

**ASSESSMENT OF COPING STRATEGIES IN FLOOD-PRONE AREAS AMONG WOMEN FARMERS IN IBADAN METROPOLIS, OYO STATE, NIGERIA.**

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**ABSTRACT**

People are becoming increasingly vulnerable as the urban population increases and the pro-poor ones are pushed into the fragile areas which are prone to flooding. The study aimed to assess the coping strategies in flood prone areas among women farmers in Ibadan metropolis, Oyo state, Nigeria. Multi-stage sampling techniques were used to select eighty one (81) respondents in the study area. Data were collected with the aids of interview schedule and analysed with both descriptive and inferential analysis. The result obtained shows that the level of coping strategies by the respondent's was high as 74.07% adopted various coping strategies to survive flood in the study. The result further revealed that significant relationship between age of the respondents ( $P=6.098$ ,  $X^2=0.047$ ), marital status ( $P=10.328$ ,  $X^2=0.016$ ) as well as experience of the respondents ( $P=14.210$ ,  $X^2=0.001$ ) and coping strategies adopted in the study area. The study concluded that respondents adopted more than one coping strategies to combat the effect of flood on their farming activities which are more or less temporary measures. It is therefore recommended that updating information by government agents on permanent coping strategies should be given to the respondents. Also, people should be encouraged to plant trees regularly so as to protect the area against frequent flood.

**Keywords:** Flood, Women, Farmers. Coping Strategies, Vulnerability

**INTRODUCTION**

Flood could be regarded as one major environmental disaster that is fast becoming an increasingly severe problem in Nigeria. It is believed that this environmental issue is causing serious damage to development in Africa. Action Aids, (2006) reported that flood is one of the major factors that prevent Africa's population from escaping poverty level. Flood is a natural disaster of the world occurs where a piece of land or area that is usually dry land, suddenly gets submerged under water. According to Flood, (2011), flood results when a stream runs out of its confines and submerges surrounding areas. Past researchers have shown that flood occurs in Nigeria in three major forms namely; river, urban and coastal flooding (Gwary, 2008).

Ibadan which is the capital of Oyo state, Nigeria has recorded varying degrees of flood and it is a regular occurrence every year in the city. (Aluko, *et al*, 2019). The recent devastating flood in Ibadan occurred in 2011 and ancient city was hit with

another heavy rainfall that caused flooding in several part of the city. Several rivers overflowed their banks causing damage to both human development and agricultural activities. It is noteworthy that impacts from disasters are not uniformly distributed within a population and they tend to disproportionately affect the poorest and most marginalized groups especially women in any community. Rashid (2000), Ariya and Wickramasighe (2005) suggests that women are often more vulnerable to disasters than men (also owing to the conventional gender responsibilities and relations.

Flood thus impact directly on women because of their roles as providers of food, water and fuel. Women often experience higher rates of mortality and post-disaster diminishment in their livelihood. Studies on water, poverty, and flood observed that there was an increasing rate of flood occurrence and severity in recent years, resulting to loss of lives, injuries, homelessness, damage, to the environment and infrastructure as well as impacting on agriculture. (Abdul-Akeem Sadiq, 2012, Bariweni *et al*, 2012). Farmers are vulnerable to water flood due to warmer climate and higher rate of evaporation which is contributing to an increase in the average annual amount of rain. The fact that both male and female farmers would like to increase their production suggests the need to effectively employ coping strategies to manage water flood so as to ensure the availability of water throughout the cropping season. Adaptation and coping strategy has been variously defined by authors. According to Reilly (2000) adaptation/coping strategies are activities that are taken before impacts are observed and after impacts have been felt or any response to improve an outcome. Household food and nutrition security relies heavily on women farmers which contribute substantially to poverty alleviation. Odurakwe, (2006) noted that in 1980s food production and agricultural income declined in many African countries as men withdrew their labour from agriculture resulting to diminishing capacity of agriculture to provide food for households and subsistence farming.

