Environmental Education of Women in Agriculture in southeast Nigeria and Its Implications for Sustainable Development

By

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Abstract

This paper dealt with environmental education of women in agriculture in southeast Nigeria and its implications for national sustainable development using primary data. The study used survey research design and questionnaire was the instrument used for the study. The sample size of 254 was randomly selected from the four communities in the two Local Government Areas of the states from the total population of 2,130 women farmers. The findings revealed the presence of the environmental problems such as erosion, unprotected water sources, the indigenous practices used by their elders has been abandoned such as use of dug wells in their compound to collect water during raining season; cutting down trees from the forest reserve for sales, they have not been involved in mixed cropping and crop rotation, bush burning and cutting down of trees in the old forests for farm land, they have not been involved in any lecture about the environment and they will like to participate in any of the seminars on environmental issues. The paper concluded that inclusion of women farmers in the environmental education will encourage the protection and conservation of the environment and that the women farmers stick to environmentally friendly style for more economically beneficial agriculture and recommended among others that environmental education through seminars and workshops, that monthly sanitation exercise should be encouraged to enhance environmental protection, planting of trees by the women farmers will go a long way in protecting the environment which enhance sustainable development.

Key words: Environmental Education, Bush Burning, Women in Agriculture, sustainable development, and Sustainability.
Introduction

Environment is generally seen as the system of biological and physical resources and their processes of interaction that affect lives and livelihoods. These biophysical systems are in regular interaction with man and social systems that live around them.

Environmental education is paramount to sustainable development of any nation. It is as important as maintaining the natural ecosystem. This is so because having knowledge of the environment should make one to know what should be done in order to maintain the natural environment without adding to the natural problems that are associated with the environmental degradation. According to Oleforo, (2013), to some people education is synonymous with knowledge, enlightenment or wisdom; therefore, environmental education gives knowledge and wisdom for one to deal with the environment.

Women in agriculture are considered the primary users of the natural resources such as land, forest and water. They spend most of their time in agriculture to see that the nation have food security even though they do not own land (Akwa, 2013). It has been noted that women are left out when it comes to awareness creation in issues of the environment despite the fact that they have closer relationship with land and other natural resources (Nwanekesi and Bruno, 2013). Women in agriculture have been denied access in many areas such as in health, infrastructure, education, credit and agricultural facilities, land, farm inputs etc. still they put in their best to see that their households have food and they contribute to the economy. Women generally are involved in life supporting activities ranging from child bearing to food production and processing, still they are neglected and relegated to the background in Nigeria.
When one talks about environmental education one means making individuals and the communities to understand the complex nature of their environment resulting from the interaction of the biological, physical, social and economic activities and to participate in responsible and effective ways of solving environmental problems as well as to improve the management of environment (Esa, 2010). Hence, areas of environmental education include knowledge, environmental protection, conservation, attitude and practice. This will help to understand what people know, believe and do with regard to the environment.

Environmental education of women in agriculture is as good as education of women. There are numerous benefits of educating women alongside men. Education of women is more important as that of men if not more than that. Remember the adage that says that if you educate a man, you educate an individual, but educate a woman, you educate a nation. According to the United Nation’s Report cited in (Akwa, 2013), Women are half of the world’s population and received one tenth of the world’s income, perform two thirds of the world’s working hours- own only one hundredth of the world’s property. Two out of every ten illiterate people are women. Fifty percent (50%) of the illness in the third world could be prevented by better nutrition, good water supply, sanitation, immunization and preventive health education (Akwa, 2013). The responsibility for which is usually taken by the women who in their capacity as either housewives or mothers ensure basic health conditions in the home.

**Statement of the problem**

Most farmers in Nigeria operate at the subsistence, small holder level in an extensive agricultural system; hence in their hands lay the country’s food security and agricultural development. Particularly striking, is the fact that rural women, more than their male counterparts, take the lead
in agricultural activities, making up to 60-80 percent of labour force (Nwanekezi and Bruno, 2013). It is ironical that their contributions to agriculture and rural development are seldom noticed. Furthermore, they have either no or minimal part in the decision-making process regarding agricultural development.

