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Climate Extremes (Flood and Drought) as Drivers of Irregular Youth Migration: Evidence from The Gambia

Demba Baldeh[1*], Walter Leal Filho[2], Mamma Sawaneh[3], Alagie Bah[4]

[1]Department of Social and Environmental Studies, University of Education, The Gambia (UEG), Brikama, The Gambia
[2]HAW Hamburg University of Applied Sciences, Hamburg, Germany
[3]West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL), University of The Gambia, Kanifing, The Gambia
[4]World Agroforestry, Banjul, The Gambia
Email: *ngandemba2007@gmail.com

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Abstract

Given its geographical location, The Gambia is ranked among the top 100 nations most susceptible to climate change. In recent years, the country has experienced increased frequency and intensity of floods, droughts, windstorms, high temperatures, coastal erosion, sea level rise, and erratic rainfall, which are impacting ecosystems and livelihoods. Climate-induced youth migration is a globally recognised fact and has become the main challenge of the 21st century, particularly in The Gambia, with 60% of its population being youth. In this paper, we evaluate the effects of climate extremes, focusing on the impact of floods and drought on the irregular migration of Gambian youth to the European Union. The evidence from the study showed that floods and drought are the key climate stressors that negatively impact rural livelihoods, thus exacerbating the mass migration of youth to Europe. North Bank and Central River are the most environmentally disrupted regions with the highest youth migration. The impact of climate extremes on livelihoods is also manifested in several ways, including the loss of fertile agricultural lands, leading to increased vulnerability of farming communities in rural areas. The paper concludes that climate extremes (floods and drought) induce irregular youth migration and thus require urgent attention.

Keywords

Floods, Drought, Youth, Migration, Climate Change, Vulnerability

1. Introduction

The Gambia is one of the smallest countries in Sub-Saharan Africa, covering around 400 kilometres along The Gambia River and bordered by Senegal on its three sides, except in the west with a 60-kilometre Atlantic Ocean front. Having a total land area of 11,300 square kilometres, with 176 persons per km^2, the nation is among the most densely populated. The country has a projected 2022 population of 2.4 million (GBoS, 2023). Approximately 60% of the country's people are under 24 years old, and 57% of them reside in urban and peri-urban areas (World Bank, 2021).

The country is characterised by three distinct agroecological zones (AEZs), namely, Sahelian (<600 mm annual rainfall), Sudan-Sahelian (600 - 900 mm annual rainfall), and Sudanian-Guinean (900 - 1200 mm) (Government of The Gambia, 2019). According to the Government of The Gambia (2019), agriculture accounts for 40% of national exports and 25% of the national GDP, and it employs about 70% of the active labour force, mostly in the primary agricultural production domain. Subsistence rainfed food crop production (early millet, late millet, maize, sorghum, rice), semi-intensive cash crop production (groundnut, cotton, cashew, sesame, and horticulture), and traditional livestock production (cattle, sheep, goat, poultry) characterise the sector.

The climate of The Gambia is distinguished by a brief wet season (July to mid-October) and a long dry season (mid-October to June). Average annual rainfall ranges from 850 mm to 1200 mm, and average temperatures range from 18˚C to 33˚C (Duguma et al., 2020). The country's unique geography (bordering south of the Sahara), low-lying topography, and position on the banks of a largely meandering tidal river that is connected to the Atlantic Ocean make it particularly vulnerable to climate change impacts because of sea level rise, rising temperatures, and decreasing rainfall.

The country is highly susceptible to a variety of environmental challenges, including climate change and variability, land degradation, salinity, and coastal erosion, which are impacting livelihoods. Climate change impacts have been identified as one of the most significant external factors hindering the performance of the growth-driving sectors such as agriculture, tourism, and industry. A recent case study by the United Nations Environment Programme (UNEP) shows that climate change and variability significantly impact food systems in The Gambia (UNEP, 2023). This is realized at various levels of the food system value chain, leading to detrimental effects on the livelihoods and resilience of communities.

Recent occurrences of climate extremes in The Gambia, such as floods, windstorms, temperature increases, and drought, have resulted in uncertainties at the local and national levels. Crop farming in The Gambia is mainly dependent on rainfall, which has been declining and erratic in recent years, resulting in lower agricultural productivity (Jaiteh & Sarr, 2011). For example, increased rainfall variability of 700 mm in the northerly part to 1,000 mm in the southern and southeastern parts of the country results in uncertainties, leading to drier and more

drought-prone conditions (Government of The Gambia, 2019). Recently, the IPCC (2022) forecasted that increased rainfall intensity, combined with higher drought occurrences, will significantly raise hydroclimatic stress on populations in West Africa over the late twenty-first century. Minimum seasonal temperatures in The Gambia have risen at a rate of 0.4˚C to 0.67˚C during the last decade (Government of The Gambia, 2019). Furthermore, hotter, longer, and more protracted heat waves have occurred in the twenty-first century (Barbier et al., 2018). According to IPCC forecasts, average yearly temperatures will be 0.6˚C to 1.1˚C higher than the 1994-2005 average (IPCC, 2022).

Changes in the average weather that last for several decades or more are referred to as climate change. Increased frequency of extreme climate events, including heat waves, droughts, floods, and storms, is one of the ways that climate change is exhibiting itself (UNGA, 2009). It is anticipated that the effects of climate change will place a great deal of strain on the nation's natural resources, which sustain rural livelihoods. For example, decreasing rainfall, increasing temperatures, and floods are projected to intensify land degradation in The Gambia. The impacts of these climatic stressors on ecosystems that support rural livelihoods in The Gambia are believed to trigger the migration of youth to urban areas and subsequently to Europe through illegal routes. However, there is a lack of evidence to substantiate this suggestion. Therefore, the main thrust of the research is to examine the effects of climate extremes (floods and droughts) on irregular migration of The Gambia's youth.

