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Flood-Risk Insurance in Flood-Prone Areas of Nigerian Cities: A Case Study of Agiliti, Ketu, Lagos

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Abstract

Flooding, one of the effects of climate change, has become recurrent in Nigerian cities that are situated on floodplains. To recover from economic and financial losses after the flooding incidents, affected residents of such areas have been relying heavily on government relief efforts as well as assistance from family, friends and philanthropists. However, these sources have not always been reliable in terms of being available, coming in the right amounts as well as being timeous. There is therefore the need for more reliable and sustainable strategies for helping flood victims of Nigerian cities to recover economically and financially from flood incidents. Flood risk insurance is one of such more reliable and sustainable strategies. Unfortunately, empirical evidence points to a low level flood risk insurance by insurance companies, culture in parts of Nigerian cities that are prone to flooding. Agiliti, Ketu, a part of Lagos State that lies in close proximity to Ogun River, is known to have been affected by annual flooding in recent times. This paper has used this community as a case study to consider the level of flood-risk insurance culture among residents of flood-prone parts of Nigerian cities. The survey research method was adopted, with a structured questionnaire administered on 398 households. Based on descriptive statistics involving simple percentages, the researchers found a low level of life and property insurance in the study area. Accordingly, the study recommends education of residents on the key role of insurance in city resilience alongside increased marketing of flood-risk insurance by insurance companies, reduction of public mistrust of insurance companies and reduction of the burden of payment of premium by government and charitable organisations.

Keywords: Agiliti; Flood-prone areas; Flood-risk insurance; Ketu; Nigerian cities

1.0 Introduction

In recent times, cities have been facing rising threats from natural disasters especially in the light of climate change (Schanz, 2021). In Nigerian cities, flooding has become recurrent (Nkwunonwo, Malcolm & Brian, 2015; Adelekan, 2016; Adelekan & Asiyanbi, 2016), with the attendant loss of lives and property. According to the Federal Government of Nigeria, flooding loss across the nation amounted to $9.12 billion in 2022. Thus, cities with flood-prone areas need to be resilient in all ramifications (Bueno, Bañuls & Gallego, 2021). In Nigeria, government has

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been assisting in this regard through the Ecological Fund and the National Emergency Management Authority. However, empirical evidence shows that most of the interventions have failed to reach victims at adequate amounts and on time. Consequently, most flood victims have had very little resilience and have been unable to bounce back financially.

Insurance has been identified as a dignified, timely, adequate and sustainable way of managing flood risk (UN Office for Disaster Risk Reduction [UNDRR], 2021; Orimisan, 2020), since insurance aims to restore every insured to the same level they were before the loss. The pertinent question around resilience building in flood-prone parts of Nigerian cities should be: How many property owners in the areas have insured their properties against flooding risk? Put in another way: How engrained is the insurance culture among property owners in flood-prone areas of Nigerian cities? The chapter attempts to answer these questions for Agiliti-Ketu, Lagos, identifying the reasons for the low flood-risk insurance culture in the area and proffering solutions.

2.0 Review of Literature

Globally, cities have been facing exposure to recurrent flooding disaster, hence their need for building resilience (Centre for Climate and Energy Solutions, no date; Duy, 2018), the most affected being coastal cities and those situated on floodplains. The Lagos Bureau of Statistics (2016), in a study on flooding in Lagos, found that 19% of residents had experienced flooding within the previous year. Similarly, Adelekan and Asiyanbi (2016) found that residents perceived flooding as the second most important hazard in the city, after crime. Much of the flooding results from rainfall and storm surges, largely during the rainy season (Adelekan, 2016; Adelekan & Asiyanbi, 2016). With climate change, fluvial flooding (flooding which occurs when rivers and streams break their banks and water flows out onto the adjacent low-lying areas), is expected to worsen in Lagos in the years to come – an expectation that also holds true for coastal flooding resulting from climate change-induced sea level rise (Moghalu, 2018).

