NAVIGATING CLIMATE, CONFLICT, AND MIGRATION

INSIGHTS FROM ETHIOPIA, AND THE EAST AND HORN OF AFRICA

Prepared for IOM under Alliance of Bioversity Inernational & CIAT-IOM Joint Secondment Programme

IOM Regional Office for East, Horn and Southern Africa

December 2025

THIS REPORT

This report was developed in the framework of the Non-Reimbursable Loan Agreement between the Alliance of Bioversity International and CIAT (ABC), a member of the CGIAR System, and the International Organization for Migration (IOM) for the loan of ABC personnel to IOM's Regional Office for East, Horn and Southern Africa. It was prepared and conducted by the IOM Regional Data Hub for the for East, Horn and Southern Africa, with analytical support from the Alliance of Bioversity International and CIAT (ABC). This publication was made possible through the financial and technical support provided under the ABC–IOM Non-Reimbursable Loan Agreement and the Climate Change and Migration Data (CCMD) Programme funded by the Ministry of Foreign Affairs of Denmark. The opinions expressed herein are those of the authors and do not necessarily reflect the views of IOM, the Alliance of Bioversity International and CIAT (ABC), CGIAR, or their Member States, including the Government of Denmark.

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Required citation: IOM. (2025). Navigating Climate, Conflict and Migration: Insights from Ethiopia and the East and Horn of Africa. Nairobi: International Organization for Migration (IOM), Regional Office for East, Horn and Southern Africa.

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ABOUT IOM

The International Organization for Migration (IOM) is the United Nations Migration Agency. IOM is committed to the principle that humane and orderly migration benefits migrants and society. As an intergovernmental organization, IOM acts with its partners in the international community to: assist in meeting the operational challenges of migration; advance understanding of migration issues; encourage social and economic development through migration; and uphold the human dignity and well-being of migrants.

ABOUT ALLIANCE OF BIOVERSITY INTERNATIONAL & CIAT

The Alliance of Bioversity International & CIAT (ABC) is a research-for-development organization that works to deliver science and innovation to transform food, land and water systems in a climate crisis. As part of the CGIAR System, the Alliance collaborates with governments, civil society, the private sector and international organizations to generate evidence, tools and partnerships that support more sustainable, resilient and inclusive development pathways. Its work spans multiple thematic areas, including climate change, biodiversity, food security, and livelihoods, with a strong focus on producing policy-relevant research, strengthening local and national capacities, and informing decision-making with robust, context-specific analysis.

ABOUT THE CLIMATE CHANGE AND MIGRATION DATA (CCMD) PROGRAMME

The CCMD programme is grounded in the Strategy for Denmark's engagement with the International Organization for Migration 2023-2026 and the IOM Strategic Plan 2024-2028, aiming to advance the Global Compact for Migration (GCM) and key Sustainable Development Goals (SDGs). Funded by the Danish Ministry of Foreign Affairs, the programme seeks to enhance evidence-based migration management and mitigate the risks associated with irregular migration and displacement due to climate change, environmental degradation, and disasters.

The programme operates across North, East, West, and Central Africa, focusing on countries of origin, transit, and destination along major migration routes. IOM is dedicated to supporting governments and communities in these regions, addressing the impacts of climate change, disasters, and environmental degradation on human mobility. The programme also aims to strengthen migration data and research in the regions, improving evidence available for policy and programming.

ACKNOWLEDGMENTS

We are grateful for the continued support of IOM, in particular Harry Cook and Laura Nistri, for their role in facilitating the secondment agreement and for their guidance and support to the research project. We would also like to thank Aderoh Oluoch Maxwell and Daniel Ibañez for providing access to key datasets and for their valuable support in clarifying data characteristics and limitations. We are indebted to Harry Cook, Sabira Coelho, Noora Katriina Mäkelä, John McCue, Theodorus Hollander, Jessica Melis, Eliza Clark and Maria Ellemann Hansen for their useful contributions to this study, including their feedback on earlier drafts of the report and their participation in consultation meetings. We further wish to thank Zeina Wairoa for her careful copy-editing support.

Finally, we gratefully acknowledge the contributions of Meryem El Mouhib, Kenza Aggad and Sabira Coelho in conceptualizing and organizing the dissemination events and podcasts linked to this work, and of Geoffrey Wekesa Sauke and Yvonne Ndege for their technical assistance in the production and dissemination of the podcasts.

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ABBREVIATIONS & ACRONYMS

ACLED	Armed Conflict Location and Event Data Project
CHIRPS	Climate Hazards Group Infrared Precipitation with Stations
CGIAR	Consultative Group on International Agricultural Research
DTM	Displacement Tracking Matrix
EHoA	East and Horn of Africa
FEWS NET	Famine Early Warning Systems Network
FMR	Flow Monitoring Registry
FMS	Flow Monitoring Survey
IGAD	Intergovernmental Authority on Development
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
MENA	Middle East and North Africa
UNICEF	United Nations Children's Fund
UNHCR	United Nations High Commissioner for Refugees

01

EXECUTIVE SUMMARY

A man during a profiling exercise in an IDP site as part of DTM activities.
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This report examines the intricate relationship between climate, human security and migration in Ethiopia and the broader East and Horn of Africa (EHoA) region, with the goal of informing regional mobility governance. Drawing on IOM's Flow Monitoring Survey (FMS) data from February 2018 to May 2024, this study addresses the growing concern about how environmental and security compounding pressures are shaping human mobility patterns across the region.

As governments and regional organizations seek to comprehend and regulate mobility in increasingly fragile settings, this report builds on the existing policy framework and aims to provide evidence-based insights on mobility drivers and their interplay with climate, peace and security. This study focuses on individuals migrating from Ethiopia as a case study due to the country's central role in regional migration flows, its considerable exposure to climate change and conflict, and its alignment with the Intergovernmental Authority on Development (IGAD) protocols regarding free movement and transhumance. For the purposes of this analysis, the EHoA route is defined as the intraregional movements among 10 countries covered by the IOM's Regional Office in Nairobi: Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, the United Republic of Tanzania and Uganda.

By combining different quantitative approaches, including spatial and econometrics analysis, this study finds that migration within the EHoA route is often a short-term response to immediate needs, particularly access to basic services, safety and family reunification. In contrast, those migrating outside the region, particularly towards the Gulf States, more frequently cite economic motivations, as well as experiences of conflict and persecution, indicating that these flows are often a response to longer-term sociopolitical and economic deterioration.

Furthermore, this report finds that climate variability and insecurity do not operate in isolation but often overlap in specific geographic hotspots that are particularly vulnerable to both environmental stress and social instability. These are areas where drought, flooding and resource scarcity converge with political fragility and intercommunal violence, exacerbating the risk of displacement. Spatial analysis indicates that areas with a higher number of climate security hotspots tend to experience increased levels of outward migration. This relationship is further supported by econometric modelling, which shows that an increasing number of climate security hotspots is associated with a greater likelihood of individuals migrating both within and outside the EHoA route. Complementing this, an applied probabilistic model confirms that, as climate security stress intensifies, individuals are more likely to move within the region rather than outside it, suggesting that short-distance mobility often serves as an adaptive response to compounding environmental and security pressures..

The report illustrates that migration decisions in the region are shaped by overlapping drivers, including economic pressure, climate shocks and insecurity, reinforcing the evidence on the role of climate in intensifying existing vulnerabilities. These insights are further supported by detailed analysis of migration peaks, which shows an alignment between migration peaks and periods of acute climatic stress, particularly prolonged and recurring droughts. While migrants rarely identify climate as a primary reason for movement, the data reveal that reported motivations such as access to basic services, food and water spike during notable drought periods. This pattern is especially relevant for pastoralist and agro-pastoralist communities, whose movements are closely linked to resource availability. As access to pasture and water becomes increasingly unreliable, these groups are compelled to move within the region in search of more stable conditions for their livelihoods, often along traditional mobility routes that are being disrupted or restricted.

The observed synchronization between drought timelines and spikes in mobility highlights the importance of recognizing environmental stress as a structural driver of migration. These environmental and livelihood pressures are reflected in the overall distribution and direction of migration flows from Ethiopia. A large share of migrants moving within the EHoA route originate from drought-affected areas in Somali, Oromia and Afar, where access to food, water and basic services has been severely disrupted. These individuals tend to travel short distances to neighbouring regions or across borders into countries like Somalia and Djibouti, seeking immediate relief and proximity to familiar social networks. The demographic profiles of these migrants highlight distinct differences that reinforce this picture. Intraregional migrants tend to be older, female, and come from pastoralist or agro-pastoralist households, often with limited formal education. Their movements appear more closely associated with resource availability and the pursuit of basic needs. In contrast, those migrating outside the region, especially along the eastern route to the Gulf States, are primarily young men who possess slightly higher levels of education. Their migration decisions are driven mainly by the prospects of employment and economic advancement, but are still rooted in local conditions characterized by ongoing insecurity and deteriorating livelihoods, particularly in Oromia and Amhara.

Additionally, data indicate that the majority of pastoralist migrants move within the EHoA route, often travelling to nearby regions and cross-border areas in Somalia and Djibouti. This pattern highlights the enduring significance of transhumant movement systems, particularly in contexts where climatic stress intensifies the need for resource-based mobility. Although the study does not directly assess the status of transhumance corridors, the occupational and regional profiles of migrants suggest that pastoralists continue to rely on mobility as a coping strategy during periods of environmental disruption.

A child walks through a wall destroyed by climate-induced disasters in Bujumbura, Burundi. .
© IOM 2025 / Alexander Bee

02

INTRODUCTION

Flooding in Gatumba, near Bujumbura, following Lake Tanganyika rising water levels and heavy rains.
Credit: © IOM 2025 / Alexander Bee

The EHoA region is characterized by a complex and dynamic mobility landscape shaped by economic opportunities, social factors, environmental pressures and conflict. In 2024, the IOM Regional Data Hub tracked around 783,400 movements across the region, capturing various categories of mobility, including regular and irregular migrants as well as refugees and displaced people (IOM Regional Data Hub, internal DTM statistics, 2024).

Furthermore, the region is highly vulnerable to climate change and has experienced significant shifts in climate patterns, with rising temperatures, prolonged droughts, erratic rainfall, and more frequent extreme weather events (IPCC, 2022). These climatic shifts are weakening fragile ecosystems and severely affecting the livelihoods of communities dependent on natural resources. As a result, the intensified climatic stress interacts with existing social, economic and political challenges, exacerbating the already complex dynamics related to migration, peace and security in the region (Gavin, 2022; Kenduiywo et al., 2023).

Across the EHoA region, conflict and climate-related pressures have led to widespread displacement and migration as communities move in search of more stable living conditions. It is estimated that, by the end of 2024, around 8.9 million internally displaced persons and 4.5 million refugees were living in the region. Despite the scale and complexity of mobility in the East and Horn of Africa, 41.6 per cent of the 793,594 total movements tracked in 2024 in the region, the Horn of Africa has historically received less attention and fewer resources compared to migration movements towards Europe and the Middle East (IOM Regional Data Hub, internal DTM statistics, 2024)[1].

To manage these mobility flows, regional frameworks, such as the IGAD Protocols on Free Movement and on Transhumance, have been established (IGAD, 2020a; IGAD, 2020b). These frameworks recognize the significance and scale of migration within the EHoA region and highlight the need for organized approaches to cross-border mobility.

Within this regional mobility landscape, Ethiopia stands out as a primary sending, transit and destination country for migration. Geographically positioned at the centre of the region, Ethiopia is significantly affected by climate variability and it is highly dependent on rain-fed agriculture and agro-pastoral activities. More frequent droughts and erratic rainfalls are increasingly placing pressure on Ethiopia's agricultural sector, which accounts for 37 per cent of the national gross domestic product and employs nearly 70 per cent of the population, making it especially vulnerable to climate shocks and variability (Kumari Rigaud et al., 2018). As a result of this pressure, mobility within and outside the country has become a key coping strategy for the affected population. Multiple studies indicate that climate stressors in Ethiopia, especially prolonged droughts and severe flooding, are increasingly causing crop failures, livestock losses and land degradation, which in turn are exacerbating food insecurity and prompting mobility (Gray and Mueller, 2012; Hermans and Garbe, 2019).

Climate variability and conflict reinforce one another along a well-documented pathway in Ethiopia and the wider East and Horn of Africa. Recurrent droughts and erratic rainfall erode pastoral and agro-pastoral livelihoods by shrinking pasture, drying water points and decimating herds, thereby deepening economic fragility (Kenduiywo et al., 2023; Tofu et al., 2023). Livelihood loss heightens competition over scarce natural resources, increasing economic vulnerability and fuelling the grievances that most often erupt as inter-communal clashes between herding groups and between herders and sedentary farmers (Tofu, et al., 2023; World Bank Group, 2024).

[1] The 2024 movement estimate is based on internal, unpublished Displacement Tracking Matrix (DTM) data compiled by the IOM Regional Data Hub and shared with the authors in 2025

Notably, although these intercommunal disputes are often described as local disputes, they are commonly rooted into more complex political, ethnical and commercial dynamics. Local elites often weaponize these grievances by mobilizing youth militias or arming clan leaders, so disputes that begin as resource quarrels escalate into violent intercommunal clashes (Sax et al., 2023; World Bank Group, 2024).

Violence then disrupts markets and social safety networks, further undermining coping capacity and locking communities into a feedback loop of climatic stress and insecurity (Pacillo et al., 2021a). As climate is increasingly exacerbating the root causes of these disputes, human security issues grow more acute, adding layers of complexity to the regional and national mobility dynamics, increasing the need for a closer analysis (Pacillo et al., 2021a; Pacillo et al., 2021b; Sax et al., 2023). Migration emerges at multiple stages of this loop: pastoralists extend transhumance corridors or move to nearby towns in search of grazing and income; as insecurity persists and assets dwindle, households increasingly opt for longer-distance or cross-border routes along established corridors supported by kinship networks (Kenduiywo et al., 2023). Thus, compounded climate-and-conflict pressures shape both the decision to move and the distance and destination of that movement, influencing regional mobility far beyond immediate displacement hotspots. Therefore, this report aims to investigate mobility flows and trends in Ethiopia and in the EHoA route. The EHoA route is defined as the ten countries covered by the International Organization for Migration's Regional Office in Nairobi: Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, the United Republic of Tanzania, and Uganda. The objective of this study is to develop a clearer understanding of the links between climate, peace, and security in order to better inform regional responses and frameworks that address both migration and climate change adaptation.

