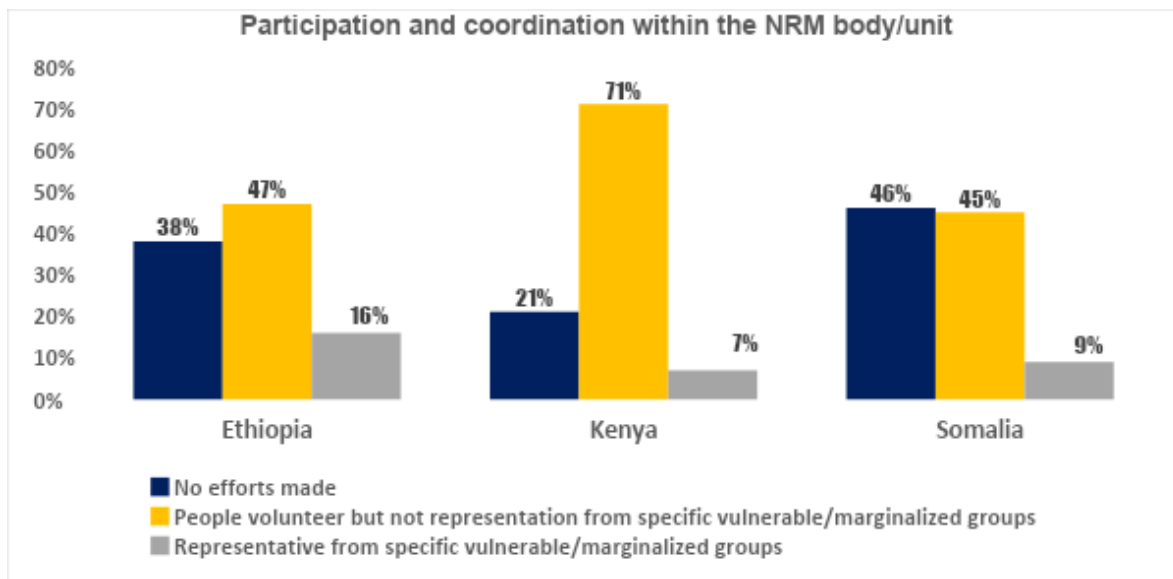


Figure 3 Participation and coordination within the NRM body/unit

The communities, through FGDs, distinguished formal (government) authorities from informal (traditional) authorities. Whereas formal authorities were increasingly acceptable, they were felt to be weaker than traditional authorities, which have been operational over centuries in the Mandera cluster. Thus, study participants agreed that informal authority over the control, access, and use of natural resources was working better than the formal authorities.

3.4.4. Effectiveness of the NRM institutions

The assessment sought to establish the mechanisms through which the NRM structures work. This was done by establishing the respondents' perspective on functionality, participation in making NRM rules and regulations, and defined geographical areas of influence and authority of the NRM structures over the population.

The household survey respondents reported uncertainty on whether the NRM structures, specifically the NRM committees, were functional. Ninety-three percent of respondents in Liben zone, 48 percent in Mandera County, and 36 percent in Gedo region reported that these structures were not functional (see the figure below). According to KII and FGD participants, these reported findings were skewed due to the timing of the household survey, which was conducted at the height of a drought emergency and where almost all community members were struggling to keep their livestock herds in the wake of reduced browse and pasture.