Cities with high flood risk should develop sustainable strategies for, not only mitigating flooding but also for adapting to it; indeed, they should plan for bouncing back (Bueno, Bañuls & Gallego, 2021). In this connection, insurance has been identified as a dignified, timely, adequate and sustainable way of managing flood risk (United Nations Office for Disaster Reduction [UNDRR] (2021); Orimisan, 2020). Insurance aims to restore the insured to the same level he/she was before suffering the loss in question. Dror and Piesse (2014) observed that insurance involves a contract under which an insurer undertakes to pay an insured person a predetermined amount when they sustain financial loss caused by a predefined event, on the arrangement that the insured person makes an upfront payment of premium.

How many property owners in cities have insurance policies against flooding risk on their properties? Put in another way, how engrained is insurance culture among property owners in the flood-prone areas of cities? Such questions have been raised for Italy, with researchers querying the rate of natural hazards insurance penetration in the country (Gizzi, Potenza & Zotta, 2016). Wang, Liao, Yang, Zhao, Liu and Shi (2012) is also a study on the willingness of Chinese city residents to buy natural disaster insurance.

In Africa, city flood disaster management efforts have largely neglected insurance in their post-disaster recovery path (Onuoha, 2012; Adelekan, 2015). For economic recovery, city flood victims at regional and country levels tend to rely on personal resources, family, friends and community members, as well as on aid from government and donor agencies. However, such assistance is mostly inadequate, unsustainable and hardly gets to victims at the appropriate time (Adelekan, 2016; Ogunwusi et al., 2017; Moghalu, 2018; Idoko et al., 2020). According to Adelekan (2016) the Nigerian insurance industry is not playing an effective role in flood risk management; in fact, the study identified only 0.8% of insurance cover for properties facing flood risk in Lagos State.

If the target of creating "a world in which it is unacceptable not to have planned in advance" (University of Cambridge Institute for Sustainability Leadership, 2017) is to be achieved, then the present level of insurance culture must be raised. Accordingly, there have been renewed calls for the insurance industry to wake up to its responsibility as society's traditional risk manager (SwissRe, no date; European Insurance and Occupational Pensions Authority, 2021). In this regard, the International Council for Local Environmental Initiatives [ICLEI] (2020) and Sasson et al. (2021) suggest constructive partnerships between cities and insurance companies. The insurance industry should also seize the new opportunities presented by flood-risk insurance (Bueno et al., 2021; ThisDay, 2021). For Kaushalyaa et al. (2014), other suggested measures include sensitisation exercises for property owners and making flood insurance policies compulsory (Adelekan, 2015). While many people mistrust insurance companies on claims payment, Ogunwusi et al. (2017) identifies recent positive efforts at claims settlement, e.g., the 2017 claims settlement of holders of flooding risk insurance policies in Lekki, Lagos.

It has been shown that to achieve sustainable flood insurance coverage the limitations of the private insurance market for some very high-risk exposures require governmental collaboration with the private sector for insurance risk-sharing (Kleffner, 2022; Schanz, 2021). Microinsurance programmes such as Afat Vimo in India and Proshika in Bangladesh are being implemented in cities with large numbers of low-income earners (Mechler et al., 2006; Bhatt & Pathak, 2014; Islam, 2015). This initiative appears to be worth exploring for parts of Nigerian cities with low-income residents.

Moreover, certain international lines of assistance are available to Nigerian governments for scaling up flood-risk insurance across the country. A case in point is the yet-to-be-utilised African Development Bank's Africa Disaster Risk Financing Programme, run in collaboration with African Risk Capacity Group. The initiative promotes disaster response mechanisms and support for ADB-member countries for coverage of their insurance premiums (African Development Bank [ADB], 2021; Moghalu, 2018).

3.0 Research Method

3.1 The Study Area

The study area is Agiliti which is located in the Kosofe Local Government Area of Lagos State. It is a community situated behind Mile 12 International Food Market, Ikorodu Road, Ketu/Mile 12. Founded by the Ijebus, it is bounded to the North by Magodo, Mile 12 to the South, Maidan River and Maidan Community to the East and Agboyi-Ketu to the West (Aluko & Fadamiro, 2015). The Lagos State Government has identified it as one of the specific areas of the Lagos megacity that are particularly vulnerable to fluvial flood (Olisah, 2020).