Gender inequality is therefore dominant in the sector and this constitutes a bottleneck. The women-in-agriculture programme in Nigeria, which was established in cognizance of this and the shortcomings in extension services for women farmers, saw the emergence of women groups, non-governmental organizations (NGOs) and civil societies that gave rural women farmers a voice in order to effectively champion their cause. Even at that, many barriers remain and would have to be addressed to further enhance their role. Yusuf, Arigbede, and Kolade, (2010) claim that rural women farmers deserve better recognition and greater appreciation of their tangible contributions to agriculture and rural development as well as food security. The women are mainly involved in the production, processing and trading of such food crops as maize, rice, cassava, yam and palm oil.

In Anambra and Enugu states of south east Nigeria, women are involved in agriculture to earn their livelihood as farmers, petty traders, artisans, construction workers, and entrepreneurs.

**Theoretical Framework-** Marxist Feminism theory

Marxist feminism argues that women are oppressed because they are relegated to the domestic era and have been made dependent. A precondition for a man to mix his labour with land is that there exists a woman who performs full-time domestic labour. This arrangement will allow men the free time to accumulate land. Hence, private property relates to men only. The aim for
women is to become liberated from economic and political exploitation. Thus, women must participate fully in productive forms of labour (Hossain, 2005).

Socialist feminism rejects the strict class analysis and claim that a complex web of social relations underlies the oppression of women (Tadira, 2007). Men are rational, active and should therefore have authority over women. Then, women can only escape oppression when traditional gender roles are abolished.

**Culture or radical feminism theory**

Culture or radical feminism by Plumwood cited in Cornwel, (2009) is seen as second wave of feminism. Radical feminism rejected the masculine ideals and the masculine dominant culture. The aim was to free women, not by equal participation in such a culture, but by resistance and replacement. Instead of devaluing the feminine characteristics, they must be celebrated. Men are seen as being superior, rational, active and intellectual while women were oppositely lacking these values and were negatively defined as being emotional, passive and intuitive. This study is hinged on these theories.

**Objective of the study**

The main objective of the study is to assess the extent to which the women in Agriculture in Anambra and Enugu state southeast Nigeria have participated in the environmental education. Specifically the study will determine:

1. The prevalence of environmental problems in Anambra and Enugu states Southeast Nigeria.
2. Indigenous practices used by the women in agriculture to check the environmental problems in Anambra and Enugu states southeast Nigeria.

3. Participation of women in agriculture in seminars/workshop on environmental education in Anambra and Enugu states southeast Nigeria.

Research questions

1. What are the prevalent environmental problems identified by women in agriculture in Anambra and Enugu states southeast Nigeria?

2. What are the indigenous practices used by the women in agriculture to check the environmental problems in Anambra and Enugu states southeast Nigeria?

3. To what extent have the women in agriculture participated in seminar/workshop on the environmental education in Anambra and Enugu states southeast Nigeria?

Research Methods

Descriptive survey research design was implored for this study. The design was used since it provided the researcher the opportunity of sampling the opinions of large representative sample of the women in agriculture. According to Eboh, (2009), survey approach enables researchers to study large and small populations by selecting the study samples from the population in order to find out the relative incidence, distribution, interrelation of sociological and psychological variables.

This study was carried out in two Local Government Areas in each of the two states (Anambra and Enugu). Two communities were involved from each of the Local Government Area (L.G.A.) in each state for study. The population of the two Local Government Areas in Anambra state (Anambra east and Anambra west) comprising of 1,315 women involved in agriculture that are
registered in four communities. In Enugu state, the population was 815 women involved in agriculture that were registered in the four communities of the two Local Government Areas (Uzouwani and Ezeagu). This gave a total population of 2,130.

Purposive sampling was used in the study due to the involvement in Agricultural activities by women in these local Government Areas from Anambra and Enugu states respectively. Simple random sampling was used to select the sample needed. To select the samples, all possible samples were enlisted on paper-slips and put in a box or bag and mix them thoroughly and then drawn (without looking) the required number of slips for the sample from each population without replacement. In doing this we made sure that in successive drawings each of the remaining elements of the population has the same chance of being selected (Korthari and Garg, 2014). This procedure also resulted in the same probability for each possible sample.

To select the number of samples from each of the local government using sample size determination (Eboh, 2009), Anambra state; Anambra east and Anambra west comprising of (1315) 700 and 615 were selected sample size 83 and 73 respectively, while in Enugu state, the population was (815) 308 and 507 for Uzouwani and Ezeagu; the sample sizes were 38 and 60 respectively making a total sample size of 254, using ±5% precision.

