

Influence of Flood Risk Awareness and Communication on Real Estate Investment Decision-Making

SAGE Open
October-December 2025: 1–20
© The Author(s) 2025
DOI: 10.1177/21582440251387868
journals.sagepub.com/home/sgo

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Abstract

Flooding, exacerbated by climate change and urbanisation, poses a major global environmental challenge. In Lagos, Nigeria, one of the most flood-prone regions, understanding how flood risk awareness and communication shape real estate investment decisions is crucial. This study examines investors' awareness of flood risks and the influence of risk communication on decision-making. A qualitative, phenomenological approach was used, employing snowball sampling to recruit 37 property investors through referrals from registered real estate practitioners. A semi-structured interviews which provided in-depth insights into their perceptions and responses to flood risks was used to elicit response from the participants. Thematic analysis revealed varying levels of awareness, with many investors lacking reliable flood risk information before making investment decisions. Key issues in risk communication included inconsistencies in information sources, clarity, and delivery, leading to disparities in preparedness and risk perception. The study found that inconsistent communication often results in risk underestimation, significantly influencing investment decisions in high-risk areas. It highlights the need for a targeted, multi-stakeholder communication strategy to enhance information accessibility and reliability. A collaborative approach involving property investors, regulatory bodies, and local authorities is recommended to improve the effectiveness of flood risk communication and support informed investment decisions.

Plain Language Summary

Impact of Flood Awareness on Investment Opportunities

This text discusses the challenges of communicating flood risk information in Lagos, Nigeria, especially in areas with limited digital access and low literacy rates. The research focuses on how flood risk affects residential property investments, highlighting that investors are aware of risks but lack a consensus on who is responsible for risk communication. Social media is suggested as a promising yet limited tool for dissemination. The study emphasises that investors should be proactive.

Keywords

communication, flood risk, investment decisions, property investors

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Data Availability Statement included at the end of the article



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Introduction

Historically, floodplains have attracted human settlements due to their fertile soil, access to water, transportation networks, and potential for energy generation. However, land development patterns in these areas significantly influence flood risk. Human activities and land use changes have intensified both the frequency and severity of flooding, making it one of the most pressing environmental challenges worldwide. Although flooding is generally considered a low-probability event, its occurrence is rising due to climate change and rapid urbanisation (Bradford et al., 2012). Traditional structural defences are proving unsustainable in managing flood hazards, necessitating a shift towards alternative mitigation strategies. Among these, effective flood risk communication has emerged as a crucial tool for reducing vulnerability and minimising flood impacts (Höppner et al., 2012).

In this study, flood risk communication is defined as the structured process of disseminating information about potential flood hazards to shape risk perception and behaviour, ultimately supporting informed decision-making. Within this context, communication plays a key role in protecting individuals and properties from disasters by conveying both the severity and probability of risks, as well as the strategies available to mitigate them. It involves the exchange of information between the public, professionals, and authorities to enhance awareness, improve understanding, and encourage proactive measures (Leiss, 1996).

The main aim of flood risk communication is to raise awareness and promote mitigation strategies in investment decisions. Effective communication enhances preparedness (Hagemeyer-Klose & Wagner, 2009) and fosters trust (Rowan, 1991). Investors need to understand the risk, access relevant information, and grasp available management strategies (Breakwell, 2000; Veland & Aven, 2013). Communication methods significantly influence risk perception (Keller et al., 2006; Strathie et al., 2017; Waylen et al., 2011). Poor communication can cause confusion and inaction (Serman, 2011), hindering resilient development (Fonseca & Garcias, 2020). This study highlights the challenges in rapidly urbanising countries like Nigeria.

Nigeria, Africa's largest economy with a population over 200 million, faces significant challenges in sustainable development, particularly flooding, which has severe socio-economic impacts. Aja and Olaore (2014) and Atufu and Holt (2018) note that states like Lagos experience annual flooding due to increased rainfall linked to climate change. Despite this, new property developments continue, resulting in repeated losses. This raises the critical question: "To what extent do investors understand the impact of flood risk communication on their

investment decisions?" This study explores investors' awareness of flood risks and its influence on their choices. To achieve its aim, this study explores the following research questions:

1. How aware are real estate investors in Lagos of flood risks?
2. In what ways does flood risk communication impact their investment decision-making?
3. Which communication channels do investors perceive as most effective for conveying flood risk information?

Although flood risk communication has been widely studied globally, there is limited research on its direct influence on real estate investment in developing countries like Nigeria, where socio-economic and infrastructural conditions differ significantly from those in high-income nations. This study explores how flood risk information shapes investor awareness and decision-making, focusing specifically on Lagos State, Nigeria. Unlike most studies that examine flood communication in the context of disaster resilience or environmental policy, this research uniquely investigates its role in guiding real estate investment decisions in flood-prone urban areas.

Using qualitative methods, the study captures the perspectives of private investors, revealing their levels of awareness, perception of flood risks, and preparedness. It highlights how inadequate communication channels increase investor vulnerability and deter sustainable investment. By filling a gap in the literature on flood risk communication in Africa, this study offers valuable insights for policy and planning.

The findings emphasise the need for context-specific, transparent, and reliable communication strategies that support resilient investment and urban sustainability. This research contributes to environmental risk management and climate adaptation efforts, demonstrating how improved risk communication can influence property decisions, enhance disaster preparedness, and support long-term urban development in regions facing the dual pressures of rapid urbanisation and climate change.

Literature Review

Research on flood risk communication targeting property investors in Nigeria and other developing countries remains limited. This study uses a qualitative, phenomenological approach to explore how socially constructed perceptions of flood risk, rather than quantitative models, influence investment decisions, highlighting key themes such as investor awareness, communication effectiveness, and decision-making impacts.

How Do Flood Risk Communication Shapes Investment Decisions?

Risk perception plays a critical role in decision-making, reflecting how individuals assess potential hazards based on the information available to them. In the context of flood risk, the complexity of communication arises from a lack of consensus on the most effective strategies. While researchers such as De Boer et al. (2014a, 2014b) and Botzen et al. (2019) have explored how different communication approaches shape perception and preparedness, others, including the IPCC (2012), emphasise that effective communication is vital for raising awareness of flood threats. However, Höppner et al. (2012) noted that little research exists on the actual effectiveness of specific communication methods.

For property investors, understanding risk is crucial to safeguarding their assets. Leiss (1996) distinguished between one-way communication, which involves disseminating risk data, and two-way communication, which promotes dialogue and stakeholder involvement. Although most literature supports two-way engagement, this study focuses on a one-way model—how flood risk information is presented to investors. The efficiency of real estate markets depends on reliable information. Without it, investors risk making poor decisions, such as developing in high-risk zones. Poor communication can result in lax regulations and greater disaster vulnerability. Transparent and accessible flood risk communication can enhance investor awareness, guide safer decisions, and build public trust in risk management (Fuchs et al., 2009; Wachinger & Renn, 2010).

Insights into Flood Risk Awareness

Effective flood risk communication is vital for increasing awareness and encouraging proactive behaviour among property investors and the general public. Understanding flood risk helps investors evaluate their exposure, identify influencing factors, and implement suitable mitigation strategies (Oyetunji et al., 2023; United Nations International Strategy for Disaster Reduction [UNISDR], 2015). Outreach initiatives and awareness campaigns are central to informing stakeholders about flood hazards and their management. However, communication is not solely about disseminating facts, it also involves the way messages are framed and delivered (Breakwell, 2000). Flood risk communication shapes awareness, perceptions, values, and behaviours (Neresini & Pellegrini, 2008), but raising public understanding and preparedness remains a challenge.

The effectiveness of communication is influenced by how accessible, reliable, and comprehensive the information appears to individuals (Griffin et al., 2004). People's perception of flood risk is not limited to objective knowledge; rather, it is shaped by their emotional responses

and personal interpretations. Self-perceived information needs often reflect societal expectations and levels of concern. As a result, communication strategies must consider these subjective factors to effectively engage communities in high-risk areas.