The aim of the study therefore is to assess the coping strategies in flood prone areas among women farmers in Ibadan Metropolis, Oyo State, Nigeria. The study also identified the level of coping strategies as well as relationship between some selected socio-economic characteristics of respondents and coping strategies adopted in the study area.

**METHODOLOGY**

**Study Area**

This study was carried out in Ibadan metropolis, Oyo state, Nigeria. Ibadan metropolis is categorized into urban and semi urban and lies between latitude 7°25' N and longitude 3°5' E. It is situated close to the boundary between forest and derived savanna which makes it a meeting point for people and products. Ibadan is regarded as the largest indigenous city in tropical Africa. Ibadan lies mostly on lowlands which are punctuated by rocky outcrops and series of hills (Onwuemele, 2012). Multi stage sampling technique was used in carrying out this study.

Stage 1: Out of 33 local Government in Oyo State, Oluyole Local Government was purposefully selected for the study due to occurrence of floods during raining season.

Stage 2: There are Ten (10) in Oluyole local government. Four wards from the Local Government were purposefully selected. The wards were 4, 5 8 and 9 were selected while one village was randomly selected from each ward based on history of floods destruction of farm produce on farmlands in the wards selected. Hence four (4) villages in total were considered for the study. (Table 1)

**Table 1: Selected wards and villages in the study area**

<b>Oluyole</b>	<b>Villages under the wards</b>	<b>Selected villages</b>
Ward 8	Abanla and Olonde	Abanla
Ward 9	Onipe and Busogboro	Busogboro
Ward 4	Odo-Ona elewe,oleyo, Orita	Odo-Ona-elewe
Ward 5	Idi Ayunre and Odo Ona -Nla	Idi Ayunre

Stage 3: Farmers (Women) counting was carried out in order to obtain a population in each village using PRA technique. A sampling proportionate of 20%

was then used to select the respondents in list that ensue. Below is an illustration of the sampling procedure and sample size

**Table 2: Sampling Size**

<b>Village</b>	<b>Population of women farmers</b>	<b>Number of selected Respondents (50% S.P)</b>	<b>Retrieved Questionnaires</b>
Aba-eemo	100	20	20
Apete	150	30	30
Odo ona-elewe	60	12	12
Idi-Ayunre	130	26	22

**Note the Total Number of Retrieved Questionnaires =81**

**Measurement of variable**

**Coping Strategy (Dependent variable)**

Respondents were asked to indicate from the options provided, the coping strategy on flood available to the respondents in the study area. This was also measured on a three point scale of always, sometimes and never. This was measured on a three point scales of "always", "sometimes", and "never". A score of 3

was assigned to always, 2 to sometimes, and 1 to never. Sixteen questions were asked, hence the highest score obtained was 33 and the lowest was 11. The coping strategies were categorised to high and low, coping strategy scores based on the mean obtained. Above mean is high and below mean is low.

**Result and Discussion**

**Table 3: Socio- Economic Characteristics of the Respondents**

<b>Variable</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age (years)</b>		
21-30	9	11.1
31-40	49	28.4
41-50	23	60.5
<b>Total</b>	<b>81</b>	<b>100.0</b>
<b>Marital Status</b>		
Single	6	7.4
Married	20	24.7
Divorced	42	51.9
Widow	13	16.0
<b>Total</b>	<b>81</b>	<b>100.0</b>

<b>Education</b>		
No Formal	28	34.6
Primary	21	25.9
Secondary	12	14.8
Tertiary	11	13.6
Others	9	11.1
<b>Total</b>	<b>81</b>	<b>100.0</b>
<b>Experience (years)</b>		
1-5	43	53.1
6-10	37	45.7
11-15	1	1.2
<b>Total</b>	<b>81</b>	<b>100.0</b>
<b>Household</b>		
1-5	64	79.0
6-10	11	13.6
4	6	7.4
<b>Total</b>	<b>81</b>	<b>100.0</b>
<b>Labour</b>		
Family	12	14.6
Hired	31	38.3
Self	28	34.6
Others	10	12.3
<b>Total</b>	<b>81</b>	<b>100.0</b>