Specifically, the report firstly investigates how the main mobility corridors differ, comparing movements that stay within EHoA route to those that exit the region altogether in terms of volume, seasonality and route choice. Secondly, it tests whether districts facing compounded climate and security stress generate different outmigration flows. Thirdly, it probes whether that same compound stress alters destination preferences, driving migrants toward shorter, intraregional journeys or encouraging longer, extra-regional ones. Finally, it explores the extent to which Flow Monitoring data capture seasonal transhumance and what those patterns, or their absence, reveal about pastoralists' responses to climate-security pressures. Together, these questions position the analysis to clarify not only the scale of mobility within and beyond EHoA, but also the ways climate and conflict dynamics shape those divergent routes.

To do so, we use spatial analysis techniques to compare how out-migration in Ethiopia interacts with the presence of local climate security hotspots[2] and map transhumance dynamics using migrants' socioeconomic profiles focusing on agro-pastoralists. These hotspots identify places where harsh climatic conditions, such as increased drought frequency or unpredictable rainfall, intersect with limited local capacity to manage resources and ongoing socio-political challenges, reinforcing a vicious cycle that further weakens local capacities, exacerbates existing tensions and fosters resource-based conflicts (Kenduiywo, et al., 2023). By differentiating the analysis based on the intended destination of the individual migrants, this report also seeks to give more attention to mobility dynamics within the East and Horn of Africa route and thus understand how the climate, peace, and security nexus interacts with the individual intention to move within or outside the region.

[2] A "climate security hotspot" is defined as an area where the impacts of climate change co-occur with conflict risks and socioeconomic vulnerabilities, creating extended risks for human security (Kenduiywo, et al., 2023).

03

DATA AND METHODOLOGY

IOM staff member demonstrates relaxation exercises during a group therapy session for IDP men affected by climate-induced disasters.

3.1. MIGRATION DATA

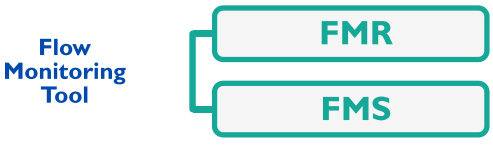
In a region as dynamic and complex as the East and Horn of Africa, where migration is shaped by a combination of climate pressures, economic challenges, conflict and aspirations for better opportunities, having robust tools to monitor and quantify human mobility is essential. In response to this need, IOM in collaboration with national and local authorities and partners, has implemented the Displacement Tracking Matrix (DTM). Through data collection and analysis, DTM disseminates vital multilayered information on the needs, mobility and vulnerabilities of displaced and mobile populations (IOM, 2022a). This information helps responders and decision makers better provide context-specific assistance to these populations. This analysis focuses on one of the components of the DTM, namely Flow Monitoring.

The Flow Monitoring tool aims to capture quantitative estimates of migration flows at key transit areas defined as Flow Monitoring Points (FMPs). These areas are located across the region near country borders or in key migrant transit locations to efficiently capture inter- and intraregional migration dynamics. Data collected include individual demographic and socioeconomic information as well as details about migrants' journeys such as place of origin, date of departure, reason for migration and intended destination. This information is used to estimate displacement or migration trends within and among the regions. The term "intended" destination is used because at the time of the interview, the migrant is still in transit and may experience changes en route that could prevent them from reaching their destination. It is important to acknowledge that, in some cases, migrants may pause their journey for short periods during transit to accumulate funds for further travel, leading them to report transit countries as final destinations.

Furthermore, despite the innovative nature of the flow monitoring tool, it has certain limitations linked to the geographic placement of Flow Monitoring Points (FMPs), which can introduce bias in the captured movements. FMPs are unevenly distributed and primarily concentrated along major exit corridors in Somali, Oromia and Amhara, meaning that the data more accurately reflect movements at these monitored points while underrepresenting flows from less-monitored regions, smaller internal areas such as Sidama and Central and South-West Ethiopia, and among pastoralist populations. Consequently, comparisons across regions, as well as analyses disaggregated by sex, age, occupation and region, should be made with caution, especially when considering internal migration. In addition, short-term or prolonged closures of FMPs can create gaps in the data set, potentially distorting insights into migration trends and flows if these issues are not explicitly accounted for.

The Flow Monitoring tool is made up of two main components:

- Flow Monitoring Registry (FMR): Collects group-level information on the number of people moving through each transit point and the basic characteristics of every travel group (e.g. average sex/age composition). Because data are recorded for groups rather than for each traveller individually, the resulting statistics may not capture the full range of individual-level circumstances.
- Flow Monitoring Survey (FMS): This tool is used to collect more specific qualitative information from a subset of individuals[3] within the transit groups.



[3] This subset of individuals cannot be considered statistically representative of the larger FMR sample, as participants are not rigorously randomly selected but rather chosen based on availability and consent and to participate in the survey.

In this analysis, the FMS was used as the primary source of migration data over the period February 2018 to May 2024 because it is individual based and accurately represents the origin and intended destination. Although the FMR provides more reliable figures on the magnitude of the migration flows, its group level data limits insight into individual migration decisions. In contrast, FMS provides a more accurate profile of the interviewed migrant, allowing researchers to look into the individual drivers and motivations behind migration. Furthermore, the FMS allows to compare the sociodemographic characteristics of the individuals moving within and outside the EHoA route, thus highlighting the main differences among them.

3.2. ADDITIONAL DATA SOURCES

To better capture the climate, peace and security dynamics linked to population movement, this analysis utilizes external data in addition to IOM DTM Flow Monitoring. Climate and environmental data for the baseline period (1981–2022) are used to precisely derive the climate conditions of specific locations. In particular, temperature data is extracted from AgERA5, a long-term global coverage agro-meteorological data set with a 10 km spatial resolution (Boogaard et al., 2020). Data on precipitation is extracted from the Climate Hazards Group Infrared Precipitation with Stations (CHIRPS), a high-resolution precipitation data set. CHIRPS is widely used for areas with limited meteorological infrastructures such as East and Horn of Africa, since it combines data from local weather stations with satellite images to obtain reliable and consistent information on rainfall (Funk et al., 2015). Additional climate parameters, namely actual evapotranspiration and climate water deficit, are extracted from TerraClimate (Abatzoglou et al., 2018). Information on conflict is collected from the Armed Conflict Location and Event Data Project (ACLED) (Raleigh et al., 2010). Finally, sociodemographic information on inequality and malnutrition is acquired from the Institute for Health Metrics and Evaluation and estimated net migration from the Center for International Earth Science Information Network Columbia University.

3.3. METHODOLOGY

The FMS data set covering migration data over the period February 2018 to May 2024 is examined using statistical software (Stata and R studio) to explore migration drivers, trends, flows and transhumance dynamics in the East and Horn of Africa region with a focus on outward flows from Ethiopia. The analysis compared migration patterns from Ethiopia toward the 10 countries in the EHoA covered by IOM's Regional Office in Nairobi —specifically Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, South Sudan, the United Republic of Tanzania, Uganda with those outside the EHoA region.

Notably, in this analysis, we refer to movements from Ethiopia towards these countries as the EHoA route[4]. Flow Monitoring provides almost real-time detailed information on movements and socio-demographic characteristics of the individual migrants transiting through the FMPs. As a result, hundreds of thousands of individuals are recorded across various transit points, producing a vast volume of information. To ensure meaningful analysis and to identify migration trends and patterns, summary statistics are reported in tables comparing the characteristics of individual migrants moving within and outside the EHoA route.

[4] Ethiopia is frequently reported as a final destination in the dataset, for the purposes of this analysis it is thus included among the set of destination countries constituting the EHoA route.

To further investigate and comprehend the migration dynamics in relation to the climate, peace and security nexus, the report analysed the geographical overlap between regional out-migration patterns, climate risks such as droughts and floods, and occurrences of conflict. This comparison between within-EHoA and outside-EHoA flows allows to understand how compounded climate-and-conflict stress shapes both the decision to move and where people intend moving to, adding more nuance on the mobility drivers and dynamics in the region.

We accomplished this by overlaying the migration data set with identified climate security hotspots. A climate security hotspot is a geographical area identified as having a high co-occurrence of climate-related stressors, conflict risks, and socioeconomic vulnerabilities based on the primary livelihood strategies of the local population (Kenduiywo et al., 2023).

These hotspots are particularly susceptible to climate-induced insecurities, where climatic challenges such as droughts, floods and temperature increases intersect with ongoing conflicts and fragile socioeconomic conditions, amplifying risks to human security (Kenduiywo et al., 2023). To identify areas where conflict and climate challenges intersect, the country was divided into equal-sized grid cells (about 20 km^2), referred to as mega-pixels, allowing for consistent comparison among the several data sources.

Through spatial pattern-based clustering, climate data, including temperature and rainfall patterns, was used to categorize zones with low, moderate or high drought exposure. Conflict clustering was conducted through unsupervised k-means machine learning approach to categorize conflict events, tracking the frequency and severity of violent events, into low, moderate, or high conflict areas. Conflict clusters were then merged with climate clusters to identify hotspots where severe climate conditions and high conflict risks co-occur.

Vulnerability assessment using socioeconomic data, such as malnutrition rates and access to essential services, was carried out to further profile vulnerable communities within these hotspots. This approach provides a clear understanding of where overlapping risks are most pronounced, guiding targeted interventions. Additionally, an econometric approach involving scatter plots with Ordinary Least Squares (OLS) regression lines and Logit models was utilized to gain insights into the impact of climate security hotspots on migration.

Data is aggregated annually at the administrative level 1 (region) to better understand migration flows. Multiline time series charts and spatial maps provide a comparative visualization of migration trends both within and outside the EHoA. This approach aims to identify specific migration peaks and patterns that may be linked to particular events. In addition, migration flows were depicted through Sankey diagrams with Ethiopia regions as the origin and countries or worldwide regions as the destinations to better contextualize pull drivers from destination countries. Finally, to comprehend transhumance dynamics, migrants' socioeconomic profiles, particularly focusing on pastoralists, were mapped based on their main reason for moving and their individual professions. The individual push and pull factors of migration are compared again based on the chosen destination. Transhumance dynamics are then visualized by mapping the distribution of professions and push and pull reasons to move, focusing mainly on agro-pastoralists across the regions of Ethiopia using pie charts in the maps. Each pie chart represents a region, and the segments within the chart indicate the proportion of individuals engaged in different professions, as categorized in the legend.

04

RESULTS

Debre Berhan, Ethiopia
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4.1. THE SCALE OF MIGRATION AND UNDERLYING DRIVERS

The report focusses on the migration flows from Ethiopia –one of the most central countries in the mobility landscape of the region. Ethiopia is the source (or place of origin) of 84 per cent (110,066/131,043) of the migrants captured in the FMS, numerically confirming its importance in the mobility dynamics of the region. Those individuals who did not give consent or had participated in the survey before were excluded. In addition, individuals who did not report an intended final destination were also removed from the dataset, as they could not be used in the analysis.. As reported in Table 1, between 2018 and 2024, the FMS captured a total of 102,988 migrants who departed from Ethiopia. Among these, 40,556 individuals (39.38%) were moving within the EHoA region, while 62,432 individuals (60.62%) were moving outside this region. Notably, the information presented in Table 1 is not consistently available for the entire sample, as not all interviewed migrants responded to every survey question. Consequently, the number of observations may vary depending on the specific information being discussed. To ensure clarity and simplicity, the results are commented as percentages of the total number of respondents for each question.

Nearly 65 per cent of individuals migrating within the EHoA and 42.7 per cent of those moving outside the region originate from rural areas of Ethiopia and are aiming to relocate to urban contexts in their respective destinations. This could be the result of a combination of economic, social and environmental drivers. Rural areas often face challenges such as environmental degradation and inadequate infrastructure, which limit agricultural opportunities (Tacoli et al., 2015).

Climate change is further exacerbating those challenges by intensifying the frequency and severity of droughts, reducing water availability and degrading agricultural productivity.

As a result, individuals may seek alternative opportunities in urban centres. Urban areas are frequently perceived to provide better job prospects and access to services compared to rural regions. Cities often concentrate economic activities, offering more job opportunities and improved access to public goods and amenities such as education, health care and electricity, making them attractive destinations (Selod and Shilpi, 2021). Urban-to-urban migration also accounts for around 22 per cent of the total movements for the two groups, confirming the importance of urban areas in attracting migrants. Rural-to-rural migration is significantly higher for individuals relocating outside the EHoA, with nearly 20 per cent compared to 8.4 per cent of those migrating within the region. For movements outside the EHoA region, this result probably reflects the response to the labour demand of the agricultural and pastoral sectors in the Gulf countries. Moreover, this kind of migration might also capture pastoral movements outside the EHoA region towards Sudan and the northern route.

Finally, the relatively small share of urban-to-rural movements, 2.7 per cent and 1.2 per cent for people moving outside and within the region respectively, may indicate return migration, with individuals moving back to their places of origin.

Table 1: Scale, type, and drivers of migration from Ethiopia to countries within and outside the EHoA from 2018 to 2024

	Destination outside EHoA		Destination within EHoA		Total
Variable	**N**	**Mean/(SD)**	**N**	**Mean/(SD)**	**N**
Total number of tracked migrants	**62 432**	**0.631**	**40 556**	**0.369**	**102 988**
Migration type:					
Rural-to-urban	51 082	0.427 (0.495)	27 732	0.648 (0.478)	78 814
Urban-to-urban	51 082	0.226 (0.418)	27 732	0.216 (0.411)	78 814
Rural-to-rural	51 082	0.191 (0.393)	27 732	0.084 (0.278)	78 814
Urban-to-rural	51 082	0.027 (0.162)	27 732	0.012 (0.109)	78 814
Reason to migrate:					
Economic	62 432	0.925 (0.263)	40 556	0.482 (0.500)	102 988
Education	62 432	0.029 (0.168)	40 556	0.010 (0.098)	102 988
Family	62 432	0.039 (0.192)	40 556	0.211 (0.408)	102 988
Access to basic services	62 432	0.082 (0.274)	40 556	0.290 (0.454)	102 988
Disasters	62 432	0.009 (0.097)	40 556	0.066 (0.247)	102 988
Slow Environmental change	62 432	0.075 (0.263)	40 556	0.058 (0.235)	102 988
Conflict	62 432	0.113 (0.316)	40 556	0.082 (0.274)	102 988
Persecution	62 432	0.075 (0.263)	40 556	0.007 (0.085)	102 988
Other reasons	62 432	0.006 (0.074)	40 556	0.024 (0.154)	102 988

During the interview, migrants are asked to identify the three primary reasons that influenced their decision to migrate. Economic drivers are clearly the most frequently mentioned reasons, particularly among those migrating outside the EHoA region, where 92.5 per cent of respondents indicate this motivation – nearly double the percentage of those migrating within the region (48.2%). Although economic reasons dominate survey responses, a substantial body of research shows that livelihood losses driven by droughts, floods and land degradation frequently underlie such moves, linking climate stress to economically framed migration decisions (Black et al., 2011; Gray and Mueller, 2012).