Irregular migration in this study implies the movement of young people between the ages of 18 and 35 years to Europe through the perilous journey without a visa. Therefore, how climate extremes induce irregular migration is everyone's guess. Furthermore, the study investigated what the perceptions and causes of youths' migration in the study area. The paper serves as an important window indicative of the ample evidence linking climate change to irregular youth migration, as the former has a significant impact on agriculture, which in turn is associated with youth movement to seek better livelihood opportunities.

2. Climate Change and Forced Migration

Globally, climatic extremes are imposing intolerable conditions on tens of millions of people, threatening livelihoods and ecosystems. Climate migration occurs when people abandon their homes due to severe weather conditions such as heat waves, wildfires, droughts, floods, and increasing sea levels. Migration has always been a normal reaction to environmental problems on a worldwide scale (McLeman & Smit, 2006; McLeman, 2014). This could lead to a mass population migration to more favourable environments. Politically speaking, one of the most urgent concerns on the global political agenda right now is environmentally induced migration (IOM, 2015), particularly migration brought on by climatic extremes like droughts (Chen & Caldeira, 2020; Wanders & Wada, 2015; IPCC 2013; Cattaneo et al., 2019). A recent simulation study on climate change, drought, and

environmental migration led by Stony Brook University researchers suggests that drought-induced migration could potentially increase by approximately 200 percent under the current global international policy scenario (Smirnov et al., 2023). It is further projected that total migration could increase by nearly 500 percent, should the current international cooperation and greenhouse gas emission policy restrictions fail.

Migration is perceived differently, but Blazhevska (2017) defined it as the act of traveling, whether domestically or internationally, and includes all forms of human mobility, regardless of their duration, composition, or reasons. Reports have indicated that migration could emerge as one of the most possible adaptation strategies to climate extremes and climate-induced natural disasters (Reid, 2014). Climate change, according to Rigaud et al. (2018), could cause significant future internal migration movements in Sub-Saharan Africa, South Asia, and Latin America. According to FAO (2023) research, Africa would generate the greatest number of potential migrants due to the continent's high vulnerability to climate change and variability.

The Gambia has had a long history of migration, both internal and international. Over the past few years, a significant number of Gambian youths have undertaken irregular migration to Europe in pursuit of socioeconomic opportunities. For example, between 2014 and 2018, over 35,000 Gambians, mostly youths, arrived in Europe by irregular routes across the Sahara and Mediterranean (IOM, 2023). According to Faal (2020), The Gambia emerged among the top ten countries of irregular migrants to Europe in 2014, and arrivals peaked in 2016 at 12,792. Most of the migrants are in Italy, Spain, and Germany. Migration in The Gambia contributes significantly to the country's GDP through international remittances.

3. Study Approach

The study was conducted in four administrative regions in The Gambia: Central River, Upper River, West Coast, and North Bank. The Central and Upper regions are the most affected by drought and flooding, respectively. Weather data (temperature and precipitation) were obtained from the Department of Water Resources Meteorology Unit for 40 years from 1980 to 2020, while the primary data were collected through individual interviews, Focus Group Discussions (FGD), and Key Informant Interviews (KII). One hundred and five irregular migrants (refer to **Table 1** for the data), and ten FGDs were conducted in the study regions with selected community members. The KII respondents included officials from the International Organization for Migration (IOM), migration officials from the Ministry of Foreign Affairs, the Immigration Department, the Interior Ministry, the Office of the Vice President that houses the National Coordination Mechanism on Migration, the Youth Ministry, Gambia Red Cross Society, the Climate Change Officer at MECCNAR, and irregular migrant returnees. Analyses of flood-prone areas and drought zones based on GIS maps were complemented by guided

transect walks and physical measurements. Table 2 clearly shows the method of sampling and the purpose of utilizing these methods in the study.

Statistical Package for Social Sciences (SPSS) was used to analyze the data. The following analytical tools were used: descriptive statistics, reliability test (Cronbach α-test), Mann-Kendall test, and Chi-square analysis. Descriptive analysis was employed to analyze the socio-demographic data of respondents. The Mann-Kendall test was used to process precipitation data from weather stations between 1980 and 2020. The climatic data were examined using the Mann-Kendall (MK) test (Mavromatis & Stathis, 2011) and hydrologic time series (Yue & Wang, 2004).

Table 1. Total respondents for the survey by region and sex composition.

Region	Male	Female	Other
CRR	31	1	1
URR	19	2	0
NBR	30	3	0
WCR	16	2	0
TOTAL	**96**	**8**	**1**

Source: this study.

Table 2. The methods used in data collection and purpose.

No	Method	Purpose
1	Snowball sampling	Identify respondents (irregular youth migrants in Europe, North Africa, and returnees) that made up the sample size.
2	Purposive and proportional sampling	a) Selection of individual household heads whose children had taken the perilous journey. These individuals make up the 10 Focus Group Discussions (FGDs). b) Choose the experts who were interviewed for the Key Informant Interviews (KIIs).
3	Secondary data collection	a) Compilation of precipitation and temperature data from the 7 weather stations in the study area for SPI, trend, and regression analysis. b) GIS for land use and land change mapping of the study area.