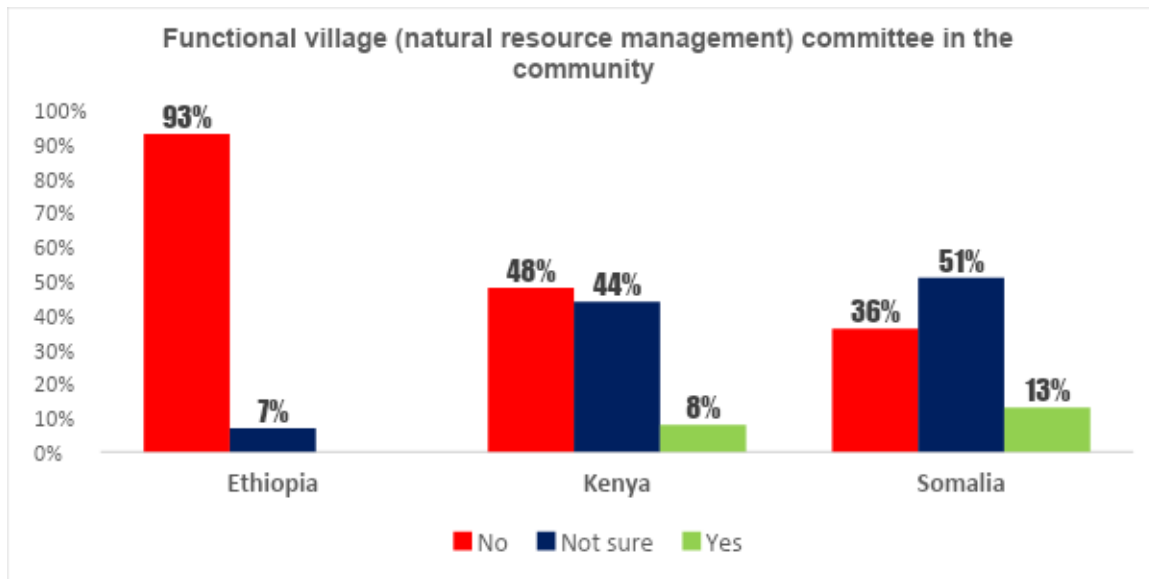


Figure 4 Functional village (grazing and water) committee in the community

The assessment established that the NRM structures were effective in their functionality in the period before the drought emergency as they managed to sustain availability of dry season grazing areas, especially along River Dawa and the vast dry season grazing areas around Garba Harey district of Gedo region. FGD participants from the three study locations confirmed that about half of the livestock from Liben zone, Mandera County, and Gedo region were in these dry season grazing areas, which had been maintained due to the efforts of the NRM structures.

Both the formal and informal natural resources management structures demonstrate different levels of technical capacity to undertake their functions. This is derived from the assumption that pastoralist communities in the greater Horn of Africa, including the Mandera cluster, have practiced pastoralism in the ASALs for over four millennia²¹. Gedo and Liben zone both demonstrate high levels of lack of technical capacity of NRM, specifically in undertaking monitoring of ecological changes in the environment and subsequent social impact to the public. This is attributed to the NRM structures being communally driven, with limited need to undertake ecological monitoring but with more interest in the control of access to and use of natural resources.

In contrast, Mandera County demonstrates high levels of technical skills to monitor changes in the ecological and social conditions of natural resources. This is attributed to the presence of competent and highly technical government-led units both under the county government's Department of Environment and Natural Resources and NEMA. These are institutions whose functions include undertaking rigorous monitoring of ecological changes to the environment. They have also instituted various approaches including environmental impact assessments (EIA) and social impact assessments (SIA) that aid in this regard.

The research team did a follow-up exercise to determine why the individual households felt the institutions were not effective, despite evidence of their functionality. This was attributed to the feeling

²¹ Nat Dyer, Shadrack Omondi and Michael Wantutsi, 'Securing Pastoralism in East and West Africa: Protecting and Promoting Livestock Mobility,' October 2008, <https://www.iied.org/sites/default/files/pdfs/migrate/G03036.pdf> (accessed 23 June 2023).

of limited participation by individual households in the development of rules and regulations that govern NRM in their communities. Almost uniformly, the respondents in Liben zone (91 percent), Gedo region (75 percent), and Mandera County (62 percent) reported that these rules were made by community leadership with minimal or no involvement from the rest of the community members. This is despite the rules affecting all members of the community, who believe natural resources are collectively owned.

3.4.5. Natural resource sharing

Communities in the Mandera cluster have long adapted to the arid and semi-arid conditions of the region by practicing pastoralism through shared natural resources that traverse international boundaries²². Increased population and the increased frequencies of climate change and man-made shocks have, over the past five decades, contributed to increased competition over the control and access to natural resources among the largely homogenous communities in the Mandera cluster. These changes include increased frequency of drought emergencies that have eroded rangelands, increased land degeneration, loss of indigenous tree varieties, and increased frequency of flooding of the River Dawa due to changes in the river's natural flow. This has, more often than not, resulted in incidents of violent conflict which affect the residents of the cluster.

