



Leveraging Social Capital Development for Effective Disaster Risk management (DRM) in Southwest Nigeria

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Abstract

Climate change constitutes a substantial challenge to Nigeria's sustainable development agenda due to high reliance on rain-fed agriculture. The study sought to investigate how public support can be utilised for disaster risk management (DRM) in Nigeria to enhance community resilience. The objective was to assess public awareness of DRM protocols, training levels, and support for DRM training projects, considering the potential implications of climate change-influenced disasters on national security in Nigeria. The study encompassed 500 adult residents from Lagos, Ibadan, Abeokuta, and Akure cities in southwest Nigeria, selected using purposive sampling techniques. The study highlights the need for improved community networks for information dissemination, coordination, and disaster support, emphasising trust and cooperation. The study suggests Nigeria enhance community education on climate change adaptation and mitigation strategies, amend the NEMA Act to include emergency preparedness training, increase government-public partnership in disaster risk management, and establish community-based early warning systems.

Keywords: *climate change, community resilience, community participation, disaster risk management, social capital theory*

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Introduction

Climate change disasters pose a significant danger to Africa's capacity to meet the 2030 Agenda for Sustainable Development (Food and Agricultural Organisation, 2022). African states have the fastest population growth rate internationally and are particularly sensitive to climate change because of their reliance on rainfed agriculture, which currently poses a serious challenge to the region's food (United Nations, 2019; African Development Bank, 2024). The UN posits that in addition to food insecurity, African countries have inadequate infrastructure, high poverty rates, and political instability aiding climate change's consequences, such as droughts, floods, and increasing sea levels, in worsen poverty and resource shortages. The convergence of those challenges constitutes a substantial danger to the lives and well-being of millions of Nigerians inhabitants (United Nations News 2024).

The Food and Agricultural Organisation (FAO) of the United Nations reports that since October 2023, Nigeria has joined 12 other African states on the list of *"hunger hotspots, where acute food insecurity is likely to deteriorate further in the coming months."* Due to climate-related shocks, conflict, shifting land tenure and agrarian systems of production, high income inequality, and economic downturns, over 811 million people globally and 282 million Africans about 21% of the total population, according to the FAO faced undernourishment in 2020. The FAO reports aver that given lack of community resilience, Nigerian homes are exposed to greater challenges as the potential impact of La Niña, the cool phase of the El Niño Southern Oscillation, raises huge concern on food security in Nigeria between August and February 2025. The UN agencies predict La Niña will develop between September and November 2024, with probabilities ranging from 55 to 71%. It is expected to persist through January to March 2025, triggering extreme

weather and climate hazards like droughts, floods, excessive rainfall, and cyclones. Early warnings emphasise the need for anticipatory action to help vulnerable farming communities in Nigeria prepare for the potential impacts of these extreme weather events.

The Nigerian Meteorological Agency (NiMET) released the 2024 Seasonal Climate Prediction (SCP) in Abuja, predicting an early start in Borno, Abia, and Akwa Ibom states, an early conclusion in parts of Yobe, Jigawa, Sokoto, Kebbi, Kano, Kaduna, Plateau, Nasarawa, Taraba, Home, Bauchi, Cross River Ebony, Ogun, and Lagos states, and a late cessation in southern states of Bayelsa, Rivers, Akwa Ibom, Oyo, Kogi, Kwara, FCT, Niger, Kaduna, Ondo, and Ekiti. The SCP also forecasts above-normal rainfall in central and southern states, which could lead to flooding in low-lying areas. This poses a significant risk to agricultural activities and food security in these regions. The government and relevant agencies must take proactive measures to mitigate the potential impact of these weather patterns on vulnerable communities, especially those reliant on farming for their livelihoods. The high inflation on food items is likely to worsen as a result of the predicted weather conditions, further exacerbating the challenges faced by over 80 million Nigerians already struggling to make ends meet.

The Nigeria Hydrological Services Agency (NIHSA) says that about 23%, or 178, of the 774 local government areas (LGAs) in Nigeria are susceptible to flooding, and more than 830 kilometers of coastline are increasingly threatened by floods, erosion, water, and air pollution. The Sendai Framework for Disaster Risk Reduction (2015-2030) was adopted by Nigeria 9 years ago, yet Nigerian communities still suffer losses from climate related disasters, causing property destruction and homelessness of over \$250 billion annually. These losses exacerbate the existing problems of infrastructure and poverty. According to Okunola (2021), the National Emergency Management Agency (NEMA) failed because it did not incorporate an effective community-based disaster risk reduction system. NEMA's operations focus

more on disaster response rather than prevention. He argued that the NEMA, agency in charge of disaster risk reduction measures, has failed to achieve its responsibility to the public, focussing prompt evacuations and emergency aid, and that most attempts at the DRR plan remain theoretical rather than practical. Given that the public and other stakeholders are never integrated into Disaster Risk management operations, Nigeria has continued to fail to implement sustainable environmental policies in the past 50 years.

The study therefore sought to investigate how public support can be used for disaster risk management (DRM) in Nigeria to enhance community resilience. It examined the various factors that influence public perception and willingness to participate in DRM initiatives. The goal was to evaluate public knowledge of DRM protocols, training participation, and support for DRM training projects, taking into account the possible effects of climate change-related disasters on national security in Nigeria. Findings from the study can offer valuable information for policymakers and practitioners looking to improve disaster preparedness and response efforts in Nigeria.

Literature Review

Climate disasters pose a significant threat to economic development, and the national disaster risk management framework (DRM) is never proactive enough (Okunola, 2021). There is an increasing realization among pedagogues that education on community resilience to climate change events could be a solution for disaster mitigation and adaptation in Nigeria. By harnessing social capital through increased DRM education, communities can improve their ability to withstand natural calamities and promote a cooperative culture. Strengthening social cohesion and trust among community members is crucial for building resilience against disasters (Asuamah, 2025). By leveraging existing networks and promoting collaboration, Nigeria can develop a comprehensive disaster risk management framework that is responsive to its diverse population.

Improving social capital is essential for creating an inclusive and sustainable disaster risk management strategy.

