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Looking towards the Forest: Women's Firewood Consumption and Environmental Degradation in Bayelsa State, Nigeria

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Abstract

The issue of deforestation as a contributory trigger for environmental degradation continues to stay at the centre of global debate on climate change. However, little empirical effort has been directed toward understanding the effect of firewood consumption by rural women and how this contributes to environmental degradation around the world. In the light of this knowledge gap, this paper sets off to show the effect of women's use of firewood on forest resources and how this contributes to environmental degradation in Bayelsa State and the Niger Delta in general. It asserts that women's dependence on firewood for domestic and commercial purposes leads to the progressive deterioration of forest resources and by extension environmental degradation. Based on the assumptions of the Materialist Feminist theory, the core argument in this paper is that women in the study area are materially marginalized and as a result, they depend on the natural environment for petite economic survival. As a result, the struggle to raise their income level drives women into putting pressure on forests resources through firewood consumption and this in turn creates conditions that lead to environmental degradation through the loss of biodiversity, increase in carbon emission and sustained flooding. The findings of the study have implications for policy and practice. It is based on these implications that useful suggestions and recommendations are made.

Keywords: Women, Firewood Consumption, Environmental Degradation, Bayelsa State.

BACKGROUND

The issue of deforestation as a contributory trigger for environmental degradation continues to stay at the centre of global debate on climate change and women play a significant role in the debate on environment and sustainable development both at the local and international arenas. Within the Niger Delta region of Nigeria, this relationship is only beginning to assume a central place in development discourse especially within the context of the deteriorating livelihood conditions in the rural areas. The partriarchical structure of communities in the Niger Delta and Nigeria at large which is often enabled by the culture of the people creates socio-economic disincentives for mostly women who are often left with no choice but to exploit their immediate environment in the quest for survival. Gabriel (2008) while supporting this position has argued that "there is a correlation between women facing adverse socio-economic

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conditions in the Niger Delta region and natural resource use especially because they depend on the environment for their daily needs such as water, fuel, food, and many more".

Gender perspectives in the study of global environment problems have shown that women not only endure the most of negative feedbacks from the environment, but also play a significant role in contributing to the problem of ecosystem degradation. This human-environment interplay poses worrisome challenges as they reduce the quality of life of women and the entire human population of the Niger Delta, Nigeria and the World in general. While the geographical scope of this paper is Bayelsa State, its central thesis is by no means limited to the state or the Niger Delta region bringing to mind one of the most frequently used slogan in environmental studies "think globally and act locally".

In the Niger Delta, women tend to show a huge appetite for forest related activities and most of these have negative consequences for forest resources especially the cutting down of trees. It must be said however, that this adverse environmental action is not deliberate, but a falloff of the unenviable economic position that women find themselves as poor housewives who have to depend on forest resources for their daily sustenance. Adeyemi (2009) rightly captured this situation when he adduced that women in the Niger Delta are poor housewives usually petite farmers who use firewood for cooking and for commercial purposes. He went further to argue that, this condition, though small in nature, has a serious deleterious effect on our forest resources. Adeyemi's position speaks volume of the relationship between women and deforestation in Bayelsa State and the Niger Delta region in general.

The overdependence on the use of firewood by women for domestic and commercial purposes act as a driver for deforestation and associated environmental problems. In Bayelsa State as well as other parts of the Niger Delta, indigenous communities continue to lose their natural forests—along with valuable biodiversity: soil, water conservation, and climate regulation which the ecosystems provide. Research has shown that human activities such as clearing of forest areas for domestic and industrial purposes are responsible for deforestation and ultimately environmental degradation.

This adverse environmental condition has been strongly linked to flooding, erosions and the more troubling global climatic change (GCC). However, while existing literatures have highlighted the human denominator in the depletion of the environment, the feminine dimension of this problem in rural areas is still empirically hazy suggesting a need for further studies. Based on this critical gap in knowledge on the use of forest resources, this study provides empirical insight into the relationship between women's firewood consumption and environmental degradation in Bayelsa State, Niger Delta region of Nigeria.