Research shows that individual understanding of flood risk influences their awareness and coping strategies (Bier, 2001; Martens et al., 2009; Terpstra et al., 2009). Personal experiences with flooding often lead to greater receptiveness and proactive behaviour (Siegrist & Gutscher, 2008). Emotional responses also play a key role (Slovic et al., 2007), and some scholars advocate for communication strategies that evoke such emotions to enhance preparedness (O'Sullivan et al., 2012; Terpstra, 2011; Wachinger et al., 2013). However, Harries (2012) warns that fear-based approaches can sometimes provoke anxiety rather than constructive action.

Channels of Flood Risk Communication

Different issues require tailored communication approaches (Larkin et al., 2015). Although various sources of risk information exist (Fuchs et al., 2009; Meyer et al., 2012), Haer et al. (2016) stress the importance of targeting communication to specific audiences. This study explores how flood risk information is delivered and received, focusing on its influence on perception and decision-making. Communication may be verbal, written, visual, direct (e.g. face-to-face), or mediated, and can target individuals or wider groups.

Risk communication uses multiple channels (Feldman et al., 2016; Vogel et al., 2006), and the chosen method depends on the audience's preferences and the communication's purpose (Martens et al., 2009; UNISDR, 2017). Trust in these channels often varies. For example, local newspaper coverage may be viewed differently from national television broadcasts. Communication can be a one-time event, ongoing, or periodic. Effective delivery requires matching the mode with suitable tools: face-to-face meetings, phone calls, and video conferencing enable direct interaction, while brochures, pamphlets, and mass media extend outreach (Tapsell et al., 2005).

Digital platforms like Twitter and Facebook increasingly complement traditional media (Lindell & Perry, 2012; Panagiotopoulos et al., 2016). Interactive flood hazard maps, common in the EU, help visualise flood extent and depth (Houston et al., 2015). These tools, although effective, may be difficult for non-experts to interpret (Cronin et al., 2004; Fuchs et al., 2007; Holub & Fuchs, 2009).

Mass media shape public, scientific, and policy discourses on environmental issues (Beck, 1992). Television, radio, and print media transcend geographic boundaries, influencing how people understand risk (Miles & Morse,

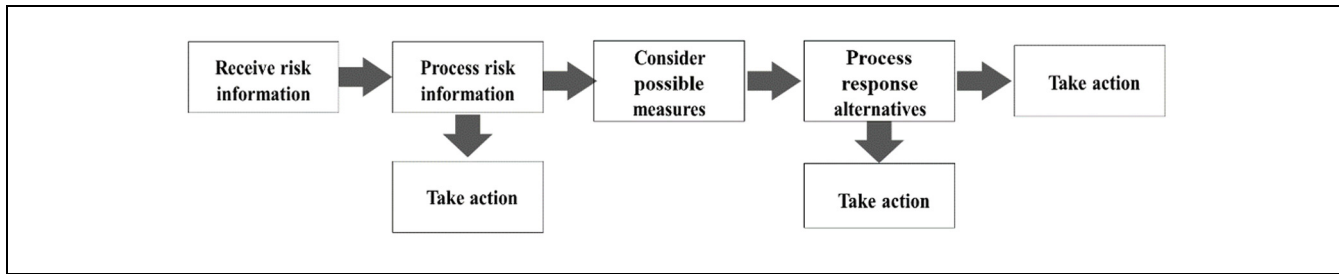


Figure 1. Model of flood risk engagement.

Source: Harries (2007).

2007). Media framing also impacts public attitudes and policy responses (Boykoff & Roberts, 2007; Carvalho & Burgess, 2005), while sustained campaigns and interactive media can improve awareness and engagement (Whitmarsh et al., 2010).

Communicating Flood Risk

In this study, risk is defined as the likelihood of a negative event occurring and its potential severity. Specifically, flood risk refers to the probability of flooding in a particular location and the resulting damage to homes, businesses, and infrastructure. The frequency of floods and the preparedness or vulnerability of people and structures are critical factors that influence the severity of flood risk, which justifies the focus on the selected study area.

Risk communication is a crucial component in decision-making, though it is a complex process that can have significant consequences if poorly managed (Dawson & Johnson, 2014). It is vital for raising awareness, explaining the nature of risks, and providing advice on mitigation measures (Lundgren & McMakin, 2009). Effectively communicating flood risks to the public is essential, but delivering clear warning messages can be challenging. Flood risk communication increases awareness and provides reliable information on how to reduce risk (Larkin et al., 2015; Linkov et al., 2014; Oyetunji, 2024). A proactive approach to disseminating information is necessary for managing unforeseen risks and minimising their impact (Beall & Zeoli, 2008). Ultimately, flood risk communication reduces vulnerability and improves preparedness (Vogel et al., 2006).

For this study, understanding how investors receive and interpret flood risk information is vital. Effective communication involves identifying flood-prone areas and informing at-risk individuals about potential events (Rollason et al., 2018). Clear guidance on protective measures is also critical. While there are various communication methods, determining the most effective approach in data-limited environments remains a

challenge. The quality and intent of the information shared play a key role in its effectiveness (Breakwell, 2000; World Health Organization, 2020). Figure 1 shows a linear model that explains how people engage with flood risk communication.

This model outlines how people process and respond to risk information. Trust in the information source is a key factor in effective communication (Breakwell, 2000; Sandman, 2012; Veland & Aven, 2013). A lack of trust can hinder shared risk understanding between stakeholders (Veland & Aven, 2013). Investors, for instance, may either not receive critical risk information during decision-making or question its credibility. Poor communication erodes confidence in the source, further reducing trust (Lyytimäki et al., 2011). Without reliable information and confidence in its source, investors' preparedness remains low (Lang et al., 2001).

Comparative Analysis of Communication Methods: Urban Versus Rural Settings

Effective flood risk communication varies between urban and rural settings due to differences in technological adoption, infrastructure, and cultural practices. Urban areas predominantly rely on digital platforms, including social media, mobile applications, and online news portals, facilitated by widespread internet access. Platforms such as Twitter and Facebook enable real-time updates, particularly appealing to younger demographics. Mobile apps and GIS-based flood maps further enhance access to risk information, though misinformation and digital exclusion remain concerns.

Conversely, rural areas depend on traditional communication methods, such as word-of-mouth, radio broadcasts, and community meetings. Limited internet access and lower digital literacy restrict the use of online platforms, making local leaders and informal networks essential sources of information. Radio and local television serve as key communication channels, particularly in regions with low literacy rates. However, these methods often disseminate information more slowly and may

lack mechanisms for verification, increasing the risk of misinformation.

Both communication approaches present challenges. Urban methods, while fast and interactive, are susceptible to misinformation and digital disparities. In contrast, rural communication, though trusted and community-driven, is often slower and less scalable. Cultural factors also shape communication preferences—urban populations favour instant, independent access to information, whereas rural communities prioritise interpersonal, trust-based interactions.

A hybrid communication strategy that integrates digital and traditional methods can enhance flood risk awareness and preparedness across diverse settings. In urban areas, improving digital literacy and addressing misinformation can optimise the effectiveness of online platforms. In rural contexts, strengthening conventional communication channels while gradually integrating digital tools can improve outreach. A tailored, multi-channel approach ensures equitable and comprehensive flood risk communication, enhancing public engagement and disaster resilience.

Research Methodology

Study Area

Lagos, Nigeria's former capital, remains the country's economic hub and the fastest-growing urban centre in Africa (Oladokun et al., 2010). Located in southwestern Nigeria along the Gulf of Benin (6.4654°N, 3.4064°E), Lagos spans approximately 3,474 km². The city experiences a tropical monsoon climate with high humidity and significant rainfall, primarily between March/April and September/October (Israel, 2017). Its low-lying topography, with elevations rarely exceeding 2 m above sea level, impedes natural drainage, exacerbating flood risks (Sojobi et al., 2016). Rapid urbanisation further intensifies these challenges by increasing surface runoff. Flooding has become the second most critical urban threat after crime (Adelekan & Asiyanbi, 2016), with a 2016 Lagos Bureau of Statistics poll confirming widespread public concern. However, unplanned settlements and unchecked urban expansion (Aderogba, 2012b; Nwingwe & Emberga, 2014) have aggravated the situation, leading to more frequent flood events (Obiefuna et al., 2013).