The FAO (2024) reports that Nigeria's climate is experiencing significant changes, including higher temperatures, more frequent extreme weather events, fluctuating rainfall, rising sea levels, flooding, drought, desertification, and a decline in biodiversity. Longer and more intense rainfall periods are causing large runoffs and flooding, while rising sea levels are worsening floods and submerging coastal areas. Northern Nigeria is experiencing more frequent droughts due to less precipitation and rising temperatures. Lakes like Lake Chad are drying up, and without significant interventions, these impacts will exacerbate existing challenges, causing devastating consequences for the environment and millions of Nigerian farmers.

West African states with largely agrarian economies are among the world's most vulnerable to climate change. Most people in this region face poverty, surviving on less than \$2 per day. Rainfed agriculture provides income for over 35% of the population, who are also faced with limited access to basic infrastructure, healthcare, and education (ADB, 2024). Consky (2022) and Nugent (2018) posit that climate change events exacerbate uncertainties like economic development, political stability, and ecosystem degradation, posing a significant threat to food security, health, and livelihoods in vulnerable regions. Africa, despite contributing less than 5% of global emissions, experiences a higher impact from climate disasters due to insufficient climate security measures and lack of proper approach to disaster risk management.

Disaster risk management is defined as a series of efforts that include the establishment of development policies that identify a risk of disaster, designing disaster prevention activities, emergency response and rehabilitation, and education on disaster and emergency that aims to reduce, or avoid, the potential losses from hazards, assure prompt and appropriate

assistance to victims of disaster, and achieve rapid and effective recovery. (Hargono, Artanti, Astutik, Widodo, Trisnawati, Wardani, and Lioni, 2023). Mojgan, Ren, Ozguven, and Dulebenets (2024) posit that disaster awareness and preparedness are crucial aspects of disaster risk management, involving proactive measures to anticipate, predict, and prevent disasters. These measures are taken by governments, organisations, communities, or individuals to minimise the loss of life and livelihoods associated with disasters. Hargono et al. (2023) emphasise the importance of public education on disaster preparation, highlighting the government's collaboration with non-governmental organisations and community leaders to effectively manage such emergencies.

The community often experiences more disasters and is expected to bear the brunt of nature's wrath. A top-to-bottom approach to disaster mitigation and adaptation often leaves the community behind. A paradigm shift is needed to address disaster mitigation through a community-level preventive approach, targeting communities prone to disasters. According to the Usigbe (2023) study, environmental disasters are occurring at an alarming pace in Nigeria, affecting millions of people and posing substantial dangers to the country's growth and stability. *According to the analysis, floods in 2022 resulted in 662 deaths, 3,174 injuries, 2.5 million displacements, and the destruction of 200,000 homes.* To address this issue, he advocates for quicker action on community-based DRM. The study concludes that community-based disaster risk management techniques are critical for lowering vulnerabilities and increasing resilience at the local level. Usigbe emphasises the necessity of including local communities in disaster risk management decision-making. Empowering communities to take responsibility for their own resilience initiatives increases the likelihood that sustainable solutions will be implemented to address their unique needs and challenges. Overall, Usigbe's study underscores the critical role that community-based approaches play in creating a more resilient and disaster-ready society.

Durrani, Bwala, and Ibrahim (2024) study emphasises the importance of local participation in planning and execution of DRM initiatives, as it helps the project understand and be able to meet the needs of the intended population. Community-based DRM should be the foundation of society's entire system, aiming to increase public awareness, preparedness, and cooperation in dealing with disasters. It also raises public knowledge about disaster education and the importance of safeguarding human-made disasters. Community involvement in the disaster management cycle is crucial; as it helps local communities better understand their environment, enabling easier identification and resolution of disaster vulnerability problems. This approach strengthens the community's ability to deal with disasters and promotes a more sustainable future.

According to a study by Bouteska, Taimur, Faruk, and Mohammad (2024) on the effects of climate change on agricultural productivity and food security in Ethiopia, agriculture in the country is changing significantly as a result of variations in precipitation levels and climatic changes, endangering the food security of the rural population. In order to lessen the negative impacts of climate change on food security and agricultural productivity in Ethiopia and other comparable agro-based economies at risk in Africa, the research makes policy recommendations for improved community-based adaptation techniques. As the livelihoods of millions of farmers and fishermen are at risk, as their crops and fish populations are threatened by the changing climate. Limited access to clean drinking water is increasingly causing more health issues and food insecurity. The government's policies and actions do not seem to be influenced by the urgent need for addressing these challenges, neglecting the essential prompt mitigation, adaptation, and emergency response actions necessary for the population's well-being.

A paradigm shift in Nigerian disaster risk management (DRM) is needed to prioritise disaster mitigation through community-level preventative strategies, especially in disaster-prone areas, as community members are

often the first to suffer and respond to disasters. Jahangiri, Izadkhah, and Tabibi (2011) suggest that community-based disaster management should be the foundation of society's disaster management system. This approach aims to increase public awareness, prepare communities, and improve disaster education. Community engagement in the disaster management cycle aids in understanding local surroundings, identifying and resolving vulnerability issues, and enhancing community resilience to calamities.

Community Resilience

Community resilience has been shown to increase disaster risk management and mitigate the negative consequences of such events. Strengthening infrastructure, employing sustainable agriculture methods, and providing early warning systems can all help to boost community resilience in the face of catastrophic weather occurrences. Governments, non-governmental organisations, and local communities must work together and prioritise resilience-building initiatives to create a more sustainable and secure future for Nigerians. Consky (2022) argues that the future of Nigeria depends on how effectively it can adapt and mitigate the effects of climate change, as the current trajectory could escalate the frequency of resource-based conflicts in the country as north-south migration increases. The author stresses the importance of taking immediate action and working together with local stakeholders to tackle these challenges. Abiola (2022) study identified huge gaps in the top-to-bottom approach to DRM in Nigeria and suggests an urgent need for more extensive implementation of measures to improve community-led initiatives to DRM in Nigeria, focussing on building capacity at the individual, group, and community levels to address the challenges in policy implementation at the state and national levels.