Natural resource sharing among cross-border communities in Liben zone, Mandera County, and Gedo region is as old as the existence of these communities in the area. This is premised on traditional Somali culture which defines locations that can be accessed by local and visiting communities to enable access to water, browse, and pasture for livestock. Majority of the respondents in the household survey and FGDs confirmed the existence of traditional natural resource sharing mechanisms that have been passed on from one generation to another. Natural resource sharing is premised on wet and dry season grazing patterns and migration.

The Mandera cluster experiences two seasons of rainfall annually, categorized as long rains or *Gu*, which occur between March and May, and the short rains or *Deyr*, which take place between October and December. There is a short dry season over January and February known as *Hagaa*, and a longer dry season from June to September also known as *Jilal*, the same name given to drought by the pastoralist communities. Natural resource sharing in the Mandera cluster can best be understood within the confines of the wet and dry seasons, which also define when communities, especially pastoralists, have to move with their livestock from one area to another.

The traditional Somali culture defines natural resource sharing agreements, which remain unwritten but are accepted by the communities in the cross-border areas. These agreements are almost entirely around access to browse and pasture for livestock, either in the vast rangelands or within farms along the River Dawa. Based on these agreements, communities from Mandera County and southern parts of the Liben zone migrate and access rangelands in the Gedo region during the longer dry season *Jilal*. The movement that peaks in July and August is attributed to the existence of large uninhabited rangelands in the southwestern plains of Gedo region. Pastoralists from Mandera County move mostly to Ceel Waq and Baardhere districts of Gedo region, while those from Liben zone primarily move to Doolow and Luuq districts of Gedo region. The moving communities often include young adults, who are primarily herders, a few middle-aged elders, and entire households for the more nomadic families. The moving

²² Ben Irwin, Abdikadir Abdulsalam and Crispus Mugambi, 'Putting communities back in the driving seat of sustainable natural resource management in rangelands,' IGAD, 2023, <https://resilience.igad.int/stories/putting-communities-back-in-the-driving-seat-of-sustainable-natural-resource-management-in-rangelands/> (accessed 23 June 2023)

communities set up temporary homesteads that can last from 4-20 weeks in one location, with these settlements arranged by family, sub-clan, and clan.

The FGD in Gedo highlighted that communities in the region freely share their natural resources with communities from Liben zone and Mandera County through this kind of resource agreements. Over the last thirty years, drought emergencies have increased and occur every four to five years, contributing to the shrinking rangelands in the Gedo region. At the same time, communities from Mandera County and Liben zone have maintained dry season access to these rangelands. This scenario has led to increased tensions among the communities, with those from the Gedo region feeling the need to limit access to areas that should be accessible to visiting pastoralists. However, visiting pastoralists from Mandera and Liben zone have maintained that they should access the rangelands as they have done historically, often resulting in incidents of violent conflict.

During the wet seasons, especially the short rainy season *Deyr* of October and December, the sharing of resources sees a reverse migration, with pastoralists from Mandera County and Liben zone leaving the Gedo region and returning to their areas of origin. At the same time, pastoralists from the Gedo region move eastwards towards River Juba. This period often coincides with the breeding season for large livestock such as camels and cattle. This results in limited distances covered by pastoralists, thus allowing for the natural regeneration of browse and pasture in the dry season grazing areas. Despite the natural resource sharing agreements being in place, conflict over access to natural resources still abounds within the cross-border region.

3.4.6. Changes in natural resources

The Mandera cluster has experienced changes in its natural resources over time, as revealed by participants in the FGDs. The arid and semi-arid area has average daytime temperatures of between 30-40°, and receives 100-600mm of rainfall annually. The cluster has a population density of 10-100 people per square kilometer outside the few densely populated major towns of Mandera, Dolow, and Beled Hawo. This assessment sought to understand the changes in natural resources with a focus on the last decade since the major 2010/2012 Horn of Africa drought emergency.