This study purposively selects Ibeju Lekki and Ikorodu Local Government Areas (LGAs), both identified as flood-prone zones in the annual flood outlook issued by the hydrological services agency on May 28, 2020. These areas were chosen for their strategic relevance in analysing the impact of flood risk on residential property investment in Lagos. Ibeju Lekki is undergoing rapid urbanisation, driven by large-scale infrastructure

projects such as the Lekki Free Trade Zone and Dangote Refinery, making it a focal point for real estate investment. Conversely, Ikorodu, a peri-urban area, features a mix of low- and middle-income housing markets, offering a broader perspective on investment trends. Both LGAs are highly vulnerable to flooding due to heavy rainfall, rising sea levels, and inadequate drainage infrastructure, making them ideal case studies. Their selection enables a comparative analysis of urban and peri-urban investment behaviours in flood-prone environments. Findings from these regions will not only enhance understanding of local investor responses to flood risk but also provide insights applicable to other rapidly urbanising coastal cities facing climate-related challenges globally.

Ibeju Lekki Local Government Area (LGA) was established in 1990 as part of the Federal Government's local government reform policy in Lagos State. It is bordered by Eti-Osa East LCDA to the west, Epe to the east, and the Atlantic Ocean to the north. Spanning approximately 646 km², about a quarter of Lagos State's total landmass, Ibeju Lekki extends 75 km in length and 20 km at its widest point. Situated along Nigeria's coastal plain, it features numerous creeks and lagoons. This area is one of Lagos State's fastest-growing regions due to major infrastructural projects such as the Export Free Trade Zone, which houses seaport and airport developments. These investments have significantly increased real estate demand, making flood risk management a critical consideration for investors. Ikorodu LGA, located between latitudes 6°37' to 6°45'N and longitudes 3°03' to 3°05'E, has an elevation ranging from approximately 2 m above sea level near the lagoon to 50 m in its northern areas. The region is characterised by deltaic wetlands and is intersected by tributaries of the Ogun and Osun Rivers, contributing to its susceptibility to flooding (Ogunuga et al., 2018). Figure 2 depicts the map of the study area.

Research Procedure

This present study takes a qualitative, phenomenological, and interpretative approach to actualise the research objective. The research was concerned with learning from participants about who is responsible for flood risk communication, the medium through which information on flood risk is communicated, the awareness and knowledge about flood risk, and how flood risk communication influence their investment decisions in the built environment. This approach is particularly well-suited for studying how flood risk awareness, knowledge, exposure, experience, and communication shape real estate investment decision-making. It aligns with the study's objective of exploring complex, subjective experiences and the contextual factors influencing investment behaviour in flood-prone areas. A qualitative research design

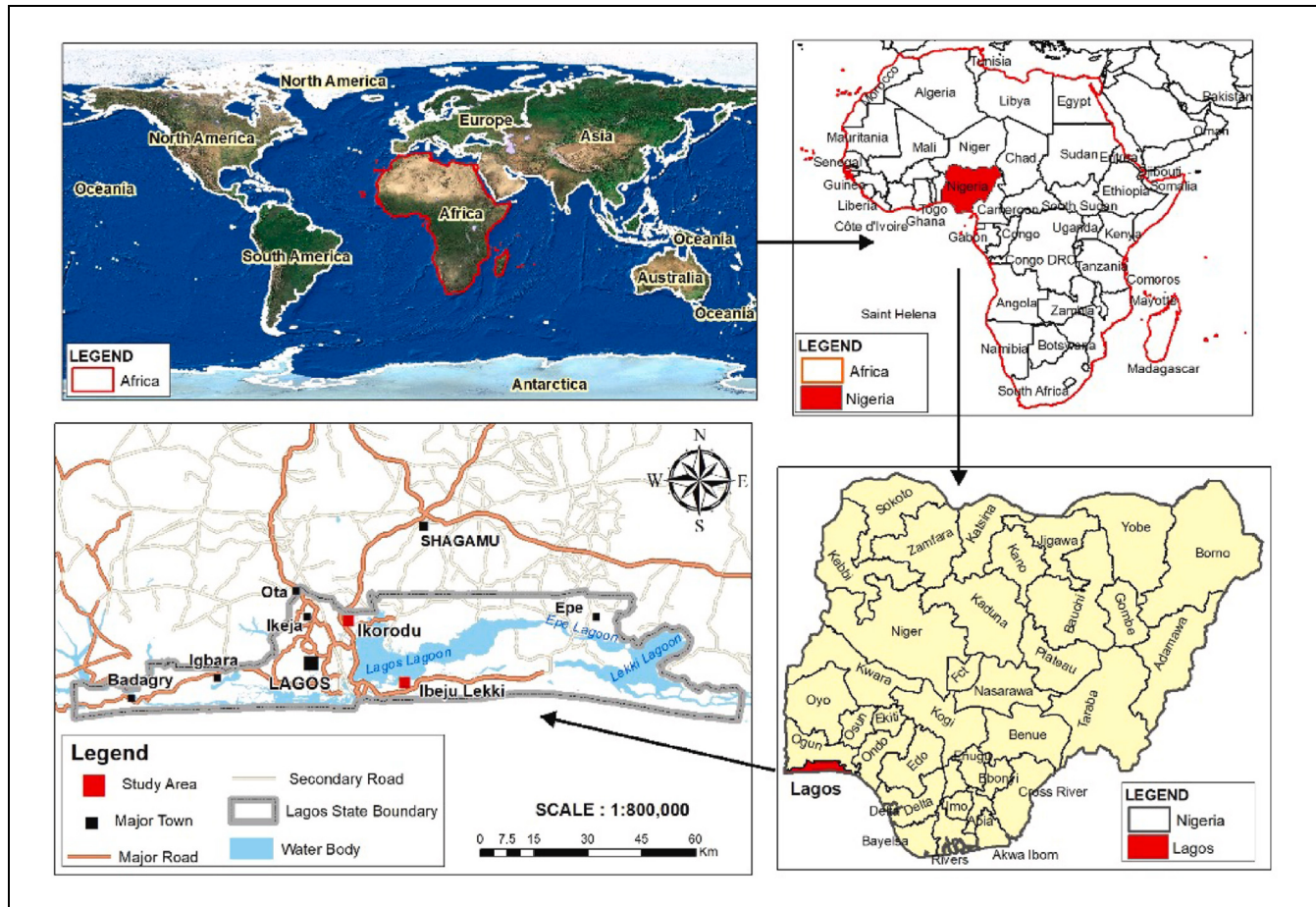


Figure 2. Map of Lagos State showing the study area (Ibeju Lekki and Ikorodu).
Source: Oyetunji et al. (2025).

is ideal for capturing insights that cannot be fully conveyed through numerical data or statistical analysis. Real estate investment decisions, especially in relation to flood risk, are influenced by deeply personal and context-specific factors such as individual perceptions, emotional responses, and cognitive reasoning. By employing qualitative methods, this research gathers rich, detailed data directly from participants, offering a nuanced understanding of how flood risk considerations impact property investment choices.

