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EFFECTS OF POOR RURAL HOUSEHOLDS' ACTIVITIES ON THE ENVIRONMENT: EVIDENCE OF UMUAHIA AGRICULTURAL ZONE OF ABIA STATE, NIGERIA

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ABSTRACT

Effects of poor rural households' activities on the environment in Umuahia Agricultural Zone of Abia State, Nigeria were assessed. A sample size of 105 respondents realized through purposive and multi – stage sampling methods was used. Data generated through structured questionnaire and scheduled interviews were analyzed using descriptive statistics. Results showed that the mean age (40.6 years), mean income (₦29,880.95), mean household size (4 persons), mean farm size (1.9 hectares) and mean extension contacts (1.6 times every 6 months) of the respondents respectively were as indicated. Results also, showed that 90.5 % of the respondents were married, 95.2 % were literates, 42.9 % were farmers, 38.1 % were traders and 52.4 % were cosmopolitans respectively. Mixed farming, crop- production, poultry, cassava – processing, palm - oil processing, piggery, apiculture, and agro – forestry respectively were identified as farm related activities of the respondents, while general merchandise, artisan, forest products harvesters and transportation respectively were identified as non- farm related activities of the respondents. Results further showed high knowledge levels on excessive felling of trees ($x = 3.48$), clearing and burning farm – lands ($x = 3.09$), cooking on fire woods ($x = 2.76$) and disposal of non – biodegradable wastes ($x = 2.67$), respectively among the respondents as activities that affect environmental degradation. Use of improved seeds, ($x = 3.24$), crop rotation ($x = 3.14$), agro- forestry ($x = 3.00$), organic manuring ($x = 2.86$), tree planting ($x = 2.81$), mulching ($x = 2.76$), use of green manure ($x = 2.57$), and cover cropping ($x = 2.55$) respectively were adopted by the respondents as coping strategies against environmental degradation. The study recommends that government and other stake holders in environmental protection campaigns should intensify efforts on capacity - building of poor rural households on the importance of protecting of the environment through sustainable environmental practices mostly in the study area.

Key Words: *Environmental Degradation, Poor Rural Households' Activities, Poverty, Abia State.*



INTRODUCTION

In Nigeria, the issue of poverty mostly in the rural areas has been a very serious one. The National Bureau of Statistics (NBS) (2010) reported that the poverty incidence in Nigeria was at 15 % of the population in 1960, it rose to 28.1 % in 1980 and further to 43.6 % in 1985. However, it dropped minimally to 42 % in 1992 only to rise to 67 % in 1996, 74.2 % in 2000 and 92.5 % in 2010 respectively. The above scenarios clearly reveal that the number of poor people in Nigeria increases annually. Therefore, no wonder there have been continuous agitations against the Federal Government of Nigeria in various quarters over the poor standard of living conditions of the citizenry (Edoumiehumo; Karimo and Tombofa, 2013). Okpe and Abu (2009) reported that most of the poor are found in rural areas of Nigeria, among these the majority are located in the more difficult areas characterized by combination of low and erratic rainfall, hilly topography, poor soils and weak infrastructure respectively. They equally, noted that poverty is multi- faceted attributable not just to lack of income or skills, but to high vulnerability, limited and uncertain access to capital assets and weak voice. Additionally, Olanipekun and Kuponiyi (2010) asserted that several aspects of poverty are profoundly structural and that functional responses to them were inadequate, therefore, that a sustainable livelihood framework helps in understanding the complex nature of poverty and appropriate types of responses. They equally, noted that the livelihood strategies of the poor are dynamic, complex and diverse, that a single household may engage in a range of activities both in farming and non – farm economy. Therefore, they defined livelihood as the activities, assets and their access that collectively determine the living standard of an individual or household. It was on that premise that Edoumiehumo; Karimo and Tombofa, (2013) observed that households in Nigeria face risk in diversified nature at the different regions and sectors of the economy. For instance, that a farming household faces serious risks from degraded land, input-shortage, disease outbreaks, climatic vagrancies and low prices for their agricultural products. Similarly, Omobowale (2014) asserted that livelihood diversification refers to attempts by individuals and households to find new ways to raise incomes and reduce environmental risks. Therefore, he opined that a sustainable livelihood was that which could cope with and recover from stress and shocks (drought, flood, wars, among others) and assets and at the same time provide sustainable livelihood opportunities for the next generation. It was in line with the above that FAO (2007) defined resilience as the ability of a person or community to bounce back or recover after adversity or hard times and to be capable of building positively on the lessons learned and experiences of these hardships. Therefore, they suggested that building household and community resilience in addition to promoting intervention that increases household income and assets is important as to create a situation where households and communities would be able to handle the dynamics and unexpected changes without collapsing.

