

Presented at the FIG e-Working Week 2021,
21-25 June 2021 in Virtually in the Netherlands

SMART SURVEYORS FOR LAND AND WATER MANAGEMENT CHALLENGES IN A NEW REALITY



e WORKING WEEK 2021
20-25 JUNE

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Paper ID-11091

Assessing Social Vulnerability to Floods and Coping Strategies in Adamawa Catchment, Nigeria.

22 June, 2021; time: 08:00 – 09:30

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INTRODUCTION

- **Flooding** is a well-known seasonal problem in Adamawa catchment which usually exposes the people to different risks. More communities are becoming more vulnerable in recent times.
- **Destructive impacts of flooding**
 - Disruption of Farming activities
 - Loss of lives and properties
 - Displacement of residents
- The concept of vulnerability is very important when it comes to issues of flooding and quantification of their impact on man and the environment.



- This study assesses social vulnerability to flooding and coping strategies adopted by the human dwellers in the Adamawa catchment.
- Participatory Vulnerability Approach (PVA) is used to assess the human dimensions involved in investigating flood vulnerability and coping strategies; data from emergency records





STUDY AREA

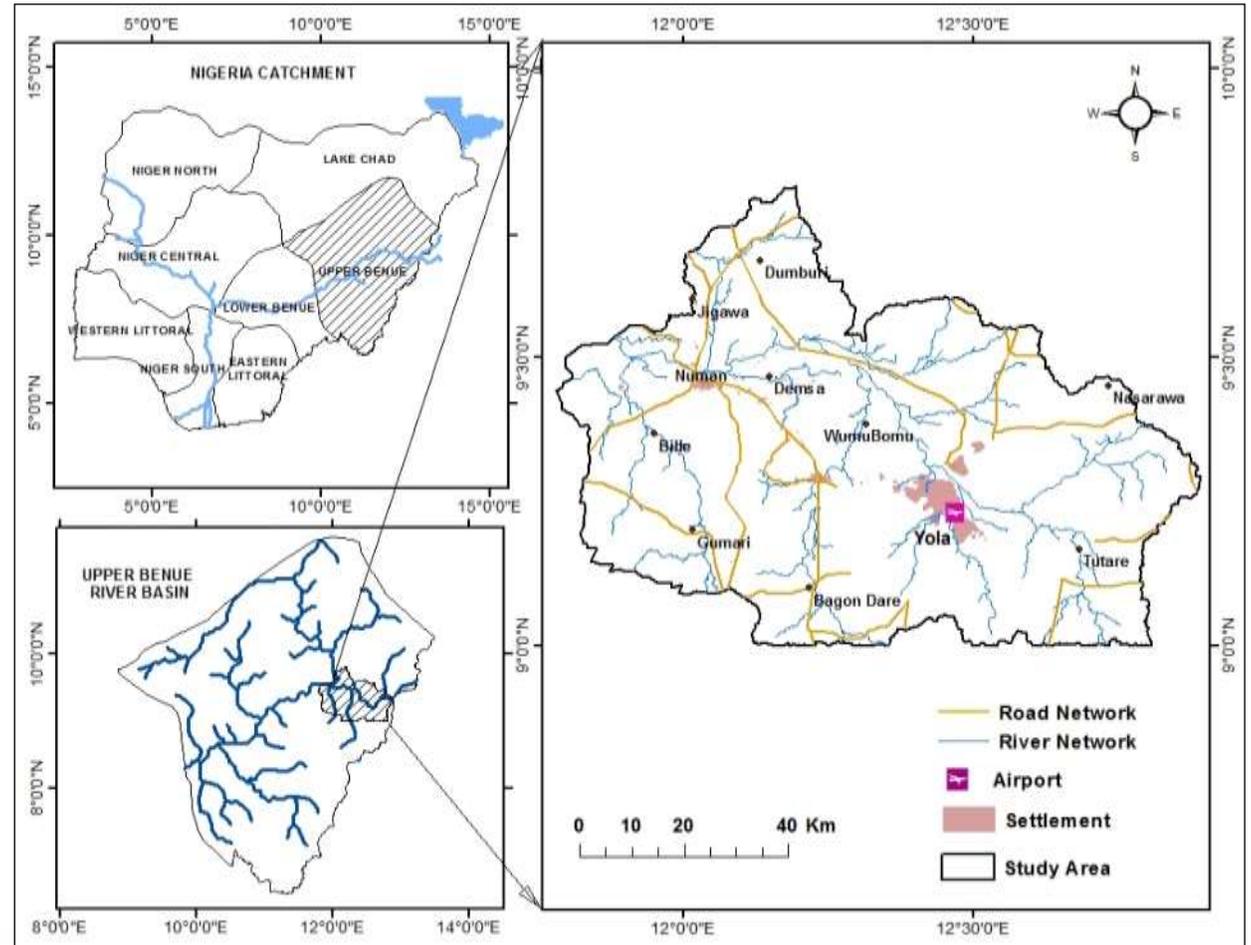
Location

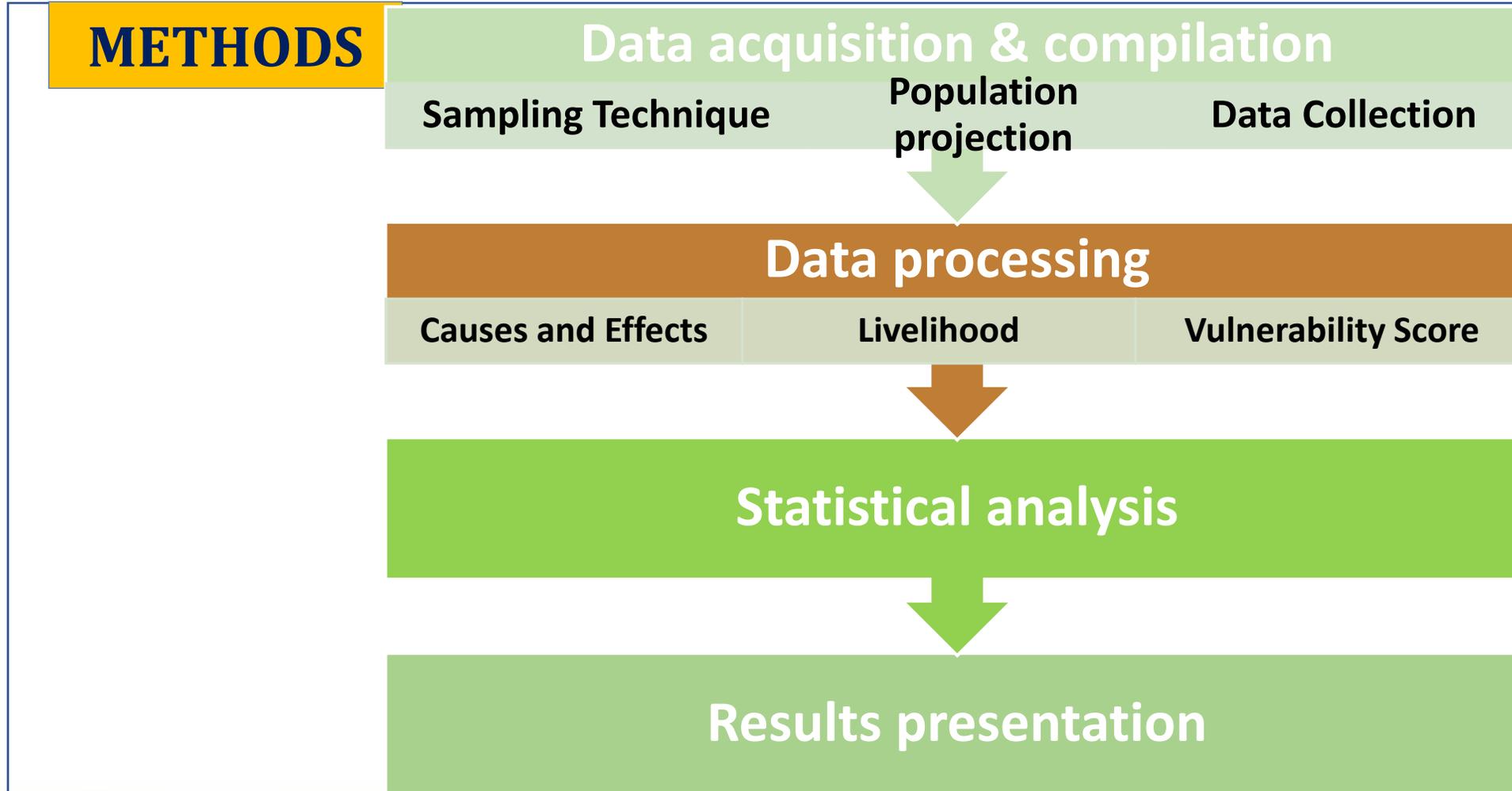
Along Upper Benue Drainage
Basin

Extent

Longitude:- $11^{\circ} 46' E - 14^{\circ} 14' E$

