Who Are Climate Migrants?

A Global Analysis of the Profiles of Communities Affected by Weather-related Internal Displacements

IOM
UN MIGRATION

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ABBREVIATIONS AND ACRONYMS

DTM	Displacement Tracking Matrix
EIB	European Investment Bank
FAO	Food and Agriculture Organization of the United Nations
GADM	Database of Global Administrative Areas
GBV	gender-based violence
GDP	gross domestic product
GNI	gross national income
IDMC	Internal Displacement Monitoring Centre
IDP	internally displaced person
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
km.	kilometre
TDP	temporary displaced person
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USD	United States dollars

EXECUTIVE SUMMARY

The ramifications of climate shocks on human mobility remain a critical concern for practitioners, policymakers and citizens. There are clear geographic differences observed in global displacement caseloads and in the types of hazards that drive displacement in different regions. The intersection of hazards with populations made vulnerable by factors like poverty, social inequality and insufficient infrastructure disproportionately expose certain communities to risk. Vulnerable groups, particularly those in hazard-prone or impoverished areas, often lack the resources to prepare for, respond to or recover from these events. As a result, socioeconomic conditions can magnify the impact of hazards for some, creating a cycle of reduced resilience and increased exposure to risk.

Global estimates of disaster-induced internal displacement caseloads provide critical insights into affected populations and the impacts of climate shocks and extreme weather events. To build further on these overarching estimates, it is vital to gain more granular insights into the demographic and socioeconomic characteristics of populations affected by disaster displacement.

Analysis from this report reveals marked differences in the profiles of populations affected by different hazards and in different parts of the world. For example, it is estimated that populations that reside in areas affected by drought displacements are typically young (18.1 years on average), have a high proportion of children (43%), are male skewed (51.8% male), have limited education (average 3.0 years of schooling), and are largely pastoral (51% of affected areas is grazing land). In contrast, populations in areas affected by wildfire displacements are typically older (37.1 years on average), have a low proportion of children (19%), are female skewed (50.5% female), have advanced education (12.6 years of schooling) and are largely urban (71% of affected areas are built-up land). The data shows that storm and flood displacements disproportionately affect farming communities (42% and 38% of affected areas are used for crop cultivation), and that the majority of populations affected by wildfire and storm displacements are coastal (74% and 65%, respectively).

These findings reflect the geographic, sociopolitical and economic profiles of areas where the different hazard types are most prevalent. Further to this point, the analysis highlights regional differences, quantifying how displacement-affected populations are overall younger, more male and have lower income and education levels in Africa, Asia and Oceania than in Europe and the Americas. This reflects the demographic profiles of the general populations in these regions, with some variation between the general population and population in displacement-affected areas.

These demographic and socioeconomic factors have evident implications for policymakers and first responders in crises, as well as for the long-term recovery of these communities. Disaggregating the data by geographic area, hazard type and other factors highlights important differences between affected populations. Understanding these differences is critical for effective policy and practice that addresses the specific challenges and needs of different groups. While the macrolevel data cannot capture sociocultural differences at the household or individual levels, it offers an important statistical baseline for how different hazards impact communities across regions, contributing to a more comprehensive understanding of disaster displacement and pathways to sustainable solutions.

INTRODUCTION

Weather-related hazards, including floods, storms, wildfires and droughts, have become a major driver of human mobility worldwide, leading to an estimated 218 million internal displacements over the past decade (IDMC, 2024), with substantial regional variation across both geographical areas and types of hazards. In recent years, the collection of displacement data has grown increasingly sophisticated and systematic, offering valuable insights for policymaking, humanitarian efforts and improving support for affected communities.

While global estimates of internal displacement numbers by hazard type and region are well-established, a significant gap remains in the availability of disaggregated data on key variables – such as age, sex, education and income – for the populations impacted by these events. Outside of specific case studies, this lack of granular data complicates the efforts of policy and operational actors, as the vulnerabilities and needs of different groups – such as children and older persons; persons with disabilities; people of different genders; wealthy people and people whose incomes are below the poverty threshold; and rural, urban and indigenous communities – often vary drastically. Addressing these varying needs requires targeted, context-sensitive interventions, which are challenging to adequately design without a deeper understanding of the specific profiles of those affected.

This paper analyses data on populations in areas affected by disaster-induced internal displacement. It aims to bridge the knowledge gap on profiles of populations affected by extreme weather events that cause internal displacement. The analysis provides estimates of the demographic, socioeconomic and geographical profiles of populations in locations with weather-related internal displacements.

The data analysis in this paper focuses on three key dimensions:

- Demographic structure: Examining the age and sex distribution of affected populations.
- Socioeconomic background: Exploring income and education levels.
- Geography and resident population land use: Investigating agricultural, pastoral, urban and coastal populations.

The estimates are based on a data set of approximately 14,000 geolocated displacement records compiled by IDMC (n.d.), which are combined with high-resolution global maps of demographic, socioeconomic and land-use variables (see Methodology section). Crucially, the approach used here assesses the profiles of the general populations in regions that have experienced weather-related displacement (that is, including people residing in these areas that were not displaced), rather than directly analysing the specific individuals who were displaced.

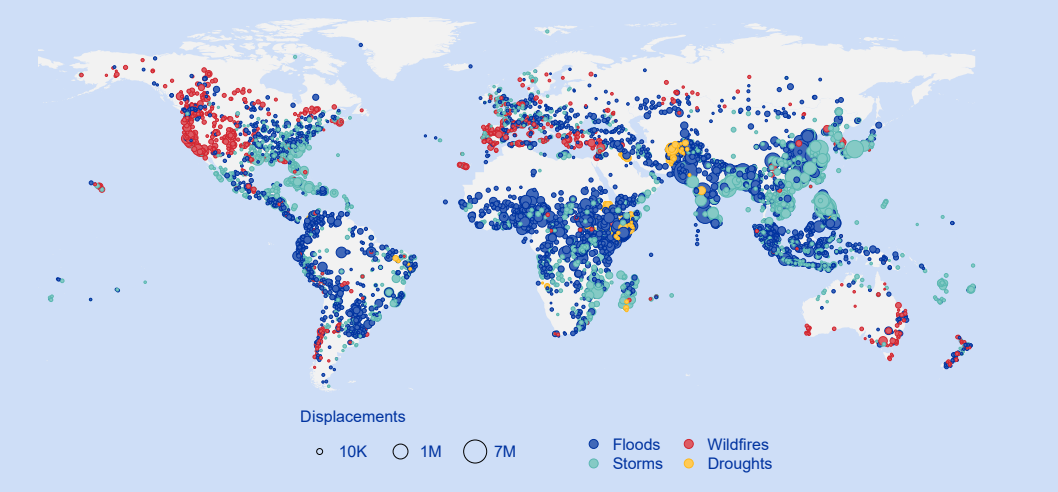
This approach is necessary because on-the-ground surveys conducted during displacement events often lack the global coverage and methodological consistency needed for a comprehensive assessment, despite providing valuable direct insights into those who move. Data collected during or after displacement events focuses on specific geographic areas that can be defined based on the priorities and capacities of responders, rather than comprehensive coverage of the affected population. Additionally, this data is by nature highly context-specific, which makes it difficult to compare across contexts. This means that data on IDPs, while highly useful for actors within the context, is difficult to use for comparative global-level analysis such as what is provided in this report. In the absence of such data, the estimates serve as a statistical baseline, offering a clearer picture of the populations most affected by weather-related displacement events.