AIM AND OBJECTIVES

The major aim of the study is to provide systematic insight into the impact of women's firewood consumption on environmental degradation in Bayelsa States. More specifically, the objectives of the study are to:

1. establish a relationship between women and firewood consumption in Bayelsa State
2. establish a relationship between women's consumption of firewood and environmental degradation in Bayelsa State
3. recommend ways of reducing women's consumption of firewood in the Niger Delta region

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Hypotheses

H1: Poverty is likely to be a significant driver of firewood consumption by women in Bayelsa State

H2: Women's firewood consumption is likely to lead to deforestation and ultimately environmental degradation in Bayelsa State

Review of Related Literature

An examination of theoretical and practical literature on the subject matter suggest a strong link between gender, environment and natural resource utilization. However, very few of the studies have been able to clarify the gender differentials in the use of forest resources especially in a country like Nigeria where data capture is only beginning to gain grounds. Within the broad umbrella of environmental studies in the social sciences and the attempt to mainstream gender analysis into natural resource management and more broadly into development policy interventions, its tools and techniques seem to have completely deviated from the norm with regards to the theoretical norm of gender as an analytical approach (Leach, 2007).

Scholarly works in this area have been influenced by strands of feminist and post-colonial theories that effectively destabilize gender as a central analytical category. Worse still, they tend to explore multidimensional subjectivities surrounding relationship of gender to the subject matter especially in terms of how men and women exploit the physical environment. According to Leach (2007) this trajectory of thought served a specific rhetorical purpose that was intensified through the United Nations' World Commission on Environment and Development (Brundtland) report in 1987, and a similar Conference on Environment and Development (UNCED) in Brazil in 1992, where alliances amongst feminist activists from across the world were forged to produce the Women's Action Agenda 21.

While the theoretical haziness continued within the domains of international organizations such as the United Nations, country-specific concerns on the role of women in environment began to grow with evidence of polar arguments between those who see women as caregivers of nature and those who see them as exploiters of nature albeit other intervening variables. Agrawal (1992) reports that the exploration of the links between women and the environment in the World began in Asia, stimulated largely by compelling stories of rural and indigenous women saving trees and thwarting the destroyers of forests and forest livelihoods. Two popular strands – a particular variant of ecofeminism from a Southern perspective and Women, Environment and Development (WED) – posited natural connections between women and environmental resources, showing rural women as the unrecognized caretakers of the environment, and in whose care the Earth and its resources had better chances of surviving for future generations (Shiva, 1989). From the caregiving perspective, Shiva argued that where rural, indigenous women are the original givers of life and are therefore the rightful caretakers of nature, the earth gets motherly care. WED's logic, unlike Shiva's more spiritualist–cultural premise, was that women were adversely affected by environmental degradation due to a natural gender division of labour. According to Argawal (1992:31)

In this division, women are usually assigned reproductive roles, explaining why they were chiefly responsible for the collection of forest products and food for daily household subsistence. Planners interpreted this to mean that women should then be targeted in conservation projects since their daily roles connected them more closely to natural resources.

Among the variables that define the closeness of women to the exploitation of forest resources is the issue of poverty especially in rural areas. In another study, Agrawal (1994) identified poverty as the critical turning point for deforestation occasioned by fuelwood (firewood) consumption for household use and commercial purposes especially in rural areas. This is a view that is extended in different ways by contributors to the study of social relationships with environment especially those who hold the anthropocentric view in ecological studies. Together, they also challenge the position that gender is primarily relevant only within households (a view that is often stated in mainstream environmental and political ecology research) and instead see it as salient factor in policy and practice across a variety of scales, and within institutions central to natural resource governance, from gendered property relations to the gendered positions of actors within organizations charged with governing or managing natural resources (Resurrection and Elmhirst, 2008).

From the above position, it is not necessarily gender that depletes forest resources but rather poverty that drives humans to rely heavily on the exploitation of natural resources for their survival. The central thesis therefore as propounded by Adeyemi (2009), is the fact that in rural areas especially in the Niger Delta region of Nigeria where poverty high, women are more disposed to degrading the environment due to their vulnerability to adverse livelihood conditions.

THEORETICAL FRAMEWORK

It is possible to identify four main currents within feminist thought in social science literature; Liberal, Radical, Socialist; and Marxist Feminism. However, Materialist Feminism emerged as a theoretical bridge between the classical Marxist theory and the classical Feminist theories. Hennessy (1993) traces the origins of Materialist Feminism to the works of British and French feminists who preferred the term materialist feminism to Marxist feminism because, in their view, Marxism had to be transformed to be able to explain the sexual division of labour in society. Hennessy had pointed out that Marxism was inadequate to the task because of its class bias and focus on production, while feminism was also problematic due to its essentialist and idealist concept of woman; this is why materialist feminism emerged as a positive alternative both to Marxism and feminism (Hennessy, 1993).