Social Capital Theory and Disaster Risk Management in Nigeria

Social capital theory emphasizes community networks, trust, and collective

action as crucial for disaster risk management in Nigeria. Addressing these issues is essential for inclusive and sustainable disaster risk management strategies for all citizens, social networks, trust, and collective efforts all play a part in helping communities become more resilient and collaborative. According to Simmel (1971), social norms and values influence human behaviour. These norms and responsibilities result from interactions between social networks inside societies. Social capital theory, according to Woolcock (1998), is based on the idea that there is a relationship between the person and the community structure, and this relationship is shaped by societal standards (Durkheim 1975). Social capital is defined by Putman (1993) as the characteristics of social groups that encourage collaboration for mutual gain. Social capital is essential for community preparedness, response, and recovery following natural disasters in Nigerian disaster risk management (DRM) settings. It includes a variety of community relationships that can be employed as leverage in times of crisis. By investing in initiatives that strengthen social capital, such as community-based disaster preparedness programs and trust-building activities, Nigeria can effectively mitigate and address disaster impacts, leading to more inclusive and sustainable development outcomes for the country.

The study by Prince (2024) highlights the crucial role of social capital in community development. It reveals that social networks, trust, and collective action enhance community well-being and resilience. Social capital also fosters community empowerment and cooperation. The study emphasises the need for targeted investments in social capital-building initiatives to promote inclusive and sustainable development. Aldrich and Meyer (2015) contend that social capital in communities is crucial for disaster preparedness, enabling vulnerability assessments, resource stockpiling, and early warning systems. Social networks facilitate information sharing about risks and preparedness strategies, enhancing disaster management. Dynes (2005) argues that during disasters, social capital also facilitates collective action

enhancing response efforts. Individuals within cohesive communities assist each other through search and rescue operations, shelter provision, food distribution, and emotional support, reducing the immediate impacts of disasters on affected populations. According to Norris et al. (2008), social capital plays a crucial role in disaster recovery by fostering collaboration among community members and enhancing community resilience against future disasters.

To effectively manage disaster risk in Nigeria, it is essential to integrate social capital into formal institutional frameworks, recognising the importance of community networks and facilitating their involvement in disaster planning and response initiatives. Robert Putnam's 1993 study explores the impact of micro-level social capital on macro-level structures like governments. He suggests that by leveraging social capital, governments can better address citizens' needs, especially during disasters, by involving local networks in decision-making and fostering trust. This ultimately leads to more resilient disaster preparedness systems.

Methodology

This section provides the analysis of the methodology adopted for this study.

Research Design

The research design for this study is a descriptive research method, adopting a survey method approach to provide a comprehensive understanding of the research topic. The selected study areas were chosen based on their relevance to the research questions and the potentialities for quality data for the study. The targeted population of study was all adult environmental and health professionals older than 18 years and working in Lagos, Ibadan, Abeokuta, and Akure towns. The sampling method adopted was a multi-stage purposive sampling technique and the researcher's observation to ensure that participants were representative of the population of interest. Study data were collected through online surveys, questionnaires and observation notes

and analysed using the SPSS statistical analysis software to provide thorough analyses of the findings. The findings of the study were descriptively displayed using averages and percentages using charts and graphs. The results were significant and provided valuable insights for future research.

Study Area

Climate change events have intensified the frequency and severity of natural disasters in most coastal southern states in Nigeria. The Nigeria Hydrological Services Agency (NIHSA) warned that over 1,249 communities in 176 LGAs in Nigeria are in high-risk flood zones this year, while 2,187 communities in 293 LGAs are expected to experience moderate flooding. (NIHSA, 2025). With Lagos, Ibadan, Abeokuta, and Akure highly susceptible to extreme weather conditions, primarily due to flooding, heat waves, and extreme weather events. The absence of a proper disaster risk management system has led to devastating consequences in cities, including loss of lives, property destruction, and livelihood disruption, making it challenging for residents to prepare and respond effectively to such disasters.

Lagos City, Lagos State, Nigeria

Lagos State, Nigeria's economic hub, largest city in Southwest and Nigeria by population, contributes approximately 30% to the country's GDP and is one of the most densely populated cities on the African continent. Lagos, has a population of 15.4 million in 2022, with an increasing trend of thousands of people seeking job opportunities and a better life, has a potential of housing 24.4 million residents by 2035 (Bankole, Folayinka, and Onimole, 2025).

Lagos is highly susceptible to climate change impacts (CCIs): sea level rise, extreme rainfall, and extreme heat. The Lagos City government and people are not equipped to handle proper disaster management protocols. Lagos City is a relatively unplanned, overcrowded coastal city with huge infrastructural deficits and a burgeoning youth population given growing

rural-urban migration challenge. Lagos is among the 30 states designated at high risk of severe flooding, with thousands of communities expected to be affected in 2025. The vulnerability of Lagos City to climate events is driven primarily by sea level rise, extreme rainfall, and rapid urbanisation. Over 1.4 million people in Lagos are at direct risk of torrential rains that lead to annual flooding, with over 165 km² land areas potentially identified with a high propensity for climate incidents across 14 local government areas (NIHSA, 2025). This challenge threatens 82% of wetlands and critical infrastructure. The economic cost of inaction on these climate risks is estimated at nearly \$40 billion by 2050 (Bankole et al., 2025). Environmental and Socioeconomic Impacts of unmanaged climate change events in Lagos includes Water pollution, Health risks, infrastructure damage, displacement, and poverty

Abeokuta, Ogun State, Nigeria

Ogun State, the second major industrial city in Southwest Nigeria, has a population of Abeokuta in 2021 estimated at 607,580 people (Macrotrends, 2025). Ogun State's population is challenged by growing industrial development, high rural-urban migration and low infrastructural planning leading to overcrowding and dangerous health hazards. The rapid urbanisation of Abeokuta has put a strain on the city's resources, with inadequate access to clean water and sanitation facilities. As the population continues to grow, there is an urgent need for improved urban planning and infrastructure development to mitigate the risks of overcrowding and public health crises in order to sustainably accommodate the burgeoning population of Ogun State.