Family-related reasons, such as marriage and family reunification, are indicated by 21.1 per cent of individuals migrating within the region, which is significantly higher than the 3.9 per cent of those migrating outside. Also, access to basic services, such as health, food and water, is mentioned significantly more by people moving within the region (29% against 8.2%). Disasters and slow environmental change are mentioned, respectively, by 6.6 per cent and 5.8 per cent of migrants relocating within the EHoA region against 0.9 per cent and 7.5 per cent of migrants leaving the region. While slow environmental onset, such as drought, is similarly mentioned by migrants of both groups, it is clear that people heading to destinations within the EHoA relocate more in response to natural hazards and disasters, such as floods, landslides or storms.

Conflict, which is reported by 8.2 per cent and 11.3 per cent of the people moving within and outside the region, respectively, is not significantly different between the two groups. On the other hand, migration reasons related to persecution and violence are reported almost 7 percentage points more by people moving outside the region. These findings show that disasters and environmental factors are slightly more mentioned within intraregional movements, whereas conflicts and persecution are more commonly cited by migrants relocating outside the EHoA. While summary statistics of migration drivers provide valuable insights into the regional migration landscape, it is crucial to explore the role of climate-related factors in the area's mobility dynamics using more advanced analytical strategies. Thus, in the following section mobility responses to climate, peace and security dynamics are investigated.

4.2. CLIMATE, PEACE, AND SECURITY DYNAMICS

SPATIAL DISTRIBUTION OF OUTFLOW MIGRATION AND HOTSPOTS IN ETHIOPIA

Climate change may influence migration, although indirectly. Ethiopia's climate-induced livelihood shocks amplify resource-driven intercommunal clashes, often politicized by elites, while simultaneously straining State capacity amid larger insurgencies. To explore this compound climate-conflict pressure and understand how climate, peace and security factors might affect mobility in the EHoA, this section examines regional out-migration trends alongside climate security hotspots. Specifically, this analysis combines the climate security hotspots with the FMS migration data set, focusing on movements within and outside the EHoA across different regions of Ethiopia. Climate security hotspots were identified to highlight areas facing significant stress from conflict and climate factors. This approach aimed to pinpoint regions experiencing acute climate insecurity. Movements over the six-year period from 2018 to 2024 were aggregated by region and visualized using a blue colour palette. In this visualization, dark blue indicates regions with a high number of tracked movements, while light blue represents regions with fewer movements. The findings are illustrated in Figure 1 and Figure 2.

The Afar, Amhara, Benishangul-Gumz, Dire Dawa, Gambela, Harari, Oromia, Somali and Tigray regions were characterized by the presence of different hotspots. Table 1 in Annex 1 reports the number of specific hotspots divided by region of departure to give a clearer overview of the regional dynamics. A total of 152 hotspots were identified in Ethiopia. These hotspots are categorized as follows: 99 exhibit "Moderate conflict and High drought" conditions, 21 are classified as "High conflict and Moderate drought," 16 fall under "Limited conflict and High drought," 11 are categorized as "High conflict and High drought," and five are considered "High conflict and Low drought." The Somali region, with 76 hotspots, is the most affected area in terms of climate security dynamics, followed by Oromia with 28 hotspots, Afar with 26 hotspots and Amhara with nine. Among these regions, Somali, Oromia and Amhara also show a significant number of tracked movements. Movements originating from the Somali region are primarily captured within the EHoA route, while those from Oromia and Amhara generally move towards destinations outside the EHoA.

In contrast, the South-West Ethiopia, Central Ethiopia and Sidama regions, which had no climate security hotspots, experienced minimal migration, both within and outside the EHoA. While these results can certainly be affected by the uneven distribution of FMPs for data collection, Figures 1 and 2 suggest that regions that experienced both high drought stress and high conflicts saw significant movements, indicating that unfavourable climate and conflict are two major drivers of migration. In addition, the fact that areas experiencing drought are also vulnerable to conflict suggests that climate change might exacerbate pre-existing insecurity, especially in regions that heavily rely on natural resources (Blocher et al., 2022). Persistent droughts in Ethiopia have disproportionately impacted pastoralist and agro-pastoralist communities relying on highly climate-vulnerable natural resources such as water and pasture (IPCC, 2022). Empirical evidence shows that recurrent droughts, shrinking pasture and declining water points are eroding the livelihood base of Ethiopia's pastoral and agro-pastoral households: land-cover analyses in the southern Afar reveal rapid loss of grazing rangeland to bare soil and shrub encroachment under prolonged moisture stress (Mekuyie et al., 2018), and a resilience-index study in the Borana zone finds that most herding families now fall below the threshold for coping with climate-induced shocks, principally because successive droughts have decimated livestock assets and feed availability (Tofu et al., 2023). The decline of these resources fosters migration in search of ways to support their main livelihood and/or seek new alternatives (IPCC, 2022). These findings support previous studies indicating that prolonged droughts compel migration as a coping strategy (Hermans and Garbe, 2019). Scarcity of pasture and water heightens competition among clans; in Ethiopia's rangelands, such disputes often escalate into violent clashes that further foster mobility responses (Van Weezel, 2019).

Movements originating from the Somali region are mainly to areas within EHoA, a pattern likely linked to pastoralism. These communities are less likely to undertake long-distance movement as a way to reduce risks posed to their livestock, such as exposure to diseases, thus preserving their main livelihood.

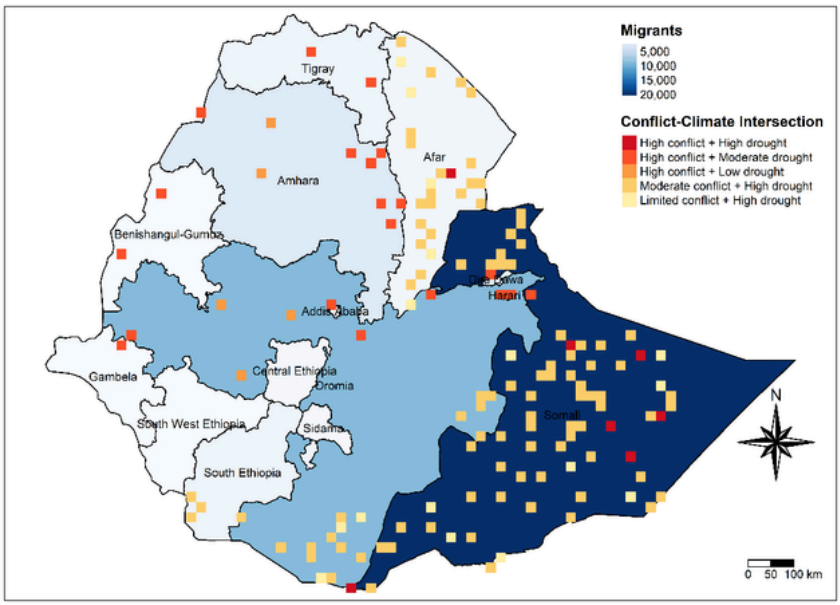

Figure 1: Co-occurrence of migration and climate-conflict clusters within the EHoA route. Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

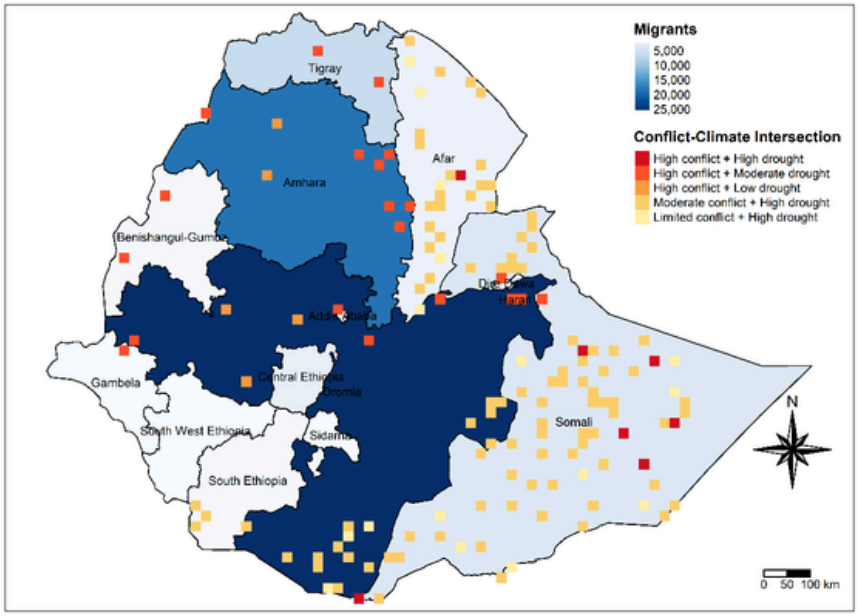

Figure 2:Co-occurrence of migration and climate-conflict clusters outside the EHoA. Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

These findings are also supported by the analysis reported in Annex 2, where the relationship between the presence of climate security hotspots and migration is quantitatively tested. The scatterplots of an ordinary least squares regression (OLS), reported in Annex 2 Figure 1, highlights a positive correlation between a higher number of hotspots and an increasing number of migrants in the region of departure. The OLS model fitted in the sample of individuals moving outside EHoA shows a steeper upward trend, which would naturally suggest that climate, peace and security dynamics might affect more movements toward more distant migration options. However, this analysis is limited to showing the relationship between raw counts (of hotspots and migrants) and does not capture in the model the effect of several compounding factors that shape mobility outcomes. Furthermore, this scatterplot analysis cannot suggest anything about the likelihood of migrating within or outside the EHoA region.

To address these limitations, un a logit model is used to further investigate the probability of migrating within the EHoA route as the number of hotspots increases. The results, shown in Annex 2 Figure 2, indicate a positive relationship between the number of climate security hotspots and the likelihood of internal migration within the EHoA route, suggesting that increasing climate security stress, as represented by a higher number of climate security hotspots, correlates with an increased propensity for individuals moving to closer locations within the regional context. While these findings provide valuable insights into the region's mobility dynamics, additional factors such as departure times, specific destination choices and socioeconomic status could be considered for further investigation. Doing so will help obtain a more comprehensive understanding of these movements.

4.3. MIGRATION TRENDS AND DYNAMICS

The dynamics of these movements are further examined by analysing average departure time, which indicates that migrants travelling within the EHoA route, on average, tend to have begun their journeys more recently than those heading to other destinations. In fact, 32 per cent of individuals migrating within the region had started their journey on the same day as the interview, compared to only 2.5 per cent of those travelling outside the region. This could indicate that people who are moving inside the region make shorter journeys and are probably located closer to border areas (considering the FMPs are located along or close to countries' borders).

Social proximity has a considerable impact on individual choice of movement as people tend to relocate to areas where there are others with similar profiles and backgrounds (Selod and Shilpi, 2021, Tacoli et al., 2015). This result is also confirmed by the previously reported statistics in Table 1, where family reasons to move are mentioned more than twice more frequently by people making an intraregional journey compared to people migrating outside EHoA.

Table 2: Migration time of departure from Ethiopia to countries within and outside the EHoA route

	Destination outside EHoA		Destination within EHoA		Total
Variable	**N**	**Mean/(SD)**	**N**	**Mean/(SD)**	**N**
Time of departure:					
Today	45 521	0.025	30 740	0.321	76 261
		(0.156)		(0.467)	
Between 2 weeks and 3 months	45 521	0.867	30 740	0.612	76 261
		(0.340)		(0.487)	
Between 3 months and 6 months	45 521	0.092	30 740	0.056	76 261
		(0.289)		(0.230)	
Between 6 months and 12 months	45 521	0.012	30 740	0.01	76 261
		(0.111)		(0.097)	
More than 12 months	45 521	0.004	30 740	0.002	76 261
		(0.062)		(0.049)	

Figures 3 and 4 present the annual statistics of tracked movements at administrative level 1 from Ethiopia to countries within and outside of the EHoA route. These statistics are illustrated from 2018 to 2024, using two distinct approaches. In particular, Figure 3 shows monthly migration counts over time, including dotted lines representing a smooth trend curve based on the LOESS non-parametric regression to display the continuous changes that represents the underlying trend, filtering out short-term spikes and dips.

Figure 4 spatially maps migration trends at the administrative level 1 (regions) to visually identify main source regions in Ethiopia. These figures help identify migration trends and peaks that might have been associated with external factors or shocks.