Latitude:- $8^{\circ} 37' N - 9^{\circ} 41' N$

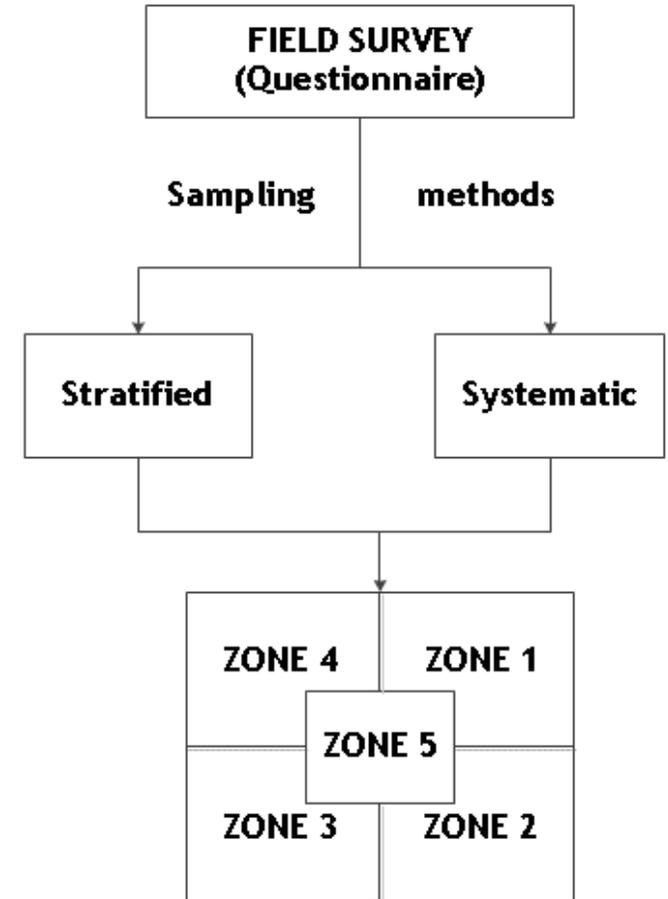






SAMPLING TECHNIQUE

- A structured questionnaire was used as the instrument for data collection using a stratified and systematic sampling technique.
- The investigated area was stratified into seven areas
- Quadrants was imposed to give five zones for good spatial spread with 237,457 households



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S/N	Area	Number of Households	No. of Questionnaires	Percentage (%)
1	Demsa	37,498	67	15.8
2	Fufore	44,025	79	18.6
3	Gombi	29,062	52	12.2
4	Lamurde	19,604	35	8.2
5	Numan	24,062	43	10.1
6	Yola North	41,968	75	17.7
7	Yola South	41,238	74	17.4
Total		237,457	425	100