The added value of this analysis, even while it is not specific to IDP populations, is fourfold. Firstly, it provides a baseline from which profiles for displaced populations can be inferred. This is a valuable starting point, as data quality and comparability for IDPs improves through global initiatives to drive standardization, including the International Recommendations on IDP Statistics (European Union and the United Nations, 2020). Secondly, it provides a useful baseline for comparison at the country or regional level where comparable IDP statistics do exist, for future study. Thirdly, it provides much needed baseline data to investigate immobile and stranded populations, who are often invisible. Finally, the analysis juxtaposes the macrolevel estimates with case studies using operational data sources such as the DTM of IOM to highlight the challenges faced by internally displaced populations. Together, the analysis reveals crucial nuances in the profiles of diverse communities and their specific challenges and needs in humanitarian contexts.

METHODOLOGY

The analysis is based on 13,987 records of displacement events caused by floods, storms, wildfires and droughts between 2018 and 2024 (IDMC, n.d.) (Figure 1). Each record includes the year, geographical coordinates (usually at Admin 1 resolution), type of weather hazard and number of displacements. These data are combined with gridded (~10 km. resolution) global maps of the following demographic and socioeconomic variables: local age and sex structure (World Population Hub, n.d.); per-capita GNI, average life expectancy and mean number of schooling years (Kummu et al., 2018); local land area covered by cropland, grazing land and built-up/urban land (Goldewijk et al., 2017); and distance to the nearest coastline (Pacific Islands Ocean Observing System, n.d.). Based on the age and sex data, the percentages of women and of children (0–14 years) are computed. To make these data compatible with the displacement records, all maps are aggregated to Admin 1 level, using the population-weighted average (weighted median in the case of per-capita GNI, weighted mean otherwise) of the grid cells in each Admin 1 unit (GADM, 2022). An Admin 1 unit is considered as coastal if the population-weighted average distance to the nearest coastline is within 100 km. After assigning values for all variables to each individual displacement event in this way, displacement-weighted averages for each hazard (aggregating across all world regions) and each world region (aggregating across all hazards) are computed for each variable. For each region and hazard, the average age of displacement-affected populations is computed as the median of the relevant age distribution. An analogous methodology is used to compute variable averages for the general (that is, not only displacement-affected) population worldwide and in each region as the population-weighted average of each variable across the grid cells composing a given region.

Figure 1. Internal Displacement Monitoring Centre records of weather-related internal displacements between 2018 and 2024 used in the analysis



Source: IDMC, n.d.
Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

I. ANALYSIS

The analysis is based on a data set of approximately 14,000 geolocated displacement records compiled by the IDMC (n.d.), combined with high-resolution global maps of demographic, socioeconomic and land-use variables (see Methodology section). Importantly, the approach assesses the profiles of the general populations in regions that have experienced weather-related displacement, rather than directly analysing the specific individuals who were displaced due to a lack of suitable data available for a global comparative study of IDP populations. To provide insight into IDP populations themselves, the analysis includes short case studies using IDP data collected by country-level actors, such as the DTM of IOM.

1.1. Demography

1.1.1. Age

Demographic impacts are context specific; different groups react in very different ways to the same events, making factors like age and sex relevant considerations for policymakers and practitioners. Globally, the average age of populations in places affected by weather-related internal displacements is slightly younger than that of the general population, with an average age of 27.6 years compared to 30.8 years (Figure 2). This can be explained by the fact that the regions – predominantly Africa, the Caribbean, Asia and Oceania, whose populations are more vulnerable to whether-related internal displacement due to poor infrastructure, and low investment in climate adaptation, early warning systems and programmes that support the recovery and resilience of these populations – tend to have younger populations vis-à-vis the global average. This means the data reflects regional demographic idiosyncrasies that are relevant when situating the displacement data.

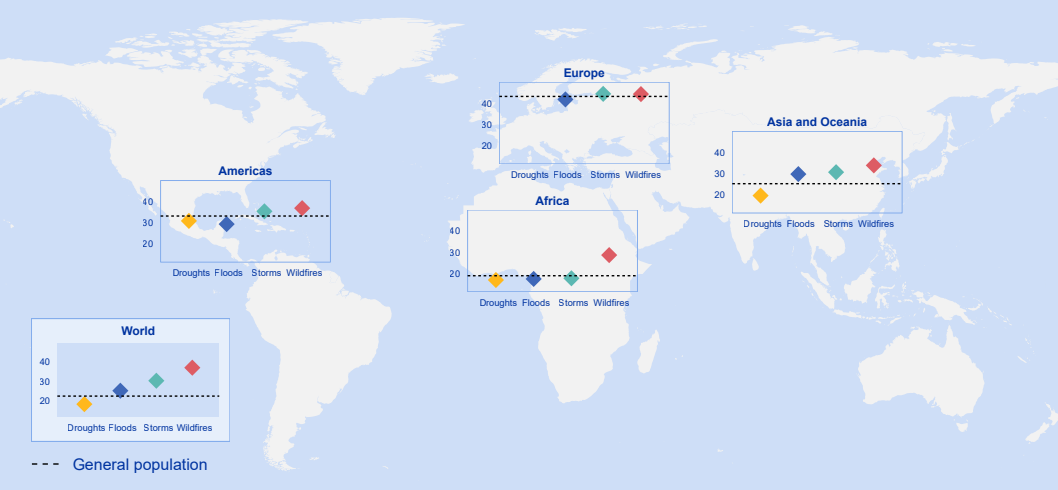
In Europe, populations in areas affected by weather-related internal displacements are older, with an average age of 43.5 years, reflecting the continent's ageing population. The Americas have the second oldest average age in affected areas (34.1 years). In Asia and Oceania, the average age of people in displacement-affected areas is 30.2. In contrast, the population in Africa living in areas that experienced weather-related displacements is the youngest, with an average age of 17.5 years. While these observations reflect the demographics of the regions in question, they are nevertheless relevant for policymakers and responders. Both younger and older populations experience specific impacts during disasters, with long-term implications on recovery if these are not considered by actors.

Disaggregating the available data by drivers of displacement reveals important variations across hazard types.[1] Drought tends to affect the youngest populations, with an average age of 18.1 years, while areas affected by wildfire displacements have the oldest average age (37.1 years), a reflection of the fact that droughts are particularly prevalent in Africa, while wildfires are more commonly recorded in North America. The average ages in areas affected by flood and storm displacements, 25.1 and 30.3 years respectively, suggest possible implications for the workforce across affected regions. Damage to livelihoods for this demographic can also have lasting impacts, inducing economic hardship, which is compounded by widespread infrastructure damage and damage to housing in floods

[1] Droughts, floods, storms and wildfires.

and storms (IOM, 2024a). Additionally, populations that lack resources to move may be trapped in at-risk areas (IOM and IDMC, 2023), further exacerbating their vulnerabilities.

Figure 2. Average age of populations in areas affected by weather-related internal displacement



Source: Unless otherwise indicated, infographics are authors' own elaboration based on results of the study, using the sources specified in the Methodology section.

Note: Markers represent the estimated average age for each weather hazard and region, including globally. Dotted lines represent the average age of the general population in each region.
This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

Operational data spotlight: The impacts of extreme weather events for working-aged internally displaced persons in Uganda

Uganda has been affected by frequent extreme weather events, including floods that have caused significant human and economic losses, resulting in over 200,000 deaths and at least USD 80 million in economic damages between 1900 and 2018 (World Bank, n.d.a). DTM assessments covering the month of May 2024 reveal that weather-related hazards affected 46,457 individuals (10,191 households), with 2,341 homes completely destroyed and a further 519 damaged. Approximately 58 per cent of those affected are in the working-age group of 18–64, highlighting the impact of weather-related disruptions for the working age population on the country's economic backbone. The extensive destruction of homes severely hampers the ability of internally displaced individuals to return to their places of origin, disrupting their livelihoods and exacerbating economic instability with implications for long-term recovery.

