Environmental Conservation Information Needs of Farmers in Owerri West Area of Imo State, Nigeria

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I. Introduction

Today's farmers are under unprecedented pressure. The world's population is closing in on seven billion, and it is projected to reach nine billion by 2050. Billions of those people will be enjoying an improving standard of living, including increased consumption of more nutritious food such as milk, meat and energy. A crowded planet adds to the environmental challenges of feeding, clothing and powering the world. Water supplies will be increasingly scarce, threatened by pollution, and diverted to population centers. We can no longer set out to farm new frontiers- we must make every acre already being farmed even more productive and prevent environmental degradation (Towery and Werblow, 2010). With shrinking resources and little margin for expansion, the stakes of environmental degradation are too high. Protecting our soils, air and water- and our forests, wetlands and grasslands- is vital to all of us in the long term. Environmental and economic sustainability are essential on every farm (Towery and Werblow).

Norman Borlaug, the legendary plant breeder and Nobel laureate who was the driving force behind the Green Revolution of the 1960s and 1970s, summed up the task when he wrote, "Over the next 50 years, the world's farmers and ranchers will be called upon to produce more food than has been produced in the past 10,000 years combined and to do so in environmentally sustainable ways" (Towery and Werblow, 2010). Increases in agricultural production are possible through modern methods. But these advances in agricultural production are possible through modern methods. But these advances will be useless unless there is enough good land for farming. If the soil on which all agricultural and all human life depends is wasted away, then the battle to free mankind from want cannot be won (ECO-ISSUES, 2010). It is estimated that agricultural production will need to increase by 60 per cent in the next two decades to feed the world. The large part of this will need to come from an intensification of agriculture on lands already being cultivated. In addition, the area of cultivated land should be expanded by 200 million hectares (Favis – Mortlock,2005). An uncertainty in these estimates is the amount of land which is being lost through degradation.

In precise term, multiple relationships exist between man, his activities and the environment, but he has a positive role to play in shaping the environment. An influence how human lives and organizes his life, but he has equally helped to modify and rebuild the environment through time. There is an ecological relationship between man and his environment as evident in the harvesting and exploitation of the environmental resources (France and Kathleens, 2002). However, the nature and the degree of hazards done to the environmental vary according to technology of the people (be it indigenous or modern technology). It depends on the prevailing physical, technological,

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cultural and political circum-stances (France and Kathleens, 2002).

The deterioration of the environment which started when man first settled into villages has been made worse by increasing human activities such as deforestation, burning etc. Natural phenomena like desertification, drought, erosion etc have not helped matters through their degrading effects on the soil fertility, the ecosystem services of the natural environment (France and Kathleens, 2002). Human has influenced his physical environment by fertilizing the poor soil, terracing the hillsides, construction roads, railways and bridges, exploiting the forest resource like timber and extracting the metallurgic and non-metallurgic iron from the environment. Through these processes, he has changed or altered the environment to suit himself.

Sustainable development is necessary because it is capable of alleviating poverty. Therefore, all human must work towards a sustainable environment. To this end, we must have development which is sustainable and built on firm ecological foundation. The attainment of environmentally sustainable development largely depends onour willingness to be genuinely committed to the use of environment through the use of innovations and substitutes of most of the earthly minerals.

However, the fact that this state (IMO STATE) is blesses with immense mineral wealth and considerable agricultural potential, varied climatic zone, continuous sunlight and abundant rainfall which supplies many crops, fibre and medicinal plants and forest products make it imperative to sustain the environment. Although impressive progress in the area of improving the environment has been made in recent years, there seem to be a considerable lack of understanding of the fundamental mechanisms, sources and classification of pollutants causing pollution of different forms (IMSG, 2001). Even with the amount of effort rendered by government and non-government organization to farmers in both rural and urban areas towards conservative measures, farmers still lack essential information in managing their environment. It is vital to create awareness to the public and farmers toward the use of environmental conservation approaches particularly to when every aspect of our lives including agricultural are seriously threatened by variability in weather climate change. The broad objective of the study is to analyze the environmental conservation information needs of farmers in Owerri-west Area of Imo State. The specific objectives of the study include, to;

1. Investigate the socio-economic characteristics of the farmers'.
2. Ascertain the farmers' environment conservation information needs.
3. Investigate their perceived effects of environmental conservation practices.
4. Investigate their environmental conservation practices.
5. Investigate the problems militating against sustainable environmental conservation practices.