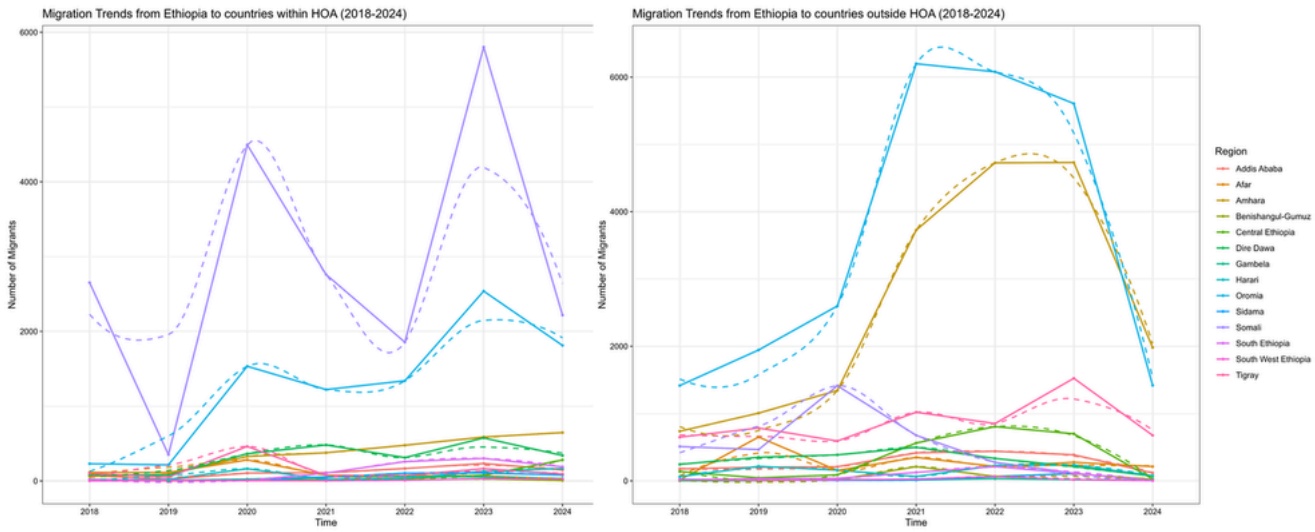

Figure 3: Migration trends from Ethiopia to within EHoA (left) and to outside EHoA(right)

Overall, migration within the EHoA route occurs mainly from the Somali region, followed by Oromia, Amhara and Dire Dawa, with the rest of the regions registering low levels of migration. Although the outflow from the Somali and Oromia regions is generally larger than the rest of the regions for the whole period, Figures 3 and 4 show two significant migration peaks during the 2019–2020 and 2022–2023. More specifically, from March to May 2019, the HoA region received less than 50 per cent of its annual average precipitation (OCHA, 2019). Ethiopia faced a severe drought in 2019, leading to a significant decline in average crop harvests and a reduction in pastureland, which worsened food insecurity among households (FEWS NET, 2019). This period of climatic stress was followed by an even more intense dry spell. Between 2020 and 2023, Ethiopia experienced five consecutive failed rainy seasons, that is, rainfall during the rainy seasons was far below average and insufficient for pasture and crops to flourish, devastating livelihoods in the Somali and Oromia regions. This situation resulted in the deaths of over 4.5 million livestock, widespread crop failures and an increase in severe food insecurity and malnutrition (ACAPS, 2023). Access to clean water also deteriorated significantly, as many water points either dried up or diminished in quality (OCHA, 2022a).

In drought-affected areas, more than 13 million people were estimated to need water, sanitation and hygiene assistance (OCHA, 2022b). In addition, 8.2 million people did not have enough water for drinking, cooking and cleaning, which increased the risk of waterborne diseases and infections (OCHA, 2022a). According to the United Nations Children's Fund (UNICEF), in June 2022 compared to October 2021, the cost of water doubled in Oromia and increased by 50 per cent in the Somali region (UNICEF, 2022). The observed peaks in Figures 3 and 4 may visualize intraregional migratory movements propelled by exacerbated drought conditions. To confirm this assumption, the individual reasons for migration for specific times and administrative levels of departure are analysed. Table 2 in Annex I reports a specific regional snapshot of the reason for migrating during the two observed mobility peaks. Although disasters and slow environmental change have been reported less than other reasons, the impact of droughts is very much visible, especially for migrants who departed from the Somali region where access to basic services (such as water, food and health services) was mentioned by 47,8 per cent of respondents in 2020 and 63.6 per cent in 2023. This confirms the previous assumption on the severe impact of droughts on human mobility.

Notably, family reasons during the 2023 peak have also been reported by 60 per cent of the migrants who departed from the Somali region. Climate stress can indirectly reshape family-related mobility decisions, with households in drought-affected areas sometimes turning to practices such as marriage arrangements as part of their coping strategies. Humanitarian reporting notes that prolonged drought can heighten protection risks, including early marriage. As reported by UNICEF (2022) and OCHA (2022b), early marriage is a common coping mechanism in drought-affected areas in Ethiopia. In 2022, child marriage cases in the Somali region increased by 264 per cent compared to 2021 (OCHA 2022b).

Importantly, in the Flow-Monitoring data, "family reasons" is a broad category that can include family reunification, accompanying relatives, visiting kin or marriage arrangements. Thus, it does not specifically denote early or child marriage, and no direct inference between the two should be made without supporting qualitative evidence. However, taken together, the survey pattern and the protection data illustrate how severe climate stress can alter household decisions in ways that manifest as "family-related" mobility, even when migrants themselves do not explicitly list climate as the primary driver.

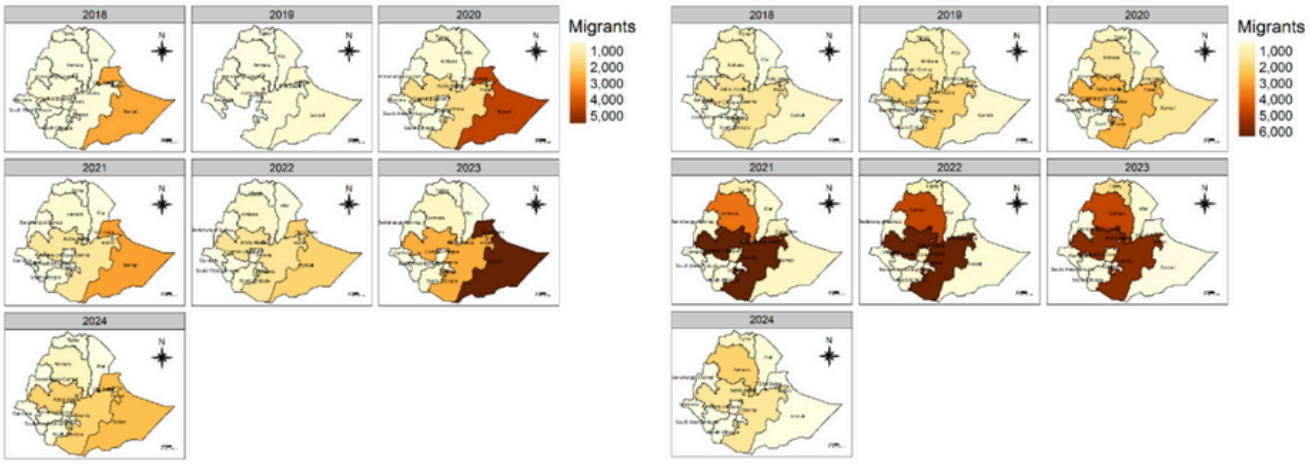

Figure 4: Spatial migration trends within the EHoA route (left) and outside EHoA(right). Regions with no recorded migrants during the study period are not displayed.

In addition, to better understand migration dynamics, it is important to assess migrants' socio-demographic profiles alongside their stated motivations, as this combined perspective provides a more comprehensive picture of how different individuals may respond to the factors shaping mobility decisions. This is done in the following section after the assessment of the reason to migrate. Figures 3 and 4 showcase that tracked movements from Oromia and Amhara regions have the highest levels of out-migration outside the EHoA, followed by Tigray, Somali, Central Ethiopia, Dire Dawa, Afar and Addis Ababa, while the rest of the regions exhibit insignificant flows.

Oromia and Amhara regions, in particular, present a significant increase in migration between 2021 and 2023. This increment likely reflects a combination of climatic, economic and conflict-related factors. Table 2 in Annex 1 reports the average reasons to move for these three years. Economic reasons, mentioned by more than 90 per cent of the respondents, are clearly the most cited during the migration peaks for the two regions. Notably, slow environmental change, conflict and persecution were also considerably mentioned by respondents. Prolonged droughts in Oromia as of 2020, caused by five consecutive failed rainy seasons, led to widespread agricultural failures and livestock losses, intensifying food insecurity and malnutrition (ACAPS, 2023).

Simultaneously, the region experienced violent intercommunal clashes, further destabilizing communities and prompting migration and displacement (OCHA, 2024). In Amhara, the spillover of the Tigray conflict resulted in widespread displacement and insecurity, intensifying migration pressures (UNICEF, 2021). Additionally, the economic repercussions of the COVID-19 pandemic, including reduced remittance flows and job losses, compounded these challenges, particularly in Amhara, where households heavily depend on external income (Wolde, 2018; IOM, 2022b). These intertwined factors underscore the complex drivers behind the observed migration peaks during this period. It has to be noted again that Flow-Monitoring Points record mainly movements close to borders, and the present data set, which ends in May 2024, therefore underrepresents internal mobility linked to the sharp surge in conflict that unfolded during the second half of that year.

4.4. MIGRATION DESTINATIONS AND REGIONAL PATHWAYS

Sankey diagrams are utilized to analyse further migration flows both within and outside the region. Figure 5 illustrates the magnitudes of migration from the administrative level 1 of origin to the intended destinations. In the left panel of Figure 5, the migration flows within the EHoA route are depicted. Notably, as observed from the trend analysis in the previous section, the Somali and Oromia regions appear to be the most mobile in the EHoA context.

The majority of migrants are moving from the Somali and Oromia regions, primarily towards Somalia, followed by Djibouti, Ethiopia and Kenya while the other countries show minimal inflows. In the Somali region, climate hazards and conflicts are closely interconnected. Extensive droughts have diminished resource availability and worsened food insecurity, leading to cattle raiding and intercommunal clashes (IOM, 2023).

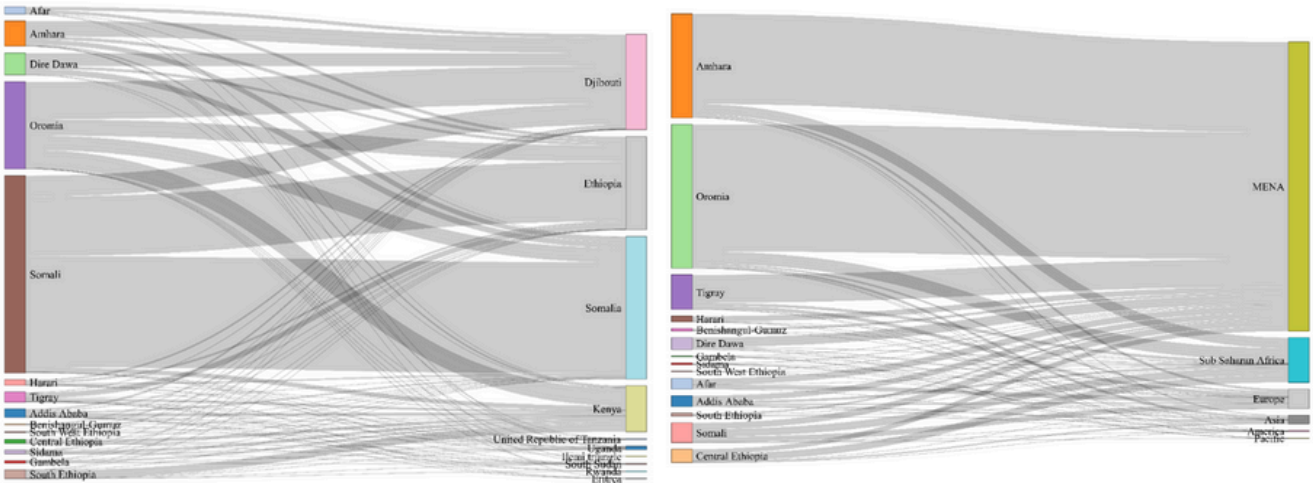

Figure 5: Migration flows to countries within EHoA (left) and outside EHoA (right)

Thus, Figure 5 may reflect the region's mobility responses to these interconnected climate and conflict dynamics, as people seek more accessible resources by moving to nearby locations.

The right panel of Figure 5 maps migration flows from Ethiopia's administrative level 1 (regions) to other parts of the world outside the EHoA route, that is , sub-Saharan Africa, the Middle East and North Africa (MENA), Europe, Asia, the American continent and the Pacific. Notably, migration principally occurs towards the MENA region, on the Eastern Route mainly to the Arabian Peninsula, followed in a minor way through sub-Saharan Africa, Europe and Asia regions. The MENA region, especially Saudi Arabia and the United Arab Emirates, offers several opportunities for low-wage labour such as in construction, agriculture and domestic work (IOM, 2022c). As a result, this route represents the principal flow in the region as migrants seek better economic opportunities abroad. This is in line with results from Table 1, where 90 per cent of the migrants mentioned economic reasons as one of the main reasons to migrate. These opportunities have significantly enhanced households' well-being due to the substantial inflow of remittances. In Ethiopia, remittances play a vital role in the economy, aiding households with daily expenses, improving housing conditions, and financing small businesses (IOM, 2022b).

Table 3 provides information on the reasons that influenced migrants to select their specific destinations, supporting the findings and interpretations of the Sankey diagrams. Overall, destinations are often chosen based on the perceived availability of job opportunities. In fact, 70 per cent of the migrants moving outside the region and over 60 per cent moving within identified this consideration as one of the primary factors in their decision-making. Around 20 per cent of migrants mention safety, security and access to asylum as their reasons for choosing the destination, highlighting the considerable influence of conflict dynamics on migration both within and outside the EHoA route. Additionally, family-related reasons are cited more frequently by individuals migrating within the EHoA, which aligns with earlier findings and interpretations regarding the drivers of migration discussed in the first part of the results section. Table 3 also highlights Ethiopia's role as a destination country, with 29.2 per cent and 36.3 per cent of people returning home from Ethiopia towards destinations outside and within[5] the EHoA, respectively. Nearly 25 per cent of respondents moving within the EHoA sought better living conditions, rather than job opportunities or economic motivations, which is 7 percentage points higher than those moving outside the region.

Table 3: Main reasons to choose destination (pull drivers) to countries within and outside the EHoA route.

	Destination outside EHoA		Destination within EHoA		Total
Variable	**N**	**Mean/(SD)**	**N**	**Mean/(SD)**	**N**
Destination is chosen for:					
Job opportunities	62 432	0.703 (0.457)	40 556	0.625 (0.484)	102 988
Safety, security and access to asylum	62 432	0.208 (0.406)	40 556	0.215 (0.411)	102 988
Family	62 432	0.069 (0.253)	40 556	0.214 (0.410)	102 988
Network	62 432	0.041 (0.199)	40 556	0.022 (0.147)	102 988
Returning home	62 432	0.292 (0.455)	40 556	0.363 (0.481)	102 988
Proximity	62 432	0.029 (0.169)	40 556	0.013 (0.113)	102 988
Living conditions	62 432	0.172 (0.378)	40 556	0.245 (0.430)	102 988
Other reasons	62 432	0.033 (0.180)	40 556	0.018 (0.132)	102 988

[5] Ethiopia is among the countries listed as the intended destination countries within the EHoA.