1.1.2. Children

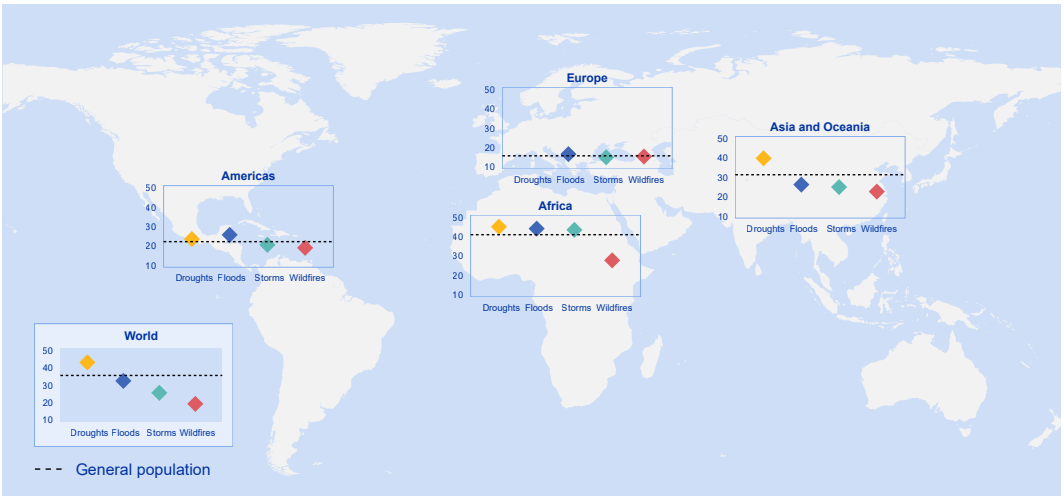
Displacement significantly heightens children's vulnerability, leading to increased exposure to risks of exploitation and abuse, separation from families and caregivers, child trafficking, child marriage and forced labour (UNICEF, 2023a). Inadequate shelter conditions as a result of displacement also intensify risks to children and other vulnerable populations (UNFPA, 2020).

The analysis highlights that children make up 29.2 per cent of populations in areas affected by weather-related internal displacements compared to 25.5 per cent in the general world population (Figure 3), reflecting context-specific demographic differences. For example, in Africa, 44.1 per cent of the population in weather-related displacement locations are

children, reflecting the region's younger demographics (UNICEF, 2023b). In contrast, data from the Americas (21.5%), Asia and Oceania (25.7%) and Europe show that children make up a lower proportion of populations in affected areas, with Europe having the lowest percentage at 15.8 per cent. Across all regions, the percentage of children in areas affected by weather-related internal displacements is largely consistent with the general population. When broken down by drivers of displacement, the geographic distribution of hazards once again reflects the demographic profile of populations in affected areas. Droughts have the highest percentage of children in affected areas at 43.1 per cent, followed by floods (32.5%), storms (25.7%) and wildfires (19.3%).

Given the distinct challenges and needs faced by children in disaster displacement context, and the large proportion of children in many populations exposed to displacement-inducing extreme weather events, it is still vital that policymakers and responders consider children as a distinct demographic category.

Figure 3. Average percentage of children in areas affected by weather-related internal displacement



Note: Markers represent the estimated percentage for each weather hazard and region, including the world. Dotted lines represent the average percentage of children in the general population in each region.
This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

Operational data spotlight: Internally displaced children and extreme drought in Kenya

In September 2021, the Government of Kenya declared a drought emergency, highlighting that the environmental and human security conditions across Kenya are deteriorating due to the extreme effects of prolonged drought (IOM, 2024b). In February 2023, the lack of rainfall impacted the availability of vegetation for food and fodder, as well as water availability for people and livestock. This resulted in a decline in food sources and an increase in water-based diseases, both leading to a critical global acute malnutrition rate of 26.4 per cent among children in Turkana County (Turkana County Government, 2024).

The Key Informant-based Multisector Location Assessment by DTM was deployed in response between 29 April and 20 May 2023 in Turkana County covering 1,856 settlements across all 7 sub-counties. The data show that 7 per cent (19,515 households) of the 270,356 households in assessed areas impacted by the drought are headed by children. Of these,

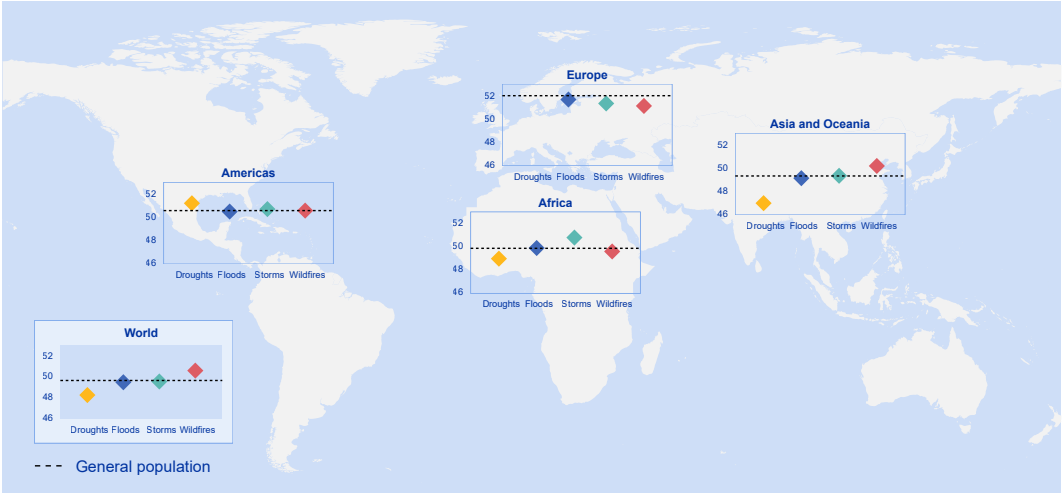
approximately 1,622 child-headed households have no relatives or community members living near them, and 6,216 child-headed households (8%) are reported to be without regular and reliable sources of support, exposing them to greater risks of exploitation, abuse and other forms of violence. In addition to the closure of schools, which expose children to a variety of dangers due to a lack of protective space, key informants also reported that a lack of food or livestock income has increased reliance upon coping mechanisms, such as child labour and child marriage, increasing exposure to dangers and risks of GBV.

The heightened risks of violence experienced by IDP children have lasting impacts on individuals, families, communities and national economies. Violence against children not only leads to long-term physical and mental health conditions, but also impedes cognitive and brain development that limits academic achievement. Long-term effects of childhood violence also extend beyond the individual, affecting entire communities and national economies due to increased health-care costs, lost productivity and perpetuated cycles of poverty and violence (UNICEF, 2021). This cycle weakens the resilience of communities, making them increasingly vulnerable to future shocks. The cumulative impact is alarming: between 2016 and 2021, UNICEF estimates that 43.1 million children were displaced due to weather-related disasters, often for several years, underscoring the compounding nature of climate-related displacement (ibid.). As these displaced children face heightened risks of violence and exploitation, the long-term consequences are severe with far-reaching effects on both communities and economies worldwide.

1.1.3. Sex

Analysing the sex distribution among populations living in areas affected by weather-related displacements globally shows that men and women are overall similarly represented in communities affected by disaster displacement, based on the data used for this analysis. Globally, 49.4 per cent of those displaced by weather-related events are female, a proportion that is on par with the average in the general population (49.6%) (Figure 4), with some regional variation that is consistent with the general population demographics in the regions analysed.