The study is grounded in phenomenology, which focuses on understanding and interpreting individuals' lived experiences in relation to a specific phenomenon. In this case, the phenomenon under investigation is flood risk and its impact on real estate investment. A phenomenological approach enables the researcher to explore how private investors perceive, interpret, and respond to flood risk through their awareness, knowledge, past experiences, and exposure. This is essential for

comprehending how flood risk influences their investment priorities, risk tolerance, and overall decision-making processes. Additionally, the interpretative aspect of this approach complements the phenomenological perspective by allowing for an in-depth analysis of participants' meanings and interpretations. Flood risk communication, a central component of the study, is inherently interpretative, as it involves how individuals receive, process, and act upon flood risk information. By adopting an interpretative framework, the researcher can critically assess the effectiveness of communication strategies in shaping investors' understanding and behaviour, providing deeper insights into their impact on decision-making. This approach is particularly valuable in addressing the complexities of flood risk in real estate investment, as it moves beyond surface-level observations to uncover underlying motivations, perceptions, and decision-making mechanisms. Furthermore, it enables the identification of patterns, themes, and

relationships that might be overlooked by quantitative methods. Consequently, the qualitative, phenomenological, and interpretative approach is essential for achieving the study's objectives.

The research methodology was carefully designed with consideration for both sample size and anticipated outcomes. A non-probability sampling technique, specifically, snowball sampling, was employed to target private investors. Snowball sampling is particularly effective for this study, as it facilitates access to a specific, hard-to-reach population (Heckathorn, 2011; Oyetunji et al., 2025) with lived experiences and insights critical to understanding the role of flood risk awareness, knowledge, exposure, experience, and communication in real estate investment decisions. These investors are often difficult to identify through public records or random sampling due to the fragmented and decentralised nature of property ownership and investment. Unlike purposive sampling, where participants are selected based on predefined criteria set by the researcher, snowball sampling leverages the networks of initial respondents to recruit others with similar characteristics. This method is advantageous because property investors often belong to informal networks, professional associations, or community groups, making referrals an effective way to reach additional participants who might otherwise be difficult to identify or contact. This is particularly relevant in cases where publicly available data on individual property investors is limited, or where privacy concerns may discourage participation. Moreover, snowball sampling overcomes the limitations of convenience sampling, which may introduce bias by selecting only readily available participants who might not fully represent the target population. By ensuring that all participants are directly linked to the study's core focus, investment decision-making in flood-prone areas, snowball sampling enhances the relevance and reliability of the collected data. Additionally, it facilitates engagement with participants from diverse backgrounds and experiences, enriching the depth and breadth of the study's findings. Given the qualitative, phenomenological, and interpretative nature of the research, where subjective experiences and personal insights are prioritised, the snowball sampling approach aligns well with the study's objectives. Therefore, a referral-based recruitment system through registered real estate practitioners was adopted to identify and engage participants for this study.

From the administered questionnaire, the research participants were allowed to volunteer to be included in a follow-up interview which emanated from the response provided in the survey. As a result, this study draws on data from interviews with 37 private investors within the study location. Due to legal restrictions on conducting research with minors, those under the age of 18 and those

unable to read and understand the English language were excluded from this study.

The wealth of information they have in relation to the subject being studied made them suited for the research. Therefore, based on their response to the questionnaire, which depends on the respondents' awareness, exposure, experience, and knowledge of flooding, only 37 were available for the interview. A generally acknowledged objective of exploratory research is to achieve response saturation (Mason, 2010). Baker et al. (2012) suggest that a sample size of approximately 30 allows a good range of responses to emerge. In this present case, the responses of the 37 key respondents provided a wide range of responses that were analysed for the primary research questions to be answered.

The data collection strategies adopted generated pertinent and quality data that was deemed valid and can be relied upon for this research. The interviews allowed participants to express their opinion freely, while the questionnaire allowed the researchers to acquire information based on the participant's experiences. In the interview, the researchers explore the varied perceptions and opinions of the research participants. Questions such as respondents' view about the flood risk in the study area, knowledge of the flood risk potential of the environment before moving there, where was advice sought regarding flooding in the study location, who is responsible for communicating the flood risk potential of the place, how is it communicated, whether the respondents have enough information about flooding that could influence their decisions, and the reliability of such information when making their investment decision were asked.

The interviews with respondents were conducted and audio-recorded, observing the ethical considerations. The audio-recorded information was transcribed and translated into a written form by following the necessary ethical procedures. The collected data were then qualitatively analysed. The raw data obtained were analysed in order to extract relevant and usable information. Patton (2002) states that the objective of data analysis is to convert data into results. In keeping with the qualitative method of the study, data analysis was used to make sense of the research participants' perceptions and opinions (Cohen et al., 2007).

Thematic Analysis

Thematic analysis served as the primary method for analysing the qualitative data collected during the interviews. This method allowed the researchers to identify, analyse, and report patterns (themes) within the data, providing insights into how flood risk communication influences private investors' decisions. The analysis was structured around themes derived from the literature review and

Table 1. Participant's Distribution.

Location	Years of experience in real estate investment					Total
	<3	3–5	6–8	9–11	11 +	
Ikorodu	1	1	7	7	1	17
Ibeju Lekki	1	3	6	6	4	20
Total	2	4	13	13	5	37

aligned with the study's objectives, which aimed to understand the role of flood risk communication in investment decisions. The data were analysed in several stages. First, the transcripts of the interviews were carefully read and re-read to familiarise the researchers with the content. Key phrases, terms, and responses were then coded to identify recurring ideas and concepts related to flood risk communication. These codes were grouped into broader themes, which were further refined and explored to understand their significance in the context of the study. The thematic analysis focused on several core areas:

- (a) Responsibility for communicating flood risk: Who the participants believed was responsible for communicating flood risks, such as government agencies, real estate professionals, or community leaders.
- (b) Communication channels and methods: The types of media and channels through which flood risk information is conveyed, including formal and informal communication sources.
- (c) Investor awareness and knowledge: The level of awareness investors had about flood risks, both before and after their investments in the area.
- (d) Impact on investment decisions: How the information about flood risk influenced participants' decisions to invest in properties located in flood-prone areas.

Through this analysis, connections between the participants' experiences and broader patterns of behaviour related to risk communication and investment decision-making were drawn. The insights derived from this process contributed significantly to answering the research questions and fulfilling the study's objectives.

Ethical Considerations

Given the personal nature of qualitative research, strict adherence to ethical standards is essential to ensure participant trust and optimise response rates. This study prioritised informed consent, confidentiality, and anonymity in its design. All participants were volunteers and

were clearly informed of their right to withdraw at any point without consequence. They were assured that their data would remain confidential and their identities protected. Following Chaminuka and Dube (2017), ethical integrity promotes participant cooperation and supports the achievement of research objectives. Participants were briefed on the study's purpose, procedures, potential risks, and benefits, and were reassured that no physical or psychological harm would occur.

Ethical approval for the study was secured before data collection. All digital data, including audio recordings and transcriptions, were encrypted and stored on the researcher's password-protected University OneDrive account. Access was restricted solely to the researcher. Physical documents, such as consent forms and field notes, were kept in a locked cabinet in a secure location. To ensure anonymity, personally identifiable information was removed during transcription, and pseudonyms were assigned. Regular encrypted backups were maintained to prevent data loss. All procedures complied with institutional ethical guidelines and data protection regulations, including GDPR. Data was retained for the period specified in the ethics protocol and securely deleted thereafter.

Results and Discussion

The section presents and discusses the results of the study. This was done in line with the research themes. These themes were chosen so that the findings of the study are in line with the research objectives.

Distribution of Respondents

Table 1 shows the participant's profile.

Table 1 summarises the respondents' real estate investment experience. Most respondents fall within the 6 to 8 years (11), 9 to 11 years (11), and 11 + years (7) categories, while fewer have under 3 years (2) or 3 to 5 years (5) of experience. This indicates that the market is dominated by mid-level and seasoned professionals, with limited participation from newcomers.

In Ikorodu, experience levels are more balanced. Seven respondents each fall into the 6 to 8 and 9 to 11 year categories, showing a workforce with moderate

experience. Only one investor has over 11 years of experience, and two respondents fall into the lower experience brackets, suggesting few new entrants. The presence of experienced investors implies a solid grasp of market risks, valuation, and management.