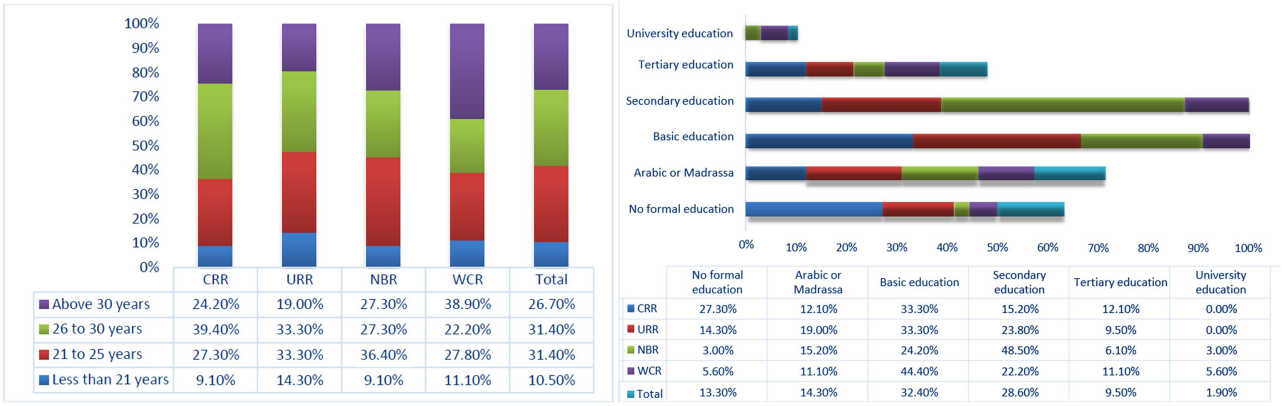
Source: this study.

4. Findings

4.1. Demography of Migrants

The study shows that the majority (63%) of the irregular migrants are youths between the ages of 21 and 30 years. In terms of educational background, almost 60% of the respondents have attained basic (32.4%) and secondary education (28.6%). The educational background of the respondents is very significant since it prepares them for future endeavours, especially those wanting to migrate to a foreign land. If one is equipped with knowledge and skills, it would ease their problems during their journeys. Interestingly, 13% of the sample had no formal education before embarking on the perilous journey. The majority of those without any formal education originated from the CRR (27%), followed by URR

(14%), and then WCR and NBR (6% and 3%), respectively. Attainment of formal education is key for irregular migrants to fit into the host societies since it provides them with the opportunity to secure jobs or be trained (Figure 1).



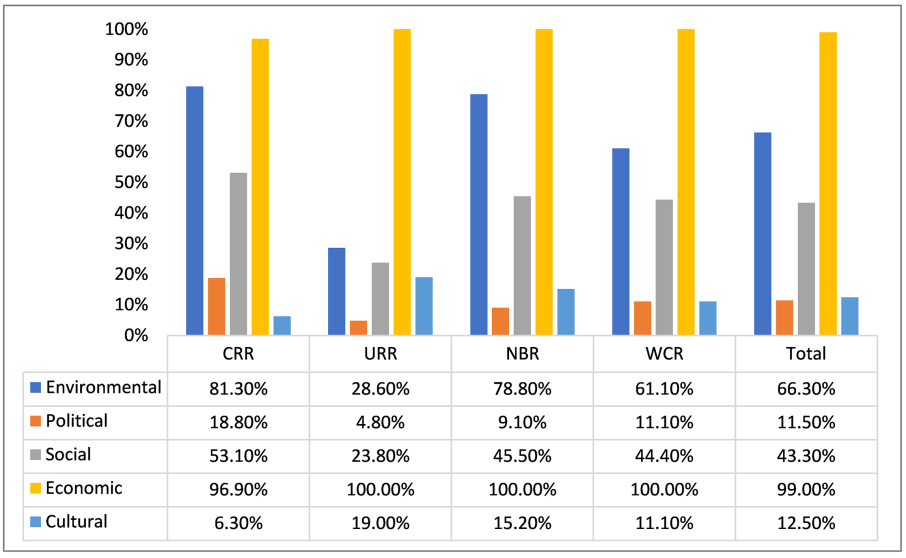
	CRR	URR	NBR	WCR	Total
Above 30 years	24.20%	19.00%	27.30%	38.90%	26.70%
26 to 30 years	39.40%	33.30%	27.30%	22.20%	31.40%
21 to 25 years	27.30%	33.30%	36.40%	27.80%	31.40%
Less than 21 years	9.10%	14.30%	9.10%	11.10%	10.50%

	No formal education	Arabic or Madrassa	Basic education	Secondary education	Tertiary education	University education
CRR	27.30%	12.10%	33.30%	15.20%	12.10%	0.00%
URR	14.30%	19.00%	33.30%	23.80%	9.50%	0.00%
NBR	3.00%	15.20%	24.20%	48.50%	6.10%	3.00%
WCR	5.60%	11.10%	44.40%	22.20%	11.10%	5.60%
Total	13.30%	14.30%	32.40%	28.60%	9.50%	1.90%

Figure 1. Age and educational background of the respondents from the 4 regions.

4.2. Factors Stimulating Migration

Migration can be triggered by environmental, economic, social, or political factors. In this study, the motive for the migration of youth is categorised into five factors. Responses in Figure 2 show that migration is mainly influenced by economic (99%), environmental (66%), and social factors (43%). Cultural and political factors appeared to be the least influential in affecting the migration of youth. In terms of regional comparison, the CRR and NBR, being the driest regions in the country, had a higher percentage of environmentally induced migrants, with 81% and 79%, respectively. This suggests that regions with harsh environmental conditions, such as drought, are more prone to youth migration in search of better opportunities elsewhere.