Source: Field Survey, 2019

The distribution on Table 3 shows that majority (60.5%) of the respondents are within the age bracket of 41-50 years. This is in line with Asumugha *et al.*, (2000) who stressed that the relatively older farmers assume greater risk in anticipation of high profit than the younger ones. This implies that the respondents within this age bracket have interest in farming as a source of income and livelihood. It was also observed and evident from the result that majority (51.9%) of the respondents are divorcees while 24.7% were married, 7.4% were single and 16.0% were widows. This implies that majority of the respondents are totally independent and cater for their needs and the needs of their children to make ends meet by engaging in farming activities.

Also, the result further showed that just 34.6% of the respondents had no formal education. In essence majority (65.4%) of the respondents had one form of education or the other. Thus, on the average, the respondents in the study area had attempted at least a primary education. In accordance to the findings of Adams (1984) formal education has the potential of making up some of the deficiency in an individual and can enhance understanding and communication in agriculture.

In terms of farming experience, the study shows that about 53.1% of the farmers had farming experience of between 1-5 years followed by those with 6-10 years (45.7%) of experience with a minority of 1.2%.

this implies that majority of the farmers are well experienced due to the long years of farming which leaves them on the lead in combating any form of obstacles in their farming activities. This is in consonance with the findings of Ani(1999) who reported that the experience of a farmer is very important in farming business .Table 3 above further showed that 79.0% of the respondents had household size of 1-5, This implies that respondents in the study area have a large household size which may be due to the need for cheap source of farm labour. This is in agreement with the result of Teklewold *et al.*(2006); Onubuogu *et al.* (2013); Esiobu *et al.* (2014) who reported that large household size is a proxy to labour availability, ensure ease adaptation to climate change and reduce the cost of hired labour. Furthermore the result showed that 38.3% of the respondents hired labour in carrying out their farming activities, while 34.6% carried out their farming activities by themselves, 14.8% also carried out their farming activities with use of family which is dependent on their household size and 12.3% made use of other means of carrying out their farming activities. This implies that the respondents despite the household size of the respondent, they still made use of hired labour, this may be due to the fact that the largest household size consist of very young children and the aged, who might not be able to participate actively in their farming activities.

**Table 4: Coping Strategies Available to the Respondents in the Study Area**

Coping strategy	Always	Sometimes	Never
Livelihood diversification	30(37.0)	40(49.4)	0(0.00)
Cultivation of tree crops	14(17.3)	55(67.9)	12(14.8)
Early planting	43(53.1)	38(46.9)	0(0.00)
Early harvest	44(54.3)	37(45.7)	0(0.00)
Growing seed bed	37(45.7)	44(54.3)	0(0.00)
Construction of drainages	48(59.3)	29(35.8)	4(4.9)
Drenching of water	36(44.4)	40(49.4)	5(6.2)
Reliance on extension agents information	16(19.8)	49(60.5)	16(19.8)
Migration	14(17.3)	47(58.0)	20(24.7)
Reducing reliance on crops			
Farming to non-farming business	31(38.3)	29(35.8)	21(25.9)

Source: Field Survey, 2019. NB: Percentage in parenthesis

Table 4 above shows that majority of the farmers (59.3%) adopts construction of drainages as coping strategy against water to reduce the intensity of the destruction caused by this hazard. This implies that the respondents perceived flood as regular occurrence and prepared ahead for flood during raining season. This is in line with Mensah and Ahadzic (2020) who reported in their finding on floods that construction of drainages is one of the common coping strategies available in urban cities in Africa

Also a good number of the respondents (54.3%) engaged early harvesting while 53.1% of the respondents engaged in early planting as a strategy to floods in the study area. This implies that the farmers plant their crops early enough for the crop to grow and reach maturity to enhance early harvesting, and results in high yield in output and good quality of produce. This assertion is supported by the finding of Lolig *et al.*(2014) who stated in their finding on environmental disasters that women adopted early planting as well as early harvesting to escape havoc

caused by floods on farmland in Urban area of Ghana. Growing of seed bed (45.7%), drenching of water (44.4%), and farming to non-farming business (38.3%) and livelihood diversification (37.0%) were other coping strategies employed by the farmer to cushion the effect of flood on their livelihood activity. This Indicated that the respondents already understand the situation they are faced with and therefore engaged in the best means possible for them to at least make profit at all cost. From this result it is revealed that the respondents are simultaneously involved in one or more of the strategies.