Fundamentally, Materialist Feminism is built on the theoretical assumption that "the masculine nature of materialism in capitalist societies created a situation where women tend to be edged out, exploited and marginalized" (Ekpenyong, Raimi and Ekpenyong, 2009). Relating this to environmental degradation, Hennessy (1993) argued that as women remain outside the materialist framework of capitalism in favour of men, they are forced to rely on exploitation of available natural resources usually forest for their survival. This to them is the reason why women engage in fuelwood (firewood) consumption more pervasively than their male counterparts. This skewed pattern of social-economic relationship represents some degree of institutionalized patriarchy where a cultural and materialist form of alienation is perpetrated against women by their male counterparts in the Niger Delta region and most parts of the Nigerian society.

It is important to note that the broad context of materialism carries the notion of economic struggles within a definite mode of production. Much as this is the case, materialist feminist theory creates the opportunity for scholars of gender studies to delve into the analysis of the marginalization of women especially in terms of access to and use of economic resources. In this regard, the marginalization of women tend to create an enabling condition for their

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impoverishment by men in society. This underlying assumption allows us to immediately understand the struggle for economic survival of women through the collection of firewood for domestic and commercial purposes especially in a place like Bayelsa State which is largely rural in nature. The theory is therefore relevant to this study especially as it creates the analytical opportunity to understand that women depend on firewood and other natural resources for livelihood incentives as a result of their marginalization from mainstream access to economic property by the structure of patriarchy in society.

METHODOLOGY/STUDY AREA

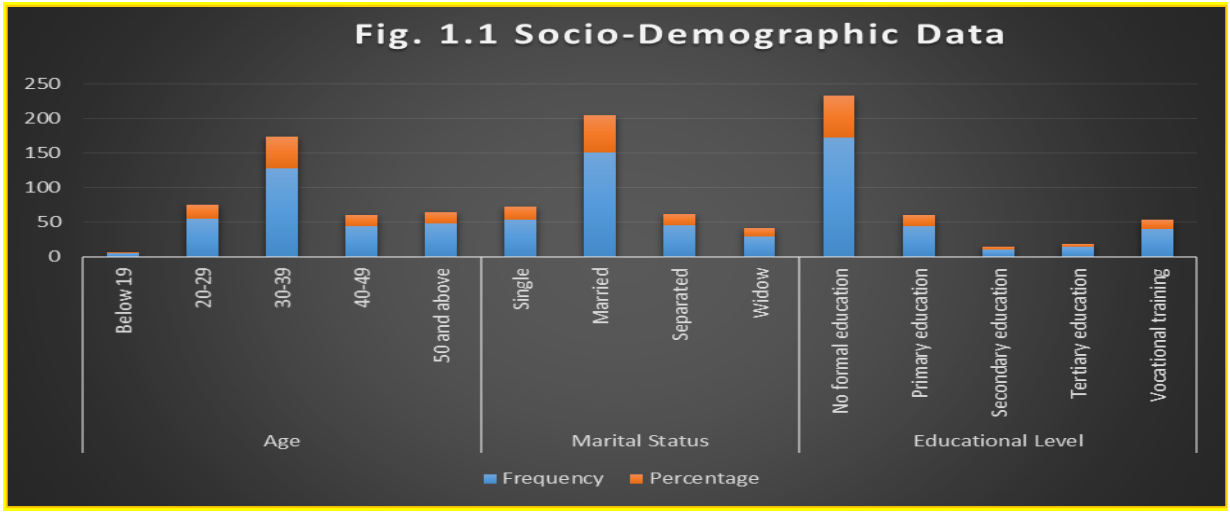
The study adopts the survey method. It was carried out in three Local Government Areas (LGAs) in Bayelsa State, Nigeria. Bayelsa State is located in the center of the Niger-Delta which is one of the world's largest wetlands and Africa's largest Delta covering 70,000km2. Bayelsa State is dissected centrally, by longitudes 6 degrees East, and latitude 4 degrees 30 minutes North (Alagoa, 1999). There is a diversity of ethnic communities living side by side in the State. However, the dominant linguistic group is the Ijoid.

The three Local Government Areas where the study was undertaken are Nembe, Sagbama and Ekeremor. A total of 300 respondents were selected using cluster and systematic random sampling techniques out of which 100 women each were drafted from each of the LGAs. For collecting relevant data from the respondents, a self-designed instrument (questionnaire) and an interview schedule was prepared considering the objectives in view. The analytical methods include simple percentage and the Pearson Product Moment Correlation (r) statistical techniques.