Abeokuta is facing a high risk of flooding due to its high flood risk in 2025. The NIHSA classified Abeokuta City as a major flood-prone area, with rainfall expected between 965mm and 1805mm this year (NIHSA, 2025). The government has issued early flood alerts and initiated infrastructure projects to improve drainage and reduce flood retention times. Ogun is also

experiencing prolonged dry seasons, reduced agricultural productivity, and food insecurity due to climate change. Environmental and Socioeconomic Impacts of unmanaged climate change events in Ogun State includes health risks, farm settlement damages, displacement, poverty

Ibadan, Oyo State, Nigeria

Ibadan, Nigeria's third-largest city, has a population of approximately 4,144,000, with a steady annual growth rate of 3.5%, driven by urbanisation and economic opportunities, making it one of the fastest-growing cities in sub-Saharan Africa (Macrtrends, 2025). Rapid urbanisation in Ibadan has led to a significant expansion of built-up areas, intensifying the urban heat island effect and increasing temperatures. The hottest zones in densely built-up areas like Iwo Road, Mokola, Dugbe, and Gbagi experience higher temperatures, posing public health risks like dehydration, heat stress, and heat-related illnesses. Ibadan city, facing a history of devastating floods due to rapid urbanisation and climate change, must focus on implementing sustainable urban planning strategies to mitigate the risks of further environmental disasters. Flooding and extreme weather events are also a challenge in Ibadan. Heavy rainfall events, triggered by climate change, have become more intense and unpredictable, causing loss of life, property destruction, displacement of residents, and damage to infrastructure. The city's vulnerability is heightened by poor urban planning, inadequate drainage systems, and encroachment on floodplains. Notable flood events like the 2012 disaster have highlighted the need for better flood management and disaster preparedness.

Oyo State government is implementing a Flood Risk Management and Drainage Plan with \$150 million in investments to build resilient infrastructure and shift from disaster response to prevention, with the Oyo State government prioritising long-term resilience as a key component of sustainable development (UNDRR 2018). Urbanisation and industrialisation

in Ibadan have led to pollution, air quality deterioration, and increased energy consumption. The loss of vegetation increases heat and flood risks, reduces air quality, and diminishes the city's climate resilience, threatening public health and increasing living costs.

Akure, Ondo State, Nigeria

Akure, the capital and largest city of Ondo State in Nigeria, is the administrative, economic, and cultural centre of the state and the headquarters of the historic Akure Kingdom. The population in Akure for 2025 is 847 903. Akure is one of 40 cities in Nigeria and ranks 13 in Nigeria. The city boasts a thriving economy, with industries ranging from agriculture to manufacturing. With its growing population and expanding infrastructure, Akure city is known for its lush landscapes and traditional festivals. Akure has continued to experience severe flooding, with the first rains of 2025 causing damage to homes, businesses, and the airport terminal (Agidi, 2025). The flooding is worsened by poor urban planning, inadequate drainage, blocked gutters, and increased impervious surfaces due to rapid development and poor urban planning. Climate change-related thunderstorms and strong winds have caused significant property damage and disruptions, with environmentalists and meteorologists warning of climate change-related issues (Olorunlana and Ogunade, 2024). Environmental and Socioeconomic Impacts of unmanaged climate change events in Ondo State includes Water pollution, Health risks, farm settlement damages, displacement, poverty.

Sampling Procedures and Techniques

The study randomly selected 4 cities from the six states in Southwest Nigeria based on the reports of climate change disaster occurrence and population size. The selected cities are Lagos, Ibadan, Abeokuta, and Akure.

Study Population

The study targeted only adult health and environmental workers, DRM professionals, media and civil society organizations with DRM mandates in the selected cities.

Table 1: Target Population

| City | Estimated Population (2025) | Estimated Health/Environmental workers/'000 |
|----------|-----------------------------|---|
| Lagos | 15,400,000 | 23,100 |
| Ibadan | 4,144,000 | 6,216 |
| Akure | 847,903 | 1,271 |
| Abeokuta | 607,500 | 911 |
| Total | 20,999,403 | 31,498 |

Source: Macrotrends (2025).

Sample Size

The sample size was derived using values from Table (1) the Sample Size was calculated using the Yamane (1973) Coefficients: $N = n \div (1 + n(e)^2)$

$$\begin{aligned}
 \text{Where } n &= 31,498 \\
 \text{And } e &= 0.045 \\
 \text{Then } N &= 31,498 / (1 + 31,498 (0.045)^2) \\
 &= 31498 / 1+63.78 \\
 &= 31498 / 64.78 \\
 &= 486.2
 \end{aligned}$$

Hence, the study administered 500 online questionnaires and 488 were returned and used in the final analysis. Purposive sampling was adopted in selecting 500 respondents for the study.

The sample was then purposively selected from the following groups:

Table 2: Population of the study

| Groups | Lagos | Ibadan | Ogun | Akure | Line Amount |
|-----------------|-------|--------|------|-------|-------------|
| Private Health/ | 50 | 30 | 25 | 10 | 115 |

Leveraging Social Capital Development for Effective Disaster Risk Management
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| Groups | Lagos | Ibadan | Ogun | Akure | Line Amount |
|-------------------------------|-------|--------|------|-------|-------------|
| Environmental Workers | | | | | |
| State Ministry of Health | 25 | 20 | 10 | 10 | 65 |
| LGA Health Officers | 25 | 15 | 10 | 10 | 60 |
| LGA Environmental Officers | 25 | 15 | 10 | 10 | 60 |
| State Ministry of Environment | 30 | 20 | 10 | 10 | 70 |
| Civil Society Organisations | 50 | 40 | 30 | 10 | 130 |
| Total | 200 | 140 | 100 | 60 | 500 |

Source: Researcher's Fieldwork, 2025

Instrument for Data Collection

Primary Data for the study was collected through online based "Google Forms" questionnaires administered to 500 purposively selected respondents from civil society organisations and government agencies in Lagos, Ibadan, Abeokuta, and Akure, selected based on the ratio of health workers per thousand in Nigeria and their experience in environmental and health issues related to climate change events. The respondents returned 488 questionnaires, which reflects a response rate of 95.6%. Secondary data was also gathered from textbooks, journals, periodicals, maps, and internet materials. All data were collated and coded for analysis.

Reliability and validity of research instrument:

This study adhered to ethical rules for social science research at the University of Ibadan, Nigeria. The sample was randomly selected and collected over four weeks in January and February 2025 to ensure diverse representation. The research instrument was validated through pilot testing and expert review, ensuring its reliability and validity. Future research could explore the psychometric properties of the instrument, explore different sampling methods, and expand the sample size to provide more robust findings and enhance the generalisability of results. This study lays the groundwork for

future research in this field, focusing on advancing our understanding of the topic.