Figure 4. Average percentage of females in areas affected by weather-related internal displacement



Note: Markers represent the estimated percentages of females for each weather hazard and region, including the world. Dotted lines represent the average percentage of females in the general population in each region.
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In Europe, 51.3 per cent of populations affected by weather-related hazards are female, which is higher than other regions and explained by the regional demographic profile. In Asia and Oceania, 49.2 per cent of people in disaster displacement affected areas are female, while in Africa and the Americas 49.9 per cent and 50.6 per cent, respectively, are female. When examining the causes of displacement across all regions, the share of females in affected areas is largely consistent with the geographic prevalence of hazards and the corresponding demographic profiles of the general population in areas most prone to the different hazard types.

Understanding the multilayered and intersectional vulnerabilities that men and women face when communities are impacted by extreme weather events is vital for policymakers and responders. Sex-disaggregated data provides one small piece of this complex picture and allows actors to use supporting data sources in understanding different experiences of disasters in the affected areas and related displacement. For instance, in flood-affected areas, women are more likely to suffer injuries and fatalities during floods due to lower swimming proficiency and the responsibility of caring for children and the elderly during evacuations (ActionAid, n.d.). Additionally, extreme weather events can increase exposure to waterborne diseases that disproportionately affect women because of their roles in water collection and household chores in many regions (University of York, 2021). The loss of social networks, security concerns and loss of shelter that comes with displacement is linked to increased cases of GBV (ibid.). Understanding the sex breakdown in areas affected by extreme weather events is imperative to address the specific needs of different demographic groups, allowing policymakers to enhance resilience and support recovery efforts more effectively.

Operational data spotlight: Vulnerabilities and needs disaggregated by sex for internally displaced persons

Due to the emergency caused by tropical storms Iota and Eta, between 13 and 26 November, DTM covered 156 collective sites in the departments of Alta Verapaz, Izabal, Chiquimula and Zacapa, Honduras (IOM, 2020). Out of the 13,000 individuals identified residing in the collective sites, nearly half are females, out of which 9 per cent are lactating mothers, and 2.1 per cent are pregnant. Women facing climate hazards endure a wide range of challenges, including economic hardship, social and physical vulnerabilities, psychological strain, security risks and health concerns. In this case, these vulnerabilities may be compounded by additional factors. For instance, DTM identified that 15.4 per cent of the sites lack adequate illumination in common areas. Lack of lighting makes women and girls particularly vulnerable to sexual assault and other forms of violence, especially when they need to move around at night to use latrines or fetch water (Pritchett, 2015). This can be more dangerous in sites where women and girls do not have access to sex-disaggregated latrines (37%) or showers (71%). Ensuring separate facilities not only helps reduce the risk of sexual harassment and assault but also allows women private and secure bathrooms to maintain their dignity, safety and personal hygiene. This is particularly important for pregnant or menstruating women, or those with special needs or mobility issues (Hu, 2021). Collecting sex-specific data is fundamental to humanitarian efforts, as it enables the identification of distinct needs among women, boys and girls, who often face different challenges in crisis situations. This data allows for the development of targeted interventions that are both effective and equitable, ensuring that aid reaches those most in need without bias or oversight. Additionally, it promotes the creation of more inclusive, gender-sensitive

policies that address the unique vulnerabilities of different groups. Without access to and a deeper understanding of sex-disaggregated data, humanitarian aid providers and policymakers may overlook critical needs, resulting in gaps in protection and support for already vulnerable populations. For instance, failing to account for gender differences can lead to inadequate services for women and girls facing GBV or reproductive health issues. Without these data, efforts to provide humanitarian assistance risk being incomplete, less effective and inequitable, potentially leaving certain groups exposed to further harm.

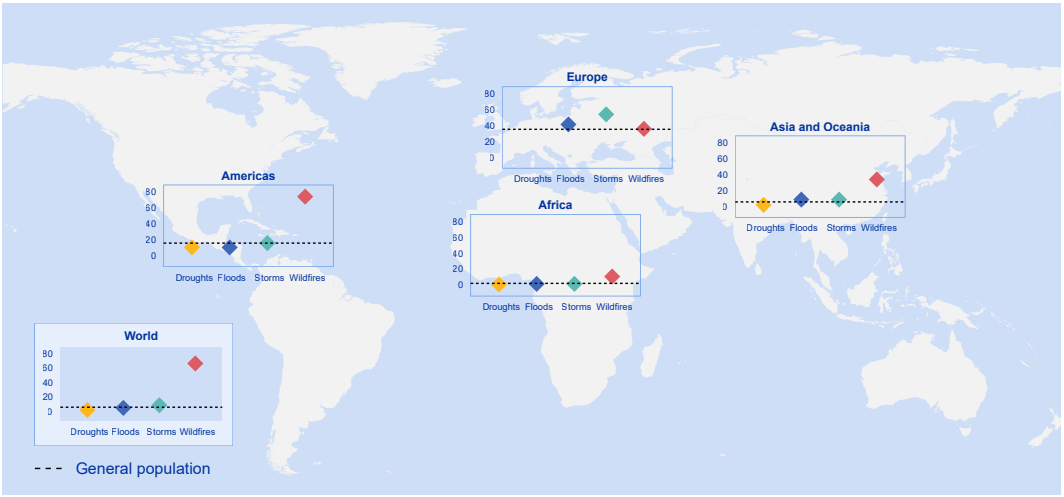
1.2. Socioeconomic profile

1.2.1. Income

On average, populations in areas affected by weather-related internal displacements have a per-capita GNI of USD 7,400, significantly lower than the global general population's average of USD 10,900 (Figure 5). Regional disparities in income are striking among displacement-affected populations, particularly when taking into account that the most affected populations are in parts of the world least responsible for the increased severity of extreme weather events due to climate change. In Africa, the average annual income for those in areas affected by weather-related displacements is just USD 1,500, less than half of the continent's general population average of USD 3,300. Similarly, in Asia and Oceania, the average income for displacement-affected populations is USD 8,600, below the region's general population average of USD 10,400. In the Americas, affected populations earn an average of USD 16,900 annually, slightly lower than the general population average of USD 18,200. Conversely, Europe shows a different trend: affected populations have a higher average income of USD 40,700, compared to USD 37,700 for the general population. In those regions where affected populations have lower incomes compared to the general populus, it is relevant to note that economic factors significantly impact the ability of communities to adapt, or mitigate for the impacts of extreme weather events, making them more vulnerable and exacerbating the effects of internal displacement.

In the case of Europe, the GNI of populations in areas affected by disaster displacement may be higher than the GNI of the general populations because of the locations that are most affected by these phenomena. For example, Europe is most affected by floods and wildfires; among the countries most affected by flooding are Austria, Germany, Italy, the Kingdom of the Netherlands and the United Kingdom and by wildfires are Greece, Portugal and Spain, which are overall characterized by a relatively high per-capita GNI. Figure 5 highlights significant economic disparities faced by populations in areas affected by weather-related internal displacement, particularly in regions like Africa and Asia, where the economic impact of displacement is most severe.