In Ibeju Lekki, investor experience is more concentrated at the upper end. Eleven respondents have 9 to 11 years of experience, followed by 6 to 8 years (7) and 11 + years (6). Fewer respondents fall into the less than 3 years (1) and 3 to 5 years (4) categories, indicating fewer novice investors. Compared to Ikorodu, Ibeju Lekki attracts more highly experienced professionals.

Tailored communication strategies are essential in both regions. In Ikorodu, messages should highlight advanced flood risk concerns, such as insurance implications, property depreciation, and sustainability. In contrast, Ibeju Lekki requires a dual approach: simplified communication for less experienced investors, using visual tools like flood maps, and detailed, data-driven messaging for seasoned professionals to support long-term planning and risk mitigation. This differentiation ensures that communication is accessible, relevant, and actionable for all investor groups.

Influence of Flood Risk Communication on Investment Decisions

Having identified the actors responsible for the communication of flood risk, examined the approaches to information dissemination, and evaluated the knowledge and awareness as to flood risk, it is of utmost significance to investigate whether flood risk communication has an influence on the investors' decision-making behaviour or not. Risk communication needs to be targeted at informing, influencing decisions, calming worried investors, or motivating them to act (Atman et al., 1994). The responses from investors indicate varying levels of influence exerted by flood risk communication, which can be categorised into three main groups: those who altered decisions, those who modified investment strategies, and those who remained unaffected. From the interview, the findings will be classified into categories such as those undeterred by flood risk, those who alter their investment plans, those that shift to alternative investment strategies and those that relies on mitigation strategies.

Investors Undeterred by Flood Risk. A participant, when discussing the influence of flood risk communication on decision-making behaviour, stated: "flood risk communication should not discourage investors but rather inform them about the implications of investing in such areas. This can be achieved through comprehensive information provision and investment guidance" (P003). This perspective aligns with Corvello (1998) argument that the

primary objective of risk communication is not to alleviate public concern by downplaying risks, but rather to foster an informed, engaged, and proactive public. This means effective communication should aim to equip individuals with the knowledge necessary to make well-informed decisions, thus encouraging collaborative, solution-oriented approaches in the context of investment in flood-prone areas. Responses from the interview depict that the degree of communication received with respect to flood risk plays a significant role in influencing their investment decisions. Therefore, knowledge dissemination is a critical tool that can assist in decision-making processes. This means that the amount of, type of, and accessibility to information, and the manner in which it is presented might impact an investor's approach to the investment strategy. For instance, some of the respondents indicated that the communication they received has had little impact on their decision-making.

According to participant (007), *"to be honest with you, whether flood or not, I will still invest. Floods should not deter me from being a property owner. The challenges I have suffered in the hands of property agents and owners is enough for me to decide that it's time to have my own property. Also, owning such an investment is a means to tying down capital sum. Who knows whether what I am running away from in this place will surface sometimes later in the other place I am running to? Likewise, I might not be able to afford that other place at this present time, so the best is for me to critically evaluate and adjust to the scenario."* Another participant (P012) said *"the decision to rent this place is mine. I have struggled to get an apartment in my chosen location. However, when I was opportune to get this place and I discovered that it is a flood risk area, I made up my mind that I would go for the place despite the risk involved. This is because it is nearer to my workplace and I feel if people who lived in this community did not die due to this hazard, I will as well survive."*

Investors Altering Their Investment Plans. Some of those interviewed said that they had changed their minds about their investing decision. When asked whether flood risk could affect their investment decisions, participant P022 said *"I had earlier gotten a place which I later found out to be at high risk, I couldn't contain the mental stress being suffered I later moved into this present place, although within the same neighbourhood but with less effect of flooding. I am quite satisfied with the decisions I took because, within this neighbourhood, this property is less affected during rainfall unlike the one I had wanted to go for earlier."* Another participant P006, stated: *"I initially wanted to invest in a piece of land by the water because it had great potential for commercial development with high returns. However, after consulting with some experts and hearing about the past flood incidents in that*

area, I decided against it. I realised that the cost of protecting the property and the risk of losing tenants during flooding periods might outweigh the benefits. I instead chose a property slightly further inland, which may not offer the same scenic appeal but is far less likely to suffer from flooding. It felt like a more stable and secure choice for the long term."

This highlights how investors adapt their strategies based on available flood risk information. For example, Participant P006 considered not only physical flood risks but also economic impacts like maintenance costs and tenant turnover. Similarly, Participant P022 was influenced by the psychological stress of living in a flood-prone area. These cases underscore how clear, accessible flood risk communication empowers investors to make informed, resilient, and sustainable real estate decisions.

Investors Shifting to Alternative Investment Strategies. In response to the increasing challenges associated with flood risks, investors are progressively adopting alternative investment strategies. Rather than following conventional investment trajectories, some reconsider their approaches by prioritising properties and locations that exhibit greater resilience to environmental vulnerabilities. This transition reflects a proactive effort to mitigate potential losses, adapt to evolving climatic conditions, and ensure long-term stability in their investment portfolios. Opting for safer and more sustainable alternatives, investors display a readiness to recalibrate their priorities, even at the expense of immediate gains, to minimise exposure to risk. This shift underscores the significant influence of flood risk awareness in shaping contemporary investment behaviours and strategic decision-making processes.

Some of the interviewees stated that they changed their investment portfolio. For example, participant 013 said *"when I first purchased this plot, I had the mind to build a five-bedroom bungalow with landscape features. However, when I discovered that the area is prone to flooding, I had to alter the developmental plan and instead build a storey building tenement apartment and I ensure that the foundation is solid to withstand water percolation."* Another participant 019 stated *"When I discovered that this area is liable to be flooded, I channelled my resources into farming as I turned my compound into a fish farming site with just a bungalow attached. This form of development is not my initial intention, but the effect of flooding makes me decide to go into farming within the residential neighbourhood and this decision pays off."*

Investors Relying on Mitigation Strategies. In the face of increasing flood risks, many property investors are adopting various mitigation strategies to protect their

investments and minimise potential losses. Findings reveals that these strategies, ranging from structural modifications to insurance policies and adaptive planning, demonstrate investors' growing awareness of flood vulnerabilities and their commitment to ensuring the long-term viability of their assets. However, the effectiveness and accessibility of these strategies are often shaped by the investors' resources, knowledge, and the prevailing regulatory environment.

Some of interviewees stated that the presence of flooding does not pose a significant effect on their investment choice. They said whether or not the presence of flood risk, they proceed with their investment decisions and instead make an arrangement for alternate mitigation strategies to control the effects of floods. For instance, one participant responded *"I was aware of the nature of flood risk in this place before moving here. When I had the opportunity to get a plot in this place, I raised my property foundation to a certain height in order to control the flood that may want to affect my premises. I also put some sandbags in place. I cannot because of flood abandon my investment, instead, I would strive to cope with the risk and make the place habitable."* Another responded *"where will I go? This is my investment and life savings. I am a pensioner. The flood does not affect my house as such. This is because I have taken appropriate measures to secure my investment. The rate at which my property is vulnerable has been kept at the barest minimum."*

One of the most commonly employed mitigation strategies is the use of structural adaptations to reduce the impact of flooding. Participants described modifications such as raising building foundations, installing flood barriers, and improving drainage systems to safeguard their properties. Participant P014 stated, *"After my property was flooded two years ago, I had to invest in raising the floor level and installing proper drainage channels around the house. It was expensive, but I couldn't risk going through that experience again."* This proactive approach highlights the importance of resilience measures in mitigating the physical damage caused by flooding. However, the financial burden associated with such adaptations often limits their adoption to wealthier investors, leaving lower-income property owners more exposed to flood risks.

Insurance coverage also emerged as a critical component of flood risk mitigation among participants. Some investors emphasised the value of securing flood insurance policies to protect their investments from unforeseen disasters. Participant P028 explained, *"Getting flood insurance was a priority for me because I've seen how unpredictable flooding can be in this area. It gives me peace of mind knowing that I won't suffer a total loss if something happens."* While insurance provides a safety net for some, the study found that its uptake remains

limited due to high premiums, lack of awareness, and mistrust of insurance providers. Many investors view flood insurance as inaccessible or unreliable, underscoring the need for more affordable and transparent insurance options.