Method of Data Analysis

The study utilised a descriptive research method primary data were collated and analysed using percentages and frequencies to identify relationships or patterns. Results were presented in tables, graphs, and charts for easy visual representation. The secondary data were descriptively analysed and display in the work. This method provided a clear and concise way to interpret the findings and draw meaningful conclusions, allowing for further exploration. The results were presented in tables and graphs for a visually appealing presentation.

Ethical Consideration

The study adhered to ethical guidelines at the University of Ibadan, Nigeria, by adhering to ethical guidelines, ensuring participant consent, avoiding deception, protecting personal information, minimising harm to institutions and the environment, and avoiding scientific misconduct. The researchers also made efforts to maintain confidentiality and anonymity of participants throughout the study, further upholding ethical standards. Additionally, they sought feedback from participants to ensure their experiences were accurately represented in the research findings. The researchers monitored research assistants' conduct for fairness, justice, transparency, and accountability. The researchers aimed to ensure the replicability of the study in future research, exploring significant findings and discussing potential avenues for further investigation in DRM and social capital.

Results

Sociodemographic Attributes of Respondents

The study's sociodemographic data, including age, gender, education level,

and profession, provides insight into the diversity and representation of the sample population in Southwest Nigeria. This data helps align findings applicability and relevance to different groups within the society.

This section captures the genders distribution of respondents in the study

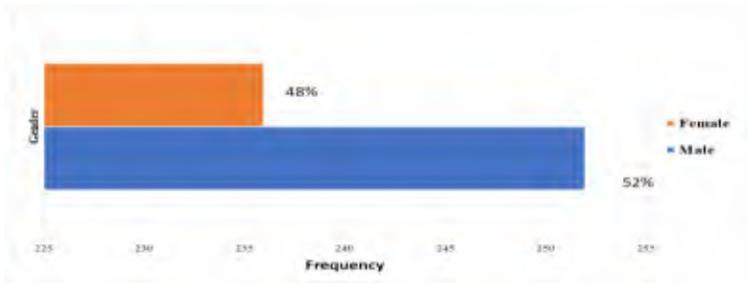


Fig. 1: Gender distribution. Source: researchers' fieldwork, 2025

The result in Figure 1. shows the sexual orientation of the respondents in the study. Sex distribution of respondents was fairly balanced, with 52% identifying as male and 48% as female. This even split allows for a more representative sample in our study. This reflected the predominance of male workers in the DRM field in Southwest Nigeria. The higher percentage of male respondents may indicate a gender disparity in the field, which could be a reflection of societal norms and expectations regarding certain careers. Further research into enhancing support for female workers in the sector may help to create a more balanced and representative workforce.

This section captures the occupation and age range of respondents in the study

Table 3: Occupational and age distribution of respondents

| Occupation | Frequency | Age Range | Frequency |
|------------------------|-----------|-----------|-----------|
| Private health workers | 110 | 18 – 35 | 270 |
| Civil servants | 243 | 36 – 60 | 182 |
| CSO/media staff | 120 | 60+ | 36 |
| Others | 15 | | |

Source: Researchers' fieldwork, 2025

The results from table 3 show the prevalence of civil servants in DRM professions in Nigeria. This group constitutes about 40% of the total study population. CSO/media practitioners constitute 26%, and health workers were 23%. The remaining 1% of the study population was made up of individuals from various other professions, such as engineers, educators, and community leaders. These findings suggest that civil servants play a significant role in the field of disaster risk management in Nigeria. Further research could explore the specific contributions and challenges faced by civil servants in this sector in order to better understand and address their needs.

The study revealed a growing and young population in the targeted cities. The working population was 92%, and the older were only 8% of the sample, making community resilience to climate change disasters a major issue in the targeted cities. The concentration of young people in these cities presents both opportunities and challenges for building resilience to climate change disasters. With such a high percentage of the population in the working age range, there is a strong potential for innovation and adaptation to address environmental threats. However, the limited representation of older individuals in the sample may pose difficulties in terms of drawing on their experience and knowledge to navigate and mitigate the impacts of climate change. It is crucial for community leaders and planners to engage with all age groups in developing comprehensive strategies for resilience.

Public awareness of natural disaster prevalence in communities

Public awareness of natural disaster prevalence is crucial for developing an effective disaster risk response system. It helps individuals prepare for potential disasters, develop proactive strategies, and improve resilience by understanding potential risks and vulnerabilities in their area.

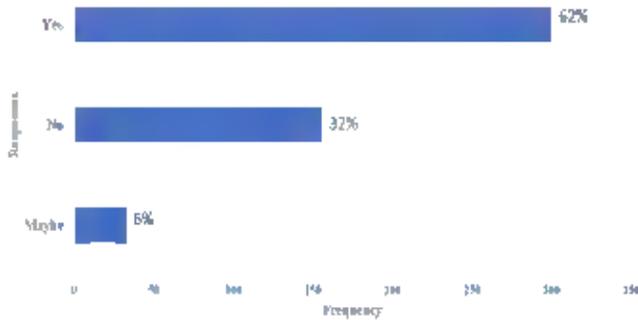


Fig. 2: *Public awareness of natural disaster prevalence in their communities.*
Source: Researchers' fieldwork, 2025

Figure 2 Test the respondent's awareness of the possibility of natural disaster in their communities. 62% of the respondents declared they are aware that disaster can strike at any time, but over 32% also contends that their environment is safe from the hazards of natural disasters. It is concerning that 1 in every 3 of the respondents feel their environment is immune to natural disasters, as this false sense of security and lack of need for preparedness. Public education and awareness campaigns may be necessary to ensure that all community members understand the risks and take appropriate precautions. Additionally, further research could delve into why some individuals believe they are not at risk, despite the evidence showing otherwise.

This result aligns with the findings in Durrani, Bwala, and Ibrahim's (2024) study that emphasises the importance of local participation in planning and execution of DRM initiatives, as it helps the project understand and be able to meet the needs of the intended population. Community-based DRM should be the foundation of society's entire system, aiming to increase public awareness, preparedness, and cooperation in dealing with disasters. It also raises public knowledge about disaster education and the importance of safeguarding their environment from human-made disasters.