Ranking according to number of households



DATA COLLECTION

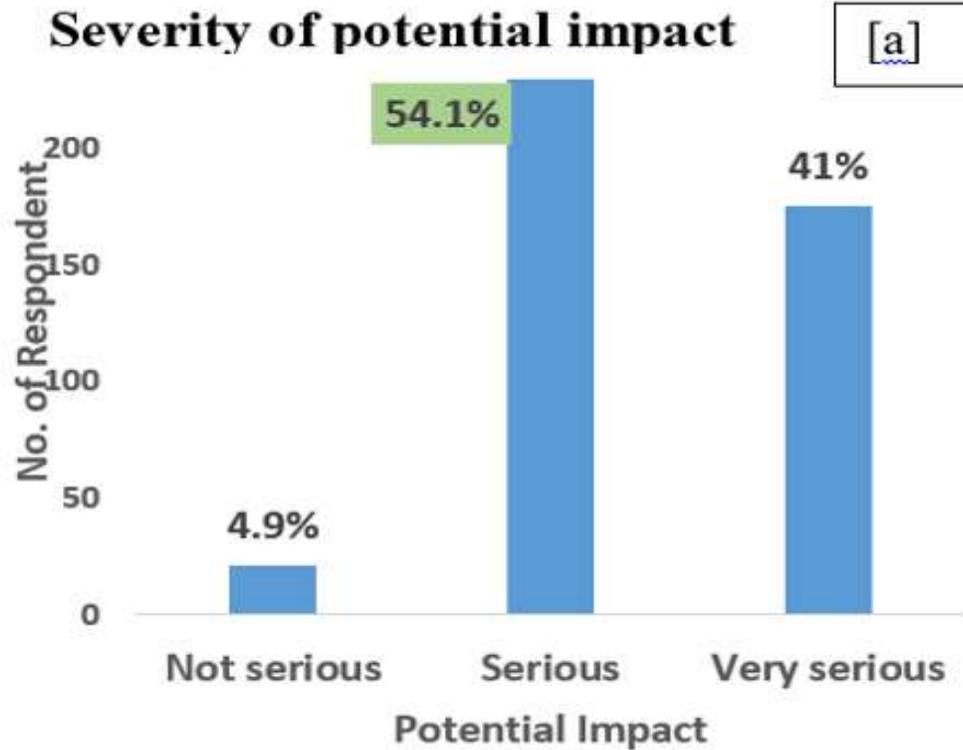
- A total of 425 questionnaires were administered to members of the communities.
- The questionnaire was designed to retrieve:
 - Demographic,
 - socio-economic, and
 - livelihood data