On the other hand, Ekong (2010) reported that about 80 % of the Nigerian population dwell in the rural areas and are directly or indirectly involved in the use of land resources. He equally, added that majority of these rural dwellers face several problems which have affected their productivity. He enumerated the problems to include environmental constraints such as pressure on land which has reduced fallow periods and increased outflow of soil nutrients through soil erosion and runoff. He equally, noted that soil erosion was on the increase for many farming systems in Nigeria. This has led to the smallholder farmers who were unable to compensate for these losses to abandon the nutrients starved lands and cultivated marginal areas of farmlands. He further observed that soil nutrients depletion are caused by erosion and deforestation and that all these losses result to loss of biodiversity. On the same note, Garba (2006) reported that more than 90 % of rural households in Nigeria collected and used fuel woods as their main sources of cooking energy. He further stated that Nigeria experienced an average annual deforestation rate of 2.4 % that was significantly higher than both Africa's rate of 0.7 % and that of the world of 0.22 % respectively. On the same note Ayoade (2003) reported that forests and woodlands cover about 650 million hectares (21.8 %) of the total land area of the African continent. They further stated that about 99 % of the forests are natural and only 1 % classified as plantations and that these forests are said to be undergoing high levels of deforestation in the world with an estimated annual loss of 5.3 million hectares (0.78 %). FAO (2003) equally, reported that livestock already uses 30 % of land for grazing or fodder cultivation while new pasture land is often created by burning forests. United Nations Development Programme (UNDP) (2010) in support of the above situation reported that 20 - 25 % of all carbon dioxide emission was caused by burning forests for farm lands. They added that poor forest management policies including unrestricted logging, excessive harvesting of firewood and road construction aggravated the problem. It was based on the above premise that FAO (2007) reported that the world is losing about 200Km² of forest daily, with Africa recording twice the global average. Centre for Tropical Agriculture (CTA) (SPORE Special,) (2008) equally, reported that Nigeria is among the countries that will experience water – stress in 2025. They equally stated that rapid depletion of natural resources could have significant consequences for the quality of peoples' lives in Nigeria. It was based on the above, that the study sought to assess the effects of the poor rural households' activities on the environment in Umuhia Agricultural Zone of Abia State, Nigeria.

The following objectives guided the study, to;

- (i) examine the socio – economic characteristics of the respondents;
- (ii) identify the different types of household activities the respondents engaged into in the study area;

- (iii) ascertain the respondents' perceived Knowledge level on how their livelihood activities impact on the environment; and
- (iv) identify coping strategies adopted by the respondents against environmental degradation and soil nutrients depletion,

METHODOLOGY

The study was conducted in Umuahia Agricultural Zone of Abia State, Nigeria. The zone is one of the three major agricultural zones of Abia State Agricultural Development Project (ADP). Abia State is located in the Southeast Agro – ecological zone of Nigeria. The area which represents the typical degraded humid forest is characterized by bi – modal annual rainfall totaling over 2000mm, with air temperature ranging from 22 – 31^{OC} and high relative humidity (77 %) during the wet – season. (Obinna and Nzeakor, 2015). The vegetation is predominantly low- land forest and agriculture is the main occupation of the people with agro- forestry as one of the main farming systems (Abia ADP, 2006). The study covered all the small scale farmers working with Extension Agents in the study area. The 105 contact farmers with Abia State – ADP in the zone formed the respondents that were purposively and multi- stage randomly sampled. Primary data were generated using structured questionnaire and scheduled interviews and were analyzed using descriptive statistics such as mean, percentage, frequency count, pooled means and ranks respectively.

RESULTS AND DISCUSSION

Socio - Economic Characteristics of the Respondents.