II. Methodology

1. The study area was carried out in Owerri-west area of Imo State. It is located in the rain forest zone about 120 Km north of the Atlantic coast and lies on latitude 4^0 14 north and 6^0 15 north, longitude 6^0 51 east 8^0 09 east (ISADAP, 2000). It has a population of 250,000 people and an area of 295 square kilometers in 2013 (NPC, 2006). It shares boundaries with Ngor Okpala LGA in south, Owerri municipal council in the east, Mbaitolu LGA in the north and Ohaji/Egbema LGA in the west. The average annual rainfall measures up to 2550 millimetres, the relative mean temperature ranges annually between 24.5^0 and 25.5^0 and the humidity varies according to the time of the year (ISADAP, 2000). The people are land resource dependent. The farmers' produce crops like cassava, maize, yam, plantain and rear animals like goat, pigs, fish, birds and recently rabbits. Owerri-west was purposely selected because of its nearness to the researcher and the predominance of famers in the area. The entire farmers in owerri-west constitute the sampling population. Multi-stagerandomsamp-lingtechnique was employed in the sampling. First, a random sampling technique was used to select 6 communities from the existing 18 communities. These include: Oforola, Obinze, Eziobodo, Ihiagwa, Amakohia- ubi and Orogwe. From each of the communities, 4 villages were sampled (2nd stage) and from each of the villages, 5 farmers' comprising male and female were randomly sampled to give a sample size of 120 respondents. Data were collected from primary and secondary sources. Primary data were obtained from farmers' in the study area through structured questionnaire to be complemented with interview schedule for farmers' who are not literate enough. Secondary data were collected from annual reports of the Imo state Agricultural Development Programme (ADP), the Imo State Ministry of petroleum and Environment, textbooks, journals, internet and previous studies of other researchers who worked on related topics. The data collected were analysed using descriptive statistical tools such as frequency tables, percentage and mean. Specifically, objectives 1, 4 and 5 which are to investigate the socio-economic characteristics of the farmers; investigate their environmental conservation practices and investigate the problems militating against sustainable environmental conservation practices were analysed with percentages. Objectives 2 and 3

which are to ascertain the farmers' environment conservation information needs; and investigate their perceived effects of environmental conservation practices were analysed with mean. The formula used was x=EX/N. the likert type scale of agreement had their weights added together and divided by the number of scales. SA=5, A=4, U=3, SD=1. (5+4+3+2+1)/5 = 3 (discriminating index for acceptance and rejection). This means that all mean value of 3 and above were accepted as important.

III. Results and Discussions

a) Socioeconomic Characteristics of Respondents

The result in the table 1 showed that farmers within age range of 20-29 composed 7.5 percent of the sample, those between 30 and 39 represented 16.67 percent whereas 40-49 years represented 24.17 percent. The farmers between the ages of 50 and 59 and 60-69 represented 28.33 percent and 23.33 percent respectively. The mean age of the farmers was 49. This means that the farmers' are ageing. This implies that they will not readily accept agricultural innovations (Mgbada, 2010). The dominance of the old could be adduced to youth emigration to cities for which collar jobs. This result agrees with Nnadi and Amaechi, (2007) that youth migration from the rural to the Urban areas left agriculture in the hands of the old and ageing farmers. Also Mgbada, (2010) noted that Nigerian farmers are mostly old people. There sultalso showed that the percentage of male farmers in the study was 49.17 percent. The female farmers composed 50.83 percent. The dominance of female farmers in the study could be attributed to increasing engagement of men is politics and rising cases of female headed households. The result agrees with Mollet, (1990) and Mgbada, (2010) who noted that more than one third to half of the total labour contribution to agriculture is made by women. The result on the marital status distribution of the farmers shows that single farmers represented 10.83percent of the sample. The married farmers' represented 70.83 percent, while divorced and widowed represented 3.33 percent and 15 percent respectively. The dominance of married farmers in agricultural production could be to ensure household food security. The result of the distribution of the farmers by education reveals that farmers with no formal education consisted a percentage of 18.33%. The table also shows that 31.09 percent of the respondents had primary and secondary education respectively. While 20.17% had tertiary education. The result implies that the farmers are highly literate with about 81 percent having acquired one level of education or the other. This means that they can be easily convinced to accept better practices of their farming operations. It is in conformity with Nnadi and Amaechi, (2004) that a greater deal of change has occurred within the rural communities in recent times due to the introduction of education. Their high literacy level is an asset as the farmers would be exposed to many information sources, embrace innovations and analyze farm situations objectively. It also supports the view made by Nnadi and Onuoha, (1999) that educated farmers' are good adopters of innovations. The distribution of the farmers by occupation shows that 62.5 percent of the respondents have farming as their major occupation. Civil servants and traders represented 17.5 percent of the sample respectively while artisans represented 2.5 percent. The result further reinforces agriculture as the basis of rural economies where majority are farmers. Thus, farming is a way of life by cultural dictates. This confirms the assertion of Olayide et al., (1981) that Nigeria is characterized as a nation of small scale farmers and the rural population comprises full and part time farmers. The farmers' distribution by household is represented and the result indicates that 15.83% percent of farmers have household size of 1-5 members. A total of 49.17 percent of the farmers have 4-6 persons in their household. Whereas 32.5 percent had 7-9 persons, 2.5 percent had 10 persons and above. The mean household size was 6. The size is modest and in consonance with the household population policy of Nigeria. A large family size could entail many hands in family labour supply, typical of Nigerian agriculture which requires so many hands for labour supply. As farmers and farm families are closely knit, farmers prefer using labour from their household, wives and children (Nnadi and Amaechi, 2004). However, this could imply more household expenditure for food security, social needs and economic needs provision. Thus, production capital could be converted to consumptive capital. The result of the distribution of the farmers by farm size indicates that farmers with farm size less than one hectare represented 49.17 percent of the respondent. They are followed by 29.17 percent that have a farm size of 1-3 hectares. The result also revealed that 17.5 percent of the respondents have between 4-6 hectares of farm land. while 4.16 percent have 7 hectares and above. The mean farm size is 2.16 hectares. The above situation reveals that there is skewdness in the distribution of land in the study area. The greater number (49.17 percent) have small area usually fragmented holding which supported subsistence agriculture. The result supports the assertion made by Nnadi and Amaechi, (2004), that under inheritance, the whole heirs of every family have their shares of land no matter how fragmented and small their sizes area. This lays credence to the subsistence farming characteristic in the southeast. From the result, a dominant number of the farmers indicated membership of social organization. Specifically, 64.7 percentindicated that they belong to one social organization or the other. However, on the contrary, 43 farmers represented by 35.83 percent