The natural resources in Mandera cluster are largely dependent on rainfall performance, and thus changes are best understood within the context of drought seasonality. Over the last decade, from 2012 to 2022, the Mandera cluster has experienced two major drought emergencies. The first was in 2016/2017 following the under-performance of three consecutive rainfall seasons, and the second in 2021/2022 after four cumulative failed rainfall seasons (as at the time of this study). In 2014/2015, the cluster experienced what the communities described as drought, but was officially recorded as depressed rainfall performances by IGAD's Greater Horn of Africa Climate Outlook Forum (GHACOF).

In addition, the Mandera cluster experienced the worst desert locust infestation in over 75 years, which lasted through 2019 and 2020. The drought, depressed rainfall performances, and desert locust infestations were disasters that affected the population. They also all contributed to the depletion of rangelands, browse and pasture, and drying up of water sources, further leading to natural resource degradation. The desert locust infestations saw the decimation of vast tracts of rangelands. The assessment found that from 2012 to 2022, eight of the ten years were detrimental to the natural resources, and this denied the Mandera cluster the opportunity for natural resource regeneration in two of the ten years.

Over the last decade, Liben zone, Mandera County, and Gedo region have experienced shrinking rangelands, changes in the flow of River Dawa, which faced significant reduction in its water levels, and drying up of boreholes and shallow wells due to water aquifers not recharging in time and adequately. This has forced the pastoralist communities to move into more permanent settlements and take up different forms of production, such as stone quarries, crop production, and increased trade in charcoal and firewood. Most of these new production strategies have also played a role in hastening the degradation of the natural resources.

The survey results further show that 87 percent, 86 percent, and 82 percent of respondents in Liben zone, Mandera County, and Gedo region, respectively, mentioned that pasture scarcity is the main change witnessed in the environment, as shown in the table below. Pasture and browse scarcity are indicators of diminished rangelands, which leads to more competition for the scarce natural resources among cross-border communities, resulting in incidents of violent conflict. The reduced availability of pasture for livestock has resulted in communities having to migrate long distances with their livestock, including across international boundaries to access pasture and browse for their livestock. The increased movement into distant areas has seen an increase in tensions among pastoralists congregating with large herds of livestock within small geographical areas, and this is often the start of violent conflict.

Besides conflict, the congregation of large number of livestock in small geographical proximities is often attributed to cause spread of infectious livestock diseases including zoonotic diseases that spread from livestock to humans. During the qualitative data collection, elderly pastoralists cited that there has been an increase in the spread of camel diseases among herds that were rarely witnessed in the past. This is believed to have been caused by the reduced pastures and browse that necessitates the congregation of large number of animals in small geographical areas.

Table 1: Changes witnessed in the environment

Changes witnessed in the environment	Ethiopia	Kenya	Somalia
Deforestation	0%	0%	9%
Diminution of vegetation/grass species	4%	4%	0%
Invasive plant species	2%	7%	3%
Others (specify)	4%	2%	0%
Pasture scarcity	87%	86%	82%
Soil erosion (Gulley)	0%	0%	3%
Water run-off	2%	2%	1%

The Mandera cluster communities rely on ground water sources such as River Dawa, boreholes, shallow wells, underground storage tanks, and water pans. The water availability in these water sources is all dependent on the performance of rainfall, with above average rainfall performance resulting in increased water availability, while the converse is true in times of below average or depressed rainfall. The last decade has seen the water levels in River Dawa significantly reduce. This has caused challenges for downstream users in Dolow and Luuq districts of Gedo region. The changes in the water levels are not only attributed to the frequent drought emergencies, but also to the increased adoption of irrigated crop production by communities along the river in Mandera County and Liben zone.

Boreholes and shallow wells have both experienced reduction in their water discharge levels, resulting from the limited recharge of the aquifers of these sources. This has resulted in the need to drill deeper

boreholes and excavate deeper shallow wells. In addition to the high costs of maintaining and upgrading the water pumping equipment needed for the boreholes and shallow wells, the deeper shallow wells have led to increased accidents by users who are predominantly girls and women.