Table 1, shows that the mean age of the respondents was 40.6 years out of which 71.4 % was male and 28.6 % female respectively. Table 1 equally, shows that 90.5 % of the respondents were married, 4.8 % single, 2.9 % widowed and only 1.9 % divorced / separated respectively. Table 1 further show that about 95.2 % of the respondents were literates, with a mean household size of 4 persons and mean farming experience of 20.8 years respectively. Table 1 also, shows that the respondents had a mean farm size of 1.9 hectares and earned mean monthly income of ₦29,880.95 respectively. It equally shows that 42.9 % of the respondents had farming as their primary occupation, 38.1 % into trading, 9.5 % artisans, 3.8 % civil – servants and 5.7 % in other occupations respectively. Table 1 finally shows that the mean distance of farmsteads of the respondents from their homes was about 0.9kilometers, with a mean extension contacts of 1.6 times every 6 months and 52.4 % of them had cosmopolitan orientation respectively. The implications of the findings are that the respondents displayed socio – economic characteristics of people who should be aware and sensitive to the effects of their livelihood activities on the environment.

Identification of Types of Livelihood Activities of the Respondents in the Study Area.

Table 2 shows that farm livelihood activities of the respondents that were significant include: mixed farming activities, crop production, poultry production, cassava- processing, oil- palm processing, farm- labourer, piggery, apiculture, snail production, and agro – forestry respectively. They scored 3.38, 3.14, 3.09, 2.90, 2.85, 2.67, 2.61, 2.57, 2.52 and 2.52 respectively and they were ranked from 1st to 9th positions respectively in descending orders. Table 2 further shows that non – significant farm – livelihood activities include: fisheries, fish – processing, sheep & goat rearing, respectively, with mean scores of 2.14, 2.12, and 1.95 respectively (Table, 2). This implies a mean score of 2.85 for significant farm livelihood activities of the respondent. Table 3 equally, shows that out of 11 non- farm related livelihood activities investigated on in the study area, only seven were found to be significant. They include artisans, general merchandise, forest products harvest, security, transport, pastors and construction labourers respectively. They were scored as follows in descending order 3.38, 3.28, 3.28, 2.95, 2.81, 2.81, and 2.71 respectively. Also the non- significant non- farm related livelihood activities include herbalists, pottery making, house- wife and weaving respectively. They scored means of 1.91, 1.67, 1.38, and 1.28 respectively. This implies that a mean score of 3.03 was realized for significant non- farm livelihood activities of the respondents in the study area. This equally could infer that the respondents in the study area valued more non-farm livelihood activities than farm related livelihood activities in the study area. On the other hand, Table 3 further shows that the non- significant non- farm livelihood activities to include: homeopathic doctors with mean of 1.91, pottery with mean of 1.67, housewife with mean of 1.38 and weaving with mean of 1.28 respectively (Table 3)

Respondents' Perceived Knowledge Level on how their Livelihood Activities impact on the Environment.

Table 4 shows that out of 7 livelihood activities that impact on the environment and soil nutrients depletion investigated on in the study area only four registered a high knowledge level among the respondents. This implies that the respondents were very much aware of the effects of these four livelihood activities on the environment and soil nutrient depletion respectively. The four activities were: felling of trees (deforestation), which scored a mean of 3.48, and ranked 1st, clearing and burning of farm – lands with a mean of 3.09 and ranked 2nd, cooking on firewood with a mean of 2.71 and ranked 3rd, disposal of non – bio degradable waste on the environment with mean of 2.67 and ranked 4th respectively (Table 4). On the other hand, the respondents, indicated not to be aware of the effects of over- grazing of pasture lands, over cultivation of marginal lands, wrong application of inorganic fertilizers respectively on the environment with the following mean scores 2.42, 2.1 and 1.7 respectively in descending orders (Table 4). The implication of the finding is that the respondents had low knowledge level or

did not know all that these threelivelihood activities of theirs impacted negatively on the environment and soil nutrient respectively.

Respondents’ Coping Strategies Toward Environmental Degradation and Soil Nutrient Depletion.