Adaptive planning is another strategy that investors rely on to mitigate flood risks. This involves conducting thorough research on the flood history of potential investment locations and prioritising areas with lower vulnerability. Participant P017 remarked, *“Before I bought this property, I asked around and checked the flood history of the neighbourhood. I deliberately chose a location on higher ground to avoid the problems others have faced in low-lying areas.”* This approach reflects a growing recognition of the importance of informed decision-making in reducing flood exposure. However, the effectiveness of adaptive planning is often hindered by the lack of reliable and accessible flood risk data, forcing many investors to rely on informal sources or incomplete information. Participants also highlighted collaborative efforts as a means of mitigating flood risks. Some investors engage with community initiatives aimed at improving local drainage systems or lobbying for government action. Participant P019 shared, *“In our neighbourhood, we pooled resources to clear blocked drainage channels and raise awareness about flooding. It’s not just about protecting my property—it’s about reducing the risk for everyone in the area.”* Such collective actions underscore the potential for community-based strategies to complement individual efforts, particularly in areas where government intervention is lacking.

Despite these efforts, the study found that reliance on mitigation strategies often varies depending on socioeconomic factors. Wealthier investors are more likely to adopt a combination of structural, financial, and planning-based measures, while those with limited resources may resort to reactive or stop-gap solutions, such as relocating temporarily during flood seasons. This disparity highlights the need for targeted interventions to support vulnerable populations and promote equitable access to effective mitigation strategies.

Knowledge and Awareness of Flood Risk

In order to mitigate flood threats, it is important to understand and appreciate the potential of flood hazards. This is because awareness can help in taking preventive action. This section will be discussed from the perspectives of the sources of awareness, misconceptions about flood risk, and challenges to accessing flood risk information.

Sources of Flood Risk Awareness. The sources through which individuals become aware of flood risk play a

crucial role in shaping their perceptions, attitudes, and decision-making processes. The study findings reveal that flood risk awareness arises from a variety of sources, including personal experiences, media reports, and word of mouth. Each source contributes differently to understanding flood vulnerabilities, with varying levels of accuracy and influence on behaviour. It was found that personal knowledge of flood risks is primarily derived from direct flood experiences, followed by independent research and information shared by others. An individual’s understanding of flooding can significantly influence their perception of risk and preparedness, making it crucial for areas more prone to flooding to consider how well residents are informed.

Personal experience emerged as a significant factor in raising flood risk awareness among participants. Many shared stories of firsthand encounters with flooding, which reshaped their understanding of its causes and impacts. For instance, participant P016 recalled, *“I never really considered flooding a major issue until my home got submerged after days of heavy rainfall. That experience taught me to always investigate the history of flooding in any area before making property decisions.”* This experience heightened awareness and influenced future investment choices, serving as a wake-up call that left lasting impressions on the participant.

Media also plays a vital role in raising awareness, though its impact is inconsistent. Participants mentioned television, radio, and social media as key sources of information on flooding. Participant P024 shared, *“I first learned about the flooding problem in some parts of Lagos from a news report on TV. The visuals of people losing their homes made me more cautious about where I invest.”* While media can be effective in spreading information, it often emphasises dramatic events, leading to skewed perceptions of risk and lacks detailed, localised information.

Word of mouth is another important source of flood risk awareness, particularly within communities. Participants noted that family, friends, and neighbours often influenced their understanding of local flooding risks. Participant P032 shared, *“Before I moved into this area, my cousin warned me about how bad the flooding could get during the rainy season. That advice helped me prepare better.”* While word of mouth provides localised insights, it can also be subjective, leading to inaccuracies or exaggerations.

The interplay between these sources of flood risk awareness reveals a range of reliability and influence. Personal experiences tend to evoke the strongest emotional responses and lead to lasting changes in behaviour, while media and word-of-mouth accounts are more variable. The fragmented nature of these sources highlights the lack of a centralised, systematic approach

to flood risk communication in Nigeria, which can lead to misinformation.

Misconceptions About Flood Risk. Flooding continues to be one of the most significant natural hazards in Nigeria, yet misconceptions about flood risk play a crucial role in shaping the decisions, behaviours, and attitudes of property investors and residents. One common misconception observed in the interview is the belief that flooding primarily affects areas near rivers and waterways. This has led to a general underestimation of the risks faced by properties located further inland or in urbanised regions, which are often more prone to flooding than people realise. These misconceptions have wide-ranging implications for property investment, urban planning, and flood risk mitigation efforts in the country.

Participants in the study revealed a widespread lack of understanding regarding the many factors that contribute to flooding beyond the proximity of rivers. For example, participant P011 noted, “I never thought flooding could happen here because it’s not close to any river. When I bought the property, I didn’t consider drainage or rainfall patterns as a risk. It was after my property got flooded during a heavy downpour that I realised the problem is much bigger than rivers overflowing.” This statement highlights a key knowledge gap: many people fail to recognise urban flooding as a separate issue, driven by inadequate drainage systems, increased surface runoff due to urbanisation, and extreme rainfall events intensified by climate change. Similarly, P029 remarked, “I was confident in my investment because the area is far from any water body. I didn’t factor in the blocked drainage channels and poor waste management in this city. Now I face flooding even though my property is miles from any river.”

These accounts underscore how misconceptions about flood risk are often rooted in limited awareness of urban and flash flooding dynamics, which are becoming increasingly common in Nigeria’s rapidly expanding urban areas. Some respondents claimed to be unaware of their property’s flood risk until they encountered a flooding incident. Others acknowledged knowing about flood risks but expressed confusion about the extent and severity of the threat. One participant explained, “I was made aware of the potential flood risk through the newspaper, but I thought it would never happen to me. I wasn’t prepared, and the recent flooding collapsed my fence, and I’m now fixing it.”

The consequences of these misconceptions are significant. Investors who hold outdated or overly simplistic views of flood risk may fail to consider critical factors such as infrastructure quality, urban planning issues, and the effects of climate change. This lack of awareness not only exposes properties to increased risk but also

amplifies the financial and emotional burden on investors when flooding occurs in unexpected areas. Additionally, these misconceptions often perpetuate a cycle of poor decision-making. Some participants shared experiences of purchasing properties based on location appeal or cost, with little consideration of environmental risks. For instance, P034 noted, “Flooding wasn’t even part of my considerations because the agent assured me it’s a non-issue in this area. I later discovered that the entire neighbourhood gets submerged during heavy rains.” This highlights how real estate agents and developers, through their lack of communication about flood risks, may inadvertently reinforce misconceptions, contributing to poor investment decisions.

Challenges in Accessing Flood Risk Information. Access to accurate and reliable flood risk information is crucial for effective decision-making by property investors, residents, and policymakers. However, findings reveal several challenges that hinder the accessibility and dissemination of such information. These challenges, which include the lack of a centralised database, limited transparency, and inadequate communication mechanisms, contribute to the persistence of vulnerabilities and poor risk management practices in the country.

Although the respondents agree that they are very much aware that flooding could significantly impact property investment, they however argued that its management could determine how vulnerable one’s investment could be. The knowledge and awareness of the respondents on statements regarding flood risk information shows that there is a consensus agreement among the respondents that the Nigerian real estate market lacks a flood risk information database necessary for investment guidance. Also, the people confirmed that they find flood risk information on the real estate market in the country to be sparse and loosely integrated. The findings confirm the view of Onwuanyi and Oyetunji (2021) that the property market database in the country needs to be resuscitated and proper coordination. The respondents also agree that their knowledge and experience can contribute to the decision they took on property investment.

A key issue highlighted by participants is the absence of a centralised database for flood risk information. Many noted the difficulty of finding consolidated, authoritative, and easily accessible data on flood-prone areas. Participant P021 explained, “*I struggled to get accurate information about flood risks when I was planning to buy property. I had to rely on multiple, often conflicting sources, and even then, it wasn’t clear how reliable they were.*” This lack of centralised data creates significant barriers for individuals attempting to evaluate the flood risk of specific locations, leaving many to rely on anecdotal evidence or incomplete information.