The instrument for data collection was a questionnaire title Agricultural Women’s knowledge of Environmental Education (AWKEE) developed by the researchers. The instrument was a 25-item questionnaire made up of two sections (A and B). Part A sought information on demographic data while Part B sought information in line with the objectives of the study on the degree with the item statements which were placed on 4-point Likert scale, the weightings were Strongly Agreed (SA) = 4; Agreed (A) =3; Disagreed = 2; and Strongly Disagreed (SD) = 1. The
average of this point was 2.50. This was used as cut off point for acceptance and rejection of each research question.

The (AWKKE) was validated respectively by three experts in Development Studies of University of Nigeria, Enugu Campus. It was trial-tested on 20 rural women in two LGAs which were not part of the study. Crombach Alpha Analysis was used to ascertain the internal consistency of the items (Crombach, 1951). The reliability coefficient of 0.84 was recorded. Data were analyzed, using mean and Standard Deviation (SD) for research questions. Acceptance point for the items was mean of 2.50.

Results: The results were shown in the tables in line with the research questions.

Table 1: Prevalence of the environmental problems in the communities identified by the women in agriculture in Anambra and Enugu states

<table>
<thead>
<tr>
<th>s/n</th>
<th>Environmental problems that are prevalent in the community</th>
<th>Mean(x)</th>
<th>SD</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lack of good sources of water supply due to some dirty activities in the stream</td>
<td>3.05</td>
<td>0.90</td>
<td>Agree</td>
</tr>
<tr>
<td>2</td>
<td>Presence of polythene on the stream</td>
<td>3.12</td>
<td>1.35</td>
<td>Agree</td>
</tr>
<tr>
<td>3</td>
<td>Blocking of water ways by refuse</td>
<td>3.30</td>
<td>0.96</td>
<td>Agree</td>
</tr>
<tr>
<td>4</td>
<td>Reduced farm land due to erosion</td>
<td>3.70</td>
<td>0.94</td>
<td>Agree</td>
</tr>
<tr>
<td>5</td>
<td>High rate of bush burning</td>
<td>2.80</td>
<td>0.99</td>
<td>Agree</td>
</tr>
<tr>
<td>6</td>
<td>Felling of trees for farm land</td>
<td>2.82</td>
<td>0.88</td>
<td>Agree</td>
</tr>
<tr>
<td>7</td>
<td>Drying and loss of plants and animals</td>
<td>1.22</td>
<td>0.83</td>
<td>Disagree</td>
</tr>
<tr>
<td>8</td>
<td>Acid rain</td>
<td>1.00</td>
<td>1.11</td>
<td>Disagree</td>
</tr>
</tbody>
</table>

Source: (Author’s field work, 2014)

Table 1 above shows that the rural women in Anambra and Enugu States revealed the presence of the environmental problems. These are seen in items 1,2,3,4, 5 and 6 which were rated above
2.5; while items 7 and 8 were rated below 2.5, showing that these environmental problems were not prevalent in the areas.

Table 2: The indigenous ways of handling environmental problems by the women in agriculture in Anambra and Enugu States

<table>
<thead>
<tr>
<th>s/n</th>
<th>Indigenous practices to check environmental problems</th>
<th>Mean(x)</th>
<th>SD</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Your elders allow washing in the stream</td>
<td>1.05</td>
<td>0.80</td>
<td>Disagree</td>
</tr>
<tr>
<td>10</td>
<td>Your elders use fertilizer in cultivation as you do currently</td>
<td>1.12</td>
<td>0.75</td>
<td>Disagree</td>
</tr>
<tr>
<td>11</td>
<td>Your elders encourage mixed cropping</td>
<td>3.40</td>
<td>0.96</td>
<td>Agree</td>
</tr>
<tr>
<td>12</td>
<td>Your elders encourage crop rotation</td>
<td>3.70</td>
<td>0.94</td>
<td>Agree</td>
</tr>
<tr>
<td>13</td>
<td>Your elders encourage use of farm yard manure in cultivation</td>
<td>2.90</td>
<td>0.99</td>
<td>Agree</td>
</tr>
<tr>
<td>14</td>
<td>Your elders encourage fishing with chemicals</td>
<td>1.82</td>
<td>1.08</td>
<td>Disagree</td>
</tr>
<tr>
<td>15</td>
<td>Your elders use polythene in wrapping items such as water</td>
<td>1.22</td>
<td>0.83</td>
<td>Disagree</td>
</tr>
<tr>
<td>16</td>
<td>Your elders dug well to collect rain water in their compounds</td>
<td>3.00</td>
<td>0.91</td>
<td>Agree</td>
</tr>
<tr>
<td>17</td>
<td>Are you following your elders practices today</td>
<td>1.10</td>
<td>0.75</td>
<td>Disagree</td>
</tr>
</tbody>
</table>