Figure 5. Average income of populations in areas affected by weather-related internal displacement



Note: Markers represent the estimated average GNI levels for each weather hazard and region, including the world. Dotted lines represent the average income of the general population in each region.
This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

When considering the average annual incomes by hazard type, it is found that droughts (USD 1,900 average per-capita GNI), floods (USD 4,700) and storms (USD 8,500) tend to affect countries and communities with significantly lower levels of GNI per capita than populations affected by wildfire displacements (USD 66,500). This is because the regions whose populations are at most risk of being affected by disaster displacement caused by drought, floods and storms often lack infrastructure, investment in climate adaptation, early warning systems and programmes that support the recovery and resilience of affected populations. Variations in income reflect the historical, political and socioeconomic realities that contribute to the disparities in average annual incomes across different regions. This is exacerbated when comparing the average annual income of populations located in areas affected by weather-related displacement versus the GNI of the general population in each region. For instance, in most of the regions assessed (Africa, Americas, Asia and Oceania), income levels of populations affected by weather-related displacement is lower in comparison to the GNI income level of the general population. This is because the populations below the poverty line are often the most affected by extreme weather events since they have less resources to adapt and recover (Bitoto et al., 2024). Additionally, in many cases, climate events can lead to loss of income, particularly to agricultural and pastoral communities, a halt in economic activities, loss of shelter and networks, and reduced job opportunities, further vulnerating already affected populations (UNDP, 2023). As a result, populations often try to compensate by migrating to other locations (often from rural to urban areas) where they may gain more income and information about other employment opportunities (Williams, 2024). Targeted support for low-income displaced populations enhances their resilience to future climate events, supporting broader climate adaptation and resilience efforts.

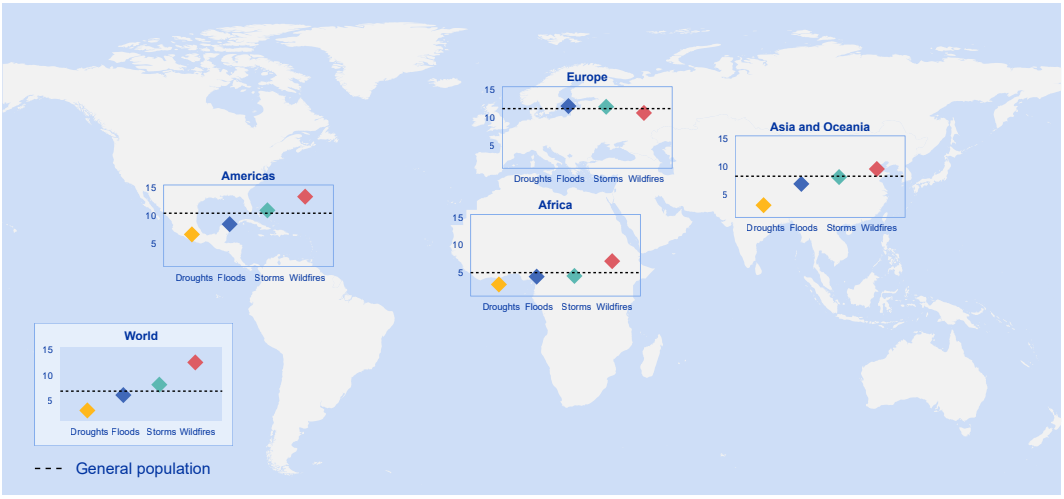
1.2.2. Education

When examining the average number of schooling years among populations affected by weather-related internal displacements, notable regional differences emerge (Figure 6). Globally, people in affected areas have an average of 7.1 years of schooling, which is below the general population's average of 8.2 years. In Africa, the educational gap is particularly stark; those in affected communities have an average of only 4.3 years of schooling, compared to 6.1 years for the general population, reflecting a significant disparity. In contrast, the Americas show a slight positive deviation where those in affected communities have an average of 10.9 years of schooling, slightly higher than the general population's 10.6 years. Asia and Oceania see almost no difference between the affected and general populations, with averages of 7.5 and 7.6 years, respectively. In Europe, those in affected communities have an average of 11.4 years of schooling, which is slightly lower than the general population's average of 12.3 years, but still the highest among all regions.

Displacement caused by droughts is associated with the lowest average educational attainment, with affected populations having only three years of schooling. This could be because drought-affected communities are often agropastoralists with a lower likelihood of having children in education. Flood-affected areas also have a lower average of 6.1 years for schooling, which is below the global average for displaced populations. In contrast, those affected by storms have an average of 8.1 years of schooling, which is above the global average for affected communities and closer to the general population's average. The highest educational attainment is observed among populations affected by wildfire displacement, with an average of 12.6 years of schooling. This significantly exceeds the global average and even surpasses the average schooling years of the general population in most regions.

Lower education levels and associated income linked to livelihood types are relevant factors when considering the cycle of vulnerabilities that reduce resilience to extreme weather events. Further investigation of this variable is necessary to understand the links between lower education levels and associated increased vulnerability to internal displacement due to extreme weather events. Having data on educational levels across regions is important for several reasons. Education data highlight disparities in gaps across regions which, in turn, can assist policymakers in developing mechanism to address these gaps. These data may further help governmental bodies, non-governmental organizations and international organizations in allocating resources where they are most needed. Tackling education gaps, guided by data, is crucial to help societies develop, as education provides better opportunities for the future by increasing employment opportunities and rendering long-term economic and social stability to communities (Brende, 2015).

Figure 6. Average number of schooling years of populations in areas affected by weather-related internal displacement



Note: Markers represent the estimated average schooling years for each weather hazard and region, including the world. Dotted lines represent the average number of schooling years of the general population in each region.
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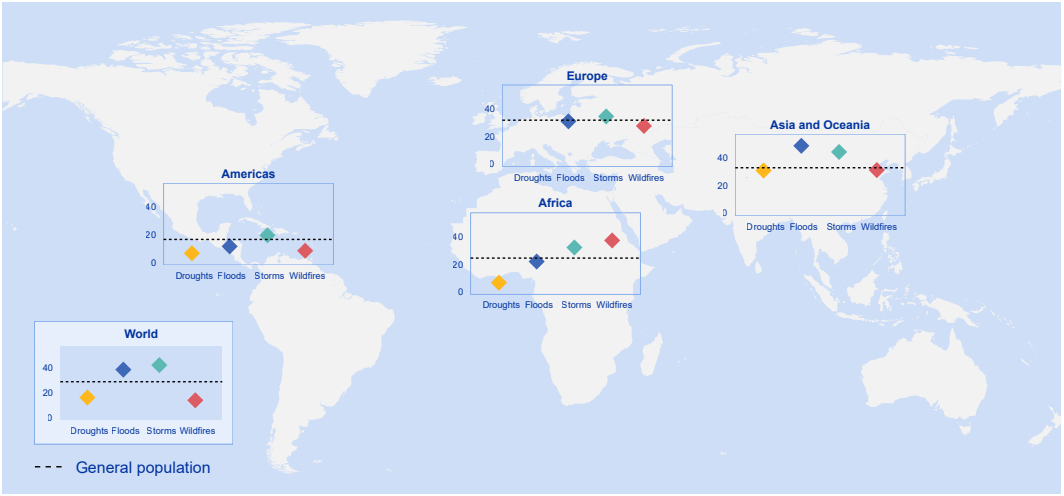
1.3. Land use

1.3.1. Cropland

Cropland is agricultural land on which crops are grown. The average percentage of cropland in areas affected by weather-related displacements globally is 39.1 per cent, which is comparable to the average for the general population of 38.8 per cent (Figure 7). Asia and Oceania (46.1%) are the regions with the highest percentage of cropland in affected areas, followed by Europe (29.9%). In both cases, the average in affected areas is similar to that of the general population. Africa stands out as the region where the percentage of cropland in displacement-affected areas is lower (22%) than it is for the general population (34.6%).