DATA ANALYSIS

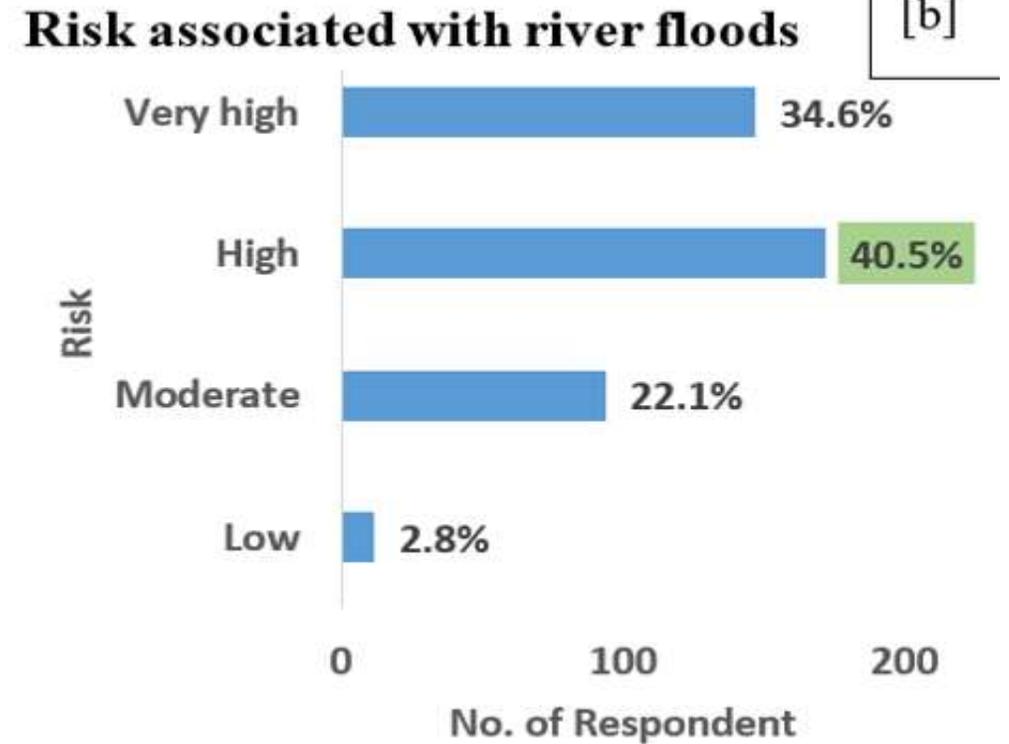
- This study makes use of descriptive statistical tools of frequency counts and percentages
- The final vulnerability scores (VS) were computed using
- $VS = (Frequency + Area\ of\ Impact) \times Magnitude$



RESULTS



(a) Severity of potential impact



(b) Risk associated with river floods in the basin



Group	Frequency	Percentage (%)	Cumulative Percentage (%)
Rural dwellers	217	51.10	51.10
Urban dwellers	15	3.50	54.60
Farmers	102	24.00	78.60
Traders	18	4.20	82.80
Fishermen	73	17.20	100.00
Total	425	100.00	