During the data collection period, there was no water in the water pans and underground water tanks as these were reported to have dried up earlier in 2022. Communities reported, over the last decade, the sizes of water pans and underground water tanks have grown as they need to hold more water as the periods between rainfall seasons get longer.

During rainy seasons, Gedo is affected by flooding from River Dawa as it is located in the lowlands. Further, FGDs participants cited the lack of any government investments to support the community. The sharp increase in food prices due to inflation is also making life unbearable as it has led to increased costs of basic commodities and limited amounts of food that can be procured from the market. Despite the large tracts of arable land in the Gedo region, most households are growing crops on 0.5-1 hectare of land due to inability to afford fuel for the water pumps.

In Ethiopia's Liben zone, soil erosion has rendered most rangelands, especially in the mountains, inaccessible and dangerous²³. This denies pastoralists access to a reliable dry season grazing area. There is also in-migration, especially by pastoralists from the Afdheer and the Godey zones of the Somali region who end up competing with the locals for their limited grazing areas. There is also migration on the southern sides, especially from Kenyan pastoralists. However, this is not seen as a major concern due to clan dynamics.

Other changes revolve around land use where farmers have enclosed their farms along the riverine, denying pastoralists routes to access the river, a potential cause for conflict. There is also increased sexual and gender-based violence, as well as physical injury and death, especially of young men and women who herd livestock during dry season migration. The communities also experience livestock theft, which happens when pastoralists migrate. This is mostly visible when pastoralists from Dollo Ado migrate to Godey zone of Somali region within Ethiopia.

There is also limited availability of water, especially for livestock and crop production. This was repeatedly cited by study participants as a major challenge that leads to migration and conflict. Despite the communities contributing to the degradation of the natural resources through their livelihood activities (such as deforestation and overgrazing), they have little awareness on the impact of their livelihood activities on the environment and natural resources.

The large number of people living in poverty often forces them to misuse the natural resources as they embark on looking for food and income. This leads to exploitation of the natural resources without any attempts to recover them. The proliferation of *prosojis juliflora*, an invasive weed, especially along the River Dawa, has resulted in the reduction of land that can be used for crop production. The weed also affects livestock as they often avoid feeding on them even during droughts.

3.4.7. Coping mechanisms for natural resource/environmental change

The findings established that the communities have different coping mechanisms in relation to changes on natural resources/environment. Findings show that 38 percent, 92 percent, and 75 percent of respondents in Liben zone, Mandera County, and Gedo region, respectively, will limit the portion size of their meals. The findings also show that 33 percent, 35 percent, and 68 percent of respondents in Liben zone, Mandera County, and Gedo region, respectively, will take children out of school as a coping

²³ Focus group discussions, Sigalow Kebelle, Dollo Ado, Ethiopia, 20 September 2023.

mechanism. These are negative coping mechanisms that the CBCR Activity’s program design needs to address during the implementation in the specific border communities.

Communities in the Mandera cluster resort to various coping strategies that play a role in driving natural resource-based conflict. A large number of the respondents confirmed they send out livestock in search of pasture and/or opt to migrate. This coping strategy is practiced almost equally in Mandera County, Gedo region, and Liben zone, and increases tensions among cross-border communities. More often than not, the cross-border communities migrate to the same dry season grazing areas, with different communities staking claim over the ownership and control of these grazing areas. Such claims result in increased tensions between pastoralists and, if unresolved in time, result in violent conflict over the natural resources.