Figure 7. Average percentage of cropland in areas affected by weather-related internal displacement



Note: Markers represent the estimated percentage of land used for farming for each weather hazard and region, including the world. Dotted lines represent the average percentage of land used for farming in populated areas in each region.
This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

These patterns are consistent with the finding that drought-related displacements, which are particularly prevalent in Africa, rarely occur in areas with high concentrations of cropland. Drought-prone regions often suffer from poor soil quality, low rainfall and other unfavourable climatic conditions that limit the potential for extensive agriculture. Similarly, wildfire-related displacements also tend to occur in areas with minimal cropland. This is because wildfires often affect the wildland–urban interface, where residential areas border forests or grasslands vegetation types that are particularly susceptible to wildfires. In contrast, cropland is particularly susceptible to storms and floods, comprising 41.8 and 38.2 per cent of affected areas, respectively. The increased impacts of floods and storms are further exacerbated by the land-use type, which drives environmental change that can reduce resilience to these types of hazards. The long-term impact of damage to cropland as the result of weather-related hazards is significant. World Bank estimates indicate that 4 per cent of the global GDP comes from agriculture (World Bank, n.d.b), while the FAO has estimated that at least 2.5 billion people depend on the agricultural sector for their livelihoods (FAO, 2021).

Operational data spotlight: Internally displaced persons in high-cropland areas

In 2022, storms and heavy monsoon rains in Pakistan caused widespread flooding and landslides. From mid-June to November 2022, up to 33 million people were affected, and 90 districts were declared "calamity-hit" by the Government of Pakistan, with over 2 million houses reportedly damaged (IOM, 2022). According to the IDMC (n.d.), there are a total of 7.2 million people who were internally displaced because of this event, which according to the analysis occurred in a heavily farmed area (97% of local land used as cropland).

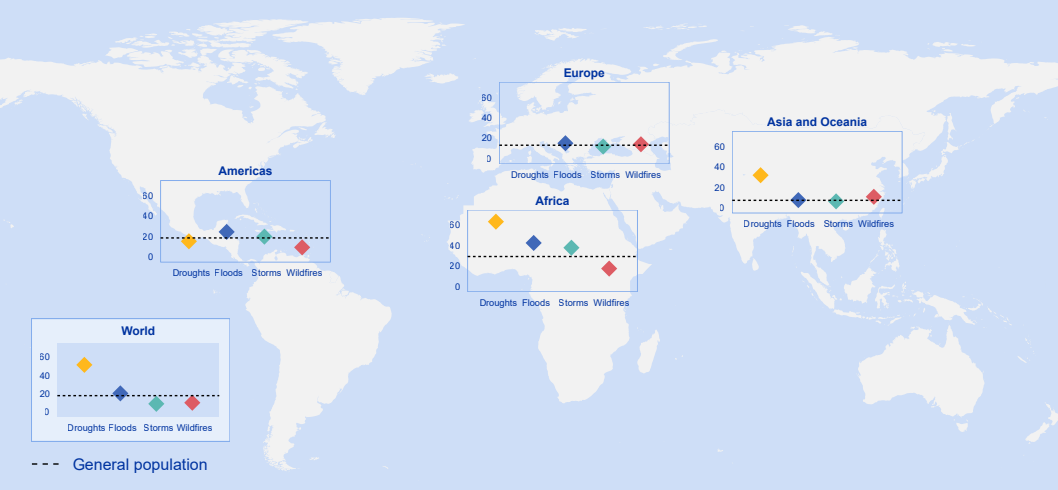
The community needs identification assessment of DTM is deployed across 18 districts with the highest displacement, covering 7,211 flood-affected villages or those hosting TDPs. The primary occupations among the almost 1.6 million TDPs in the locations assessed are farming and pastoralism. Most villages reported that cattle (77%) and crops/seeds (74%) are the resources lost or damaged during displacement, illustrating the damage to livelihoods for those displaced. Vulnerabilities are further compounded by the scale of damage to houses both in the host communities and communities of origin. At the time of the assessment, 64 per cent of locations reported that TDPs could not return to locations of origin due to damaged shelters. UNDP estimates that the floods caused USD 30 billion in loss and damages, in addition to pushing 8 million people into poverty (UNDP, 2024).

1.3.2. Grazing land

Grazing land is land on which livestock is kept. The average percentage of grazing land in areas affected by weather-related displacements globally is 15.2 per cent; this is slightly higher than the average for the general population, which is 13.3 per cent. In terms of regional distributions, the average percentage of grazing land in Africa (42%) far exceeds the other regions analysed, both in terms of areas affected by disaster displacement and for the general population. In this region, the percentage of grazing land in areas affected by disaster displacement was 19.3 percentage points greater than the average population. This is not the case for other regions, where the difference between affected areas and the general population ranges between 1.1 and 2.8 percentage points. The region with the second-highest average percentage of grazing land in affected areas is the Americas at 19 per cent, albeit significantly below the percentage for Africa. When looking at the drivers

of displacement, the data shows that areas with drought-related disaster displacements have the highest percentage of grazing land (51%), followed by floods (20%) (Figure 8).

Figure 8. Average percentage of grazing land in areas affected by weather-related internal displacement



Note: Markers represent the estimated percentage of land used for pastoralism for each weather hazard and region, including the world. Dotted lines represent the average percentage of land used for pastoralism in populated areas in each region.
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Much like damage to croplands, damage to grazing land has significant ramifications for the livelihoods of affected populations. For example, in regions such as West and Central Africa, pastoralism and transhumance, the seasonal movement of herders with their animals in search of grazing land and water, are long-standing traditional practices and fundamental sources of livelihoods (IOM, 2024c). It should also be noted that this type of land use can itself drive environmental change and degradation, which reduces resilience to shocks.

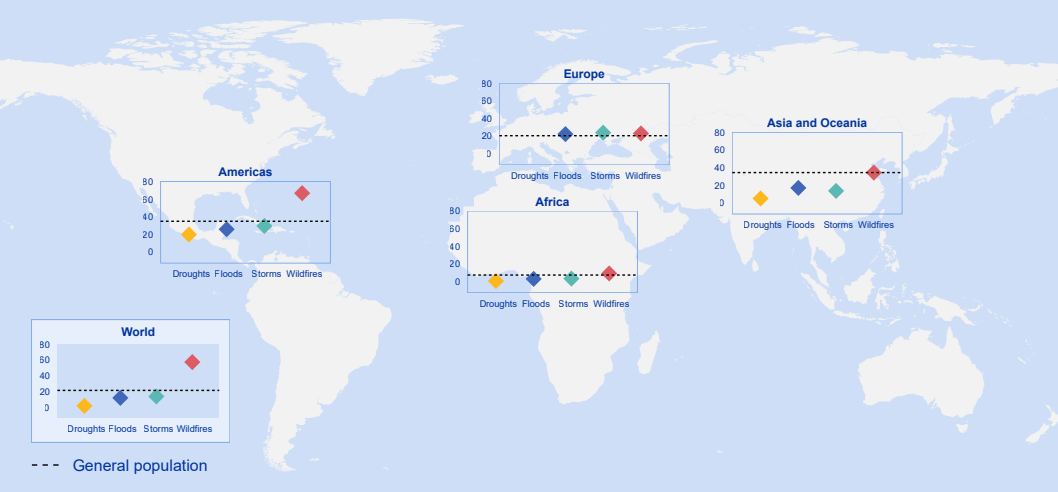
Operational data spotlight: Complex displacement crises in grazing land areas

The Lake Chad Basin – comprised of Cameroon, Chad, the Niger and Nigeria – is affected by a complex crisis involving ongoing conflicts and lawlessness, environmental degradation leading to resource scarcity, along with slow- and sudden-onset climate shocks. As of July 2024, the regional crisis has resulted in an affected population of 6,068,685 individuals. The affected population is made up of IDPs, former IDPs and returnees from abroad, as well as refugees (both in and out of camp) (IOM, 2024d). The countries affected by this regional crisis host high traffic and important transhumance routes. The Transhumance Tracking Tool (TTT) of DTM captures data on migration flows along formal and informal routes. Since its first implementation in 2019 in Chad and the Central African Republic, the data collection has captured the movement of over 2.2 million animals and 65,000 herders (IOM, 2024c). This large-scale movement in a region affected by depleted grazing land and water sources can result in conflict between farming communities and herders, further exacerbating challenges already present due to the complex crisis. The data collected through the Transhumance Tracking Tool is used by local government early warning systems to prepare for the arrival of herders in communities and prevent conflict through the mobilization of local conflict management committees.