indicated that they do not belong to any social organization. Membership of Social organization satisfies the social needs of farmers in additions to serving as an avenue for access to information on agricultural technology. Farmers by virtue of their membership discern the obvious advantages of agricultural technology as well as clarify their misconception of technology and the adoption. However, the farmers do not belong to social organization may have been ignorant of the obvious gains through membership-the however calls for conceited extension campaigns for farmers member of co-operative society and combined.

b) Areas of Information Needs

The distribution of the farmers according to areas of information is presented in table 2 using five point likert-type scale of agreement, the discriminating index of acceptance or rejection of an item was set at 3. All items with mean value of 3.00 and above were accepted as areas of information needs. The table shows that 8 items had mean scores of information on the environment which had a mean value of 3.06, things that constitute pollution had 3.08 mean score, drainage and irrigation had 3.45, erosion had 3.33, refuse disposal methods had 3.25, pesticide application and use had 3.49, environmental disaster management had 3.93 and was ranked first while funding sources for environmental management had 3.65. Also the result showed that 3 items were not accepted as areas of information needs since their mean scores were not up to 3. They included tree planting exercises, manure and maturing and cropping systems.

c) Effects of Environmental Conservation

The distribution of farmers according to their perceived effects of environmental conservation is presented in table 3. Using the discriminating index of 3, the result shows that 7 items are effects of environmental conservation. These included reduction of ill health and the predisposing factors with a mean score of 3.10, support for life had mean score of 3.03, reduction of hazards had 3.68 mean score. Whereas the statement, favours agricultural products by increasing income had 3.74 was ranked first. Agricultural produce are free from contamination had 3.09 and makes for odour free environment had 3.39. Only one item was not accepted as an effect of environmental conservation.

d) Farmers Conservation Practices

The result in table 4 below shows that among the conservation practices mentioned, manuring had a percentage count of 82.5 and ranked 1st, avoidance of bush burning had a percentage of 75.83 and ranked 2nd, mulching with percentage of 75 ranked 3rd, crop rotation with percentage of 66.67 raked 4th, adequate refuse disposal and cautious use of agro- chemicals and pesticides with percentages of 56.67 each ranked 5th,

tree planting ranked 7th with 55.83 percent. Whereas use of cross bars ranked 8th with 55 percent, ridging across the slop and drainage with percentage o 51.67 each ranked 9th. Rotational grazing ranked 10th with 35.83 percent, contour terracing 11th with a percentage of 34.17, use o contour bunds with 32.67 percent ranked 12th while irrigation and recycling of waste with percentage of 30 and 29.17 ranked 13th and 14th respectively.

e) Problems Militating against environmental conservation

The result shows that inadequate knowledge base of environmental conservation practices represented 75 percent to rank 1st. Following thus in rank (2nd) was poor economic base and inadequate farm size with 74.17 percent each. Poor environmental conservation orientation ranked 3rd with 69.17 percent, weak government policies and programme followed in rank (4th) with 47.5 percent. Poor pricing of agricultural produce with percentage count of 40 ranked 5th. A percentage count of 39.17 and 20 ranked 7th and 8th respectively. This means that the problems militating against environmental conservation are enormous and there are implications for extension services.

