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Gender Equality in Environmental Issues for Achieving Sustainable Peace and Security in Nigeria

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ABSTRACT: This paper examines gender equality in environmental issues for achieving sustainable peace and security in Nigeria. The study adopts an ex-post facto research design. The findings confirm the age-long devastating effects of human exploitation of land and its resources. It discovers that enhanced peace and security (proxied by defense expenditure) leads to improved environment (reduced Co2 emissions) and that gender equality improves environment as a result of reduction in Co2 emissions due to gender mainstreaming on environmental management. Similarly, it also discovers that increase in the quality of governance which is control for corruption [CC]) will decrease Co2 emissions and indicates that good governance leads to reduced Co2 emissions and thus, better environment but on the contrary, age index leads to an increase in Co2 emissions. Since the moderating effects of environmental impact assessment curtails Co2 emissions from high industrialization, environmental impact assessment should be mandatory for every firm that would be established. Also, government should increase defense budget, design new industrial policies, ensure gender mainstreaming, intensify anti-corruption fight and enact environmental sustainability laws to reduce Co2 emissions, and improve environment with the ultimate target of attaining peace and security in Nigeria.

KEYWORDS: gender, equality, inequality, environment, peace and security

Introduction

Gender and environmental issues have long been a reference point for research and debate within the field of peace and conflict studies, the relative importance of which continues to increase as the relationship between human and ecological wellbeing becomes clearer and environmental issues rises in social scholarship more generally (Ross Ryan 2000, 1). In recent time, debates about the relationship between the environment and peace focus on how environmental problems like resource scarcity, climate change, persistent organic pollutants (POPs), ozone depletion, land degradation, biodiversity, and international waters are likely to create or exacerbate conflict. Gender mainstreaming has been the primary method for integrating a gender approach into environment and development efforts (GEF 2018). In practice, gender mainstreaming means deliberately giving visibility and support to both women's and men's contributions individually, rather than assuming that both groups will benefit equally from gender-neutral development interventions. Gender equality is a goal that has been accepted by governments and international organizations. It is enshrined in international agreements and commitments. The threat of environmental

issues, have been recognized as global priority issues. Almost all of these environmental issues are sustainable development challenges, with broad impacts not only on the environment but also on economic and social development, and hence, on peace and security.

Environment and gender relations form an inextricable nexus that ultimately involves relationships between human beings of all ages, races, colours, ethnic groups, beliefs, nations, and countries, all of which are tied to an understanding of the planet Earth as *Ile*, the Mother Earth of the Yoruba peoples; *Ani*, the Earth Deity or so-called "Mother Earth" of the Igbo people is also called *Ala* (land), which is actually the physical manifestation of *Ani*. This paper looks at the strategy for promoting gender equality in environmental issues for achieving sustainable peace and security in Nigeria.

Review of Literature and Concepts Clarification

Within gender studies in Europe and the western world, the women, environment debate has been reflected in the so-called "subsistence approach" (Bennholdt-Thomsen 1980; Mies 1982; von Werlhof 1985). This approach later transformed into a more explicit ecofeminist position. The environmental topic in international women's movements is time and again connected with the struggle of ethnic groups. For instance, Rosi Braidotti explains the strong involvement of third world women in the environmental debate as follows: "Because women are more directly exposed to the negative effects of environmental degradation in developing countries, they have taken up the issue as the main political point" (Braidotti 1999, 76). Indeed, women of the third world countries see themselves in alliance with the environment which is often called "Alliance for the Future" (Dankelman and Davidson 1988; Townsend 1995).

Gender Equality

Gender equality is first and foremost a human right issue (UNFPA 2018). It refers to the equal valuing of the roles of women and men. It does not imply that women and men are the same, but that their interest, needs and priorities should be valued equally and accorded equal treatment (IPPF 2018).

It works to overcome the barriers of stereotypes and prejudices so that both sexes are able to equally contribute to and benefit from economic, social, cultural and political developments within society (Global Education n.d.). Gender is the range of characteristics pertaining to, and differentiating between, masculinity and feminity. Depending on the context, these characteristics may include biological sex (i.e. the state of being male, female or an intersex variation which may complicate sex assignment), sex-based social structures (including gender roles and other social roles), or gender identity (Udry 1994; Haig 2004 and WHO 2017). Early gender identity research hypothesized a single bipolar dimension of masculinity-feminity, with masculinity and femimnity being opposites on one continuum. Assumptions of the unidimensional model were challenged as societal stereotypes changed, which led to the development of a two-dimensional gender identity model. In the model, masculinity and femimnity were conceptualized as two separate and orthogonal dimensions, coexisting in varying degrees within an individual. This conceptualization on feminity and masculity remains the accepted standard today (Palan 2001). In this paper, gender is considered as male and female in which an index of the population of males and females is taken. Thus, Gender Index = Male population/female population.

Theoretical Perspectives

Ecofeminism

Ecofeminism posits that women are closer to nature than men are. This closeness, therefore, makes women more nurturing and caring towards their environment. Ecofeminism encompasses a variety of views but has a focus of patriarchal domination and the social constructions relating to women and the environment (Tiondi 2001). Some indicate the biology of women as the reason behind the closeness, while others credit culture and historical factors (Agarwal 2000). An ecofeminist believes in a direct connection between oppression of nature and the subordination of women. Vandana Shiva, is credited with bringing ecofeminism into public consciousness by her reports of the Chipko movement (Schultz et al. 2001). The Chipko movement also led to the formation of anti-alcoholism. Certain theoretical assumptions, closely connected with the names of Vandana Shiva and Maria Mies, figure under the label of "ecofeminism" within gender research. There are different theoretical lines of the ecofeminism approach; the USA and Australia have created their own ecofeminist theoretical traditions (Salleh 1994; Biehl 1991; King 1989). However, all forms of ecofeminism emphasize women's privileged bond with nature/ environment. For instance, Maria Mies sees "the nearness" of women to nature as a result of societal historical progresses in which women, because of their reproductive capacity, are tied to nature in an extraordinary way. On the other hand, materialistic ecofeminists see the privileged bond of women with nature through the eyes of societal and cultural advance that excluded experiences of embodiedness (Mellor 2001).