1.3.3. Urban areas

The average percentage of urban land in areas affected by weather-related displacements globally is 14.0 per cent; this is less than urban land for the general population, which is 20.8 per cent (Figure 9). Across all regions, the average percentage of urban land in areas affected by disaster displacement are less than in areas occupied by the general population. It should however be noted that significant data gaps persist in quantifying urban disaster displacement, which could partially explain this finding (Lewis and Herwanger, 2022).

Figure 9. Average percentage of urban land in areas affected by weather-related internal displacement



Note: Markers represent the estimated percentage of land covered by urban areas for each weather hazard and region, including the world. Dotted lines represent the average percentage of urban land in populated areas in each region. This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.

In terms of regional distributions, urban land make up the lowest proportion of affected areas in Africa at 2.9 per cent. The highest proportion is observed in the Americas at 37.1 per cent. Europe and Asia and Oceania have 22.9 per cent and 15.1 per cent, respectively.

In urban areas, infrastructural damage can be significant and impact access to vital services, such as health care, education and shelters. Lack of adequate shelters can particularly inhibit durable solutions to displacement. For example, IDPs with adequate shelter are twice as likely to have a stable source of income, making them less reliant on humanitarian assistance (IOM, 2023a).

Operational data spotlight: Urban disaster displacement and urbanization

In Somalia, a comprehensive baseline exercise conducted across the country in 2023 illustrates how displacement can impact urbanization rates. Population movements in and out of urban areas can be difficult to quantify, particularly in displacement settings where the urban displaced can be an invisible population, particularly when sheltering within host communities or in host families (Lewis and Herwanger, 2022). This is relevant because the long-term impact of resource-sharing between host communities and displaced communities is poorly understood, particularly in terms of the impacts on host community resilience. However, data from DTM assessments across diverse contexts show that resource scarcity can cause tensions between the host and displaced communities. In urban contexts, this can be difficult to identify and address.

The scale of displacement in contexts like Somalia illustrate how significant these challenges can be for governments and responders. In 2023, 3,451,434 IDPs and 155,710 returnees are identified across 17 regions and 10,999 locations in Somalia (IOM, 2023b). The majority of IDPs (88%) are found living in designated IDP sites, while 12 per cent resided within host communities. The largest concentrations of IDPs in host communities are observed in the Lower Shabelle region (26%), Baidoa in the Bay region (23%) and the Middle Shabelle region (17%). In contrast, the highest numbers of IDP sites are located in the regions of Banadir (35%), Bay (16%) and Gedo (11%). The displacement to urban areas in Banadir and Bay has been driven by various historical events, including droughts, floods and conflicts, contributing to Mogadishu in Banadir having one of the highest urbanization rates in the world. Most IDP sites in Somalia are situated on privately owned land, leading to significant challenges with land tenure security and a heightened risk of forced evictions further compounding vulnerabilities.

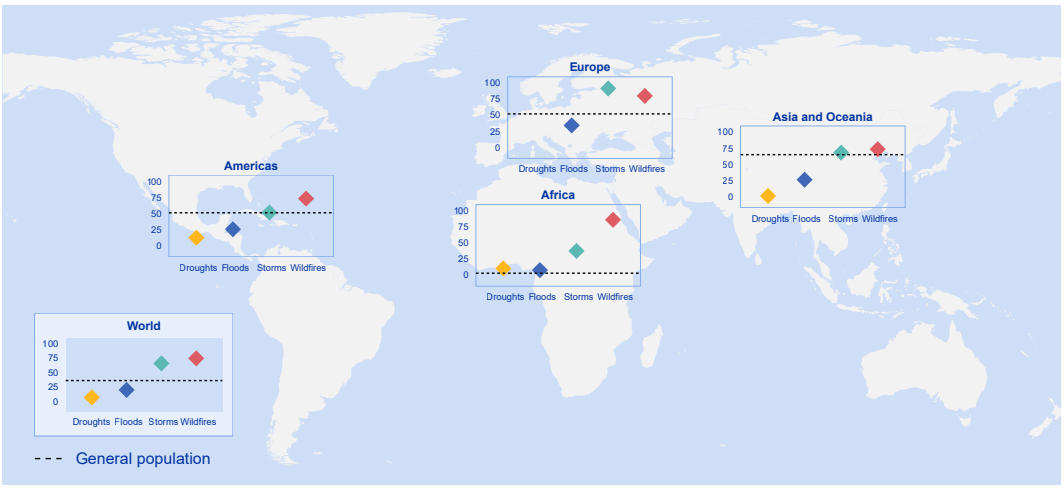
1.4. Coastal populations

Coastal populations face unique challenges when it comes to displacement caused by extreme weather events as sea-level rise continues to encroach their settlements (IPCC, 2022a), exacerbated by other climatic factors. These communities – defined as those living within 100 km. of the coastline – are often on the frontlines of climate change (Glavovic, 2022). They are exposed to a range of hazards that threaten their homes and livelihoods, causing economic and non-economic losses and damages (Martyr-Koller et al., 2021), as well as overall well-being. Nearly 11 per cent of the global population (896 million people) live on low-lying coasts directly exposed to interacting climatic and non-climatic coastal hazards (Glavovic, 2022). However, the extent to which different regions and types of weather-related hazards affect these populations varies significantly. Across all regions in the world, an estimated 27.4 per cent of populations that experience weather-related internal displacements live in coastal areas, compared to 36.7 per cent of the general population. This suggests that while populations in coastal areas face significant risk, other factors linked to exposure, vulnerability and capacity of coastal populations to cope play a crucial role in driving displacement (IOM and IDMC, 2023).

Across regions, Europe has the highest percentage of populations living in coastal areas affected by extreme weather events (62.6%), well above the general population percentage of 39.7 per cent (Figure 10). This could reflect the higher population density in Europe's coastal zones and their exposure to storms. In the Americas, 44.6 per cent of the population affected by weather-related internal displacements live in coastal areas, slightly less than the general population percentage of 46.3 per cent. This is especially concerning for low-lying Islands in the Caribbean, which are among the most vulnerable to sea-level rise and storms (Maitland et al., 2024; EIB, 2023). For instance, Hurricane Ian, which struck the Caribbean in September 2022, caused an estimated USD 100 billion in damage (EIB, 2023). In Asia and Oceania, 30.4 per cent of the population in places affected by weather-related internal displacements live in coastal areas. For example, the 2021 typhoon in the Philippines led to 3.9 million displacements, many of which were in coastal communities. In contrast, only 10.8 per cent of such populations in Africa are from coastal areas. However, with rapid urbanization in coastal zones in Africa, this could pose significant challenges, particularly for the 20 million Nigerians (22.6% of the national population) living along the coastal zone and the 4.5 million Senegalese (66.6% of the national population) in Dakar's coastal area (IPCC, n.d.), where energy, water and other services are already under strain (IPCC, 2022b).

Of all the drivers of displacement in coastal areas, wildfires have the highest percentage (71.9%), due to their prevalence in areas with a mix of coastal and forested regions, such as California and Australia (Jones et al., 2024). Storms also have a significant impact, affecting 38.2 per cent of those living in coastal areas, as tropical cyclones and hurricanes often make landfall in these vulnerable regions, whereas floods are recorded at 5.8 per cent.