RESULTS

The presentation and discussion is based on a collated questionnaire of 280 representing 93% of retrieved questionnaire. Simple descriptive histogram was used for the socio-demographic data, while Pearson Product Moment Correlation statistics was applied to test the hypotheses.

Respondents of various ages participated in the study. The most common age range was 30-39. Over 50% of participants were married. It is also important to note that a large number of the participants/respondents in this study had no formal education as the data reveals in Figure 1.1 below. This educational limitation accounted for why the service of an interpreter was invaluable as a field assistant.



Source: Field Survey, 2015

Figure 1.1 above shows information on three socio-demographic variables of respondents in the study. It is easy to see that 128(46%) of the respondents fall under the age bracket of 30-39 years, with the next highest age bracket being 20-29 years (20%), followed by 40-49 years age bracket (16%). On the other hand, the section on marital status reveal that 150(54%) of the respondents are married, 54(19%) are single, 46(16%) and 30(11%) of the respondents are separated and widowed respectively.

Finally, on the educational level of respondents, (172/61%) of the respondents have no formal education, 44(16%) of them had primary education, 10(4%) and 14(5%) had secondary and tertiary education respectively, while 40(14%) of them has vocational education/training. The data on level of education simply reminds our readers that a significant proportion of women population living in rural areas in Bayelsa State and indeed the entire Niger Delta region have very little formal education. This low literacy level apart from reducing the ability of rural women in terms of gaining meaningful employment and income, also constitute to a major setback in their knowledge of the relationship between firewood consumption, and environmental degradation in the region.

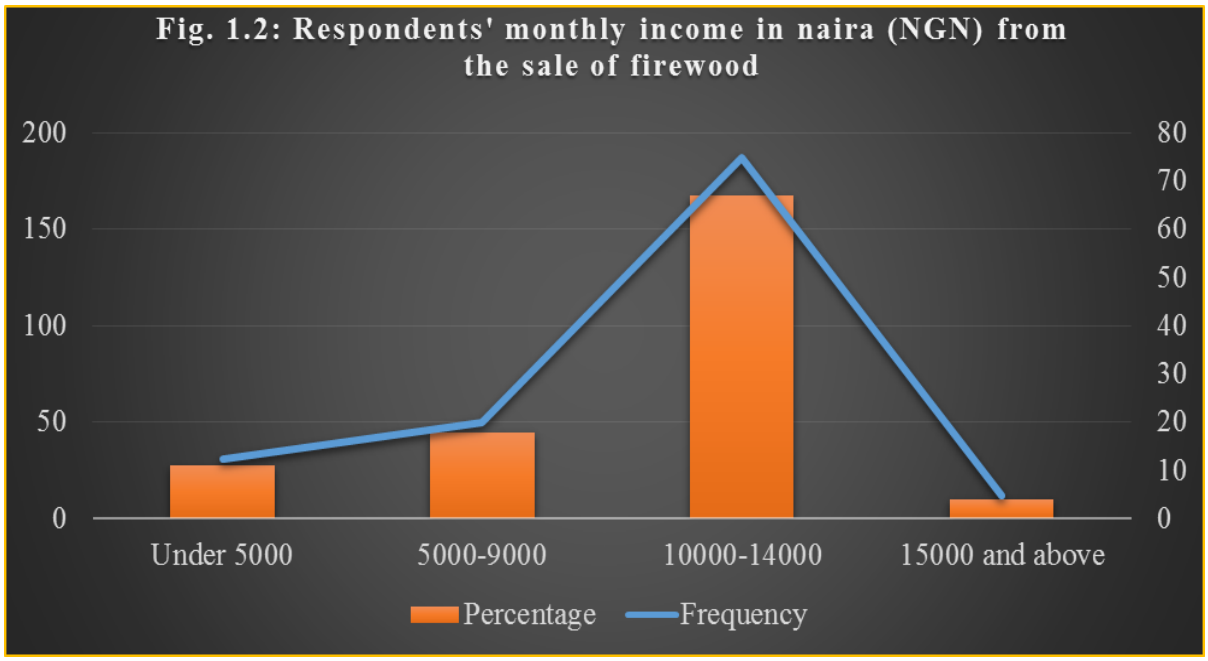


Figure 1.2 shows the average income of the respondents (in naira) based on the sale from firewood. The data represented in the figure revealed that 31(11%) of the respondents earn less than N5000.00 in a month from the sale of firewood, 50(18%) of the respondent earn between N5000 – N10, 000.00, 187(67%) of the respondents earn between N10, 000.00 and N15, 000.00 while about 12(4%) of them earn above N15, 000.00 monthly. It should be emphasized that as low income earners from the sale of firewood strive to raise the bar of their income, more pressure is put on available trees causing deforestation and by extension the natural environment continues to deteriorate leading to degradation. The relationship between low income and resource depletion does not only apply at the individual level alone, as indicated by macro studies. In other words, low income countries are known to put more pressure on forest resources more than high income countries of the world. This scenario is aptly captured in the report of the Food and Agriculture Organization of 2009 (see chart below).