4.5. SOCIOECONOMIC AND DEMOGRAPHIC PROFILES

In the previous sections, analysis focused on the magnitude, timing and drivers of migration to understand what motivates people to move and why they choose specific destinations. However, to fully grasp these dynamics, it is essential to also consider who is migrating. This understanding facilitates understanding how different individuals may respond to the factors and opportunities that drive migration. Table 4 displays the profiles of migrants, including socioeconomic and demographic information categorized by sex, age, education, occupation and marital status. Tracked migrants heading to destinations outside the EHoA route are predominantly male, making up 75 per cent of this group. In contrast, among those migrating within the EHoA route, males account for 50.2 per cent. This trend aligns with previous research indicating that labour migration corridors to Arab states contribute to the disproportionate representation of male migrant workers compared to female migrant workers (Bauloz et al., 2024).

Notably, while male migrants often dominate irregular migration flows, female migrants from the EHoA frequently migrate through regular channels, especially to Gulf Cooperation Council countries, to meet the high demand for domestic workers (IOM, 2023). Migrants moving towards countries outside EHoA are on average younger and more educated compared to people moving within the region, suggesting that younger individuals are seeking opportunities abroad, aligning with the skill demands of destination countries. In the previous sections, it was shown that economic and employment opportunities greatly influence the mobility landscape of the region. This is further illustrated in Table 4, which shows that only 28.4 per cent of respondents who moved outside the region and 26 per cent of those who moved within the region had a job prior to their move. As expected, since they tend to be younger on average, married migrants moving outside the EHoA comprise a significantly lower percentage (18.6%) compared to those migrating within the region (49.9%).

Table 4: Socioeconomic and Demographic Profiles of migrants from Ethiopia to countries within and outside the EHoA route.

	Destination outside EHoA		Destination within EHoA		Total
Variable	**N**	**Mean/(SD)**	**N**	**Mean/(SD)**	**N**
Migrant's sex (male)	62 403	0.75 (0.433)	40 550	0.502 (0.500)	102 953
Migrant age	62 432	25.235 (6.279)	40 556	33.113 (10.702)	102 998
Migrant's education: no primary	60 587	0.244 (0.430)	37 366	0.574 (0.494)	97 953
Migrant's education: primary	60 587	0.392 (0.488)	37 366	0.259 (0.438)	97 953
Migrant's education: secondary	60 587	0.32 (0.466)	37 366	0.149 (0.356)	97 953
Migrant's education: tertiary	60 587	0.044 (0.204)	37 366	0.018 (0.132)	97 953
Migrant had a job before departure	62 100	0.284 (0.451)	40 185	0.261 (0.439)	102 285
Migrant is married	62 172	0.186 (0.389)	40 385	0.499 (0.500)	102 557

The socioeconomic profile of the migrants is investigated by visually mapping the main profession of people on the move. Occupation types were categorized into pastoralist, agriculture, fishery and forestry, professionals (such as doctors, nurses, teachers, accountants, managers and office workers), elementary occupations such as cleaners, mining and construction workers, street vendors, motorbike operators and drivers, skilled manual labour and low-wage manual labour. To illustrate this, pie charts were plotted in each region, displaying the proportion of migrants engaged in each occupation as shown in Figure 6. Migrants are primarily professionals in agriculture, followed by those in elementary occupations. This trend is especially noticeable among migrants leaving the EHoA.

The limited employment opportunities in Ethiopia's agricultural sector, compounded by land shortage and degradation in agrarian communities, often compel individuals to seek work abroad, with the Gulf countries being a popular destination due to their demand for low-wage labour (Kefale and Mohammed, 2016; Retta, 2020; IOM, 2021). Only 362 individuals in the data set identify as pastoralists, and they are observed migrating from the Somali and Dire Dawa regions to various countries within the EHoA route. This movement is likely driven by the need to access essential resources such as water and pasture. While this information provides an initial insight into the dynamics of transhumance, further exploration is necessary to gain a deeper understanding of the migration patterns among pastoralists.

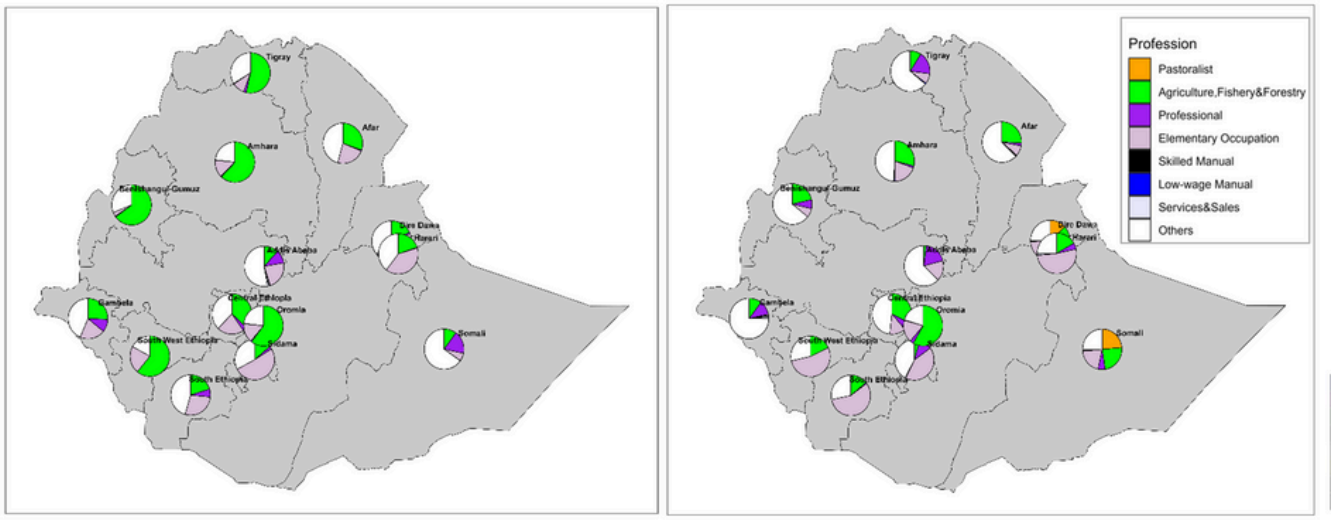

Figure 6: Socioeconomic profiles for migrants moving outside (left panel) and within (right panel) the EHoA route.
Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

4.6. LIVELIHOOD AND TRANSHUMANCE PATTERNS

The previous section showed that only a small share of migrants listed "pastoralist" as their occupation, implying that the FMS is poorly suited to tracking transhumance movements. This seeming scarcity is most probably due to the position of FMPs. Most herders move within Somalia and Ethiopia's Somali Region, and the FMPs cover only a small stretch of an exceptionally long, porous frontier. Clan-based grazing routes cross the border at many unmonitored spots; hence, the FMS data might miss most of pastoralist mobility. It would therefore be worthwhile to examine in greater depth whether and how the current FMS setup can be adapted or complemented to capture these cross-border transhumant movements more accurately. To do this, this section specifically examines the push and pull factors associated with agropastoral movements. In particular, Figures 7–10 illustrate the number of individuals who cited agropastoral push and pull factors for the two groups across various regions of Ethiopia. These specific reasons have not been discussed previously, as agro-pastoral motivations for migration are recorded as a subcategory of economic reasons in the FMS data set. While agropastoral movements should not automatically be linked to transhumance movements, particularly as the latter is considered a subcategory of economic motivation, these factors can partially reflect transhumance dynamics. Figures 7 and 8 indicate that individuals migrating for agropastoral reasons predominantly come from the Somali and Oromia regions, followed by the Amhara region for those moving outside the EHoA route. In the Somali region, pastoralism and agropastoralism serve as the primary livelihood strategies for local communities.

Notably, as also shown in Annex 1 Table 4, intended destinations are likely to reflect pastoralist movements. Furthermore, Annex 1 Table 4 also reports 1,328 individuals that do not report an intended specific destination and thus they could not be mapped or shown in our summary statistics. Although the missing information may be attributed to various issues in the data collection processes, highlighting this information is essential.

While pastoralists traditionally follow fairly predictable seasonal corridors between established wet- and dry-season grazing areas, increasing climate variability and local security pressures now compel many herders to adjust those routes opportunistically, so some movements recorded by the FMS appear to lack a fixed destination and to be guided by the search for resources such as pasture and water. These movements are highly flexible and adaptive, influenced by seasonal rainfall patterns, environmental conditions and conflict dynamics. These populations frequently engage in seasonal migration to address resource scarcity, particularly in relation to water and pasture availability in the arid and semi-arid environments characteristic of this region (Hirsi et al., 2021). However, these pastoralist communities are increasingly vulnerable to the impacts of climate change, including recurrent droughts, erratic rainfall and desertification. Recent devastating droughts have considerably impacted both the Somali and Oromia regions, resulting in the deaths of 45 million livestock, crop failures, and a noticeable increase in food insecurity and malnutrition (ACAPS, 2023). Annex 1 Table 4 shows the intended destination for individuals moving from Oromia due to agropastoral reasons.

Unlike the Somali region, individuals migrating from Oromia and, to a lesser extent, Amhara do not typically target pastoral destinations. This may also be due to several reasons, such as climate variability, which is changing traditional livelihood practices and forcing pastoralists to increase their mobility and adopt alternative non-pastoral livelihoods (Berhanu and Beyene, 2014; Berhe et al., 2017; Beyene et al., 2023). Nevertheless, pastoral areas often present limited opportunities for livelihood diversification, increasing the likelihood of moving to different destinations or engaging in low-wage activities such as fuelwood and charcoal production, which exacerbate environmental degradation and social cohesion (Maxwell, 2017; Beyene et al., 2023). Additionally, structural challenges, including restricted access to ancestral grazing lands due to cross-border policies, have further limited traditional mobility, leading Somali pastoralists to abandon traditional practices and forcing them to rely on humanitarian aid to survive (Nyangaga, 2022).

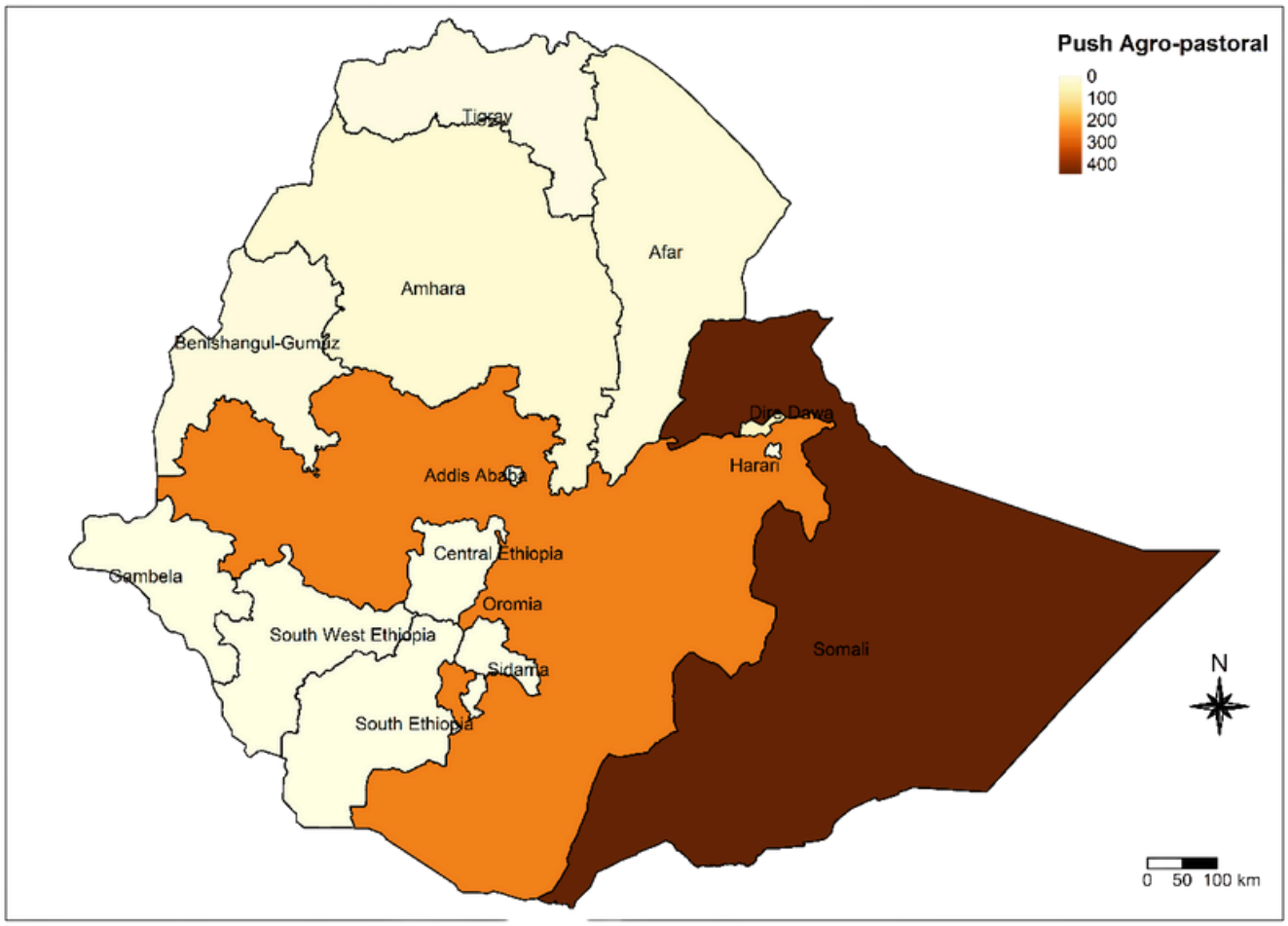

Figure 7: Number of migrants who moved due to agro-pastoral reasons from Ethiopia to countries within EHoA route. Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