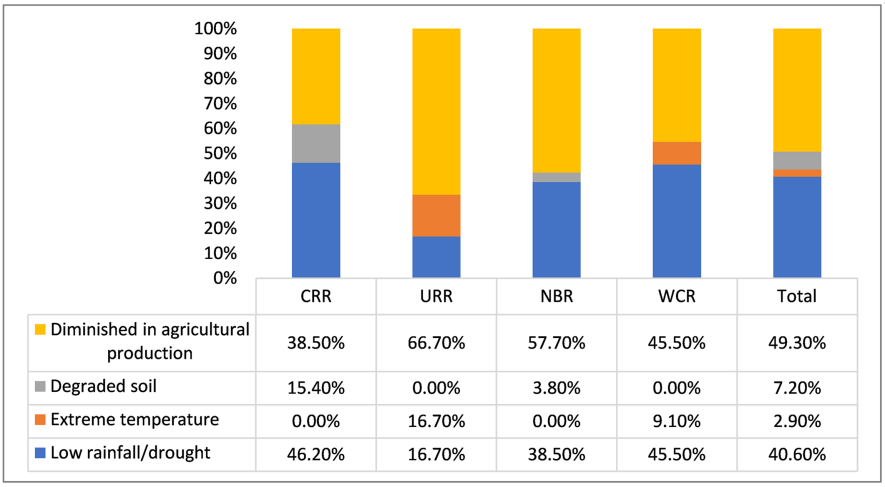


	CRR	URR	NBR	WCR	Total
Environmental	81.30%	28.60%	78.80%	61.10%	66.30%
Political	18.80%	4.80%	9.10%	11.10%	11.50%
Social	53.10%	23.80%	45.50%	44.40%	43.30%
Economic	96.90%	100.00%	100.00%	100.00%	99.00%
Cultural	6.30%	19.00%	15.20%	11.10%	12.50%

Figure 2. Factors influencing the illegal migration of youth.

Since the key thrust of the research is to investigate the impact of extreme climate events such as flood and drought on the irregular migration of youth, it is imperative to understand the specific environmental parameters that exist in the study regions. The results revealed that diminished agricultural production in the study areas is one of the main stressors on rural livelihoods, leading to the emigration of the inhabitants. Nearly 49% of the respondents blamed the low productivity of crop and livestock farming (diminished agricultural production) as the main driver pushing the youth out of their region. Furthermore, 41% of the respondents associate recurrent drought and low rainfall as a factor crippling rural farming activities, because the environment is becoming increasingly unsuitable for livelihood sustenance.

Some respondents (15%) noted that land degradation in CRR is an environmental issue impacting immigration and livelihoods. Extreme temperatures are also reported to be seriously affecting the environment in URR (17%) and WCR (9%) (Figure 3).



	CRR	URR	NBR	WCR	Total
Diminished in agricultural production	38.50%	66.70%	57.70%	45.50%	49.30%
Degraded soil	15.40%	0.00%	3.80%	0.00%	7.20%
Extreme temperature	0.00%	16.70%	0.00%	9.10%	2.90%
Low rainfall/drought	46.20%	16.70%	38.50%	45.50%	40.60%

Figure 3. Environmental factors inducing migration.

4.3. Climate Change Impacts and Vulnerability

The Gambia's economy is predominantly agrarian, and it is the most important sector in the country's economy, providing informal employment for about 75% of the labor force. Food and cash crop production generate approximately 40% of the country's foreign exchange and 30% of the national GDP (FAO, 2023). Given the immense contribution of agriculture to the country's GDP, many rural communities in The Gambia rely heavily on the sector for their livelihoods. However, climate change impacts, rainfall variability, increased temperature, and recurrent drought are fundamentally impacting rural livelihoods and the ecosystems that support them. At the communal level, evidence of climate change includes erratic rainfall, drought, flooding, and plant and animal diseases. These climate-induced factors result in poor agricultural productivity, thus triggering accelerated irregular youth migration from The Gambia (Figure 4).

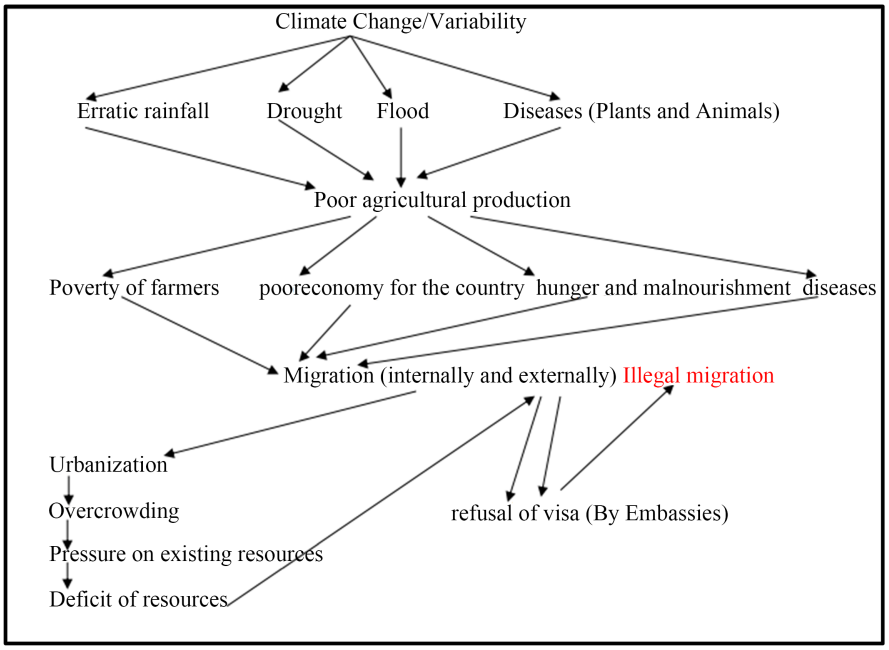


Figure 4. Schematic diagram showing the factors inducing climate change/variability and the resulting effect on irregular migration in The Gambia.

Table 3. MK trend test/two-tailed for the 7 weather stations in the study area.