Nigerian public experience with Natural Disaster Events

Nigeria's public experience of natural disasters, such as floods and droughts, has been devastating, causing significant damage to infrastructure and loss of life. The lack of adequate preparedness and response mechanisms has exacerbated the impact, leaving many communities vulnerable and struggling to recover. Government efforts to improve disaster preparedness and response have been slow, and increased investment in infrastructure and resources is needed to protect the public from future natural disasters. Without these measures, the Nigerian population will continue to face significant risks and challenges.

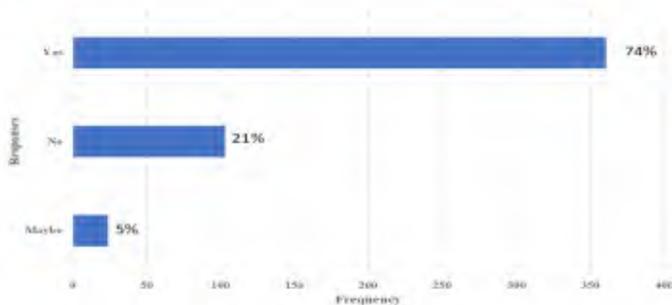


Fig. 3: Respondents' experience with natural disaster. Source: Researchers' fieldwork, 2025

Figure 3 reflects the experiences of the respondents on the occurrence of natural disasters within their environment. 74% agreed that they have been impacted by or have witnessed a climate disaster event before; only 21% of the respondents reported they have yet to witness one before. These findings suggest that a significant majority of the respondents have had firsthand experience with natural disasters, highlighting the prevalence of such events in their environment.

This data underscores the importance of preparedness and mitigation strategies to reduce the impact of future disasters. It also indicates a need for increased awareness and education on climate-related risks and how to

effectively respond to them. This result confirmed the assertions in Usigbe (2023) study, that environmental disasters are occurring at an alarming pace in Nigeria, affecting millions of people and posing substantial dangers to the country's growth and stability.

Frequency of natural disasters in Nigerian communities

The frequency of natural disasters in Nigerian communities has increased due to climate change and environmental degradation. Floods, droughts, and landslides are common, causing widespread destruction and displacement. The lack of adequate infrastructure and emergency response systems makes it challenging for communities to prepare and respond effectively. Therefore, there is an urgent need for increased investment in disaster risk reduction measures and community resilience building initiatives.

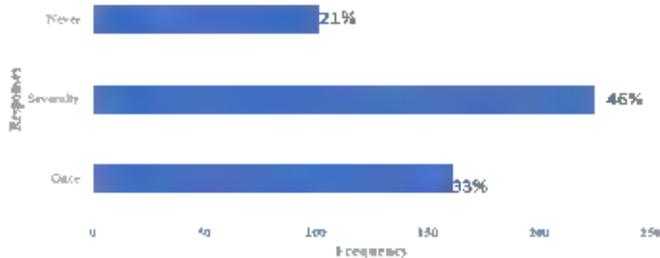


Fig. 4: Respondents' views on frequency of natural disaster occurrence. Source: Researches' fieldwork, 2025

Figure 4 reports show the respondents recollection on frequencies of natural disaster events within their communities. 33% of the respondents have witnessed disaster events only once, while 46% have done so severally. Only 21% of the respondents reported never having experienced a natural disaster event in their community. This distribution of recollections suggests that a majority of the population has been impacted by at least one natural disaster event, with a significant portion experiencing them multiple times. These findings highlight the importance of disaster preparedness and resilience

building initiatives in these communities. This finding resonates with conclusions in Mojgan, Ren, Ozguven, and Dulebenets (2024) that disaster awareness and preparedness are crucial aspects of disaster risk management, involving proactive measures to anticipate, predict, and prevent disasters.

Public understanding of the emergency response protocol in their cities

The understanding of emergency response protocol in Southwest Nigeria's cities is crucial for mitigating emergencies. Effective communication and education on procedures help residents react quickly and appropriately, saving lives and minimising damage. Regular drills and simulations reinforce this knowledge, ensuring preparedness for potential emergencies. Local government officials could collaborate with emergency response teams for efficient emergency handling. Investing in infrastructure, resources, and public education can enhance response effectiveness. Prioritising emergency preparedness can protect residents in Southwest Nigeria's cities and minimise disaster impact, thereby enhancing overall disaster protection.

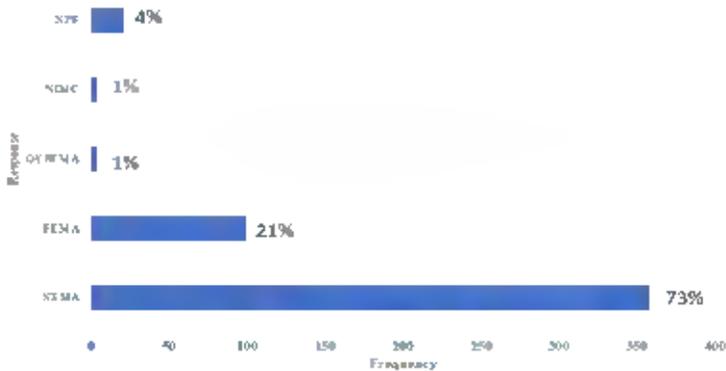


Fig. 5: *Public understanding of the National Disaster Risk Management Agency. Source: Researchers' fieldwork, 2025*

From data in Figure 5, level of respondents' awareness of the national organisation with a mandate for DRM in Nigeria was NEMA (73%), FEMA (21%) and others. However, it is instructive that one in every five respondents failed this task. This highlights the need for greater awareness and education about disaster risk management in Nigeria, even among health, social and environmental workers. While a significant portion of the respondents were able to correctly identify NEMA, this lack of knowledge could have serious implications in the event of a disaster, underscoring the importance of public education and outreach efforts in the country. This finding confirms the assertion in Abiola (2022) study that identified huge gaps in the top-to-bottom approach to DRM in Nigeria and suggests an urgent need for more extensive implementation of measures to improve community-led initiatives to educate Nigerians on DRM, focussing on building capacity at the individual, group, and community levels to address the challenges in policy implementation at the state and national levels.

Public awareness of the emergency response hotline for State Emergency Response

The Emergency Response Hotline for State Emergency Response in Nigeria is a vital resource for reporting emergencies and seeking assistance during crises. Raising public awareness about the hotline's importance can save lives and mitigate the impact of disasters on communities. It is essential for individuals to be aware of the hotline number and educate others on its availability to ensure prompt and effective response in emergency situations.