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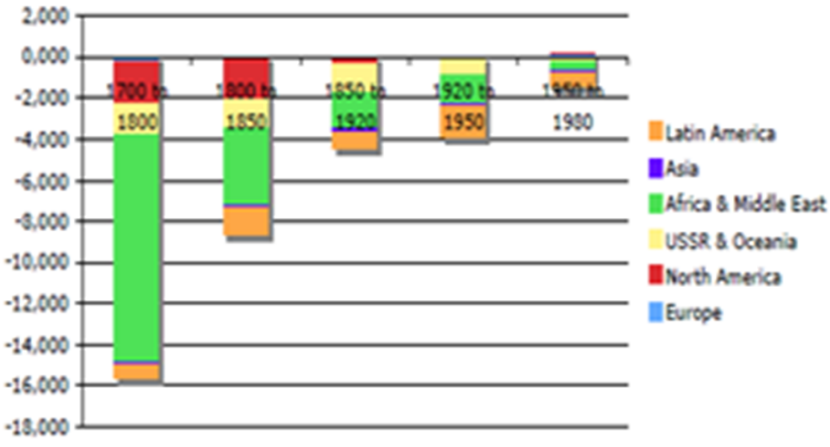
Fig. 1.3: Deforested surface/people since 1700



Source: Food & Agricultural Organization (FAO, 2009)

According to the FAO (2009), since 1979 the total loss of forest land increased from 75,000 square kilometers to 126,000 square kilometers. This was followed in the 1980s by an annual increase of 132,000 km2 (Myers, 1994). The World Bank (1992) estimates the overall annual rate of tropical deforestation worldwide, since the 1980s to have been 0.9 percent. According to this estimate Africa, South-East Asia and the 14 developing countries in South America, have already lost more than 250,000 hectares of tropical forests. Worldwide, however Latin America had the highest deforestation rate with 85 million hectares of forestland lost within the period described above especially in Brazil where nearly 150,000 square kilometers of forest has been depleted (Butler, 2010). Both the FAO and Global Forest Resources Assessment (GFRA, 2000) estimated that in just over 400 years all of the world's 3,869 million hectares of forest will be gone.

The depletion of forests as a result of firewood consumption in rural areas of Nigeria such as Beyelsa State in the Niger Delta region has significant deleterious consequences on the environment especially as it has been associated with climate change and flooding. Bariweni, Tawari and Abowei (2012) have argued that the loss of vegetation (deforestation) increases the risk of flooding, its duration and impact in the Niger Delta region.

TEST OF HYPOTHESES

H1: Poverty is likely to be a significant driver of firewood consumption by women in Bayelsa State

Table 1.1: Pearson Product Moment Correlation (*r*) Result for Hypothesis 1

Response			XY	X2	Y2	n∑xy-∑x∑y
	X	Y				
SA	40	80	3200	1600	6400	6400
A	70	40	2800	4900	1600	
Undecided	42	40	1680	1764	1600	
SD	88	40	3520	7744	1600	
D	40	80	3200	1600	6400	
Total	280	280	14400	17608	17600	
n=5						*r*=.665

Source: Field Survey, 2015

Based on the correlation result in Table 1.1 above which shows that calculated r is equal to .665, the study upholds that there is a moderate correlation between poverty and firewood consumption by women in Bayelsa State. This simply leads to the conclusion that although poverty is a factor in firewood consumption by women, it does not sufficiently account for the magnitude of deforestation and environmental degradation in Bayesla State.