Table 5 revealed that out of seventeen coping strategies toward environmental degradation and soil nutrient depletion investigated upon among the respondents in the study area, nine coping strategies were found to be significant. They include: use of improved seeds, which scored a mean of 3.24 and ranked 1st. Others, are multiple – cropping methods, crop rotation, agro = forestry. Organic- manuring, mulching, use of green manure, and cover cropping respectively (Table, 5). They scored 3.14, 3.14, 3.00, 2.86, 2.81, 2.76, 2.57 and 2.55 respectively and were ranked 2nd to 9th positions in descending order respectively. On the other hand, Table 5 equally, revealed that the eight non – significant coping strategies to include: use of water system toilet, bush fallowing, increase in top soil depth, minimum tillage, use of waste bins, cooking with gas cooker, terracing, and sorting of household waste before disposal, respectively. They scored 2.42, 2.33, 2.14, 2.10, 1.95, 1.67, 1.38, and 1.29 respectively. They were ranked from the 10th position to the 17th position respectively in descending orders. The implication of the finding is either that the respondents did not yet know about these coping strategies or that their adoption were not yet significantly implemented as coping strategies in the study area.

Table 1: Distribution of the Respondents According to Their Socio- economic Characteristics

S/No	Socio- Economic Characteristics	Frequency	Percentage	Mean
01	Age in Years			
	18 - 28	20	19.0	40.6 years
	29 - 39	30	28.6	
	40 - 50	30	28.6	
	51 - 61	20	19.0	
62 & Above	5	4.8		
02	Gender			
	Male	75	71.4	
	Female	30	28.6	
03	Marital Status			
	Single	5	4.8	
	Married	95	90.5	
	Widowed	3	2.9	
	Divorced / Separated	2	1.9	
04	Educational Level			
	No Formal Education	5	4.8	
	Primary Edu. Completed	50	47.6	
	Secondary Edu. Completed	45	42.9	
	Tertiary	5	4.8	

05	Household Size (No of Persons)			
	1 - 4	70	66.7	
	5 - 8	30	28.6	4 Persons
	≥ 9	5	4.8	
06	Farming Experience (in years)			
	1 - 15	60	57.1	
	16 - 31	30	28.6	20.8 Years
	32 - 47	12	11.4	
	≥ 48	3	2.9	
07	Farm Size (In Hectares)			
	0.5 - 1	50	47.6	
	1.1 - 1.6	25	23.8	
	1.7 - 2.2	20	19.0	1.95 HA.
	2.3 and above	10	9.5	
08	Monthly Income in (₦aira)			
	≤10,000.00	10	9.5	
	11,000.00 - 20,000.00	15	14.3	
	21,000.00 - 30,000.00	20	19.0	
	31,000.00 - 40,000.00	20	19.0	
	41,000.00 - 50, 000.00	30	28.6	
	51,000.00 and above	20	19.0	
09	Primary Occupation			
	Farming	45	42.9	
	Trading	40	38.1	
	Artisan	10	9.5	
	Civil Servant	4	3.8	
	Others	6	5.7	
10	Distance of Farmstead from Home (in Km ²)			
	< 500 metres	40	38.1	
	500 – 1 Km	45	42.9	
	1.5 - 2Km -	15	14.3	880 metres
	Above 2.5 Km	5	4.8	
11	Number of Extension Contacts			
	Once every 6 months	50	47.6	
	Twice every 6 months	45	42.9	1.6 times/ 6months
	Thrice every 6 months	10	9.5	
12	Cosmopolitanism			
	Yes	55	52.4	
	No	50	47.6	

Source: Field Survey 2016.

Table 2: Distribution of the Respondents According to Livelihood Activities

							n= 105
S/No	Livelihood Activities	S/I	I	N/S/I	N/I	TOTAL	MEAN
01	Mixed Farming	60	30	10	5	355	3.38
02	Crop- Production	40	50	5	10	330	3.14
03	Poultry Production	40	40	20	5	325	3.09
04	Cassava Processing	35	40	15	15	305	2.91
05	Oil Palm Processing	35	35	20	15	300	2.85
06	Farm Labourer	30	30	30	15	280	2.67
07	Piggery	30	20	40	15	275	2.61
08	Apiculture	25	30	30	20	270	2.57
09	Snailery	30	30	20	25	265	2.52
10	Agro Forestry	30	20	30	25	265	2.52
11	Fisheries	10	30	30	35	225	2.14
12	Sheep & Goat	10	20	30	45	205	1.95

