



SOCIO-ECONOMIC DETERMINANTS OF CLIMATE CHANGE VULNERABILITY IMPACTS AND ADAPTIVE CAPABILITIES OF RESIDENTS OF RIVERINE COMMUNITIES IN NIGERIA

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Figure 1

Ogun Riverine communities in Southwestern Nigeria.

INTRODUCTION

The Riverine communities in Nigeria that cut across the six geo-political zones are facing negative climate change impacts. These communities have over 10,000 km of inland waterways encompassing rivers, creeks, lagoons, lakes (natural and man-made), and intra-coastal water whose source is the two main rivers Niger and Benue. The residents engaged in farming, fishing, and transportation (ferry) activities for the movement of goods and services; as means of livelihood. Due to the homogeneity of the Riverine population across Nigeria, vulnerabilities and adaptive capabilities study was carried out among Lagos and Ogun Riverine communities in Southwestern Nigeria.

AIM AND OBJECTIVES

The study aimed to assess the climate change vulnerabilities impacts and adaptive capabilities among Fishermen, Farmers, and Ferryman residing in these Riverine communities of Lagos and Ogun State. The study further determined if the demographic characteristics of residents influenced their vulnerabilities and adaptive capacities as individuals or communities. Then, the study proposes an adaptive model(s) for addressing climate change vulnerability impact and adaptive capacities in the study area and the model(s) can be applied in other parts of Nigeria.

METHODOLOGY

Mixed methodologies of the household survey, formal interview, and informal interactions, fieldwork (traveling with fishermen and ferryman) were adopted to elicit information from fishermen, farmers, and ferryman from selected Riverine communities in Lagos and Ogun state in Southwest Nigeria. One thousand and hundred (1100) respondents took part in the study (500 fishermen, 500 farmers, and 100 ferry men). The validated research instrument, the questionnaire was used to acquire the socio-economic variables - sex, age, year of experience, average income, level of education, marital status, and the number living in the household of the respondents that were randomly selected across Badagry (6.4183° N & 2.8901° E), Epe (6.5867° N, 3.9700° E), Ijofin (6.4723° N & 2.7456° E), Iwopin (6.5103° N, 4.1898° E), Iyaafin (6.4688° N & 2.8926° E), Ode-Omi (6.4066° N & 4.3354° E), and Onfo (6.5428° N & 2.8721° E). Key Questions raised were (1) Is climate or weather negatively affect your occupation? (2) Are you safe now when working unlike before? (3) Is your income affected by the weather and climate? (4) Do you consider leaving the job because of weather and climate change? (5) Do



Figure 2

you have a fear or concern with your occupation? (6) Are you experiencing any difficulties in coping with the situations? (7) What are the solutions to the problem? (8) Do you want government and external support? (9) What support do you want? The data collected were analyzed by descriptive statistics to identify similar responses from the respondents.

income, dwellings, and livelihoods were major elements of economic, social, physical, and environmental vulnerabilities facing the residents as a result of climate change impacts with consequences of direct and indirect losses. The loss of farmland as a result of flooding and increased water bodies level, loss of life due to boat capsizing due to extreme weather conditions coupled with lack of infrastructure, aging boats that cannot withstand, the extreme weather conditions on the waterways, while the responses of the fishermen were decreases of harvest, loss of some species of fishes, and those practicing aquaculture closed to water bodies do experience loss when flood does wash away the fishes they rear. The results on the adaptive capacities, to which the impacts of climate change can be reduced among the communities, showed that the residents rely on their traditional and local knowledge to handle and cope with the impacts, the do argument on the income level through formation of cooperative and thrifts association to boost their economic activities among others.



Figure 3

measures with the government and relevant non-governmental organizations getting involved in reducing climate change vulnerability impacts. More so, there is a need for government presence and intervention in these communities to support socio-economic activities that form the people's livelihood and indirectly contribute to National Development. Then, the development of traditional and local indigenous knowledge models is proposed to tackle the climate change impacts in these communities.

RESULTS AND DISCUSSION

The results from descriptive statistical analysis of the data collected showed that over ninety-five (95%) of the respondents indicated that the reduction or loss of income, dwellings, and livelihoods were major elements of economic, social, physical, and environmental vulnerabilities facing the residents as a result of climate change impacts with consequences of direct and indirect losses. The loss of farmland as a result of flooding and increased water bodies level, loss of life due to boat capsizing due to extreme weather conditions coupled with lack of infrastructure, aging boats that cannot withstand, the extreme weather conditions on the waterways, while the responses of the fishermen were decreases of harvest, loss of some species of fishes, and those practicing aquaculture closed to water bodies do experience loss when flood does wash away the fishes they rear. The results on the adaptive capacities, to which the impacts of climate change can be reduced among the communities, showed that the residents rely on their traditional and local knowledge to handle and cope with the impacts, the do argument on the income level through formation of cooperative and thrifts association to boost their economic activities among others.