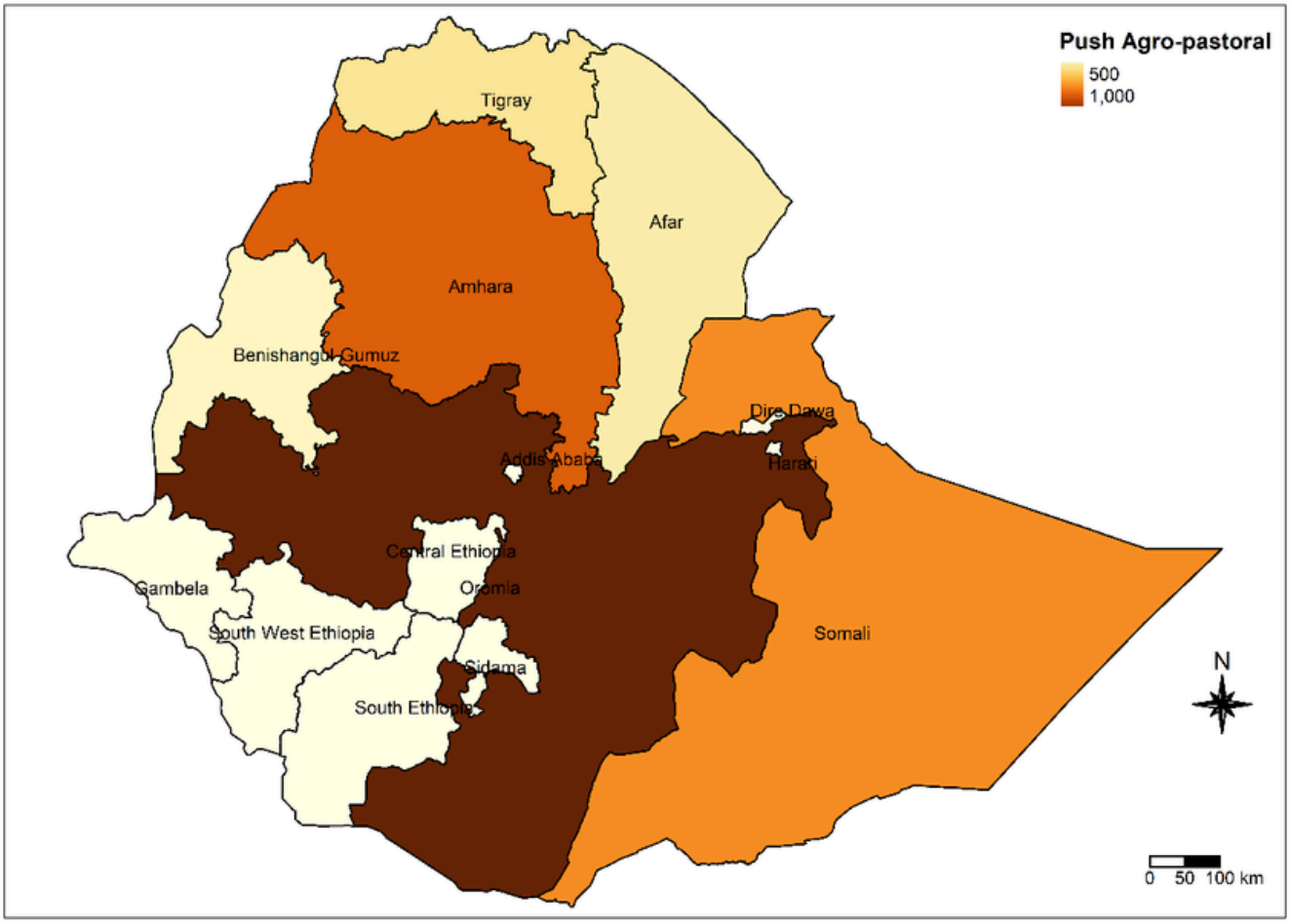

Figure 8: Number of migrants who moved due to agro-pastoral reasons from Ethiopia to countries outside EHoA route. Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

Additionally, Figures 9 and 10 illustrate the volume of migrants who have selected their destinations for agro-pastoral reasons and opportunities both within and outside the EHoA. Among migrants reporting agro-pastoral reasons for migrating within the EHoA route, the Somali region consistently records the highest number of movements, highlighting the significance of these migration patterns in this particular area. Tigray, on the other hand, recorded substantial movements outside EHoA, followed by Amhara and Oromia consistently with the previous figures. Transhumance movements have long been a vital practice in the Tigray region of northern Ethiopia, enabling pastoralist communities to optimize resource use in arid and semi-arid environments (Nyssen et al., 2009).

However, large scale conflicts and climate change, including erratic rainfall and prolonged droughts, have disrupted these traditional routes, increasing competition for access to pastures and water and increasing the risk of resource-based conflict leading individuals to seek for alternative strategies. In line with this interpretation, Annex I Table 5 shows that almost the totality of the migrants are moving to Saudi Arabia and do not follow traditional pastoralists roots. Addressing these challenges through inclusive policies and sustainable land management practices is thus crucial to preserving the livelihoods of pastoralist communities (Nyangaga, 2022).

In contrast to the previous section, Figures 7–10 indicate that FMS does capture, although in a limited way, some migration dynamics associated with pastoralism and transhumance. However, this information is not sufficient to fully depict these movements. Therefore, this data set needs to be integrated with specific tools that target transhumance movements, such as the IOM Transhumance Tracking Tool or, if available, internal FMR data within specific regions.

This integration would allow both data sets to complement each other and achieve a more comprehensive understanding of the characteristics and vulnerabilities of these communities. Furthermore, these results point out the need to i) having a more flexible data collection regarding the individual intended destination for people moving due to agropastoral related reasons and ii) expand the understanding of labour demand in the agricultural sector of international destinations, such as the Kingdom of Saudi Arabia, to enhance the distinction between transhumance movements and economic migration.

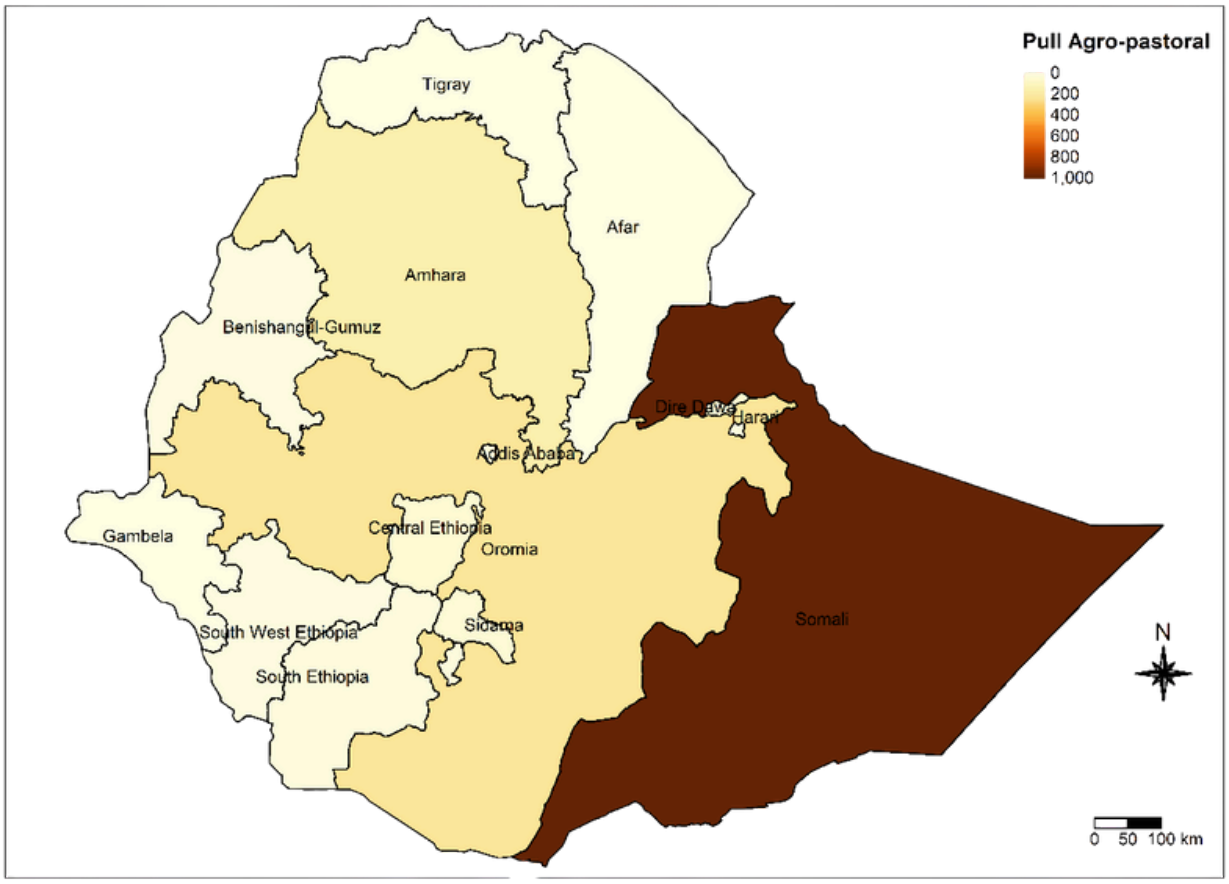

Figure 9: Agro-pastoral reasons to move to countries within EHoA route. Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

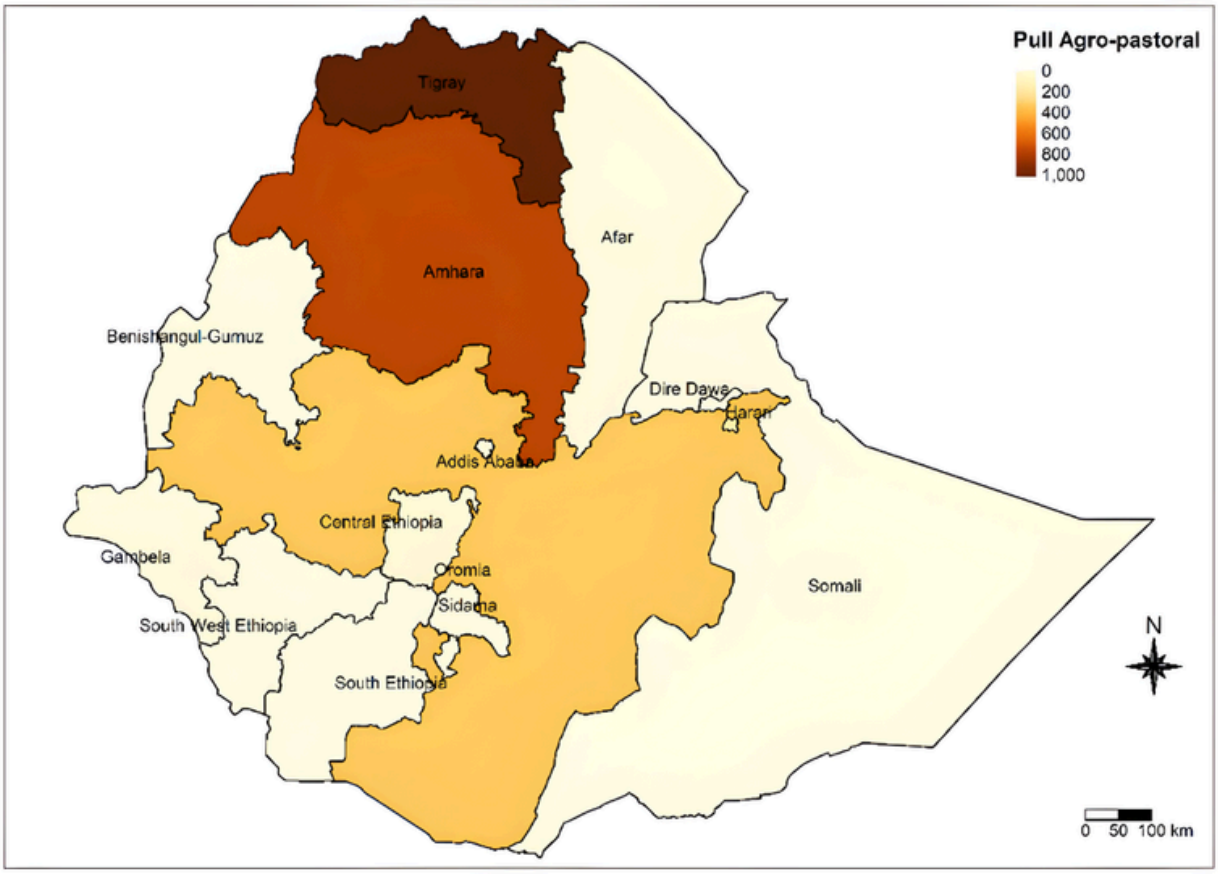

Figure 10: Agro-pastoral reasons to move to countries outside EHoA route. Disclaimer: The boundaries and names shown on this map reflect the most recent available data and do not imply official endorsement or acceptance by any authority.

05

IMPLICATIONS & POLICY RECOMMENDATIONS

An IDP woman passes by a shelter provided by IOM following devastating floods in her community.

The findings of this report reveal the complex interconnections between climate variability, migration and conflict, with differentiated impacts on people moving within and beyond the EHoA. The analysis shows that districts with compounded pressure form drought conditions and recurrent intercommunal violence are associated with higher recorded out-migration on both intra- and extra-regional routes. However, further estimates indicate that individuals departing from areas experiencing higher levels of combined climate and conflict pressure are more likely to move toward destinations within the EHoA route.. This pattern indicates that short-range rural-to-urban migration and seasonal transhumance are shaped by combined climate-and-conflict pressures rather than by climate stress alone. Once on the move, these migrants still face limited access to basic services and ongoing exposure to local resource clashes at their destinations (Tacoli et al., 2015; Kenduiywo et al., 2023; Selod and Harris, 2021). Investments in climate-smart agricultural practices, sustainable water management and ecosystem-restoration measures, such as land regeneration and large-scale reforestation, are critical to reduce resource competition and mitigate mobility pressures (IPCC, 2022).

In parallel, there is a need to strengthen the integration of climate analytics into early warning and peace infrastructures. Rather than creating new systems, priority should be given to enhancing the functionality, coordination and interoperability of existing early warning and peace mechanisms. Ethiopia's national early warning system, led by the Ethiopian Disaster Risk Management Commission, could be strengthened through greater digitization, the use of automatic telemetry, and improved data-sharing protocols. At the regional level, the IGAD Climate Prediction and Applications Centre and the Conflict Early Warning and Response Mechanism already provide climate and conflict alerts, but these systems often operate in isolation from one another.

Greater value could be achieved by overlaying down-scaled climate forecasts with real-time conflict alerts and making these products accessible to subnational peace institutions, including Ethiopia's woreda-level Peace and Security Committees and customary mediation councils. In addition to early warning systems, investing in climate-sensitive peacebuilding and social cohesion programmes is needed in hotspot regions where environmental stress and localized violence co-occur. Peacebuilding interventions must be designed with explicit attention to climate impacts on resource competition, mobility and intergroup relations. Such initiatives include supporting inclusive local dialogue platforms that involve pastoralists, farmers and local authorities; embedding climate risk data into community-level mediation and planning processes; and financing joint natural resource management initiatives that create shared benefits across livelihood groups. Embedding such joint climate-security analytics into operational tools, paired with flexible response funds, would strengthen the ability of existing institutions to anticipate and mitigate tensions before they escalate into violence-induced displacement or unsafe migration (EDRMC, 2022).