Another recurring theme is the limited transparency in risk communication from local authorities and stakeholders. Participant P030 shared, *“When I approached the local council for information about flood risk in the area, they didn’t have detailed records or maps. They simply told me flooding wasn’t a problem, but my neighbours later told me otherwise.”* This example underscores how gaps in institutional transparency and accountability can exacerbate misinformation and prevent individuals from making informed decisions. Inconsistent or overly optimistic assurances from government agencies and property developers often leave investors vulnerable to unforeseen risks. Additionally, the lack of standardised flood risk assessments contributes to significant variability in the quality and availability of information. Participant P027 noted, *“There is no standard process for assessing flood risk before purchasing a property. It depends on whether the developer, agent, or even a friend mentions it. You’re essentially left to figure it out on your own.”* This absence of formalised risk assessment frameworks leads to fragmented and inconsistent access to information, placing the burden on individuals to investigate and interpret flood risk independently.

Participants also emphasised the role of socioeconomic disparities in limiting access to flood risk information. Those in low-income communities are particularly disadvantaged, as they often lack the resources or connections to seek out reliable data. For instance, participant P035 remarked, *“In our area, we don’t get any official updates or warnings about flooding. It’s only when the rains come that we start to worry. Nobody tells us what areas are safe or what we should do.”* This highlights how systemic inequities in information dissemination disproportionately affect marginalised groups, further entrenching their vulnerability to flooding events. Moreover, technological barriers such as limited internet access and low digital literacy further constrain the availability of flood risk information. While digital platforms and geographic information systems (GIS) hold significant potential for improving risk awareness (Kjellgren, 2013), their effectiveness is limited in communities where such technologies are inaccessible or underutilised. Participant P011 expressed frustration, stating, *“I heard there are online maps showing flood-prone areas, but I don’t know where to find them or how to use them. There’s no one to guide us.”* This reflects the need for user-friendly, localised tools and training to ensure equitable access to flood risk data.

Responsibility to Flood Risk Communication

The question of who should be responsible for flood risk communication, especially regarding information that guides real estate investment decisions, remains a

complex and undefined issue. While flood risk communication is widely recognised as vital for enabling informed decision-making, the views of participants in this study revealed significant variations regarding responsibility. These perspectives ranged from government authorities and individual investors to community leaders, environmental agencies, and property agents, each highlighting unique challenges and implications.

Government as the Primary Responsible Entity. Several participants argued that the government should be the primary actor responsible for flood risk communication. Participant P028 emphasised that local councils, as the closest level of governance, are well-positioned to disseminate accurate and timely flood risk information. According to this participant, *“The local council has information about their domain of governance, and the issue of flooding isn’t an exception. They should be able to provide us with information regularly and not wait until the streets or houses are flooded.”* Similarly, participant P003 stated, *“The Local Government should be aware of the flood risk status within their jurisdiction. It is their duty as a service to the people and prospective investors to communicate such risks.”* This viewpoint aligns with the literature suggesting that governments often adopt a top-down approach to risk communication, employing tools such as brochures, websites, and media campaigns (Fekete, 2012). However, participants also emphasised the need for collaboration between government tiers. Participant P015 advocated for a multi-level governmental approach, asserting that *“The State Government should support the Local Government, and the Federal Government should enable both to strengthen flood risk communication for investors.”* This sentiment reflects findings by Renn (2010; 2020), which stress the importance of coordinated governance in risk communication.

Individual Investors as Key Actors. In contrast, some participants believed that the responsibility for obtaining flood risk information should rest on individual investors. This perspective reflects the principle of personal responsibility in decision-making. Participant P013 highlighted this view, stating, *“The primary onus lies on the investor spending the money. You should find out whether the property will be liable to flooding before deciding.”* Similarly, participant P034 emphasised that *“Any loss suffered from an investment will be borne by the investor, so why rely on someone else to provide the information?”* These findings align with the “buyer beware” principle often discussed in the context of real estate transactions. However, they diverge from community-based flood risk communication approaches, such as those proposed by Dittrich et al. (2016) and Seebauer and Babicky (2018), which

emphasised shared responsibility and collective action. The lack of consensus here highlights the tension between individual accountability and broader systemic responsibilities.

Community Leaders and Environmental Agencies. Another group of participants suggested that community leaders or environmental agencies should bear responsibility for flood risk communication. Participant P016 argued that community leaders, as recipients of statutory levies, should “*benefit community members with all forms of information, including property risks.*” Similarly, participant P027 suggested that “*environmental agencies and meteorological departments, which monitor and provide rainfall data, should take on this role.*” These perspectives echo the bottom-up, community-focused approaches advocated by Seebauer and Babicky (2018), which emphasise leveraging local knowledge and networks. However, concerns were raised about the capacity of these entities to perform such roles effectively, given their often limited resources and reach.

Property Agents and Landlords. A smaller subset of participants believed that property agents and landlords should be responsible for flood risk communication. Participant P026 asserted that “*agents or landlords should inform their clients of all that is associated with the property and environment, including flood risk.*” This aligns with the duty-of-care principle in real estate transactions, which holds agents accountable for disclosing pertinent information to prospective buyers or tenants. However, this viewpoint diverges from broader systemic approaches and is limited by the potential for conflicting interests. Agents and landlords may prioritise property sales over transparent communication, thus undermining trust.

Non-Governmental Organisations. Interestingly, most participants rejected the idea that non-governmental organisations (NGOs) or private actors should play a role in flood risk communication. Participant P006 stated, “*charity organisations have more burdens to bear than being entangled with irrelevant responsibilities such as communicating flood risk information.*” This perspective contradicts studies suggesting that NGOs and community-based groups can play a significant role in localised flood risk communication (Dittrich et al., 2016; Seebauer & Babicky, 2018). The rejection of this notion may stem from a lack of trust or perceived misalignment

between the core missions of NGOs and the specific needs of flood risk communication.

Approaches to Flood Risk Communication

Understanding how flood risk information is disseminated is crucial to influencing decision-making behaviour and empowering prospective and existing investors in flood-prone areas. This section examines the tools and methods for sharing flood risk information, as well as the reliability of various communication sources based on respondents’ perspectives.

The Role of Social Media. A significant proportion of respondents identified social media as their most explored and effective source for flood risk information. Many participants noted that platforms like Twitter, Facebook, and Instagram serve as accessible, real-time tools for information dissemination. For example, Participant (P006) stated, “*I’m fully active on most social media platforms. I have a hundred percent trust in social media. As far as there is an internet network subscription, I get information whenever I need it.*” Similarly, Participant (P001) affirmed, “*Twitter has been a great source of information for me. I am an ardent and active user of the platform.*” Despite its popularity, respondents highlighted certain deficiencies with social media as a communication tool. These included concerns about misinformation, bias, and the need for users to verify the authenticity of information independently. Nonetheless, the ease of accessibility and instantaneous nature of social media make it a preferred medium among younger audiences, especially in Nigeria, where traditional media are often seen as less engaging.

Traditional Media: Print and Electronic Channels. Some respondents acknowledged the existence of traditional media, such as newspapers, television, and radio, as potential channels for flood risk communication. However, many expressed skepticism about their effectiveness due to practical limitations. For instance, participants noted that the erratic power supply in Nigeria, coupled with busy work schedules, often prevents them from consuming TV or radio content. One participant explained, “*most of us are not home early enough to watch television, and even when we do, we focus on cable channels like Discovery and documentaries, which rarely cover local flood issues.*” Similarly, newspapers were deemed less effective because they are not easily accessible to the general public and are often not the primary medium for

risk-related information. Respondents also indicated distrust in the content provided by these traditional sources, viewing them as outdated or insufficiently targeted.