Table 2 Coping mechanisms for natural resource/environmental change

Coping mechanisms on changes in natural resource/environmental change	Ethiopia	Kenya	Somalia
Sell Livestock	96%	72%	64%
Send livestock in search of pasture	93%	70%	68%
Slaughter Livestock	96%	49%	66%
Lease out land	44%	45%	49%
Migrate (the entire family)	89%	31%	53%
Migrate (only some family members)	89%	61%	60%
Send children or an adult to stay with relatives	35%	54%	62%
Take children out of school	33%	35%	68%
Move to less expensive housing	80%	83%	72%
Limit portion size of meals	38%	92%	75%

3.4.8. Key capacity gaps on equitable and peaceful natural resource sharing

Capacity development has been done across the cluster, with focus on NRM, water resource management, forestry and conservancies’ management, feedlots and reciprocal grazing agreements, among others. Capacity building has mainly been conducted by government officials directly, or when they are supported by NGO partners such as ACTED, RACIDA, Save the Children, the Danish Relief Council (DRC), CARE, and the Norwegian Refugee Council (NRC).

Communities, especially those around Banissa in Mandera County, have been supported over the last 10 years to establish community-managed disaster risk reduction groups that have committees leading their implementation. Because of the drought emergency at the time of this study, informal community-led negotiations with communities in Ethiopia and Somalia to allow access for Kenyan livestock to migrate to these areas were ongoing.

Water resource management initiatives are ongoing to rehabilitate non-functional water sources by the Mandera County Government. Banissa has numerous cases of rangelands that have been enclosed for both natural regeneration and use by livestock during dry seasons. As described by the community, this includes identifying a large tract of community land that is declared by the traditional community leaders as inaccessible for livestock except during the driest months of the year when livestock can

access the areas described as dry season grazing lands. Agricultural societies are also expanding their farmlands to increase arable land and allow over-used farmlands to regenerate as they farm in new plots.

In Gedo, COOPI was the only agency cited having conducted NRM trainings between 2013 and 2018. COOPI confirmed they had trained communities in Dollow Ado and Beled Hawo districts on community-managed disaster risk reduction using the participatory disaster risk analysis. Further, in Gedo, there are ongoing interventions that support NRM and peace-building ventures. There are cases of past cross-border peace-building initiatives occurring 3-4 times a year, where community leaders from Gedo meet with leaders from Mandera or Liben zone in Ethiopia to avert possible conflict. These are largely individually driven, especially by elders from the clans or sub-clans whose people and livestock are at risk of conflict. These efforts are, unfortunately, not documented, and most people could not recount exact occurrences.

In Liben zone, the government has trained various committees, especially over the last five years since the new regional government administration came on board. However, the trained groups have not been very active. The trainings focused on public works restoration in relation to the Productive Safety Net Programme's (PSNP's) public works or cash-for-work activities, which required restoration of natural resources by the communities. The trainings also included establishment of natural resource grazing patterns where communities consider which areas to graze at which time of the year, particularly because of the drought.

The PSNP initiative by the government provides both conditional and unconditional cash assistance. The conditional cash assistance is in the form of cash-for-work, known as public work, and covers mostly NRM activities such as addressing soil erosion, enclosing feedlots, expanding farmlands, and opening up irrigation canals. The government and the communities are increasingly establishing feedlots. This is where the communities enclose an area for a year and allow it to naturally regenerate and, thereafter, open it up to pastoralists when conditions are dire. This allows the areas that were previously occupied to be enclosed. This has led to a certain level of limitation of livestock movement outside the district.

Land use planning by the *kebele* administrations clearly demarcates how different forms of land should be used, especially between pastoralism and crop production, and also determines land that can be used for settlement. Even with the above interventions, there are still significant gaps in the capacities of the NRM structures and processes at the community level.

The NRM structures are largely embedded in traditional authority, which is gradually waning and not as functional as it used to be. The CBCR Activity could play a role in supporting the formalization and legalization of the existing NRM structures and processes. This is so they can be in tune with government-led institutional processes, and thus acquire authority derived from legal mechanisms. This can be achieved through supporting the formal registration of the NRM structures and recognition of the processes by the relevant government agencies in the three countries.

Awareness among the community members on the benefits of NRM structures for peaceful co-existence and for agricultural and livestock production remains low. The CBRC Activity could also support existing NRM structures and institutions to undertake public education to increase communities' participation and acceptance of their roles and responsibilities.

Technical know-how of NRM practices still remains low despite most groups having confirmed participating in various trainings. There is a need to determine alternative and more effective skills transfer approaches by the CBCR Activity. The Activity could also create support mechanisms between

well performing and dormant NRM structures. This can be linked to the establishment of an information sharing platform that would play a critical role in informing decision-making around natural resource sharing.