Source: (Author’s field work, 2014)

Table 2 shows that the women in agriculture in Anambra and Enugu State agreed in some indigenous practices carried out by the elders in their communities. The items 11, 12, 13, and 16, were rated high above 2.5, while 9, 10, 14, 15, and 17 were rated low below 2.5. This is an indication that the women know that these indigenous practices were carried out by their elders. Item 17 shows that they are not following the elders practices today.

Table 3: Participation of the women in agriculture in environmental education through seminars/workshop

<table>
<thead>
<tr>
<th>s/n</th>
<th>Participation in environmental education</th>
<th>Mean(x)</th>
<th>SD</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>There have been talk by Non-</td>
<td>1.05</td>
<td>0.80</td>
<td>Disagree</td>
</tr>
<tr>
<td></td>
<td>Governmental Organizations about the environmental degradation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>18</td>
<td>There have been talk on open defecation and its effects on the stream</td>
<td>1.12</td>
<td>0.75</td>
<td>Disagree</td>
</tr>
<tr>
<td>19</td>
<td>There have been a workshop on fermenting and washing of cassava in the stream</td>
<td>1.40</td>
<td>0.82</td>
<td>Disagree</td>
</tr>
<tr>
<td>20</td>
<td>There have been seminars on how to control farm animals grazing in farm lands, and bush burning</td>
<td>1.50</td>
<td>0.74</td>
<td>Disagree</td>
</tr>
<tr>
<td>21</td>
<td>I would like to participate in such workshop</td>
<td>2.90</td>
<td>0.99</td>
<td>Agree</td>
</tr>
<tr>
<td>22</td>
<td>There are sign posts indicating that people should not hunt, farm or graze animals at some areas</td>
<td>1.82</td>
<td>1.08</td>
<td>Disagree</td>
</tr>
<tr>
<td>23</td>
<td>I have attended lectures on how to care for the environment and plant more trees</td>
<td>1.02</td>
<td>0.73</td>
<td>Disagree</td>
</tr>
<tr>
<td>24</td>
<td>I will like to attend such lectures/seminars</td>
<td>3.00</td>
<td>0.91</td>
<td>Agree</td>
</tr>
<tr>
<td>25</td>
<td>Monthly sanitation exercise helps to care for the environment</td>
<td>3.12</td>
<td>0.99</td>
<td>Agree</td>
</tr>
</tbody>
</table>

Source: (Author’s field work, 2014)

Table 3 shows that these women rated items 17, 18, 19, 20, 22, and 23 low that is below 2.5 while items 21, 24 and 25 were rated high that is above 2.5. This shows that the women in agriculture were not exposed to environmental education.

**Discussion**

The result from the table 1 revealed that there are environmental problems in the rural communities studied. This is in connection with Eneh and Agbazue, (2011) that says that the commonest pollutant on land is the waste products that are often scattered on the land. The prevalence of environmental problems shows that biological, chemical and physical materials are
washed into water bodies from man’s activities in the environment. Prevalent of erosion which could be as a result of natural structure of the soil and may also be as a result of man’s activities on the soil. The bush burning could expose the top soil to erosion as well as the felling of the trees. The quality of the water may not be high due to the fermentation and washing of cassava in the water, open defecation on the farmland could enhance low quality of the water since the faeces are washed into the water source. The uncontrolled polythene materials that are found in the environment could block the water ways, not only that they are seen floating on the surface of the water. There are no acid rain effect in the area probably there are no industrial activities in the locality that could yield such gases that will lead to acid rain.