3.2 Research Design

The study is cross-sectional, as it is "designed to look at how things are without any sense of whether there are trends and patterns of trends, with many cross-sectional studies being "exploratory or descriptive in purpose" (Umeh, 2008). Babbie (2013) notes that such fact-finding work investigates phenomena, situations, problems, attitudes or issues by focusing on a cross section of them at any one time.

Questionnaires were administered to heads of households in the area, and they answered questions regarding knowledge that Agiliti is flood-prone as well as life and property insurance coverage. To determine the solutions to the problem of envisaged low insurance culture/penetration in that flood-prone area, another research question posed was on awareness of factors that should motivate them and other Agiliti residents to take up flood-risk insurance policies. The data obtained were analysed using simple percentages.

3.3 Research Population, Sampling Design and Technique of Data Analysis

There is no current official population figure for Agiliti. However, according to Aluko and Fadamiro (2015), the area's population for the 1991 census was 8,297 – at a growth rate of 6.5%. The formular, $P(1 + i)^n$ (where P is the principal amount, i is the rate of increase and n is the number of years) has been adopted in compounding it to 2022 (31 years later). This translating to $8,297(1.065^{31})$, we have adopted 58,447 as the estimated population of Agiliti as at the time of writing (2022). We also wanted to determine the number of households/household heads. From Aluko and Fadamiro (2015) we obtained data (Table 1) from which we made extrapolations (Table 2) to arrive at our adopted number of households and their heads.

Table 1: Occupancy ratio (%) of dwellings

No. of persons per room	Agiliti (%)	Average (%)
1-2	10.47	15.13
3-5	55.43	51.45
5 and above	34.10	33.41
Total	**100**	**100**

Source: Aluko & Fadamiro (2015)

Table 2: Accommodation Type/No. of Households in Agiliti

Accommodation Type based on No. of persons per room (A)	Percentage of total Agiliti population (B)	Population of Accommodation Type (Total Agiliti Population 58,297 x B) (C)	Adopted Average No. of People within the Accommodation Type (D)	No. of Households (C/D) (E)
1-2	10.47%	6,119	2	3,060
3-5	55.43%	32,397	4	8,099
5 and above	34.10%	19,931	6	3,322
Total	**100%**	**58,8,297**	**N/A**	**14,481**

Source: Authors' extrapolation of data from Aluko & Fadamiro (2015)

From Table 2, the number of households in Agiliti is 14,481; therefore, 14,481 is the estimated number of heads of households in Agiliti. Consequently, the researchers have taken the study population to be 14,481 heads of households. The sample for the research was calculated using the Taro Yamane formula (Yamane, 1967):

$$\frac{N}{1 + N(e)^2}$$

where n= sample size required; N = number of people in the population and e = allowable error (%). With a 95% confidence level adopted, the research arrived at a sample size of 398 household heads in Agiliti for the study. This compares well with the sample size of 300 household heads in Agiliti, used in Aluko and Fadamiro (2015).

3.4 Technique of Data Analysis

The data analysis technique adopted is descriptive statistics, using simple percentages.

3.5 Data Presentation, Analysis and Discussion of Results

3.5.1 Data Presentation and Analysis

To determine how well the household heads know that Agiliti is vulnerable to annual flooding, the relevant question was posed to them. Table 3 shows the result.

Table 3: How well household heads know that Agiliti is liable to annual flooding

How well household heads know that Agiliti is vulnerable to annual flooding	No. of Household Heads
Very Well	319 (80.15%)
Well	70 (17.59%)
Somehow	4 (1.00%)
Not Quite	5 (1.26%)
Not, at all	0 (0%)
Total	**398 (100%)**

Source: Field Survey, 2022

Table 3 shows that almost all the household heads (over 97%) know that Agiliti is vulnerable to annual flooding.

To investigate the level of flood-risk insurance culture/penetration in Agiliti, the question was posed to the household heads as to which of the various flood risk-related insurance covers they have.