Furthermore, it was revealed that 60.5% of the respondents in the study area sometimes depend on information from extension agent on strategies to avert floods while 58% of the respondents sometimes migrate to another location as a form of a coping strategy. This implies that the respondents did not perceive migration and information from extension agents as better options to all other strategies available in the study area.

**Table 4.1: Categorization of Respondents Level of Coping Strategies in Ibadan Metropolis**

Level	Frequency	Percentage
Low	21	25.93
High	60	74.07
Total	<b>81</b>	<b>100</b>

The categorization of the respondent's level of coping strategies by their mean scores as presented in table 4. 1 shows that the majority (74.07 %) had high level of coping strategies. The table shows that most

of the respondents are always at alert and adopted numerous coping strategies to tackle floods in the study area.

**Table 5: Chi-square analysis of socio-economic characteristics and coping strategies adopted.**

Variables	X <sup>2</sup>	df	P-Value	Decision
Age	6.098	2	0.047	S
Marital status	10.328	3	0.016	S
Education	8.951	4	0.062	NS
Experience	14.210	2	0.001	S
Household	5.257	2	0.072	NS
Labour	7.191	3	0.066	NS

Source: Field Survey, 2019.

The hypothesis ( $H_{01}$ ) was subjected to chi-square test and the results are as presented in Table 5. Age, Marital status and experience of the respondents were found to have significant relationships with the coping strategies adopted at 5% level of significance. Significant relationship between Age and coping strategies adopted ( $P=6.098$ ,  $X^2=0.047$ ). This suggests that the respondents in the study area are matured enough to understand the usefulness of coping strategies to avert flood in the study area. This is in line with Aluko *et,al* (2019) who reported that maturity of the respondent assist to tackle flood without going to state of depression or shock. Furthermore, relationship between the respondents Marital status and coping strategies adopted ( $P=10.328$ ,  $X^2=0.016$ ). This implies that household heads as a role to play in taking care of the family and decision making in time of a disaster such as flood. This is in agreement with Sheheli and Khan (2015) who reported in their findings that women with husband are been taking care by their husband more than divorcees and single women. Also significant relationship existed between Experience of the respondents and coping strategies ( $P=6.098$ ,  $X^2=0.047$ ). This suggest that the respondents are experience enough to tackle problems associated with flood during raining seasons.

The results also showed that education, household size and labour have no significant relationships with the coping strategies adopted by the respondents at 5% level of significance.

### CONCLUSION

From the results gotten from this research work, it shows that majority of the respondents were still actives in farming operation and between the age brackets of 41-50 years, had formal education with 1-5 years farming experience and have been experiencing flood since commencement of their farming activities in the study area. Appreciating percentage of the respondents adopted more than one coping strategies to combat the effect of flood on their farming activities. This made the level of coping strategies in the study area to be higher (74.07%). Despite experiencing floods every year, the respondents did not abandon the activities which are the main source of their livelihood because they relieved and believed in the coping strategies at their disposal. It was revealed that the age, marital status as well as experience have significant relationship with the coping strategies in the study area.

### RECOMMENDATION

The following are recommendation made based on the findings of this study.

- ❖ Agricultural extension agents should be made available in all local governments, wards and villages, in other to guide and enlighten the farmers on the coping

strategies that can best be adopted based on the activities the farmer is engaged in.

- ❖ Appropriate and correct weather forecast from meteorological stations should be made accurate and disseminated on time to farmers through the extension agents.
- ❖ Dwellers and the farmers should be encourage to plant trees, Trees play a big role in lessening damage from flooding in environment as well as protecting the soil from run off.

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