IV. Conclusion

Environmental degradation impacts negatively on soil fertility. Farmers need information on disaster magenament, Erosion, village practices, pollution, cropping systems and other area. They practice milling, rotation, and others to import their socio economic life, reduce hazards, increase yield and promote agro-biodiversity. Among the problems failing respondents include inadequate knowledge base of environmental conservation practices, poor economic base, small farm holdings, among others. Information provision to farmers on environmental conservation should be based on identified areas of needs like disaster management, fund chemical use.

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Table 1 : Socioeconomic characteristics of respondents

Variables	Frequency	Percentage
Age		
20-29	9	7.50
30-39	20	16.67
40-49	29	24.17
50-59	34	28.33
Sex	28	23.33
Male	59	49.17
Female	61	50.83
Marital Status		
Single	13	10.83
Married	83	70.83
Divorced	4	3.33
Widowed	18	15.0
Education		
No formal Education	22	18
Primary	37	31.09
Secondary	37	31.09
Tertiary	24	20.17
Occupation		
Farming	75	62.5
Civil servant	21	17.5
Trading	21	17.5
Artisan	3	2.5
Household size		
1-3	19	38
4-6	59	49.17
7-9	39	32.5
10 and above	3	2.5
Farm size		
Less than 1	59	49.17
1-3	35	29.17
4-6	21	17.5
7-9	5	4.16
Membership of social organization		
Not Belong	43	
Belong	77	64.17
Farming Experience		
1-5	16	13.33
6-10	43	35.83
11-15	14	11.67
16 and above	47	39

Table 2 : Distribution of the farmers according to areas of information needs

Areas		SA	A	U	D	SD	Mean	Rank
a)	Environmental disaster management	245	96	114	16	1	3.93	1st
b)	Funding sources for environmental management	235	72	81	46	5	3.65	2nd
c)	Pesticide application and use	165	84	120	48	2	3.49	3rd
d)	Drainage and irrigation	210	64	72	60	8	3.45	4th
e)	Erosion	190	100	48	16	33	3.33	5th
f)	Refuse disposal methods Tillage practices	95	112	156	12	15	3.25	6th
g)	Things that constitute pollution	145	48	87	80	10	3.08	7th
h)	Sources of information on the environment/practices	180	56	42	68	22	3.06	8th
i)	Tillage practices	75	92	81	72	19	2.82	9th
j)	Tree planting exercise	60	60	135	64	16	2.79	10th
k)	Cropping system	60	60	69	84	28	2.50	11th
l)	Manure and manuring	75	28	51	128	17	2.49	12th

Source: field survey data, 2011.

Table 3 : Perceived effects of environment conservation

Effects		SA	A	U	D	SD	Mean	Rank
a)	Improves the farmers socio-economic life by increasing income	230	68	126	20	5	3.74	1st
b)	Reduction of hards-inury, harm and accident.	190	108	105	36	2	3.68	2nd
c)	Favours agricultural products by increasing yield	200	100	69	58	3	3.58	3rd
d)	Makes for odour/pollution free environment	165	60	135	40	7	3.39	4th
e)	Reduction of ill health and the predisposing factors	160	80	51	64	19	3.12	5th
f)	Improves gaseous exchange	120	36	144	58	10	3.10	6th
g)	Agricultural produce are free from contamination	155	36	99	68	13	3.09	7th
h)	Support for life	160	84	54	32	33	3.03	8th
i)	Increases longevity	115	20	102	84	16	2.82	9th

Source: field survey data

Table 4 : Farmers conservation practices

Practices		frequency	percentage	Rank
a.	Manuring	99	82.5	1st
b.	Avoidance of bush burning	91	75.83	2nd
c.	Mulching	90	75	3rd
d.	Crop rotation	80	66.67	4th
e.	Adequate refuse disposal	68	56.67	5th
f.	Cautious use of agro- chemicals And pesticides	68	56.67	6th
g.	Tree planting	67	55.83	7th
h.	Use of cross bars	66	55	8th
i.	Ridging across the slope	62	51.67	9th
j.	Drainage	62	51.67	10th
k.	Rotational grazing	43	35.83	11th
l.	Contour terracing	41	34.17	12th
m.	Use of contour bunds	38	31.67	13th
n.	Irrigation	36	30	14th
o.	Recycling of waste	35	29.17	15th

Source : Field survey data, 2011.

Table 5 : Problems militating against environmental conservation

	Practices	frequency	percentage	Rank
a.	Inadequate knowledge base of environmental conservation practices	90	75	1st
b.	Poor economic base	89	74.15	2nd
c.	Inadequate farm size	89	74.15	3rd
d.	Poor environmental conservation	83	69.17	4th
e.	Weak government policies and programmes			
f.	Poor pricing of agricultural produce	54	40	6th
g.	Cumbersome nature of the practices	47	39.17	7th
h.	Poor linkages between and among the major stakeholders	29	24.17	8th
i.	Religious believe	24	20	9th

Source: field survey data, 2011.