Migration outside the EHoA, often directed toward destinations like the Gulf states, is influenced by economic aspirations and systemic factors such as labour demand in destination countries and sociopolitical instability in the migrants' place of origin (Kumari Rigaud et al., 2018). However, these movements expose migrants to risks such as exploitation, detention, and challenges in reintegration upon their return (IOM, 2022c). Data from the Flow Monitoring Survey indicate that the main irregular migration routes from Ethiopia to the Gulf States particularly the Eastern Route via Somalia, Djibouti, and Yemen are characterized by hazardous journeys. Migrants along these routes face heightened risks, including exploitation by smugglers, violence, detention, and even loss of life. These dangers are compounded by the lack of legal protection and limited access to assistance during transit and upon return.

In line with the Migration Response Plan (MRP), addressing the risks and needs along these irregular routes requires a multi-sectoral and coordinated response that spans the entire migration corridor. This includes not only immediate protection and humanitarian assistance but also support for safe and dignified return and reintegration. The MRP further emphasizes the importance of integrating climate security considerations throughout the response, recognizing that climate-induced livelihood loss and resource competition are key drivers of mobility and vulnerability along these routes. Therefore, interventions should overlay climate risk data with real-time protection alerts and ensure that climate adaptation and peacebuilding measures are accessible to mobile and returning populations.

Consequently, supporting economic opportunities in the areas of origin is crucial to avoid involuntary migration or unsafe movements. Additionally, comprehensive development programmes should be implemented to strengthen resilience against climate change and socioeconomic instability. These initiatives could encompass sustainable agriculture projects, climate adaptation strategies and livelihood diversification programmes to decrease reliance on climate-sensitive sectors. Tailored reintegration programmes, such as vocational training, entrepreneurship support or financial inclusion initiatives should be promoted to ensure a successful return and protect migrants from exploitation. Strengthening access to social protection systems such as cash transfer programmes or microfinance opportunities can further support returnees and vulnerable populations in rebuilding their lives.

Cross-border agreements that support equitable resource sharing and community-led conflict resolution mechanisms are essential. Inclusive governance structures, particularly those engaging marginalized groups, can help sustain peace and reduce forced migration (Sax et al., 2023; Kenduiywo et al., 2023).

Special attention should be given to managing transhumance corridors to prevent conflicts over grazing lands and water points. Transhumance movements represent a significant aspect of mobility in the EHoA route, highlighting the adaptive strategies of pastoralist communities in response to climate-induced challenges. These seasonal movements, primarily observed in regions such as the Somali and Oromia regions, are driven by the search for water and grazing lands. However, when not effectively managed, they can contribute to increased resource competition and heighten the risk of intercommunal conflicts. Climate-induced pressure on shared rangelands can coincide with spikes in localized violence between pastoralist groups, particularly during periods of overlapping grazing needs (Kenduiywo et al., 2023; Sax et al., 2023).

Although this study does not assess whether transhumance increases conflict, the findings underscore the importance of managing seasonal movements within a broader climate-security framework. Addressing the needs of transhumant populations requires targeted policies that recognize their mobile nature and patterns while ensuring equitable access to resources. The full implementation of the IGAD Protocol on Free Movement is imperative to ensure migration is safe, orderly and dignified. Furthermore, as outlined by the IGAD protocols on transhumance, regional policies are needed that allow transboundary movements for livestock pasture, which would help restore some of the traditional mobility lost due to current cross-border policies (IGAD, 2020b; Nyangaga, 2022). Improving access to basic services and the establishment of cross-border grazing agreements can help to address the needs of pastoralist communities.

Reinforcing and integrating existing tools such as IOM's FMS and Transhumance Tracking Tool will enhance a more holistic understanding of the mobility landscape of the region. Successful initiatives, such as the collaboration between IOM and The Alliance of Bioversity and CIAT to address migration and climate, peace and security challenges should be expanded and adapted to different contexts across the EHoA route. Regional knowledge-sharing agreements and platforms can substantially facilitate the replication of effective research products, thereby promoting targeted interventions for interconnected issues. In addition, future research should complement quantitative analyses with qualitative approaches such as in-depth interviews, focus groups and participatory mapping to capture underlying drivers of mobility that are not always explicitly reported, including the indirect influence of climate stress on economic or family-related decisions. Integrating these perspectives would provide richer contextual understanding of observed patterns and strengthen the evidence base for both policy and programming.

A man walking during a profiling exercise in an IDP site as part of DTM activities.
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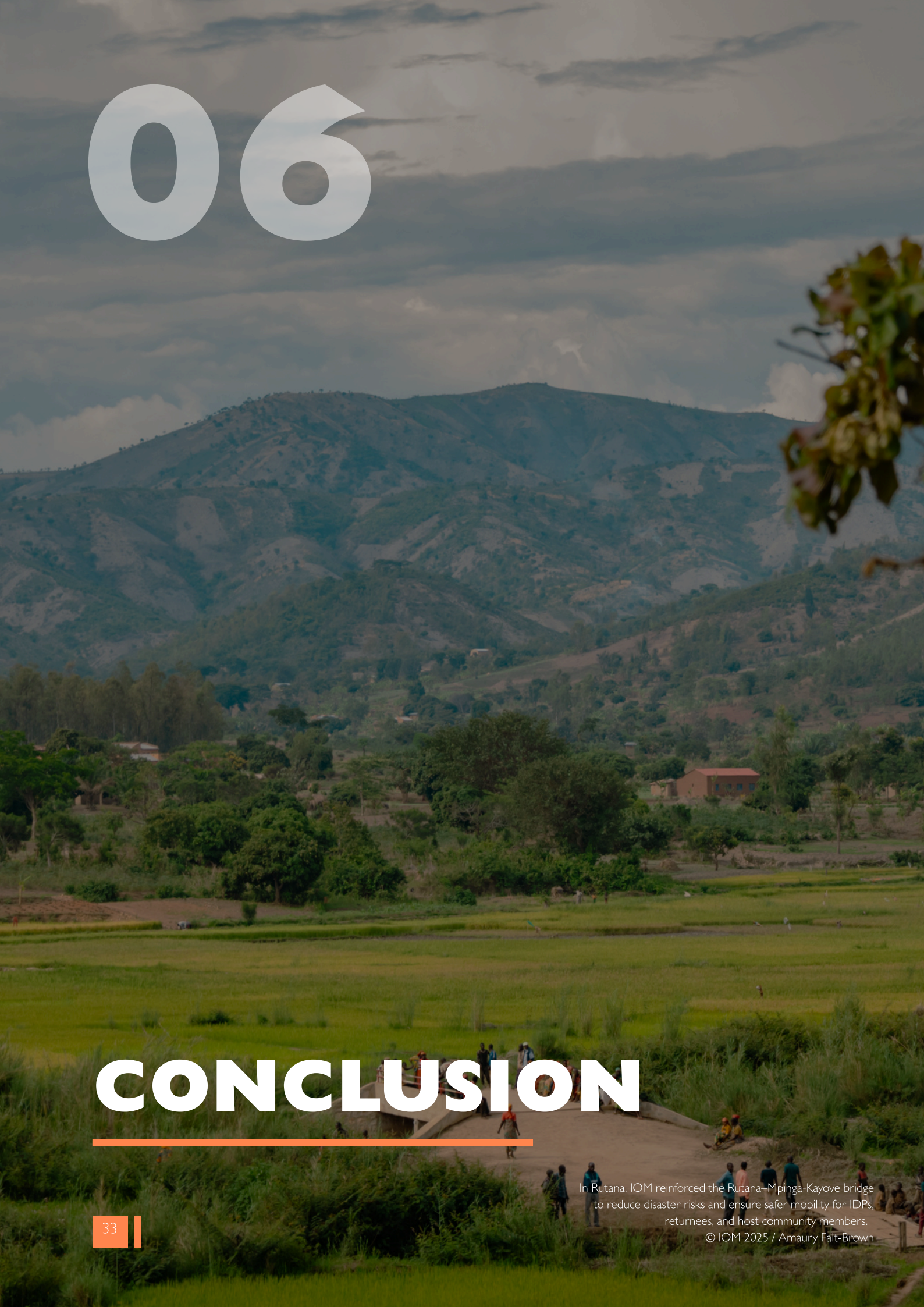
06

CONCLUSION



In Rutana, IOM reinforced the Rutana–Mpinga-Kayove bridge to reduce disaster risks and ensure safer mobility for IDPs, returnees, and host community members.
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The findings of this report reveal the intricate dynamics linking migration and climate, peace and security in Ethiopia and the broader EHoA route. Regions in Ethiopia such as Somali, Oromia, Amhara and Tigray are identified as critical climate-security hotspots, where severe environmental pressures such as prolonged droughts and resource depletion intersect with sociopolitical instability and localized conflicts to amplify vulnerabilities. Migration within the EHoA emerges as a response to immediate climatic and socioeconomic stressors, with patterns often driven by acute needs such as access to water and basic services, family reunification and livelihood preservation. In contrast, migration beyond the EHoA route is largely driven by economic aspirations and opportunities, including access to labour markets and the potential for greater financial stability. However, while the primary motivations for these migration pathways may differ, the underlying drivers such as livelihood losses due to climate variability, economic hardship and insecurity are often similar. The key distinction lies in how individuals and households respond: some may choose localized mobility as an immediate coping mechanism, whereas others, particularly those facing prolonged exposure to these stressors, may undertake more permanent or long-distance migration.

The report highlights distinct migration pathways, such as rural-to-urban movements within the EHoA and rural-to-rural flows toward destinations outside the region, each reflecting unique push and pull factors. While migration serves as a vital coping mechanism for affected communities, it is also constrained by systemic challenges, including limited access to resources, governance failures, and heightened exposure to exploitation and marginalization for those moving beyond the region.

The analysis further underscores the role of transhumance and pastoral mobility in shaping migration trends, particularly in drought-prone regions like Somali and Oromia, where traditional practices are increasingly disrupted by environmental and policy constraints.

By mapping migration flows alongside climate and conflict hotspots, the report identifies critical regions where these factors overlap, highlighting the necessity for targeted interventions to address these interconnected risks. Future research should build on these findings by including comparative analyses of other countries in the EHoA route, such as Somalia, Djibouti and South Sudan. This broader approach would help validate whether the observed dynamics, particularly the role of climate as a primary driver of intraregional migration, are consistent across different contexts. Additionally, investigating the factors that influence why some individuals choose to migrate beyond the EHoA while others remain within it would provide valuable insights into the interplay of risk, opportunity and systemic barriers. A more in-depth examination of displacement data could reveal the triggers and decision-making processes that differentiate internal migration from cross-border movements, leading to a better understanding of these interconnected phenomena. By mapping migration flows alongside climate security hotspots and by incorporating a wider regional perspective, these efforts could enhance the design of policies and interventions that address the root causes of vulnerability while utilizing migration as a tool for adaptation and resilience in the EHoA.

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ANNEX 1 – ADDITIONAL SUMMARY STATISTICS

Annex Table 1 provides a summary of the type and number of climate security hotspots per region. Classification of hotspots examined included those with both high conflict & high drought, high conflict & moderate drought, high conflict & high drought and limited conflict & high drought. The Somali region registered the highest number of hotspots, followed by Oromia, Afar and the rest. This can be attributed to the frequent droughts that have occurred in these regions. However, it is essential to investigate further by considering additional factors such as location and time of departure to obtain a more comprehensive understanding of these movements.

Annex 1 Table 1: Frequency of climate security hotspots per region of Ethiopia

Region	High conflict and High drought	High conflict and Moderate drought	High conflict and Low drought	Moderate conflict and High drought	Limited conflict and High drought	TOTAL
Addis Ababa	0	0	0	0	0	0
Afar	1	0	0	20	5	26
Amhara	0	7	2	0	0	9
Benishangul-Gumz	0	2	0	0	0	2
Central Ethiopia	0	0	0	0	0	0
Dire Dawa	0	1	0	0	0	1
Gambela	2	0	0	0	0	2
Harari	2	0	0	0	0	2
Oromia	0	7	3	14	4	28
Sidama	0	0	0	0	0	0
Somali	6	2	0	61	7	76
South Ethiopia	0	0	0	4	0	4
South West Ethiopia Peoples	0	0	0	0	0	0
Tigray	0	2	0	0	0	2
TOTAL	**11**	**21**	**5**	**99**	**16**	**152**

ANNEX 1 – ADDITIONAL SUMMARY STATISTICS

Annex 1 Table 2 : Average regional reason to move for 2020 and 2023 migration peaks within EHoA.

	Somali Region		Oromia Region		Total
Variable	**N**	**Mean/(SD)**	**N**	**Mean/(SD)**	**N**
Reason to migrate – 2020 peak					
Economic	4 495	0.130 (0.336)	1 533	0.757 (0.429)	6 028
Education	4 495	0.001 (0.037)	1 533	0 -	6 028
Family	4 495	0.073 (0.260)	1 533	0.023 (0.149)	6 028
Access to basic services	4 495	0.478 (0.500)	1 533	0.177 (0.382)	6 028
Disasters	4 495	0.162 (0.368)	1 533	0.035 (0.184)	6 028
Slow Environmental change	4 495	0.007 (0.081)	1 533	0.001 (0.026)	6 028
Conflict	4 495	0.093 (0.290)	1 533	0.020 (0.139)	6 028
Persecution	4 495	0.001 (0.026)	1 533	0 -	6 028
Other	4 495	0.092 (0.289)	1 533	0.001 (0.036)	6 028
Reason to migrate – 2023 peak					
Economic	5 802	0.141 (0.348)	2 538	0.862 (0.344)	8 340
Education	5 802	0.004 (0.066)	2 538	0.013 (0.112)	8 340
Family	5,802	0.601 (0.490)	2 538	0.017 (0.131)	8 340
Access to basic services	5 802	0.636 (0.481)	2 538	0.022 (0.147)	8 340
Disasters	5 802	0.015 (0.121)	2 538	0.003 (0.052)	8 340
Slow Environmental change	5 802	0.062 (0.241)	2 538	0.158 (0.364)	8 340
Conflict	5 802	0.08 (0.271)	2 538	0.033 (0.180)	8 340
Persecution	5 802	0.004 (0.064)	2 538	0.019 (0.135)	8 340
Other	5 802	0.021 (0.143)	2 538	0.027 (0.162)	8 340

ANNEX 1 – ADDITIONAL SUMMARY STATISTICS

Annex 1 Table 3: Average regional reason to move for 2021, 2022 and 2023 migration peaks outside EHoA.