Table 4: Flood risk-related insurance covers held by households in Agiliti

Type of insurance policy	No. of households that have it	No. of households that do not have it	Total
Life Policy	40 (10.00%)	358 (90.00%)	398 (100.00%)
General household Property Insurance	0 (0.00%)	398 (100.00%)	398 (100.00%)
Policy against loss of/damage to building due to flood	0 (0.00%)	398 (100.00%)	398 (100.00%)
Policy against loss of household properties due to flood	0 (0.00%)	398 (100.00%)	398 (100.00%)
Policy against loss of income in time of flood	0 (0.00%)	398 (100.00%)	398 (100.00%)
General flood risk policy	0 (0.00%)	398 (100.00%)	398 (100.00%)

Table 4 shows that, except for life insurance cover which is held by only a negligible proportion of households (10.00%), none of the household heads (0%) had any insurance cover relating to flood risk.

Regarding the solution to the low level of flood-risk insurance culture/penetration, another question was posed to respondents on their perception of certain suggested solutions. The result is presented in Table 5.

Table 5: Factors that can make households and other Agiliti residents to take insurance policies

Factors that can make Households and other Agiliti residents to take insurance policies	No. of Household Heads that saw it as Very High	No. of Household Heads that saw it as High	No. of Household Heads that saw it as Average	No. of Household Heads that saw it as Low	No. of Household Heads that saw it as Very Low	Total
Awareness campaign on the importance of insurance to residents of flood -prone areas.	160 (40.20%)	81 (20.35%)	39 (9.80%)	37 (9.30%)	81 (20.35%)	398 (100.00%)
Intensive marketing of flood -risk insurance by insurance companies to Agiliti residents	107 (26.88%)	176 (44.22%)	0 (0.00%)	47 (11.81%)	68 (17.09%)	398 (100.00%)
Erasing of the perception Nigerians have about insurance companies not being trustworthy regarding payment of claims	214 (53.77%)	125 (31.41%)	5 (1.26%)	43 (10.80%)	11 (2.76%)	398 (100.00%)
Sharing of the burden of paying insurance premium between the residents and any other agency such as government or philanthropists	166 (41.71%)	81 (20.35%)	39 (9.80%)	37 (9.30%)	75 (18.84%)	398 (100.00%)

As Table 5 shows, respondents agreed with some of the solutions to various levels, namely: (i) Erasing of the perception Nigerians have about insurance companies not being trustworthy regarding payment of claims (85.18%); (ii) Intensive marketing of flood-risk insurance by insurance companies to Agiliti residents (71.10%); (iii) Sharing of the burden of paying insurance premium between residents and any other agency such as government or philanthropists (62.06%), and (iv) Awareness campaign on the importance of insurance to residents of flood-prone areas (60.55%).

3.5.2 Discussion of Results

That almost all the household heads (over 97%) know that Agiliti is vulnerable to annual flooding shows that the problem is real. However, the discovery that a very negligible proportion of the households (10%) has life insurance and none holds the other flood-risk-related insurance covers is a confirmation of the findings in UNDRR (2021), Orimisan (2020) and University of Cambridge Institute for Sustainability Leadership (2017). Generally, insurance companies in West African cities have been accused of failing to play their expected role in flood-risk management. The finding is also a confirmation of Adelekan (2016), which shows that the insurance industry has not played a significant role in flood-risk management in Lagos and the country at large. Also confirmed is the study conducted across all Local Government Areas in Lagos State which found that only 0.8% of respondents insured their properties against flood risk.

These findings implicate the managers of Nigerian cities at the Local and State levels of governance. Huang and Fan (2020) criticized such managers for not ensuring the existence of resilience-based post-disaster recovery plans or guidelines, as well as for not focusing on financial costs in choosing a recovery path. Oladokun and Proverbs (2016), Nkwunonwo et al. (2015) and Adelekan (2015) also faulted the city managers in Nigeria for not combining the usual structural measures to flood-risk management with non-structural measures, such as insurance, advocacy, education, stakeholders' participation and consultation.

The implication of this low flood-risk insurance culture in Agiliti is that if the trend is not checked, for economic recovery, flood victims in the area will continue to rely heavily on individual resources, family, friends and community members, as well as on relief from government and donor agencies - support which most times, has proved to be inadequate, unsustainable and does not reach victims at the right time (Ouikotan et al., 2017; Adelekan, 2016; Ogunwusi et al., 2017; Moghalu, 2018; Idoko et al., 2020).