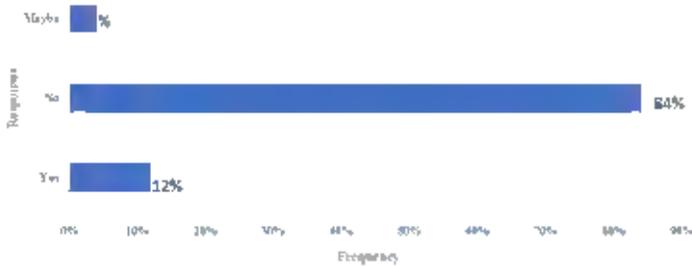


Fig. 6: *Public awareness of the emergency response hotline for state emergencies. Source: Researchers' fieldwork, 2025*

The result shows the responses to query on respondents' awareness of the Emergency Dial Code for their region. 84% of the respondents said they were not aware of the dial code for emergency response. Only about 12% said they are aware. This lack of awareness is concerning considering the importance of having quick access to emergency services in times of need. It is crucial for individuals to be informed and prepared for such situations, as every second counts in an emergency. These findings highlight the need for increased education and outreach efforts to ensure that everyone knows the necessary steps to take in case of an emergency.

This finding confirmed the position in Hargono et al. (2023) which identifies the importance of public education on disaster preparation and highlighted the government's collaboration with non-governmental organisations and community leaders to effectively manage such emergencies. It is the people that often experiences these disasters and are expected to bear the brunt of nature's wrath. A top-to-bottom approach to disaster mitigation and adaptation often leaves the community behind and uninformed about the projects meant for their survival.

Public access to DRM training and resources

Promoting public access to disaster risk management training and resources is crucial for building resilient communities and reducing natural disaster

impact. This enables individuals and organisations to prepare and respond effectively to emergencies. Education on disaster risk management fosters a culture of preparedness and proactive planning, leading to coordinated and efficient responses, saving lives and minimising damage. Thus, promoting public access to these resources is essential for creating safer and more resilient societies.

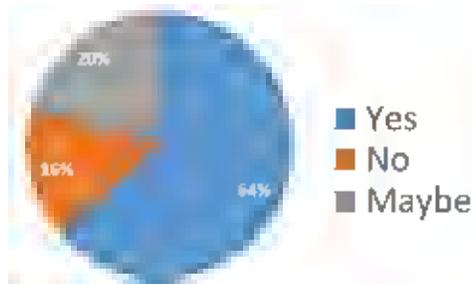


Fig. 7: Respondents' views on the attendance of disaster risk management training in their communities in Nigeria. Source: Researchers' fieldwork, 2025

Results in Figure 7 show the prevalence of public education training in DRM in the region. Only 64% of the respondents in the study said they have attended any basic DRM-based training from either the government or the local NGOs. This indicates that there is still a significant portion of the population in Nigeria who have not received any formal disaster risk management training. It is disheartening that despite a series of natural disasters in Southwest Nigeria in the past 30 years, no structure for public education on this menace is in place. This lack of training could potentially hinder community preparedness and response efforts in the event of a disaster. It is crucial for both government and local NGOs to increase their efforts in providing comprehensive and accessible training programmes to ensure the safety and resilience of all communities in the region. This lack of public education and training opportunities in DRM is concerning, as it leaves a large portion of the population unprepared for potential disasters. Without proper education and training, communities are at a higher risk of suffering

significant losses during natural disasters. It is imperative for both the government and local NGOs to prioritise public education and training initiatives in order to build resilience and reduce vulnerability in the region.

This finding aligns with conclusions in Jahangiri, Izadkhah, and Tabibi (2011) which suggest that community-based disaster management training should be the foundation of society's disaster management system. This approach aims to increase public awareness, prepare communities, and improve disaster education. Community engagement in the disaster management cycle aids in understanding local surroundings, identifying and resolving vulnerability issues, and enhancing community resilience to calamities.

The public's willingness to learn about disaster risk management

The public's willingness to learn about disaster risk management in Nigeria is crucial for improving preparedness and response to potential disasters. By educating the public on mitigating risks and taking appropriate actions during emergencies, communities can become more resilient and better equipped to handle disasters. This knowledge also helps individuals make informed decisions about living, working, and investing to minimise their exposure to disasters. Collaboration between government agencies, NGOs, and community leaders is essential to provide education and resources to empower the public in disaster risk management.

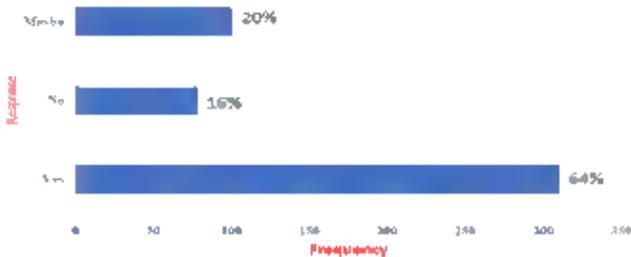


Fig. 8: Respondents' willingness to learn about DRM. Source: Researchers' fieldwork, 2025

Figure 8 represents the respondents' views on their willingness to acquire requisite skills in DRM. 63.6% of the respondents were ready and willing to participate in any available DRM training programme in their communities. 20.50% of the respondents show that they could attend such a programme if it was scheduled. It is clear from these results that the vast majority of respondents are eager to acquire the necessary skills in disaster risk management. The high percentage of 64% who are ready to participate in training programmes demonstrates a strong level of commitment to improving their knowledge in this area. Those who could attend if a programme was scheduled also indicate a potential interest in learning more about DRM. Overall, these findings suggest a positive outlook towards the availability of social capital, which could be enhanced through education and training in disaster preparedness and risk reduction.

This aligns with the findings in Aldrich and Meyer (2015) that emphasises the need for targeted investments in social capital-building initiatives to promote inclusive and sustainable development in communities. Improving social capital in communities is crucial for disaster preparedness, enabling vulnerability assessments, resource stockpiling, and early warning systems. Social networks facilitate information sharing about risks and preparedness strategies, enhancing disaster management.