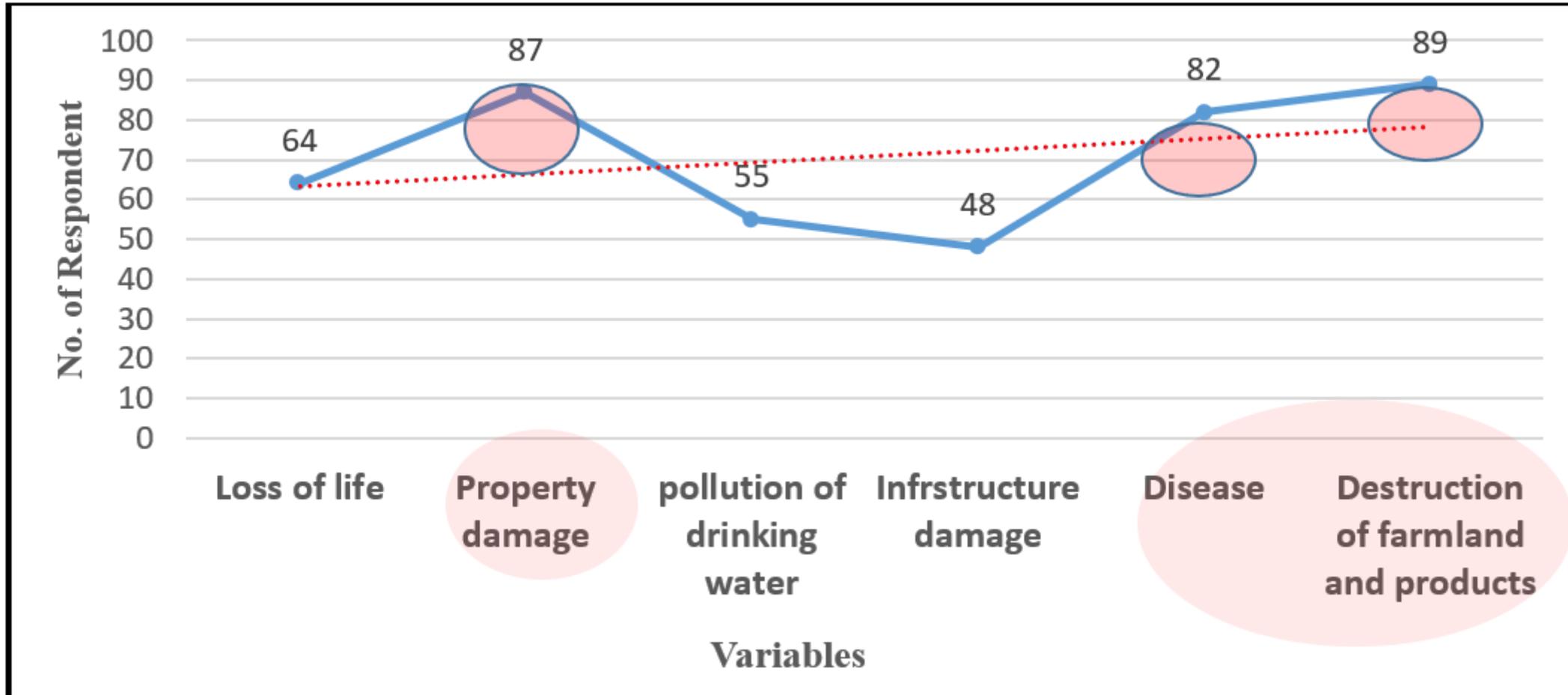
People mostly at risk of flood hazards



Causes of flood problem in Adamawa	No. of Respondents	Percentage (%)
Heavy rain	109	25.60
Release of water from dam	171	40.20
Impervious surfaces	64	15.10
Channel blockage	81	19.10
Total	425	100.00

Causes of floods

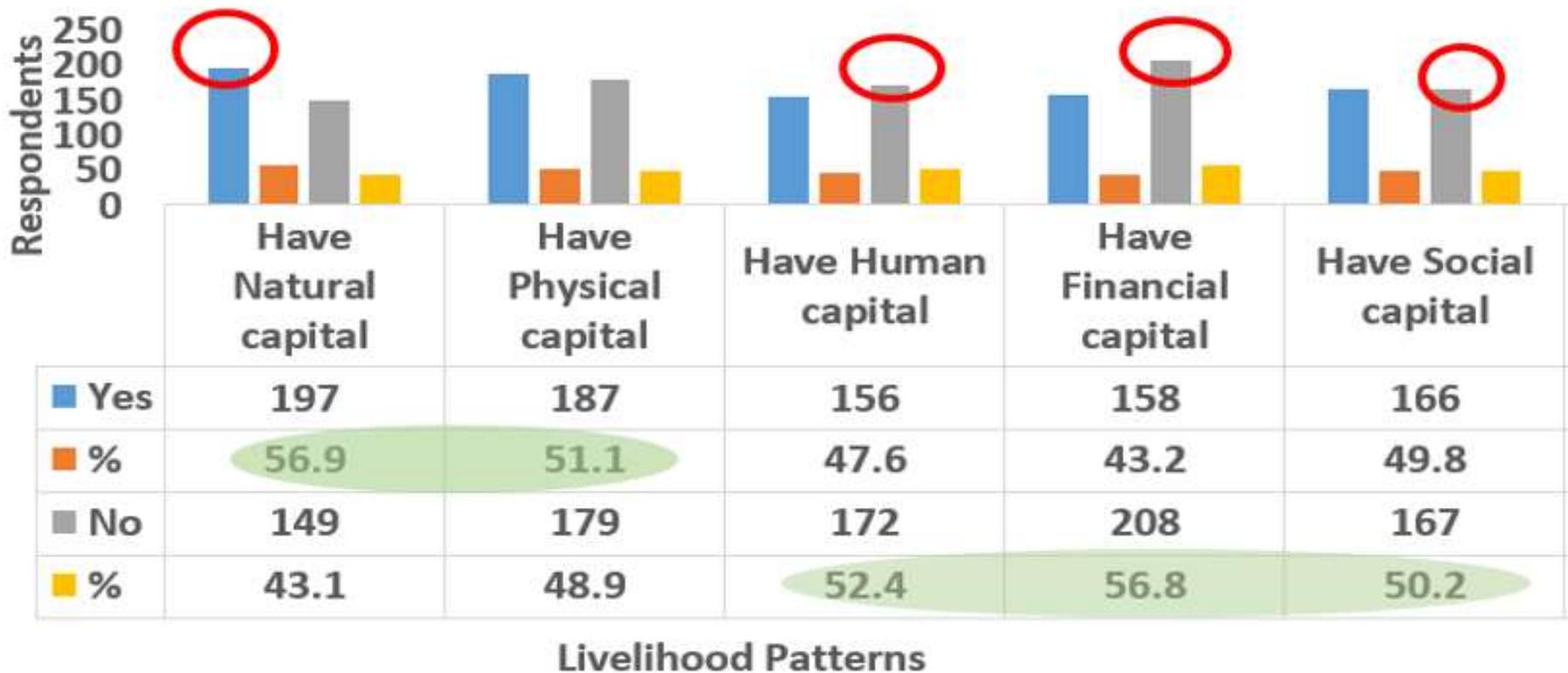
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Effects of flood in livelihood of victims