3.4.9. Gender and social inclusion in cross-border nrm and natural resource sharing

Gender dynamics play a significant role in natural resource sharing, considering the users of natural resources include both men and women, young and old. The assessment established that in Mandera County, Gedo region and Liben zone, there were no women holding the role of chairperson in the formal or informal NRM structures in charge of water, rangelands, and quarries. Women held the roles of assistant chairperson, secretary, or treasurer in the formal structures. This denies women the opportunity to be involved in critical decision-making as the chairpersons and to be the voice of their communities on NRM.

Women, however, took leading roles in NRM when it came to agricultural production, with a large number of women holding chairperson roles in farmers' associations along the River Dawa in Mandera County and Liben zone. This contributes to stereotypes around the gendered division of roles, with women accorded roles and responsibilities of activities that do not require movement to distant areas, such as large livestock herding, or activities that could expose them to physical harm such as managing rangelands and water resources.

The assessment also established that women do not hold any rights to natural resources as owners, and this includes over rangelands, water resources, communal and individual farms, as well as quarries. These are either owned and managed by men on behalf of the community, or owned individually by men, even though farms are largely utilized by women. This creates a situation of limited rights for women on property and land, thus limiting their opportunities to assert control over the natural resources, and decision-making on disposal or transfer of such natural resources.

Furthermore, women are not involved directly during natural resource sharing negotiations that happen under the informal natural resources management systems. These are often conducted in venues where women are culturally not allowed to take part in and thus the decisions on sharing natural resources with other communities was made by men. Such decisions often do not consider the impact this would have on women who are responsible for fetching water and firewood that are found in shared natural resources and thus their exposure to physical harm. The focused group discussions in Gedo region highlighted cases of rape in the past for women who ventured far from their villages in search of firewood and often ended up in locations where other communities from either Mandera County or Liben zone had access to.

The assessment also established that since 1998, the Mandera cross-border cluster has witnessed numerous efforts to streamline gender and in recent years youth participation in natural resource management. This at the beginning entailed advocating to communities to include women and youth into the membership of the natural resource management structures including committees. Since 2008, there have been increased efforts especially by NGOs (such as COOPI in Gedo region, the NRC and IRK in Mandera County and UNDP and RACIDA in Liben zone) to undertake gender sensitive natural resource management. This entailed supporting communities to appreciate the importance of inclusion and representation of all segments of the community in the natural resource management leadership and

decision-making efforts. However, there are still barriers to mainstreaming gender and social inclusion in cross-border NRM and natural resources sharing.

3.4.10. Barriers to mainstreaming gender and social inclusion in cross-border nrm and natural resource sharing

There are several barriers to mainstreaming gender and social inclusion in cross-border NRM and natural resources. These barriers are rooted in social, economic, cultural, and institutional factors.

The Mandera cross-border cluster is predominantly occupied by the Somali community whose culture is deeply ingrained on patriarchal norms. Men often have the decision-making power and overall authority over women, thus limiting the role of women in access to and control over natural resources. The limitation includes participation in critical leadership roles, such as chairperson, during decision-making processes around natural resource sharing and NRM. This is despite the population of women being equal to or slightly more than that of men in the study area.

Closely linked to the decision-making limitation, the Somali culture also limits ownership rights by women of natural resources such as land, rangelands, water resources, farmlands, and other productive assets. The lack of ownership rights limits women's ability to meaningfully engage in NRM and natural resource sharing within their communities and with other communities, including those from across international boundaries.

Moreover, the Mandera cross-border cluster has experienced violent conflicts over access to and control of natural resources by cross-border communities. These conflicts are often protracted, and have led to occasional displacement of populations and physical harm to the same populations.

The assessment also established that there is limited awareness and understanding of gender issues at the community level, which is attributed to the cultural dynamics that have defined gender roles and norms. This often contributes to biases by men in not undertaking gender mainstreaming in the NRM and natural resource sharing activities. This has permeated the traditional institutional leadership, which is male dominated, and has perpetuated exclusion of women in critical decision-making NRM structures.