Respondents' willingness to pay for DRM training

Nigeria's communities' willingness to investment in disaster risk management training demonstrates a commitment to community resilience. This investment aims to prepare individuals and communities for potential natural disasters, mitigating risks and ensuring effective crisis response. This proactive approach builds stronger, more resilient communities better equipped to face climate change and other disaster challenges. This approach minimizes the impact of disasters on lives and property, saving lives and reducing the economic burden of recovery efforts.

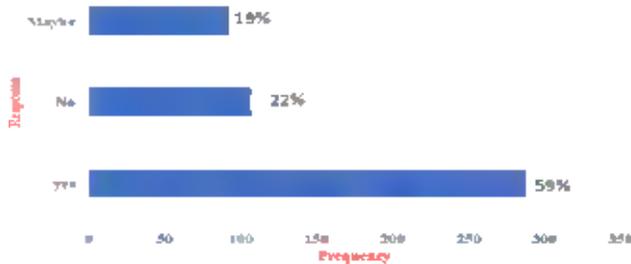


Fig.9: Respondents' willingness to pay for DRM training. Source: Researchers' fieldwork, 2025

Figure 9 depicts the results of the respondents' attitudes and readiness to fund DRM training in their areas. 19% of the study's respondents indicated they couldn't afford the training. 59% were eager and ready to fund such a project, with 22% saying they would most likely pay. Overall, the vast majority of respondents seemed positive about funding DRM training in their areas, at least 60% expressed some level of willingness to contribute financially. This suggests a strong interest in improving disaster resilience knowledge within the communities. The results highlight the importance of making training programs accessible and affordable to ensure widespread participation and support. This finding resonates with the conclusion in the study by Prince (2024) which highlights the inherent abilities and crucial role of social capital in community development and resilience building. Creating environment for public empowerment and cooperation improve social networks, trust, and collective action that could enhance community well-being and resilience. Use the equation editor for all formulas.

Conclusion

The study of leveraging social capital in the development of effective DRM policy in Southwest Nigeria entailed a survey of 488 purposively selected participants from civil society organisations, government agencies, and academia, residents in Lagos, Ibadan, Akure, and Abeokuta. The study tested

the level of public understanding and willingness to participate in community-based DRM programme development and training targeted at improving community resilience and preparedness for extreme disaster events. The study found that there is a gender imbalance between men and women employed in the DRM-related industry. More men involved professionally in DRM than women, as opposed to the general belief that more women need support than men after climate disaster events, highlights the need for improved community resilience and preparedness policy for disaster events.

Results from the study also show that while 3 in every 5 of the participants surveyed are aware of the danger posed by climate change events in their communities, and 70% of the participants are aware of the federal agency in charge of DRM policy in Nigeria, yet they are mostly unaware of the DRM programme and policy for their communities. This highlights a critical gap in knowledge and awareness that needs to be addressed in order to effectively mitigate the impacts of climate change events. The lack of awareness about local DRM policies and programmes among community members poses a significant challenge in building resilience against disaster events. It is crucial for government agencies and community leaders to work together to educate and involve the public in disaster preparedness efforts. By increasing knowledge and awareness, communities can better anticipate, adapt, and respond to climate change events, ultimately reducing their vulnerability and enhancing their ability to bounce back from disasters. The findings underscore the importance of bridging the gap between policy makers, disaster management agencies, and the communities they serve to create more effective disaster risk reduction strategies.

Equally, majority of the participants have witnessed or have been impacted directly by a natural disaster before, with only 63% of the participants were able to recall the local emergency hotline for their area due to low communication and public orientation by the agencies involved. This

lack of awareness highlights a crucial area for improvement in disaster preparedness efforts. Fostering stronger communication channels between communities and disaster management agencies can help ensure a more coordinated and efficient response to future disasters.

The study found that at least 3 in every 5 of the participants show willingness to learn more about DRM, given the fact that over 64% of the participants have basic training in DRM and disaster resilience. There is a high level of community-based resources to tap from in designing a more community-based policy on DRM in these areas. The study equally confirmed that the majority of the participants volunteered finances and attended DRM training towards the development of a veritable resilience programme for their communities. This indicates a strong sense of ownership and commitment within the communities to actively participate in disaster risk management efforts. With the existing knowledge and resources within these communities, there is a great opportunity to establish effective and sustainable disaster resilience programmes. By leveraging the willingness and capabilities of the community members, it is possible to create a comprehensive approach to disaster risk management that truly meets the needs of the local population. Ultimately, empowering communities to take ownership of their own resilience is key to building a strong foundation for disaster preparedness and response

The study posited that strengthening social capital through effective community stakeholders' education and awareness of Disaster Risk Management (DRM) practices could be the best ways to mitigate the security risks posed by environmental disasters and resultant economic conflicts in southwest Nigeria. The findings of the study indicated a strong correlation between individuals' personal experiences with climate change events and their concern for future impacts. The study also revealed that a majority of the community members and NGOs were aware of the effects of climate change in their area, but there was a lack of effective education on proper

adaptation and mitigation strategies in place. This highlights the need for more education on raising awareness and taking action to address the impact of climate change in communities in Nigeria.

The study contributes to the ongoing discussions on the impact of industrialisation, urbanisation, and climate change on disaster risk management and community resilience in Nigeria. It provides areas of policy change in DRM that could enhance community engagement and investment in education and training programmes to improve human capital and resources for DRM in Nigeria. The research also underscores the need for partnerships between government, NGOs, and local communities to tackle these complex challenges.

The study therefore recommends the amendment of the NEMA Act to include the need for emergency preparedness and community resilience training for natural disasters and increased government and public partnership in designing and implementing policies in DRM in Nigeria. Furthermore, it suggests the establishment of community-based early warning systems and the integration of strategies to adapt to and mitigate climate change effects into local development plans. These measures can help build resilience and preparedness at the grassroots level, ultimately reducing the vulnerability of communities to the impacts of climate change. By focusing on training communities to be more resilient and enhancing collaboration between the government and the public, Nigeria can better mitigate the effects of natural disasters and climate change. Additionally, the implementation of early warning systems and incorporation of strategies to adapt to climate change through localised social capital development plans will ensure that communities are well-prepared and have resources to adapt to potential hazards. These proactive measures could strengthen resilience at the grassroots level and minimise the risks faced by vulnerable communities in the face of environmental challenges.

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