From table 2 the respondents indicated that there are indigenous practices used by the elders that helped in managing some environmental problems which are no longer put to practice. This is in line with Stitch (2009) that says that education enables one use the knowledge of the past to equip people for the present. Their fishermen use chemicals to fish in order to increase their harvest this affects the aquatic lives negatively. The practice of crop rotation has phased out. This makes farm land to be used annually, therefore reducing or depleting the soil nutrient. Based on this the fertilizer applications are used to increase yields as against the use of farmyard manure. Over cultivation of land could result in gully erosion. These chemical when washed into water has been noted to affect aquatic lives too. The practice of mixed cropping has been replaced with mono cropping, hence reducing the multi release of soil nutrients by other crops such as leguminous plants that naturally fix nitrogen into the soil; thereby reducing soil fertility, damages to the soil structure and exposure of the soil to erosion.

The elders were not making use of the polythene materials as they are used currently. This practice enhances blockage of water ways and contributes to the problem of the environment.
Their elders were digging well to collect run off waters in their compound; this helps in checking erosion which is no longer obtainable. These are in line with Isife (2013) that states that education means bringing changes in man’s behaviour and positive contributions in the society. From table 3 it was revealed that the women in agriculture have not benefited from the environmental education. This is in line with the study of Isife, (2013) that says that women education partly determines the level of development in any nation. That is to say that the level of education of women determines their level of contribution to development of their nation. One can say that the low level of awareness affects the environment negatively. It is supported by Ocho, (2005), who believes that education is the process through which individuals are made functional members of the society. This means that when women are adequately exposed to environmental education, their contribution would not only be significant in the improved environmental management but also to the continuation of those positive cultural practices that help to protect the environment. The respondents were willing to be part of the environmental education in form of seminars, lectures, workshops. They agreed that monthly sanitation exercises will enhance the cleanliness of the environment. They claimed that there were no sign posts for demarcation on some areas where one could not graze animals or do certain things that will endanger the environment.

**Implication for sustainable development**

Environmental education for women in agriculture will help in achieving sustainable development in Nigeria. The goals 2, 3 and 7 in the Millennium Development Goals (MDGs), achieving the universal primary education and the promotion of Gender Equality and women Empowerment and to ensure environmental sustainability are critical to any nation’s development among other goals of MDGs. It is on this note that the author is convinced that
educating women in agriculture on environmental issues is very important because of the numerous benefits that are associated with the education of women. There will be sustainable environment through environmental education when these women will be aware and understand how to put in practice the use of fertilizers, improved fallows, green manures and cover crops, water harvesting and small-scale irrigation, and improved seeds. Protection of grains in locally made storage bins using leaves from the improved fallow species tephrosia, which has insecticide properties (Sachs, 2005). These knowledge will be of great importance to women who do the lion’s share of farm and household work not only in Nigeria but in Africa in general.

However, environmental education for women in agriculture will improve capacity building and gender education to enhance necessary technical expertise and positive gender culture. It will also help to improve economic output for enhanced productivity and sustainable development especially in issues of Agriculture and the environment. It will also enhance the realization of the women’s dream as part and parcel of the society. Environmental education of these women will promote and protect human rights, social justice and equity (Okojie, 2013). Above all environmental education for the women in agriculture will go a long way in helping them to be liberated from ignorance, superstitious beliefs, and cultural backwardness in order to contribute immensely to sustainable development of the nation.

**Conclusion**

Absence of women in agriculture’s participation and involvement in the environmental education will destroy the environment further. Hence, inclusion of women farmers in the environmental education will encourage the protection and conservation of the environment, since they are involved greatly in the agricultural activities.
**Recommendations**

1. Environmental education through seminars, workshops, lectures is needed in the rural areas for the people that interact so much with the environment.

2. Monthly sanitation exercise should be encouraged to enhance environmental protection.

3. Planting of trees by the women farmers will go a long way in protecting the environment that enhances sustainable development.

4. The indigenous practices that help to conserve the environment should be applied in the rural areas to protect the natural environment.

5. Both governments and non-governmental organizations should remember these women in issues of the environment for sustainability through mass awareness and advocacy.

6. Conservation of the environment should be community’s responsibility.

7. The government should introduce policies on the allocation and use of natural resources so that people living in poverty are both protected and empowered. The system such as “Evil Forest” conservation and forbidden of cutting certain trees and cultivation of certain sacred land should be practiced in the rural communities.

8. Fishing with chemicals should be stopped since it does not only destroy the aquatic environment it will have some adverse health effects on humans upon consumption.

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