H2: Firewood consumption is likely to lead to deforestation and ultimately environmental degradation in Bayelsa State

Table 1.2: Pearson Product Moment Correlation (r) Result for Hypothesis 2

Response			XY	X2	Y2	n∑XY-∑X∑Y
	X	Y				
SA	20	18	8000	400	324	54320
A	72	62	4464	5184	3844	
Undecided	40	38	1520	1600	1444	
SD	48	70	3360	2304	4900	
D	100	92	9200	10000	8464	
Total	280	280	26544	19488	18976	
n=5						*r*=.970

Source: Field Survey, 2015

Drawing from the r calculated result presented in Table 1.2 above which is equal to .970, the study upholds that there is a high correlation between firewood consumption, deforestation and environmental degradation in Bayelsa State. This finding is supported by previous researches. For instance, Mallo and Ochai (2009) in their study conclude that the search for firewood is one of the primary cause of deforestation in developing countries. In the same vein, Ayuba and Dami (2011) indicted firewood harvesting as a major cause of the massive destruction of the indigenous forest in Abuja the Federal Capital Territory of Nigeria, while Bello (2007) pointed out that the demand for firewood is a major cause of deforestation in northern Nigeria.

Based on the findings of this study, it is worthy to note that deforestation as a result of women's dependence of firewood for domestic and commercial purposes is both an economic and environmental problem. This is so because important values are lost, some perhaps irreversible. The cost of deforestation or forest depletion could be very high especially for the Niger Delta wetland which houses the largest mangrove forest in Africa (FAO, 2009). Adeyemi (2009) supports this economic argument when he adduced that the foregone cost or opportunity cost of forest use in terms of timber rentals from primary and secondary forestland is in the order of US$ 625-750 million annually. This excludes the cost of logging damage, fire and other non-timber forest products. However, in Bayelsa State, overuse of forest resources by women leads to serious depletion and the inevitable destruction of habitats for diversity of life forms. Also, it destabilizes the entire ecosystem function thereby exposing the area to other forms of environmental hazards such as flooding and pollution.

As a result, it is a statement of fact that the mangrove forest of Nigeria's Niger Delta where Bayelsa is located has witnessed serious depletion. This is primarily owing to the fact that rural livelihood in this region is often enabled by the exploitation of the mangrove forest and its resources especially by poor women. The mangrove forest is utilized as a source of firewood,

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stake pole production, fish traps, boat carving, fishing, platforms as well as shoreline protection.

The growing human population and overdependence on natural resources for livelihood have been described (Mmom, 2007) as major factors in mangrove forest depletion. Although crude oil exploration and exploitation in the region has been identified as a major causal factor with regard to environmental degradation in the Niger Delta, the unregulated use of firewood for domestic (such as cooking, heating and other artistic tools) and commercial purposes also contributes to a major aspect of environmental degradation such as climate change and flooding. This is even worse for Bayelsa State and the Niger Delta because its lush mangrove forest is gradually depleting and is likely to face extinction in the near future.

CONCLUSION/ RECOMMENDATIONS

This study has shown that poor rural women in Bayelsa State and the Niger Delta in general actually look to the forest for a large part of their livelihood. It showed clearly that firewood consumption for household (cooking) and commercial purposes pose significant threat to the lush mangrove forest of the region in addition to being a contributory factor to environmental degradation in the area. It is the conclusion this study that women in Bayelsa and indeed the Niger Delta region consume firewood since they engage more in household cooking and most often fending for their families. This gives justification to the fact that more women also engage in commercial sale of firewood for sustenance. Further, the paper concludes that a relationship exists between firewood consumption, deforestation and environmental degradation.

Sadly, women in Bayelsa State do not have the required infrastructure to use alternative means of cooking especially given their level of economic disadvantage. For instance, the absence of electricity in most rural areas in Bayelsa State seems to be a worrisome factor to the women who claimed they would have at least tried using electric cookers. It is clear that women are forced by their adverse economic conditions which is often exacerbated by their marginalization from property holdings to look towards the forest for their survival.

Based on the findings and conclusions reached in this study, the following recommendations are proffered to mitigate the problem of firewood consumption by women in Bayelsa State and the Niger Delta in general.

- There is every need to carry out a serious environmental sensitization campaign for rural women concerning the dangers of deforestation especially as it concerns the natural environment. This could be carried out through women leaders in rural areas to ensure that women under them take the campaign and the learning associated with it seriously.
- Having discovered the resource potentials of rural areas, it is necessary to develop a very sound environmental policy, specifically to look at women and firewood consumption. This new environmental policy should have serious sanctions in order to ensure that rural women adhere to it. Reducing the rate of deforestation could improve the incidents and severity of floods in the region.
- There is also the need to get serious with the issue of poverty alleviation for rural women in order to reduce their overdependence on firewood for cooking and most especially for commercial use. This can be done by government through a sound and sustained agricultural development programme for rural women.
- Rural infrastructure such as electricity should also be provided as this creates the much-needed alternative means of cooking for rural women.

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