Face-to-Face Communication and Word-of-Mouth. A few respondents mentioned person-to-person communication or word-of-mouth as a means of acquiring flood risk information. However, they agreed that this method is becoming less practical due to modern constraints, such as the Covid-19 pandemic and the need for social distancing. One participant remarked, *“the pandemic has discouraged face-to-face interactions, which limits this channel as a reliable source of information.”*

Flood Maps and Specialist Tools. When asked about the use of flood maps as a tool for communication, only a small percentage of respondents (8.1%) viewed them as helpful. Many felt that flood maps were inaccessible or too technical for the average person. One participant explained, *“not everyone can read a map, and if specialists are needed, it becomes a waste of resources.”* Another noted concerns about potential corruption in the creation and distribution of such maps, stating that they might serve as a means for officials to enrich themselves rather than provide reliable information.

Online Platforms and Government Websites. While online platforms, including government-owned websites, were recognised as potential sources of flood risk information, many respondents admitted they rarely visit such sites. They expressed doubts about the reliability and usability of information provided through these platforms. For instance, one respondent commented, *“If the government websites post such information, I will likely miss it because I hardly check them.”*

Challenges with Information Dissemination. Across all communication channels, respondents emphasised the challenges of inconsistent or unreliable information. One participant observed, *“at times, the information might not be available, and when available, it is not regularly communicated. If communicated, it is often inconsistent, leading to trust issues.”* Another respondent remarked, *“nobody communicates any risk to us. We just assume there might be flooding based on rainfall patterns.”*

The lack of transparency and a structured communication approach emerged as significant barriers to effective flood risk communication. Participants stressed the importance of providing clear, actionable, and trustworthy information to help investors make informed decisions.

Strategies for Improving the Communication of Flood Risk

Effective flood risk communication is essential for improving individual awareness, fostering preparedness, and enabling informed decision-making regarding property investment, risk mitigation, and location choices. The use of reliable and relevant information is of significant importance to make a good decision. This section examines digital and non-digital communication strategies for disseminating flood risk information, with an emphasis on channel effectiveness, message clarity, and audience engagement.

Digital Communication Strategies. Digital communication methods have shown potential in improving flood risk awareness. Respondents identified mobile text messaging as an effective tool, given the widespread use of mobile phones. One participant noted, *“Almost everyone has access to a mobile phone, which can receive messages without internet access. The government can learn from the strategy used for COVID-19.”* This supports Lindsay (2011), who observed that mobile phones are key for disseminating public safety information, especially in low-resource settings. However, consistency and proper targeting are needed to reach vulnerable populations.

Social media also emerged as a significant platform for sharing flood risk information, with respondents recognising its ability to quickly spread updates. However, concerns about misinformation were raised. One respondent stated, *“While social media is useful, the government must strengthen policies and control mechanisms to regulate the information shared.”* This aligns with Feldman et al. (2016), who highlighted the need for oversight to prevent false information. Unlike Houston et al. (2015), who found social media effective in developed economies, participants in this study expressed scepticism about its reliability in Nigeria due to weak regulatory frameworks.

Web-based flood hazard maps were discussed as a tool for improving public understanding of flood-prone areas. However, many respondents reported limited awareness of such resources. While O’Sullivan et al. (2012) support the use of hazard maps, participants expressed concerns about their implementation, fearing that they could enrich professionals and open avenues for corruption. This finding contrasts with Ramos et al. (2013), who argue that hazard maps are universally beneficial in risk communication, stressing the need for greater transparency and trust in the Nigerian context.

Non-Digital Communication Strategies. Non-digital communication strategies remain crucial, particularly in areas with limited access to digital tools. Participants strongly

recommended door-to-door awareness campaigns. A respondent suggested, *“The government should conduct door-to-door awareness using handbills to deliver the message. If repeated every two months, the public will become more aware of their responsibilities and better prepared.”* This supports Spence et al. (2010), who argue that localised and repeated messaging enhances public awareness and promotes protective action. Billboards and handbills were also noted as effective methods for ensuring visibility and reinforcing flood risk information. As one participant stated, *“Billboards should be strategically placed where they are easily seen across the state.”* This aligns with Morss et al. (2005), who concluded that simple, visible communication methods are more effective for reaching diverse audiences.

Trust and transparency in communication were recurring themes. Participants criticised the lack of interaction between government agencies and the public, highlighting the importance of community engagement. A participant suggested, *“The government should organize meetings and flood-prevention programs to show they care about the public’s interests and build trust through transparency.”* This view supports Gill (2008), who emphasises the need for a bottom-up approach that fosters dialogue and collaboration.

The clarity and simplicity of messages also emerged as key factors in effective communication. Respondents advocated for risk information to be presented in clear, non-technical language. One participant noted, *“The information must be in simple terms that everyone can easily understand.”* This supports Spence et al. (2010) and Morss et al. (2010), who emphasise that unclear or technical language can hinder understanding and reduce the effectiveness of communication.

The Way Forward

The respondents’ recognition of flood hazard maps as useful and their concerns about potential corruption highlight a critical contradiction that reflects deeper governance issues. While many agreed that these maps can improve public understanding of flood-prone areas, supporting findings by Bradford and O’Sullivan (2011), their mistrust in institutions raises serious concerns. Fears that officials might misuse funds or manipulate the maps for private gain suggest that past experiences of mismanagement in Nigeria have eroded public confidence. Such scepticism is consistent with broader development literature, which identifies lack of transparency and accountability as key obstacles to effective public communication (Renn, 2008).

Even in the absence of corruption, respondents cited limited awareness of the existence and use of flood maps, pointing to failures in dissemination and public engagement. Addressing these challenges requires a twofold

strategy. First, transparent development and distribution of hazard maps must be ensured through independent oversight and clear accountability frameworks. Second, targeted awareness campaigns should educate communities on accessing and using these maps. Collaborating with local organisations and involving residents in participatory mapping can strengthen trust and promote inclusivity. This community-driven approach encourages ownership and reduces scepticism, making flood hazard maps more impactful and relevant for decision-making in vulnerable areas.

Conclusion

Effective communication of flood risk plays a critical role in boosting public awareness and preparedness, especially among private investors. This study investigates how flood risk information is conveyed and identifies key stakeholders involved in the communication process. Using qualitative interviews, it analyses how risk perception influences investment decisions. Social media emerges as a popular channel for disseminating flood-related information, though some investors express doubts about its reliability, emphasising the need for tailored, credible strategies. Misconceptions about flood risk persist, pointing to the importance of public education, transparent risk assessments, and stringent urban planning policies. Incorporating comprehensive flood risk data into property marketing and investment discussions can support more informed and resilient decision-making. The effectiveness of communication depends on trust and relevance. While mass media has a wide reach, it often lacks local specificity, whereas word-of-mouth offers useful insights but remains informal. A structured approach is required, involving government-led campaigns and institutionalised risk assessments. Collaboration is key, governments must ensure accurate and accessible information, while investors should actively seek knowledge. Community leaders, environmental agencies, and real estate professionals should work together to bridge information gaps. Through the integration of both top-down and bottom-up methods and addressing trust issues, flood risk communication can become more effective and inclusive.

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Ethical Considerations

The study was conducted in accordance with ethical guidelines for research involving human participants and approved by the

university ethics committee. Participation was voluntary, with the right to withdraw at any time.

Consent to Participate

Written informed consent was obtained, and participants were informed about the study's purpose and data use. All responses were kept confidential and anonymised, and interviews were recorded with permission to ensure accuracy.

Author Contributions

All authors contributed equally to the manuscript.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The authors acknowledge the support of Leeds Beckett University for providing the open access funding for the research, authorship, and/or publication of this article.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statement

The data that support the findings of this study are not publicly available due to privacy and ethical restrictions. The dataset contains sensitive and identifiable information about study participants, and sharing it would compromise participant confidentiality. Access to the data is therefore restricted to protect the privacy of individuals involved in the research. Researchers with legitimate interests may contact the corresponding author to inquire about potential access, subject to ethical review and appropriate data sharing agreements.

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