	Kerewan	Janjangbureh	Basse	Fatoto	Sapu	Yundum	Kaur
Kendall's tau	0.312821	0.100	0.233	0.244	0.418	0.231	0.248
S	244	78.000	182.000	190.000	326.000	180.000	193.000
Var (S)	0	0.000	0.000	0.000	0.000	0.000	7365.667
***p*-value**	0.004183	0.372	0.034	0.027	<0.0001	0.037	0.025
Alpha	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Test interpretation	Reject	Accept	Reject	Reject	Reject	Reject	Reject

The *p*-value (2-tailed) is computed using an exact method.

In this paper, the Mann-Kendall (MK) and Sen's slope estimator have been used for the determination of the time series analyses. The trend analysis is carried out for the seven weather stations using annual precipitation and temperature records for the years 1980-2020. Table 3 displays a summary of the findings for the seven weather stations in the research areas. Researchers who analyzed hydrological time series and climatic fluctuations typically use the Mann-Kendall (MK) test, a non-parametric test using time series trends (Longobardi & Villani, 2010). The six weather stations (Kerewan in NBR, Basse in URR, Fatoto in URR, Sapu in CRR, Yundum in WCR, and Kaur in CRR) all demonstrated a significant change in annual rainfall trends over the period 1980-2020. The trend analysis shows an increase in the annual rainfall of these stations during the period under review. Though the rise is not uniform among the stations, Sapu station in southern CRR has the highest increase in the precipitation trend, while Fatoto and Basse, both in

URR, had the lowest and equal rise in their rainfall trend.

The Gambia is reported to be vulnerable to climate change impacts. According to GoTG & UNDP (2012), The Gambia is the world's tenth most vulnerable country to the effects of sea level rise. Flash floods, for example, affect a major area of the country each year, particularly in low-lying areas. The National Disaster Management Agency (NDMA) and the United Nations Development Programme (UNDP) evaluated The Gambia's disaster risk profiles (NDMA & UNDP, 2014). According to the findings, drought is one of the most frequent climate-related calamities the country has been suffering from. Other climate-related concerns that affect different parts of the country include floods, windstorms, bushfires, and deforestation (Table 4).

Table 4. The risk profile of the country per region.

Region	Priority 1	Priority 2	Priority 3	Priority 4	Climate change-related risks
URR	Flood	Fire	Windstorm	Drought	The four risk priorities are entirely linked to climate change.
LRR	Bush fire	Deforestation	Flood	Disease outbreak	These are entirely associated with climate change.
CRR	Drought	Hippo and pest invasion	Bush fire	Flood	All priorities are linked to climate change.
WCR	Poor waste management	Flood	Road traffic accidents	Domestic fires	Flooding is directly linked to a changing climate.
NBR	Deforestation	Poor waste management	Misuse of pesticides & antibiotics	Domestic and bushfires	Only deforestation is directly linked to climate change.

Source: NDMA & UNDP (2014).

Among the top ten disaster risk factors, soil erosion, disease outbreak, and youth migration emerged as the top ten in URR, while saltwater intrusion and windstorms were identified in LRR; saltwater intrusion, soil erosion, and deforestation in CRR; windstorms in WCR; and saltwater intrusion. The report also highlighted that climate change-related factors are among the top four highly prioritised risks and hazards that are impacting communities in CRR, LRR, and URR. According to data gathered from The Gambia by Duguma et al. (2020), the four administrative regions of the Ecosystem-based Adaptation (EbA) project reported that 82.4% of households have experienced at least one climatic catastrophe in the preceding five years.

Effects of flood and drought on irregular migration

The study on historical weather data for the period 1980-2020 showed considerable changes in mean rainfall and temperature conditions. Broadly, there is an increase in precipitation for the regions studied over the period, in contrast to what most participants in the survey reported. The precipitation data, which is more scientific, confirmed a positive trend for the country's wet seasons. Consequently, one could infer that climate variability is affecting farmers more than climate change. This has led to the erratic and unpredictable nature of rainfall, thus

causing farmers' activities to fail in most cases, just as they reported. The URR and WCR are found to be more affected by flood events, whereas NBR and CRR are mainly afflicted by meteorological drought.

The findings are in contrast with a study conducted by Duguma et al. (2020), where it was observed that between 1991 and 2015, there was a rise in temperature of more than 0.33˚C in nine (9) of the twelve months of the year. From 0.44˚C (for April and May) to 0.72˚C (for November), there were notable variations.

Field observations show that most of the country is afflicted with dry spells that are making farming difficult. Sylla et al. (2016) proposed that several West African nations, including Senegal, Guinea, Sierra Leone, Mauritania, Mali, Burkina Faso, Nigeria, and Cote d'Ivoire, should expect a 30% - 50% longer dry spell than the 1976-2005 baseline period. The findings are supported by other studies that confirmed recent climate change simulations and models' predictions that extreme occurrences will occur more frequently in the future (IPCC, 2022). This is also observed by the FGD participants in all the regions of the country. Therefore, the youths who hailed from the farming communities have lost hope in agriculture and taken up irregular migration as an adaptation strategy to improve their livelihood opportunities. This is supported by Mpandeli et al. (2020) who argued, "In response to the undesirable impacts of climate change, migration also is already increasing and is likely to continue becoming more frequent in the affected countries." Additionally, since 2008, more than 17 million people have been forcibly displaced due to a rise in natural disasters and extreme weather occurrences such as storms, cyclones, flash floods, and droughts (Leal Filho, Olaniyan, & Nagle Alverio, 2022). Similar to what this study found, Herrero et al. (2010) found in a parallel study carried out in Kenya that small-scale farmers were significantly impacted by climate change due to frequent droughts. Therefore, it is anticipated that continuous recurrent droughts and floods will exacerbate the already existing irregular migration of the country's youths.

The analysed data confirmed numerous strategies adopted by irregular migrants to cope with their perils along the journey. Interestingly, Gambians are found to stick together during the journey to give a moral boost to each other throughout the journey. They also support one another in any way possible, no matter where they come from or which ethnic group they belong to. In a few cases, they also engage in drug dealing to make money while on the route.