Figure 10. Average percentage of coastal land in areas affected by weather-related internal displacement



Note: Markers represent the estimated percentage for coastal populations for each weather hazard and region, including the world. Dotted lines represent the average percentage of coastal areas in each region.
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Operational data spotlight: Displacement in coastal communities

The vulnerability of low-lying coastal populations has significant implications for both local economies and global stability, given that much of the world's population, economic activity and critical infrastructure are concentrated in these at-risk areas (IPCC, 2022a). When Storm Daniel struck Libya's coastal areas and cities in October 2023, DTM recorded an estimated 44,862 IDPs across the country with 10,872 completely destroyed or damaged buildings. The majority of IDPs (94%) are in Eastern Libyan municipalities, while a smaller portion (6%), relocated to western regions (IOM, 2023c). Notably, 23,500 of these IDPs, representing 52 per cent of the total displaced population, are located in Derna municipality in the aftermath of Storm Daniel. This highlights that over half (52%) of the storm-related displacements occurred in the coastal areas. In addition to displacement, stagnant water in the affected areas increased the risk of vector-borne and waterborne diseases, with 3,350 reported cases of diarrhoea. Out of 187 primary health-care centres assessed, 84 per cent are partly or non-functional, further exacerbating health challenges. Despite the urgent need for shelter, only 1 per cent of IDPs are accommodated in public buildings in the coastal city of Derna, likely due to the limited availability of undamaged structures, which are already overwhelmed by the influx of internal displaced individuals. This situation significantly hinders the ability of IDPs to return to their original homes, many of which are severely damaged or completely destroyed by the storm. In other places like Benghazi, communication outage delayed some humanitarian activities, including food distributions in affected areas. In Derna municipality, accommodation (11,750 IDPs, 50%), health services (7,050 IDPs, 30%) and food (4,700 IDPs, 20%) are the top priority needs reported by displaced individuals. The floods as consequence of the storm caused substantial losses and damages, which amount to USD 1.7 billion, approximately 3.6 per cent of Libya's GDP in 2022 (World Bank, 2024).

2. THE POLICY

These dynamics and interlinkages between the adverse effects of climate change and migration are influencing increasingly more operational responses and long-term policies.

At policy level, the two main frameworks – the Global Compact for Safe, Orderly and Regular Migration and the UNFCCC – together with the Paris Agreement, have integrated the human mobility–climate change nexus.

Six years after its adoption, the Global Compact for Migration continues to be the most comprehensive, albeit non-binding framework relating to climate migration. It adopts a holistic approach by addressing the climate drivers of migration (Objective 2), as well as facilitating the pathways needed for climate migration (Objective 5).

Progress on its implementation is advancing, with countries and regional bodies progressively decentralizing the Global Compact for Migration climate migration commitments into national and/or regional plans and strategies. Highlights include development of national policies relevant to climate migration, such as that of Peru, the Solomon Islands or the Australia–Tuvalu bilateral agreement, as well as the regional frameworks for Africa, the Pacific and the Caribbean on climate migration.

This cascading effect has brought with it a higher level of granularity in commitments and more context-based solutions to meeting the needs of local populations, a much-needed approach as evidenced by the aforementioned analysis. This progress is also expected to show with the application of the first Global Compact for Migration monitoring framework, including one indicator relevant to climate migration among the 26 total.

The Paris Agreement adopted in 2015 under the UNFCCC triggered the most progress on climate migration under the climate change regime. The loss and damage landscape has since integrated human mobility across its three pillars: policy, technical assistance and finance.

Firstly, the Task Force on Displacement under the Warsaw International Mechanism for Loss and Damage is finishing its third rolling workplan with the launch of its first-ever technical guide. This guide aims to integrate human mobility and climate change linkages into relevant national climate change planning processes.

Secondly, the Santiago Network on Loss and Damage is being operationalized and is aiming to catalyse technical assistance on loss and damage, including relating to human mobility.

Finally, and most importantly, the Fund for Responding to Loss and Damage, established in 2022–2023, is the first-ever climate fund that includes human mobility within its scope of financing. With pledges close to USD 700 million, it is the first climate fund that calls for climate migrants to contribute to its work and establish a dialogue with relevant stakeholders, including IOM.

On the adaptation agenda of the UNFCCC, progress on human mobility integration has been made mostly at the national level, with the integration of human mobility in 85 per cent of the National Adaptation Plans (NAPs). More opportunities exist nevertheless, including with the Global Goal on Adaptation indicators set to be endorsed in 2025 and the third generation of Nationally Determined Contributions (NDCs).

At the operational level, humanitarian and development organizations alike are tackling the adverse effects of climate change, including as a driver of migration, and responding to migration flows in the context of a changing climate.

IOM, the leading United Nations entity on migration, has been working on the links between migration and the environment since the 1990s at all levels (local, national, regional and international) and across all sectors (research, capacity-building, policy and operational response). Since 2015, the member States of IOM have also asked the Organization to establish and run a dedicated department to this thematic, to better understand, prepare for and answer to environmental migration, including climate migration.

In 2021, IOM launched its *Institutional Strategy on Migration, Environment and Climate Change Strategy 2021–2030* to amplify institution-wide efforts. The Strategy sets the course for the decade towards three main objectives:

(a) Solutions for people to move: Managing migration in the context of climate change, environmental degradation and disasters due to natural hazards.
(b) Solutions for people on the move: Assisting and protecting migrants and displaced persons in the context of climate change, environmental degradation and disasters due to natural hazards.
(c) Solutions for people to stay: Making migration a choice by building resilience and addressing the adverse climatic and environmental drivers that compel people to move.

At the core of this Strategy is the operational footprint and reach of IOM. With offices in over 170 countries and over 500 locations, IOM is currently leading more than 220 programmes totalling USD 1.1 billion that respond to one or more of the three Strategy objectives. This represents, on average, a third of the total annual budget of IOM in recent years.

Between 2022 and 2024, the budget allocation of IOM towards climate migration action increased. In 2022, IOM spent USD 216 million on emergency, assistance, preparedness and risk reduction in the context of climate change; in 2024, IOM has committed in payments almost double the amount, some USD 546 million. When it comes to transition, recovery and development, the budget of IOM almost tripled from USD 59 million in 2022 to USD 150 million in 2024. On technical assistance such as policy support, research development and capacity-building, the budget of IOM went from USD 7 million in 2022 to almost USD 20 million in 2024.

This increase not only shows the Organization's efforts to implement the Strategy, but it also comes after multiple demands from member States for IOM to respond to climate migration. Since 2014, every year, IOM member States have requested the Organization's administration to inform its governing bodies of progress made and next steps on this topic, either thematically, through the IOM Council, or financially through the Standing Committee on Programmes and Finance.

3. RECOMMENDATIONS

Considering the analysis of the demographic and socioeconomic profiles of communities affected by weather-related displacements and the analysis of the policy environment on climate migration together with the long-term experience and expertise of IOM in climate migration, IOM makes the following recommendations towards improving support for affected communities and policymaking at 2024 United Nations Climate Change Conference (COP29) and 2025 United Nations Climate Change Conference (COP30).

(a) Adapt solutions to the contextual needs of climate migrants.
- Focus on urban areas in the Americas and continue investing in climate-resilient urban development in the other regions.
- Focus on future proofing the coastal areas of Africa and continue investing in coastal resilience in the other regions.

(b) Include and facilitate the participation of climate migrants to policymaking.

(c) Improve the quality and availability of data on the demographic characteristics of IDPs and migrants.
- Focus on methods and approaches that promote harmonization between government and alternative data sources.
- Adhere to common standards of data collection and analysis to ensure that data is comparable across contexts and over time.
- Improve data-sharing processes to make available data more accessible and ensure that data producers and users adhere to common standards for ethical and responsible data use and collection.

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