In the light of the foregoing, it would be necessary to suggest a few solutions. One, there is need to work on Nigerians' perception of insurance companies as hesitant about paying claims. Two, there should be intensive marketing of flood-risk insurance to Agiliti residents. Three, governments/philanthropists and residents may split the cost of premiums. Five, awareness campaigns should be launched on the importance of insurance to residents of flood-prone areas.

The suggestions on intensive marketing of flood-risk insurance to Agiliti residents and the launching of awareness campaigns on the importance of insurance are in line with SwissRe (no date), Bueno et al. (2021) and *ThisDay* (2021), who called for the insurance industry to seize the new opportunities presented by flood-risk insurance. Furthermore, Sasson et al. (2021) suggested drawing up an effective city resilience plan, in collaboration with the insurance industry, while ICLEI (2020) suggested engaging the insurance sector around urban needs, capacities and data. Further studies in this area are Adelekan (2015) and Kaushalyaa et al. (2014), which suggest that property owners should be sensitised on the need to insure their assets, even as government is expected to make flood insurance policies compulsory for residents. As for dealing with the image problem of insurance companies, this agrees with Ogunwusi et al. **(**2017**),** wherein it is suggested to highlight the high payment of claims as happened in the 2017 Lekki flooding case.

Regarding the sharing of insurance premium between residents and government/philanthropists, this study agrees with Kleffner (2022) and Schanz (2021) on the need for public-private partnership on risk sharing and development of microinsurance programmes such as Afat Vimo and the Scaled-up Proshika scheme shown in Mechler et al. (2006). It also speaks to the call on the Nigerian government to leverage on international financing, such as through the ADB's ARC (ADB, 2021; Moghalu, 2018).

4.0 Conclusion

This study addresses the role of insurance in ensuring that victims of flood disasters are able to recover economically in a timely, dignified and sustainable manner. In the case of Nigeria's Agiliti, located in the Ketu area of Lagos State, residents of flood-prone areas are grossly under-invested in flood-risk insurance. Given the severe threat from climate change, concerted efforts must be made towards improving resilience in African cities. As city managers, government should drive the needed change by increasing their capacity for handling issues of city resilience and taking full advantage of external flood-risk insurance financing, such as that provided by the African Development Bank's ARC. As this study found, the Nigerian insurance industry needs to shore up its image as a veritable source of solutions on flooding risk. Moreover, residents of places such as Agiliti, need to show more interest in flood-risk insurance matters.

References

African Development Bank (2021). African Development Bank's Africa Disaster Financing Program receives $2.5 million pledge from United States. Retrieved March 9, 2022 from https://www.afdb.org/en/news-and-events/press-releases/african-development-banks-africa-disaster-risk-financing-program-receives-25-million-pledge-united-states-46718.

Adelekan, I. O. (2015). Flood risk management in the coastal city of Lagos, Nigeria. *Journal of Flood Risk Management*. Retrieved March 9, 2022 from https://doi.org/10.1111/jfr3.12179.

Adelekan, I. O. (2016). Flood risk management in the coastal city of Lagos, Nigeria. Journal of Flood Risk Management, 9(3), 255–264. Retrieved March 9, 2022 from https://doi.org/10.1111/jfr3.12179.

Adelekan, I. O., & Asiyanbi, A. P. (2016). Flood risk perception in flood-affected communities in Lagos, Nigeria. Natural Hazards, 80(1), 445–469. Retrieved March 9, 2022 from https://doi.org/10.1007/s 11069-015-1977-2.

Aluko, O. O. & Fadamiro, J. A. (2015). Urbanization and Sustainable City Development: A Study of Agility and Panada in Lagos Metropolis. Civil and Environmental Research, 7 (5).

Babbie, E. (2013). The Practice of Social Research. Cengage Learning, Boston, 609p.