CONCLUSION

The study concluded that demographic characteristics of residents influenced their vulnerabilities and adaptive capacities as individuals or communities; there that there is a need for anticipatory, reactive, and institutional of cooperative and thrifts association to boost their economic activities among others.

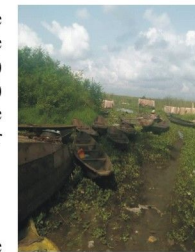


Figure 4

Amos, E., Akpan, U., & Ogunjobi, K. (2015). Households' perception and livelihood vulnerability to climate change in a coastal area of Akwa Ibom State, Nigeria. *Environment, development and sustainability*, 17(4), 887-908.

Ani, K.J., Anyika, V.O. & Mutambara, E. (2022), "The impact of climate change on food and human security in Nigeria", *International Journal of Climate Change Strategies and Management*, Vol. 14 No. 2, pp. 148-167. <https://doi.org/10.1108/IJCCSM-11-2020-0119>

Babatunde, A.O (2020) Oil pollution and water conflicts in the riverine communities in Nigeria's Niger Delta region: challenges for and elements of problem-solving strategies, *Journal of Contemporary African Studies*, 38:2, 274-293, DOI: [10.1080/02589001.2020.1730310](https://doi.org/10.1080/02589001.2020.1730310)

Eyankware, M.O & Ephraim, B.E (2021) A Comprehensive Review of Water Quality Monitoring and Assessment in Delta State, Southern Part of Nigeria *Journal of Environmental & Earth Sciences* Volume 03 Issue 01

Haider, H. (2019) Climate change in Nigeria: Impacts and responses. K4D Helpdesk Report 675. Brighton, UK: Institute of Development Studies

Ikpe, E. (2022) An Assessment of Rural Farmers' perception and Adaptation Strategies to Climate Change in Niger State, Nigeria. *Osun Geographical Review*, 1(1).

Medugu, IN, Majid, MR & Leal Filho, W (2014) Assessing the vulnerability of farmers, fishermen and herdsman to climate change: a case study from Nigeria. *International Journal of Global Warming*, 6. ISSN 1758-2083

Moore, E, Udom, G., Ngobiri, N and Osuji, L., (2020) Biophysicochemical Efficiency Of A Locally Designed Sewage System For Treatment Of Impacted Waters Of Sombriero River In Niger Delta, Nigeria. *International Journal of Advanced Engineering and Management Research* Vol. 5, No. 03; 2020

Olagunju, T.E, Adewoye, S.O, Adewoye, A.O & Opasola, O.A (2021) Climate Change Impacts on Environment: Human Displacement and Social Conflicts in Nigeria 4th International Conference on Science and Sustainable Development (ICSSD 2020) IOP Conf. Series: Earth and Environmental Science 655 (2021) 012072 IOP Publishing doi:10.1088/1755-1315/655/1/012072

Olopade, O.A & Dienye, H.E (2020) Present status and approach for sustainable management of riverine fisheries of Nigeria *JIFSI* 2020 52 (2): 139-149 <http://dx.doi.org/10.47780/jifsi.52.2.2020.109937>

REFERENCES

Akinsemolu, A.A & Olukoya, O A.P. (2020) The vulnerability of women to climate change in coastal regions of Nigeria: A case of the Ilaje community in Ondo State, *Journal of Cleaner Production*, Volume 246, 2020,119015,ISSN 0 9 5 9 - 6 5 2 6 , <https://doi.org/10.1016/j.jclepro.2019.119015>.

Ambrose A. Z. and Mohammed B. Y (2020) Assessing the Vulnerability and Adaptive Capacity of Rural Farmers to Climate Change in Girei Local Government Area, Adamawa State, Nigeria *Nigerian Annals of Pure and Applied Sciences NAPAS* Vol. 3 No 2, June, 2020 pp 141-150

Fig. 1: Showing one of the Riverine Communities Fig. 2: Showing abandoned canoe due to unfavourable water condition and fault engine Fig. 3: Showing Respondents at one of the Communities Fig. 4: Showing Abandoned Harbour due to people not using the water body for transportation

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