The main activities that the migrants resort to are many and diverse, and these are clearly explained in the data presentation on the coping strategies espoused by irregular migrants during their perilous journey from **Figure 5** to **Figure 12**. Some engage in part-time jobs, especially when they reach Libya, before they can pay to cross the Mediterranean Sea to Europe. There are instances when many of the skillful ones stay longer in Libya because they can be employed and are paid good money. Others seek support from their families and friends both back home and abroad. A few engage in other vices such as drug dealing and prostitution to earn a living and pay for their crossing of the sea to their desired destination.

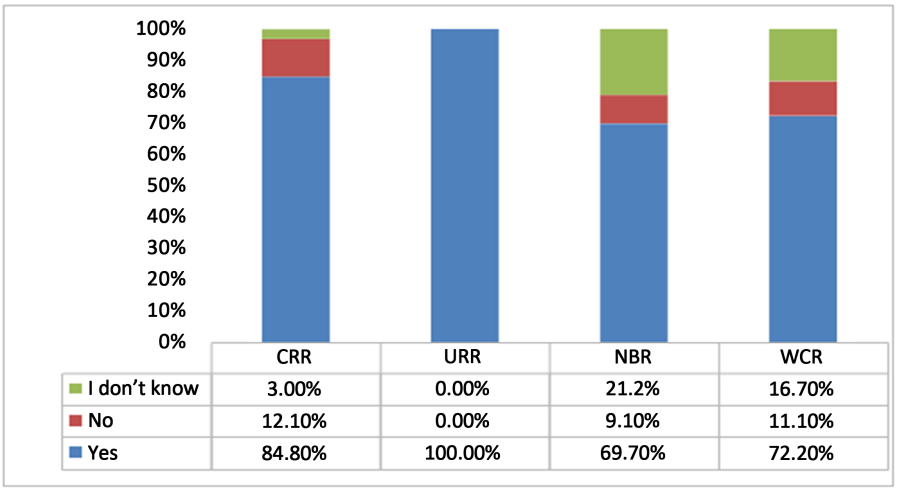


Figure 5. Response from migrants' engagement in part-time jobs.

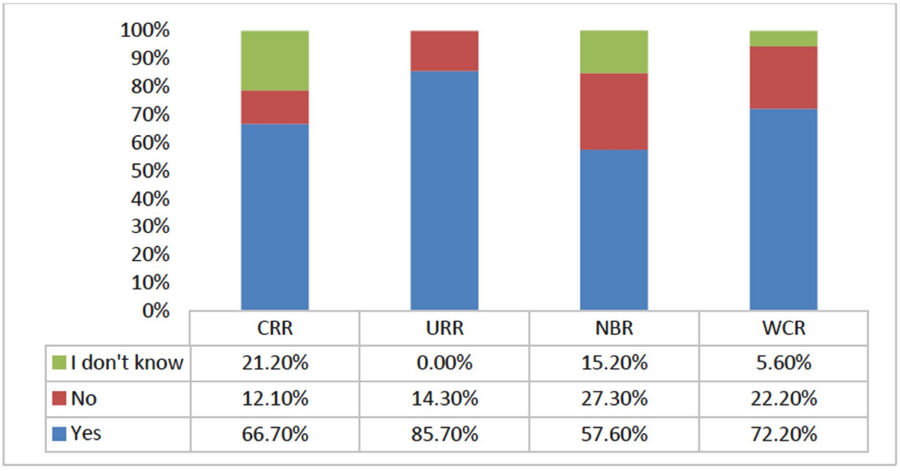


Figure 6. Irregular migrants engage in illicit activities like drug dealing and prostitution.