Livelihood pattern of people living with floods



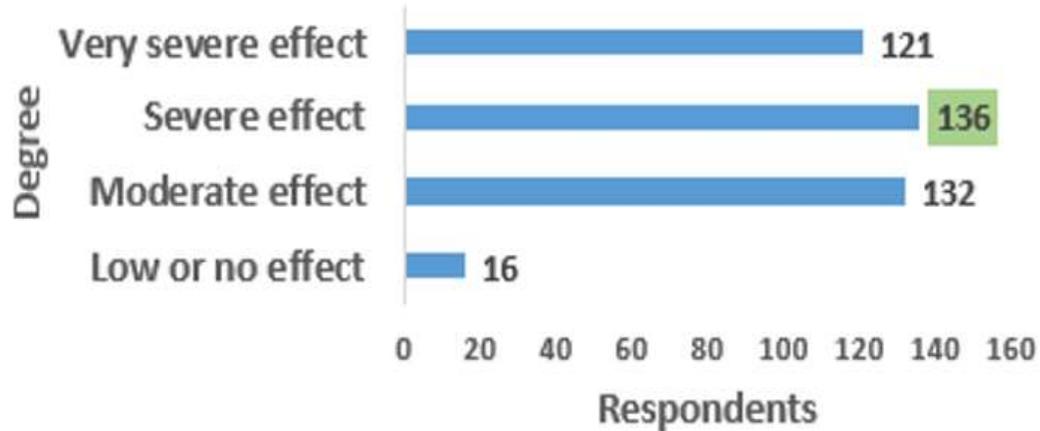
Livelihood pattern of people living with floods