Bhatt, M. R. & Pathak, V. (2014). Risk transfer through microinsurance: Lessons Learnt and Evidence from Phailin Cyclone Affected Community. Retrieved June 29, 2023 from https://www.preventionweb.net/english/hyogo/gar/2015/en/bgdocs/inputs/Mihir%20et%20al,%202014.%20Risk%20tranfer%20through%20microinsurance.pdf.

Bueno, S., Bañuls, V. A. & Gallego, M. D. (2021). Is urban resilience a phenomenon on the rise? A systematic literature review for the years 2019 and 2020 using textometry. International Journal of Disaster Risk Reduction, 66 (102588). Retrieved March 9, 2022 from https://doi.org/10.1016/j.ijdrr. 2021.102588.

Centre for Climate and Energy Solutions (no date). Extreme Precipitation and Climate change. Retrieved August 6, 2022 from https://www.c2es.org/content/extreme-precipitation-and-climate-change/

Dror, D. M. & Piesse (2014). What is Microinsurance? Retrieved March 9, 2022 from https ://www.researchgate.net/publication/272299820_What_is_Microinsurance.

Duy, P (2018). Urban Resilience to Floods in Coastal Cities: Challenges and Opportunities for Ho Chi Minh City and Other Emerging Cities in Southeast Asia. Journal of Urban Planning and Development, 144 (1).

European Insurance and Occupational Pensions Authority (2021). Moving to green: how Insurance is the risk manager of society. Retrieved June 29, 2023 from https://www.eiopa.europa.eu/publications/moving-green-how-insurance-risk-manager-society_en.

Gizzi, F. T., Potenza, M. R. & Zotta, C. (2016). The Insurance Market of Natural Hazards for Residential Properties in Italy. Open Journal of Earthquake Research, 5 (1).

Huang, G. & Fan, J. (2020). Move from Resilience Conceptualization to Resilience Enhancement. Retrieved March 9, 2022 from http://www.intechopen.com/chapters/74114.

Idoko, I. F., Teru, S. P. & Kwanti, A. A. (2020). Flood Insurance and Urban Flood Disaster Risk Management in Nigeria: A Study of Jalingo, Taraba State. International Journal of Advanced Studies in Economics and Public Sector Management, 8 (1), 2354-4228.

International Council for Local Environmental Initiatives [ICLEI]-Local Governments for Sustainability (2020a). How cities can better manage risks and save money, lives and carbon emissions. Retrieved March 9, 2022 from https://talkofthecities.iclei.org/how-cities-can-better-manage-risks-and-save-money-lives-and-carbon-emissions/.

International Council for Local Environmental Initiatives [ICLEI]-Local Governments for Sustainability (2020b). Insurance companies and cities; Allies in urban resilience. Retrieved March 9, 2022 from https://talkofthecities.iclei.org/insurance-companies-and-cities-allies-in-urban-resilience/.

Islam, M. R. (2015). NGOs' Social Capital Development Initiatives for Social Welfare: Bangladesh Experience. Glob Soc Welf 2, 167–176. Retrieved June 29, 2023 from https://doi.org/10.1007/s 40609-015-0034-0.

Kaushalyaa, H., Karunasenaa, G. & Amarathunga, D. (2014). Role of insurance in post disaster recovery planning in business community. Paper delivered at the 4th International Conference on Building Resilience, Building Resilience 2014, 8-10 September 2014, Salford Quays, United Kingdom. Procedia Economics and Finance 18 (2014) 626–634.

Kleffner, A. E. (2022), Insurance isn't enough: Governments need to do better on natural disaster resilience. Retrieved March 9, 2022 from https://ucalgary.ca/news/insurance-isnt-enough-governments-need-do-better-natural-disaster-resilience

Lagos Bureau of Statistics. (2016). Household Survey 2016. Lagos State Government. Retrieved March 9, 2022 from http://mepb.lagosstate.gov.ng/wp-content/uploads/sites /29/2020/08/House-Hold-REPORTY2016.pdf.

Mechler, R., Linnerooth-Bayer, J. & Peppiatt, D (2006). Disaster Insurance for the Poor? A review of microinsurance for natural disaster risks in developing countries. Retrieved March 9, 2022 from https://www.preventionweb.net/files/2059_VL108400.pdf.