The assessment could not establish an elaborate information system for the gendered dynamics of NRM and natural resource sharing in Mandera County, Liben zone, and Gedo region. All the information around gender dynamics in NRM and natural resource sharing was gathered from in-depth interviews and FGDs. Thus, the assessment concluded that a key driver to the lack of gender mainstreaming and exclusion of women in NRM is also attributed to limited access to data and information that could help provide evidence to action gender mainstreaming and inclusion in NRM.

CONCLUSION AND RECOMMENDATIONS

The assessment has established the existence of elaborate formal and informal NRM structures that are largely anchored on the dictates of traditional Somali culture and formal governance structures. The existence of the NRM structures and practices has enabled the cluster's communities to practice pastoralism in the area and other parts of the Horn of Africa for over four millennia. To better understand NRM in the Mandera cluster, the assessment sought to understand the organization of NRM structures and institutions, the effectiveness of these structures, the representativeness of the structures, capacity gaps to equitable and peaceful sharing of natural resources, and gender and social inclusion considerations in NRM.

The formal and informal NRM structures are deemed to be effective as they have enabled the pastoralist communities to manage these resources over four millennia, even though this is being tested by the impact of climate change on natural resources. Despite the reported cases of violent conflict in this area over the last decade, natural resource sharing agreements have played a key role in limiting the possibly higher number of incidents of violent conflict. The natural resource sharing agreements are often not limited to NRM, but also take an angle of natural resource-based conflict prevention and peace-building among communities.

Whereas there have been numerous efforts towards streamlining gender in NRM across the cluster, decision-making largely remains adult and elderly male dominated, with the few women and youth in leadership roles often not challenging the elderly male dominance.

Based on the assessment findings, below are recommendations to the CBCR Activity on areas of investment that can improve the cross-border NRM in the Mandera cluster:

- 1) Despite the existence of the formal and informal structures, their effectiveness in natural resource sharing could be improved through increased inclusion and representation by all cadres of the community, as well as by improving the process of meaningful community participation during the establishment or review of membership of these structures. As such, it is recommended that in the design of its activities, the CBCR Activity should take this process into account and build on existing structures and processes, which remain largely disjointed at present.
- 2) NRM and natural resource sharing is closely interlinked with conflict management in the cross-border area. An effective natural resource sharing system plays a crucial role in the peaceful co-existence among communities, while the reverse is true. The assessment recommends that investments in NRM by the CBCR Activity need to take a conflict-sensitive approach. By taking a do-no-harm and conflict sensitivity lens, the Activity will ensure that there are no unintended consequences of violent conflict arising from NRM interventions.
- 3) The impact of climate change on natural resources, primarily seen through the recurrent and frequent drought emergencies, remains a key challenge facing communities across the border. It is largely noted that NRM interventions as standalone activities that do not consider community resilience to climate change will not bear positive results. As such, it is recommended that the CBCR Activity should factor in disaster risk reduction approaches in the implementation of NRM and conflict management interventions. This can be achieved through:

- Integrating water management interventions at local, district/county, and national levels to ensure fair and sustainable access to water sources, thereby building resilience, strengthening livelihoods, and reducing instability. Water and pasture conflict came out to be one of the causes of conflict.
 - Conduct a cross-border livestock disease control and surveillance program to counter the spread of trans-boundary animal diseases, and promote better cross-border control. This is informed by the type of shocks that the respondents mentioned, which included livestock diseases.
 - Capacity building on smart agriculture for agro-pastoralists in the cross-border areas.
- 4) The CBCR Activity can target to work on renewable energy projects that tap into the natural resources to generate a green and sustainable energy supply, in particular solar and wind energy.
- 5) Finally, the CBCR Activity needs to consider gender transformative programming in its interventions to ensure the support to communities does not disempower different genders, but rather results in beneficial impact that is inclusive. This should not only include participation of women and youth in the NRM structures, but also increased ownership and decision-making by women and youth in the cross-border natural resource sharing decision-making processes.