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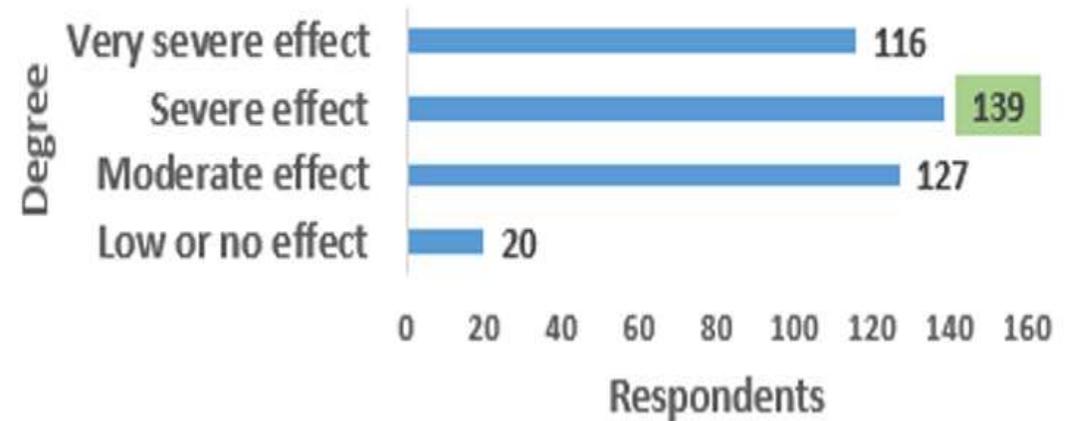
Degree to which natural resources are affected by flood

[a]



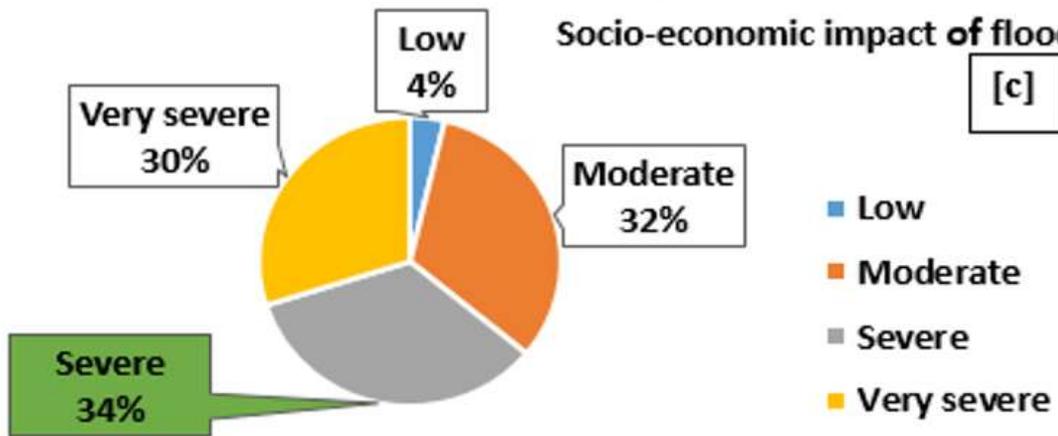
Degree to which physical resources are affected by flood

[b]



Socio-economic impact of flood

[c]



- (a) Degree to which natural resource;
- (b) physical resources are affected by flood and
- (c) Percentage response on socio-economic impact of flood



- The results show that rural dwellers are mostly at risk of flood hazard.
- The vulnerability score revealed that the agricultural sector is the most vulnerable with 32.8% for both cultivated and irrigated land.
- Biodiversity and forests are the least vulnerable sectors with 3.3% each.
- Analysis of livelihood patterns of people living with flood shows evidence of the presence of natural capital (56.9%).



- Findings on the socio-economic impact of flood based on degree of physical and natural resources affected show severe effect (34%).
- The capacity to cope with floods were mainly between self-support and government support.
- Analysis of livelihood resources available to cope with flood impact shows that all the resources were of medium availability;
 - Economic (39.5%)
 - Human capital (38.1%),
 - Social and institutional capacity (33.2%).



CONCLUSION

These findings contribute to the body of knowledge on flood vulnerability in Nigeria and provides crucial insights to government and stakeholders in adopting a holistic strategy to tackle the flood hazard.

An additional recommendation is for the government to adopt citizen-centred and public participatory approaches in the planning and implementation of disaster management projects to ensure their continued sustainability.

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