Source: Field Survey 2016

Table 3: Distribution of the Respondents According to Non – Farm Livelihood Activities

n= 105

S/No	Non – Farm Activities	S/I	I	N/S/I	N/I	Total	Mean	Ranks
01	Artisans	50	45	10	-	355	3.38	1 st
02	General Merchandise	50	40	10	5	345	3.28	2 nd
03	Harvest of Forest Products	40	30	30	5	345	3.28	2 nd
04	Security Guards	35	40	20	10	310	2.95	4 th
05	Transport	30	40	20	15	295	2.81	5 th
06	Pastors	30	40	20	15	295	2.81	5 th
07	Construction Site Labourer	30	35	20	20	285	2.71	7 th
08	Housewife	20	30	20	35	245	2.33	8 th
09	Homeopathic Doctors	20	30	30	20	200	1.91	9 th
10	Pottery	-	20	30	55	175	1.67	10 th
11	Weaving	-	-	30	75	135	1.28	11 th

Source: Field Survey 2016

S/V = Strongly involved weighted and scored 4 points

I = Involved weighted and scored 3 points

N/ S/ I = Not Strongly Involved, weighted and scored 2 points

N/I = Not Involved, weighted and scored 1 point.

Decision Rule = Any mean score ≥ 2.5 was adjudged significant, while mean score < 2.5 was adjudged not significant

Table 4: Distribution of the Respondents According to Their Perceived Knowledge Levels on How Their Livelihood Activities Impact on the Environment.

n = 105

S/No	Livelihood Activities	S/A	A	N/S/A	N/A	Total	Mean	Knowledge Levels
01	Excessive Felling of Trees	50	30	20	5	365	3.48	High
02	Clearing & Burning of Farm Lands	40	40	20	5	325	3.09	High
03	Cooking on Firewood	20	40	40	5	285	2.71	High
04	Disposal of non – bio- degradable waste	20	40	35	10	280	2.67	High
05	Over grazing of pasture lands	10	40	40	15	255	2.43	Low
06	Over Cultivation of Marginal Lands	5	30	40	30	220	2.1	Low
07	Wrong Application of inorganic Fertilizers	-	20	30	55	175	1.67	Low

Source: Field Survey 2016

Decision Rule = Any mean score ≥ 2.5 was adjudged significant, while mean score < 2.5 was adjudged not significant and the Knowledge Levels are stated as follows: From 0 - 2.49 mean scores = Low knowledge levels, and From 2.5 - 4 mean scores = High Knowledge levels respectively.

Table 5: Distribution of the Respondents' According to their Coping Strategies Toward Environmental Degradation and Soil Nutrient Depletion

									n = 105
S/No	Coping Strategies	V/I	I	N/V/I	N/I	Total	Mean	Level of significance	Ranks
01	Use of improved Seeds	40	30	25	10	340	3.24	Significant	1 st
02	Crop Rotation	50	25	25	5	330	3.14	Significant	2 nd
03	Multiple Cropping	40	40	25	-	330	3.14	“	2 nd
04	Agro- Forestry	40	35	20	10	315	3.00	“	4 th
05	Organic Manuring	30	30	35	10	300	2.86	“	5 th
06	Tree – Planting	30	40	20	15	295	2.81	“	6 th
07	Mulching	30	30	35	10	290	2.76	“	7 th
08	Use of Green Manure	25	30	30	20	270	2.57	“	8 th
09	Cover Cropping	25	30	28	22	268	2.55	“	9 th
10	Use of Water System Toilets	20	30	30	25	255	2.42	Not Significant	10 th
11	Bush Fallowing	20	30	20	35	245	2.33	Not Significant	11 th
12	Increase in Top Soil Depth	20	20	20	45	225	2.14	“	12 th
13	Minimum Tillage	20	20	15	50	220	2.10	“	13 th
14	Use of waste Bins	-	30	40	35	205	1.95	Not Significant	14 th
15	Cooking With Gas Cooker	-	20	30	55	175	1.67	“	15 th
16	Terracing	-	10	20	75	145	1.38	“	16 th
17	Sorting of Waste before Disposal	-	-	30	75	135	1.29	“	17 th

Source: Field Survey 2016

V/O = Very Often weighted and scored 4 points

O = Often, weighted and scored 3 points

N/V/O = Not Very Often, weighted and scored 2 points

N = Never, weighted and scored 1 point

Decision Rule: Any mean score ≥ 2.5 was adjudged significant, while any mean score < 2.5 was adjudged not significant.

Therefore Significant Level= 2.5 - 4 points, Non- significant level = 0 - 2.49.

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