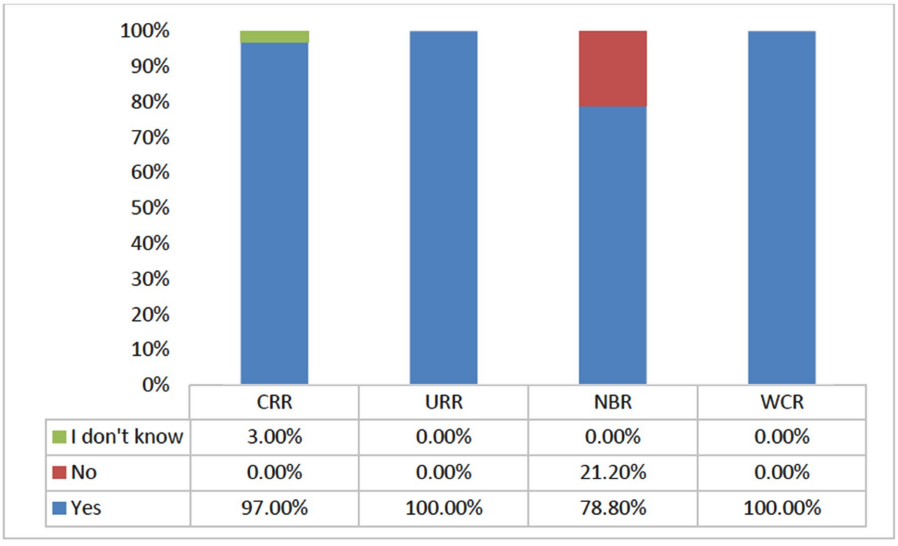
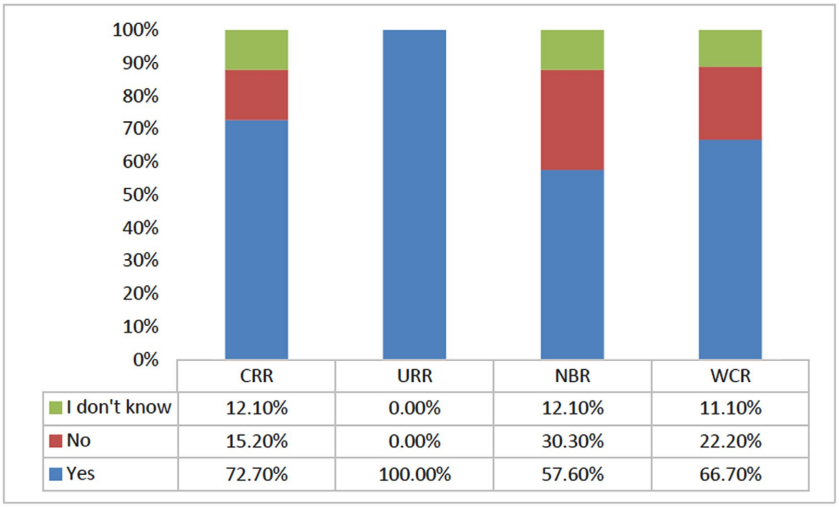
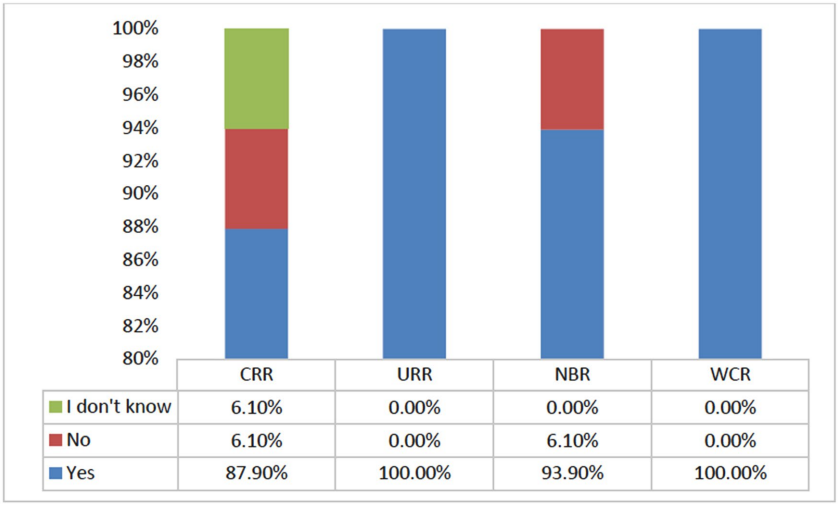


Figure 7. Hiding monies in secret parts of their bodies.



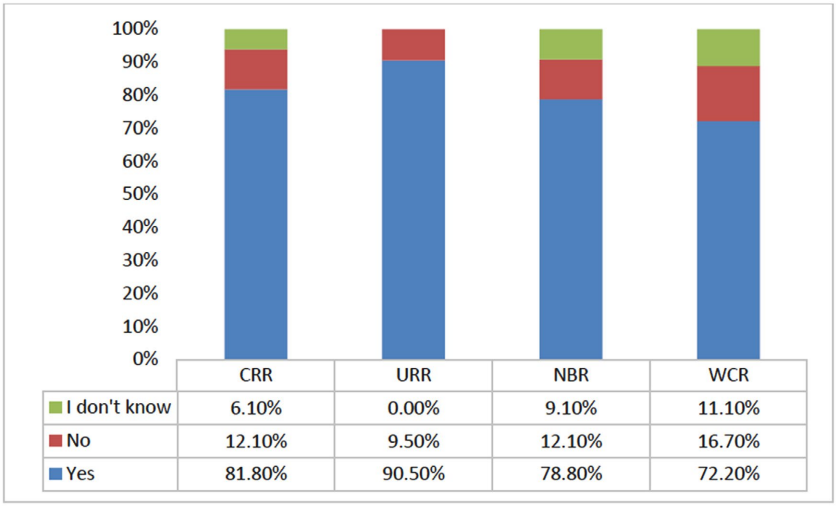
	CRR	URR	NBR	WCR
I don't know	12.10%	0.00%	12.10%	11.10%
No	15.20%	0.00%	30.30%	22.20%
Yes	72.70%	100.00%	57.60%	66.70%

Figure 8. Migrants doing domestic jobs in restaurants to get food to eat.



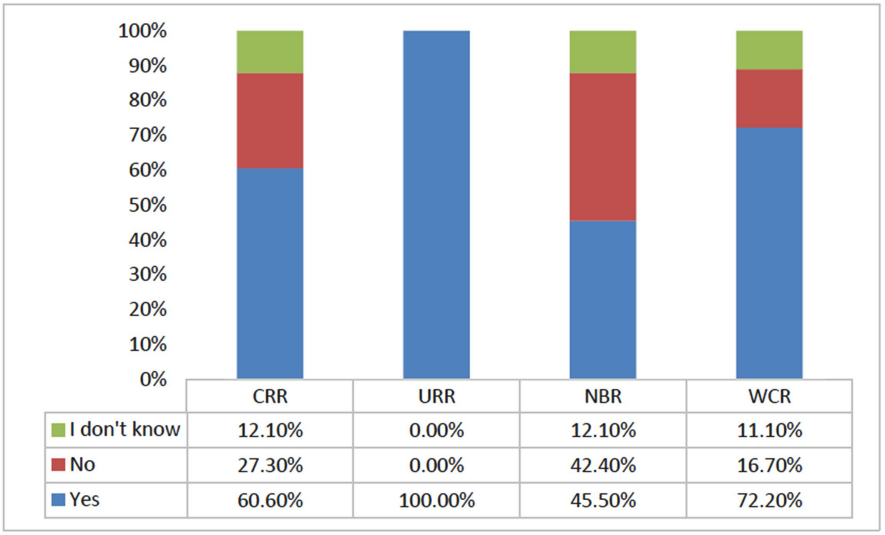
	CRR	URR	NBR	WCR
I don't know	6.10%	0.00%	0.00%	0.00%
No	6.10%	0.00%	6.10%	0.00%
Yes	87.90%	100.00%	93.90%	100.00%

Figure 9. Reduction of food and water intake to save the limited quantity.