Moghalu, C. (2018). The ARC plans to insure 30 African countries against climate risks by 2020. Retrieved March 9, 2022 from https://reliefweb.int/report/world/arc-plans-insure-30-african-countries-against-climate-risks-2020.

Nkwunonwo U. C, Malcolm, W., & Brian, B. (2015) Flooding and Flood Risk Reduction in Nigeria: Cardinal Gaps. *J Geogr Nat Disast,* 5 (136).

Ogunwusi, B., Ebong, C., Koiki, O., Nzeako, I. & Asabor, I. (2017). Curbing Flood Financial Loss through Insurance. Retrieved March 9, 2022 from https://independent.ng/curbing-flood-financial-loss-through-insurance/

Oladokun, V. O., & Proverbs, D. (2016). Flood risk management in Nigeria: a review of the challenges and opportunities. *International Journal of Safety and Security Engineering*, 6(3), 485–497.

Olisah, C. (2020). Lagos cautions residents on release of water from Oyan dam, warns of flood disaster. Retrieved April 19, 2022 from https://nairametrics.com/2020/10/05/lagos-cautions-residents-on-release-of-water-from-oyan-dam-warns-of-flood-disaster/.

Onuoha, R. (2012). Impending flood: Insurance gets zero consideration. Retrieved March 9, 2022 from https://www.vanguardngr.com/2012/06/impending-flood-insurance-gets-zero-consideration/

Orimisan, B. (2020). Insurance brokers harp on policy for disaster management. Retrieved March 9, 2022 from https://guardian.ng/business-services/insurance-brokers-harp-on-policy-for-disaster-management/

Ouikotan, R. B., van der Kwast, J., Mynett, A., & Afouda, A. (2017). Gaps and challenges of flood risk management in West African coastal cities. XVI World Water Congress. Retrieved March 9, 2022 from https://iwra.org/member/congress/resource/ABSID329_ABSID329_full_paper.pdf.

Sasson, I., Choi, J., Richmond, M., Upadhyaya, N. & Pastor, A. O (2021). Building Climate Resilience in Cities Through Insurance. Retrieved March 9, 2022 from https://www.climatepolicyinitiative.org/wp-content/uploads/2021/10/Building-Climate-Resilience-in-Cities-Through-Insurance.pdf.

Schanz, K. (2021). Future Urban Risk Landscapes: An insurance perspective. Retrieved March 9, 2022 from https://www.genevaassociation.org/sites/default/files/research-topics-document-type/pdf_public/future_urban_risk_web.pdf.

SwissRe (no date). Building Climate Resilience in Cities: Priorities for Collaborative Action Retrieved March 9, 2022 from https://www.swissre.com/dam/jcr:873f3680-46c9-477c-98dc-54838f71ef17/Priorities-for-Collaboration.pdf.

ThisDay newspaper (2021). The Challenge of Claims from Emerging Risks. Retrieved March 9, 2022 from https://www.thisdaylive.com/index.php/2021/08/18/the-challenge-of-claims-from-emerging-risks/.

Umeh, O. L. (2008). Research Methodology. Lagos: Unilag Press and Bookshop Ltd. P. 51

United Nations Office for Disaster Reduction (UNDRR) (2021). Climate Resilience Insurance for Cities: The Way Forward. Retrieved March 9, 2022 from https://www. preventionweb.net/event/climate-resilience-insurance-cities-way-forward.

University of Cambridge Institute for Sustainability Leadership (2017). Background briefing: Urban resilience and insurance Retrieved March 9, 2022 from https://www.cisl.cam.ac.uk/system/files/documents/background-briefing-urban-resilience-and-insurance.pdf.

Wang, M., Liao, C., Yang, S., Zhao, W., Liu, M. & Shi, P. (2012). Are people willing to buy natural disaster insurance in China? Risk awareness, insurance acceptance, and willingness to pay. Retrieved March 9, 2022 from https://espre.bnu.edu.cn/teacher/pro-shi/papers/articals/FullPaper_after_review_revised_Fom1_2012-1-23.pdf.

Yamane, Taro (1967). *Statistics – An Introductory Analysis*, 2nd ed. New York: Harper and Row.