Variable	Oromia Region N	Oromia Region Mean/(SD)	Amhara Region N	Amhara Region Mean/(SD)	Total N
Reason to migrate – 2021 peak					
Economic	6 199	0.886 (0.318)	3 726	0.934 (0.248)	10 115
Education	6 199	0.002 (0.04)	3 726	0.002 (0.043)	10 115
Family	6 199	0.012 (0.111)	3 726	0.003 (0.057)	10 115
Access to basic services	6 199	0.184 (0.387)	3 726	0.096 (0.295)	10 115
Disasters	6 199	0.016 (0.127)	3 726	0.009 (0.095)	10 115
Slow Environmental change	6 199	0.079 (0.27)	3 726	0.133 (0.339)	10 115
Conflict	6 199	0.127 (0.333)	3 726	0.161 (0.368)	10 115
Persecution	6 199	0.084 (0.277)	3 726	0.04 (0.197)	10 115
Other	6 199	0 -	3 726	0.002 (0.04)	10 115
Reason to migrate - 2022 peak					
Economic	6 079	0.963 (0.188)	4 726	0.963 (0.19)	10 805
Education	6 079	0.048 (0.213)	4 726	0.011 (0.103)	10 805
Family	6 079	0.011 (0.105)	4 726	0.006 (0.078)	10 805
Access to basic services	6 079	0.057 (0.232)	4 726	0.017 (0.13)	10 805
Disasters	6 079	0.002 (0.041)	4 726	0.003 (0.05)	10 805
Slow Environmental change	6 079	0.018 (0.133)	4 726	0.05 (0.219)	10 805
Conflict	6 079	0.076 (0.266)	4 726	0.185 (0.389)	10 805
Persecution	6 079	0.045 (0.207)	4 726	0.07 (0.255)	10 805
Other	6 079	0.000 (0.022)	4 726	0.001 (0.029)	10 805
Reason to migrate – 2023 peak					
Economic	5 607	0.926 (0.262)	4 731	0.955 (0.208)	10 338
Education	5 607	0.155 (0.362)	4 731	0.039 (0.194)	10 338
Family	5 607	0.011 (0.106)	4 731	0.01 (0.101)	10 338
Access to basic services	5 607	0.154 (0.361)	4 731	0.015 (0.122)	10 338
Disasters	5 607	0.02 (0.139)	4 731	0.002 (0.046)	10 338
Slow Environmental change	5 607	0.174 (0.379)	4 731	0.082 (0.275)	10 338
Conflict	5 607	0.041 (0.198)	4 731	0.104 (0.306)	10 338
Persecution	5 607	0.141 (0.348)	4 731	0.075 (0.264)	10 338
Other	5 607	0.002 (0.04)	4 731	0.003 (0.058)	10 338

ANNEX 1 – ADDITIONAL SUMMARY STATISTICS

Annex 1 Table 4: Intended Destination for migrants moving from main regions due to agropastoral reasons (push driver)

Departed from Somali region		
Destination Within EHoA	**Freq.**	**Percent**
Djibouti	105	23.44
Ethiopia	73	16.29
Ilemi triangle[6]	7	1.56
Kenya	1	0.22
Somalia	262	58.48
Total	**448**	**100**
Destination Outside EHoA		
Asia	16	2.12
Gaza Strip	1	0.13
Kingdom of Saudi Arabia	17	2.25
Sudan	717	94.97
Yemen	4	0.53
Total	**755**	**100**
Unknown Destination		
Total	**1 328**	**100**

Departed from Oromia region		
Destination Within EHoA	**Freq.**	**Percent**
Djibouti	15	5.88
Ethiopia	139	54.51
Kenya	22	8.63
Somalia	79	30.98
Total	**255**	**100**
Destination Outside EHoA		
Asia	2	0.14
Europe	2	0.14
Kingdom of Saudi Arabia	1 356	94.69
Qatar	1	0.07
South Africa	1	0.07
Sudan	27	1.89
Yemen	43	3.00
Total	**1 432**	**100**
Unknown Destination		
Total	**201**	**100**

Departed from Amhara region		
Destination Within EHoA	**Freq.**	**Percent**
Djibouti	2	7.69
Ethiopia	7	26.92
Somalia	17	65.38
Total	**26**	**100**
Destination Outside EHoA		
Kingdom of Saudi Arabia	629	64.78
Europe	1	0.10
Oman	1	0.10
Sudan	305	31.41
Yemen	35	3.60
Total	**971**	**100**
Unknown Destination		
Total	**4**	**100**

[6] Disputed area between Kenya, South Sudan and Ethiopia; its depiction in this report is without prejudice to the status of the territory or the delimitation of international boundaries.

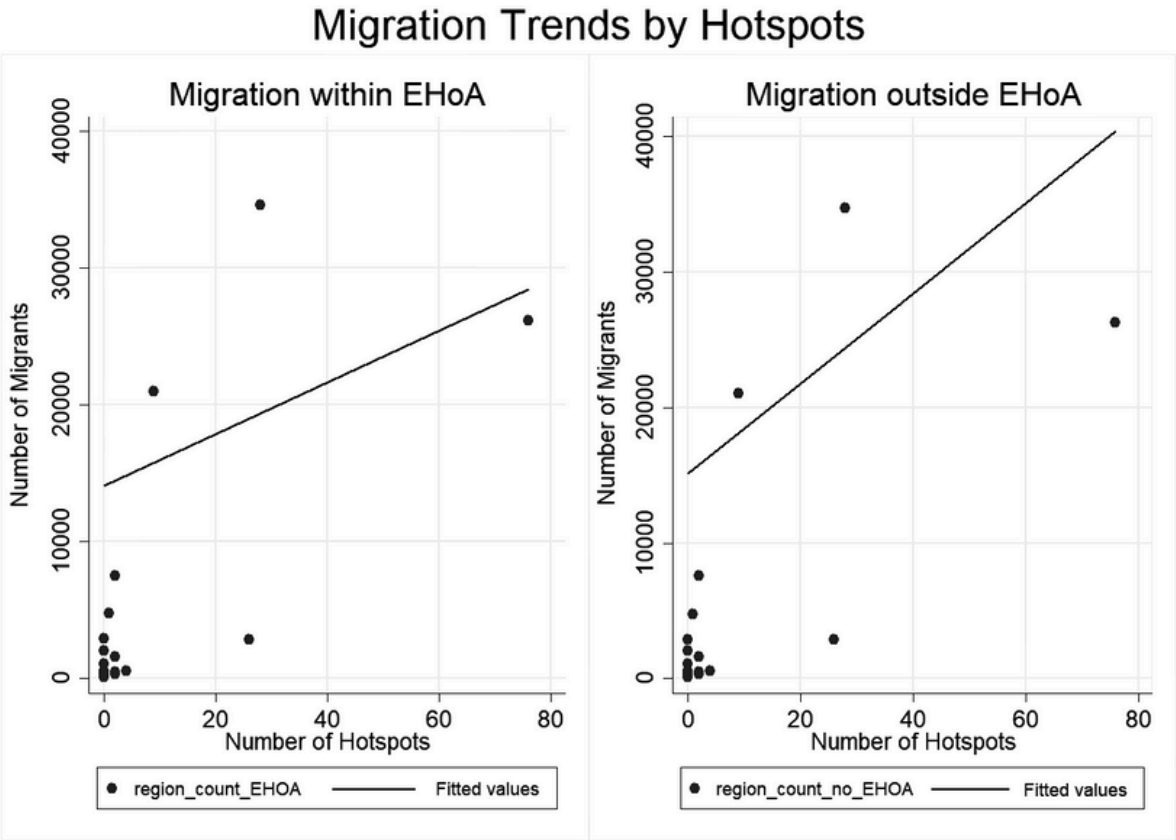
ANNEX 1 – ADDITIONAL SUMMARY STATISTICS

Annex 1 Table 5: Intended Destination chosen due to agropastoral reasons (pull driver) for migrants moving from Tigray

Departed from Tigray		
Destination outside EHoA	**Freq.**	**Percent**
Kingdom of Saudi Arabia	982	97.23
Not specified	1	0.10
Sudan	25	2.48
Yemen	2	0.20
Total	**1010**	**100**

ANNEX 2 – ECONOMETRIC INSIGHTS

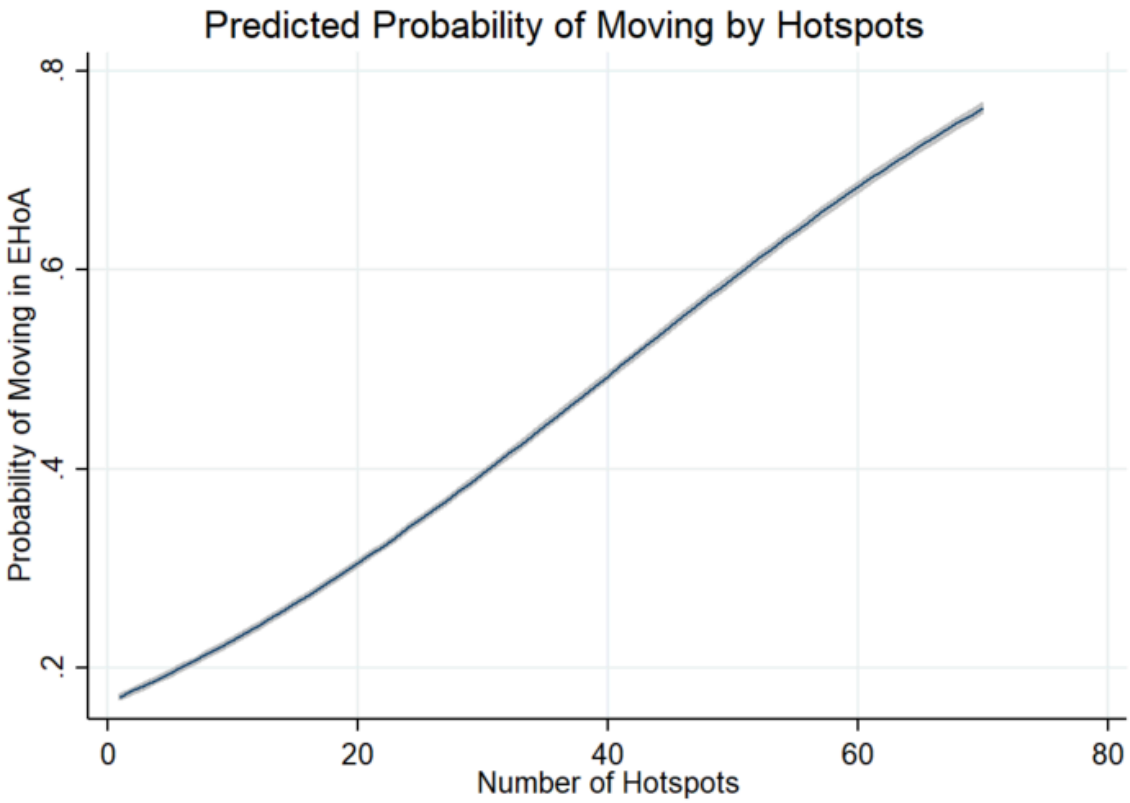
To further explore the interplay between migration and climate, peace, and security dynamics, we created two scatterplots with fitted regression lines to visualize the trends for migration within and outside the East and Horn of Africa (EHoA). This visualization methodology allows for a clear comparison of migration trends within and outside EHoA as the number of climate security hotspots increases. The scatterplots depict the raw migration counts, while the fitted regression lines provide a smoothed trend to identify general patterns. Combining the graphs ensures that the differences in migration dynamics can be easily compared within a unified framework. The results indicate that while migration within EHoA shows a modest increase as the number hotspots rise, migration outside EHoA exhibits a stronger upward trend. However, scatterplots are limited to depicting absolute counts and cannot provide information on the likelihood or relative preference for internal versus external migration as hotspots increase.



Annex 2 Figure 1: These graphs illustrate the relationship between the number of climate security hotspots and the volume of migrants within and outside the East and Horn of Africa (EHoA). The left panel shows migration within EHoA, while the right panel depicts migration outside EHoA. The x-axis in both graphs represent the number of climate security hotspots, and the y-axis represents the number of migrants. Each graph includes a scatter plot of the observed data and a fitted regression line to highlight the trend.

ANNEX 2 – ECONOMETRIC INSIGHTS

To address these limitations, a logit model is employed to investigate the likelihood of choosing internal migration within EHoA. This approach allows for the analysis of migration decisions in probabilistic terms, accounting for relative changes in the likelihood of internal versus external migration. Annex 2 Figure 2 illustrates the results of a logistic regression model that examines the relationship between the number of climate security hotspots in a region and the likelihood of migration within the East Horn of Africa (EHoA). The analysis reveals a positive correlation: as the number of climate security hotspots increases, the predicted probability of people choosing to migrate internally also rises. This trend indicates that, although migration outside the EHoA shows a stronger upward trend, a greater combination of human insecurity and environmental stress—indicated by a higher number of climate security hotspots—leads individuals to seek safety or resources within the region rather than pursuing migration to other areas. While this approach offers valuable insights into the relationship between hotspots and migration decisions, it has several limitations. The analysis assumes a uniform effect of hotspots across different regions and populations and does not consider other important factors such as socioeconomic conditions and political stability. Additionally, it relies on a linear model that may oversimplify the complex dynamics involved. Therefore, the findings should be interpreted with caution, highlighting the need for further research to fully understand the complexities of migration behavior.



Annex 2 Figure 2: This graph illustrates the predicted probability of individuals moving within the East and Horn of Africa (EHoA) as a function of the number of climate security hotspots in their region of origin. The y-axis represents the probability of choosing internal migration within the EHoA, while the x-axis shows the number of identified climate security hotspots. The regression line, derived from a logistic regression model, reflects the predicted relationship, and the shaded area indicates the 95% confidence interval (CI) around these predictions.

NAVIGATING CLIMATE, CONFLICT, AND MIGRATION

INSIGHTS FROM ETHIOPIA AND THE EAST AND HORN OF AFRICA

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