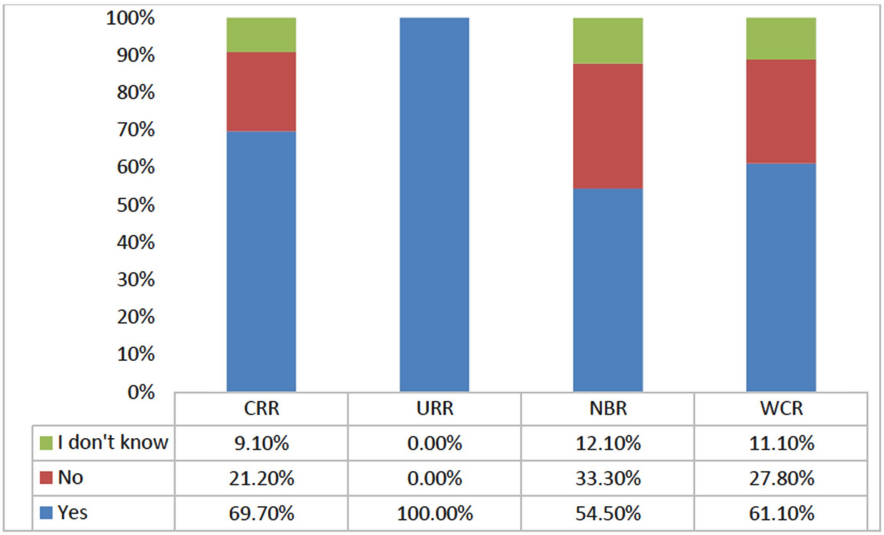
	CRR	URR	NBR	WCR
I don't know	6.10%	0.00%	9.10%	11.10%
No	12.10%	9.50%	12.10%	16.70%
Yes	81.80%	90.50%	78.80%	72.20%

Figure 10. Irregular migrants request money from families and friends at home and abroad.



	CRR	URR	NBR	WCR
I don't know	12.10%	0.00%	12.10%	11.10%
No	27.30%	0.00%	42.40%	16.70%
Yes	60.60%	100.00%	45.50%	72.20%

Figure 11. Migrants come together and hire a place to live temporarily.



	CRR	URR	NBR	WCR
I don't know	9.10%	0.00%	12.10%	11.10%
No	21.20%	0.00%	33.30%	27.80%
Yes	69.70%	100.00%	54.50%	61.10%

Figure 12. Sleeping in car parks or/and shantytowns.

Some women among the migrants were forced to engage in illegal sexual activities with North African gangs, migration agents, and criminals. They mostly had unprotected sex with the men, and some ended up getting pregnant. Those who were delayed in reaching Europe could give birth in detention centres, prison cells, and so on, with little or no support. One key figure among the KII confidently informed the principal researcher that "none of the ladies who took the journey had escaped having sexual intercourse with these men." Probably out of shyness, when questioned, some might have denied it, but apparently, they all went through this experience.

The findings of the study showed that 66% of the respondents attributed the irregular migration of youth to unfavourable environmental conditions in the communities. This is justified by the fact that most farming activities are depend-

ent on rainfall, which has been erratic. Virtually every area of the rural economy is impacted by climate change and variability, which also has significant effects on the national economy. This information is corroborated by Hummel & Liehr (2015), who found that factors such as resource overuse, climate change, and complex and interconnected environmental changes like floods and droughts contribute to rural-urban and recurring mobility within and across borders in the subregion. In the Western Sahel, which includes The Gambia, migration is one tactic used to improve lives and lower risks, especially considering the unpredictable returns from agriculture.

5. Conclusion

Globally, the lives and livelihoods of billions of people, including those in The Gambia, are being impacted by climate change. Considering the large number of people displaced due to recent climate-related disasters, the issue of climate-induced migration is receiving increasing attention from rural communities, policymakers, the public, and academics alike.

The study revealed that climate-induced factors such as floods and drought are among the stressors affecting livelihoods in the four regions of The Gambia. These climate extremes appear to exhibit remarkable variability in the study areas. These conditions are seriously affecting agricultural production and productivity, thus negatively impacting the lives and livelihoods of vulnerable communities. Although precipitation trends appeared to be increasing in most of the regions, unlike the perception of the community members, the erratic nature of the rainfall in the country, when coupled with climate variability, could be one of the leading impediments to agricultural production and productivity. Average temperatures appeared to be increasing throughout the country, leading to low crop and animal productivity. It was observed that long dry spells are more severe in NBR and CRR than in URR and WCR, thus negatively impacting farming communities and consequently contributing to youth migration.

There is ample evidence linking climate change to irregular youth migration, as the former has a significant impact on agriculture, which in turn is associated with movement of the youths. Irregular migration of The Gambia's rural youth is enormously correlated with the downward trend of agricultural activities over the last three decades. Although 99% of the respondents indicated the poor economy of the country as the main reason pushing them to embark on the perilous journey, the second factor pushing them is found to be related to the environment that dictates farming. Essentially, even the economy of the country is mainly driven by farming. The respondents concluded that climate change means poverty to them because it destabilises their means of livelihood.

Finally, both the government and its development partners, like the EU, are actively engaged in addressing irregular migration of youth. The earlier interventions by IOM, such as giving cash to returnees to start a business, were very effective in addressing irregular migration. However, their efforts in addressing the subject are thwarted by an inadequate understanding of the hybrid of issues

surrounding the topic.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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