Research Methods

Research Design and Sources of Data

This study uses the ex-post facto research design while data is from the World Development Indicators (WDI). The estimation method is Autoregressive Distributed Lag (ARDL) developed by Pesaran et al. (2001). This ARDL methodology is flexible and able to handle variables with different stationarity levels such as I(0) and I(1) as well as allowing for policy analysis, multiplier analysis, mean and median lag and forecasting. The period of study is from 1970 to 2016 and variables are shown in Table 1 bellow.

Table1. Original and Abbreviated Variable Names

S/No	VARIABLE NAME	CODED NAME
1.	Environment (proxied by Co2 Emissions)	Co2
2.	Defense Expenditure (Military Expenditure/GDP * 100	DEF
3.	Gender Index = Male population/female population.	GEN
4.	Quality of governance (control for corruption)	CC
5.	Industry value-added (% of GDP)	IVAG
6.	Age index = Adult population/youth population	AGEI

The variable security is proxied by defense expenditure which is in turn represented by military expenditure/GDP multiplied by 100. For the variable gender index is calculated as male population divided by female population. Age index is adult population divided by

youth population while the variable quality of governance is proxied by control for corruption.

Model

An ARDL model in its basic form appears like this:

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \cdots + \beta_p Y_{t-p} + \alpha_1 X_t + \alpha_2 X_{t-1} + \cdots + \alpha_q X_{t-q} + \varepsilon_t \quad (1)$$

Where ε_t is a random "disturbance" term. The model is "autoregressive", in the sense that y_t is explained in part by lagged values of itself. It has a "distributed lag" component, in the form of successive lags of the "x" explanatory variable. Sometimes, the current value of x_t itself is excluded from the distributed lag part of the model (Giles, 2013). This econometric approach also has a "distributed lag" component, in the form of successive lags of the "x" explanatory. For this study, the model is:

$$\mathbf{Co2}_t = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}\,\mathbf{Co2}_{t-1} + \boldsymbol{\alpha_1}\,\mathbf{GEN}_{t-1} + \boldsymbol{\alpha_2}\boldsymbol{DEF}_{t-1} + \boldsymbol{\alpha_3}\mathbf{IVAG}_{t-1} + \boldsymbol{\alpha_4}\,\mathbf{AGEI}_{t-1} + \boldsymbol{\alpha_5}\mathbf{CC}_{t-1} + \boldsymbol{\varepsilon_t} \quad (2)$$

Where,

$\boldsymbol{\beta_1}$ = Regression Co-efficient of lagged value of **Co2** $\boldsymbol{\alpha_1}$ = Regression Co-efficient of **GEN**

$\boldsymbol{\alpha_2}$ = Regression Co-efficient of ***DEF*** $\boldsymbol{\alpha_3}$ = Regression Co-efficient of **IVAG**

$\boldsymbol{\alpha_4}$ = Regression Co-efficient of **AGEI** $\boldsymbol{\alpha_5}$ = Regression Co-efficient of **CC**

$\boldsymbol{\varepsilon_t}$ = Error Term

Results and Findings

Results generated from the ARDL estimation are presented in Tables 1 to 6 and Figures 1. The estimation equation was based on our model in equation 2 above. The ARDL result covers 1984 to 2016 but the variation in dates is due to lagged periods automatically chosen by ARDL in Eviews 10 software.

Model Evaluation

By examining the overall fit and significance of the model, it could be observed that the model has better fit. That is, the probability F-statistic value of 0.0000 is less than 0.05 (Table 2). There is no autocorrelation among the variables as captured by Durbin Watson (DW) statistic of 2.487367. It shows an unbiased estimate and the model could be used for policy decisions. The coefficient of determination (R-square), used to measure the goodness of fit of the estimated model (Table 4), indicates that the model is excellently fit in prediction, that is, 0.879385 or 88 percent change in Co2 emissions was due to GEF, GEN, GOV (CC), IVAG and AGEI collectively, while 12 percent unaccounted variations was captured by the white noise error term. It showed that GEF, GEN, GOV (CC), IVAG and AGEI had strong significant impact on the Co2 emissions (Environment).

Table 2. Model Evaluation

Evaluation	Test
F-statistic	0.0000
Durbin Watson (DW)	2.487367
R-square	0.879385

Table 3. ARDL Bound Test Results

Test Statistic	Value	K (df)
Bound F-statistic	5.86	5
Critical Values Bound		
Significance	Lower Bound F	Upper Bound F
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

In Table 3 above which shows bound test results, the F_PSS value is 5.86 which is bigger than 1%, 2.5%, 5% and 10% upper bound value showing that there is cointegration among the proposed variables. However, since the post regression tests in Table 4 below are insignificant there is no issue in the model.

Table 4. Post regression diagnostics

Diagnostics	Test (Prob)
JB Normality Test	0.46 (0.79)
BG Serial Correlation LM Test	2.94 (0.07)
BPG Heteroskedasticity Test	1.80 (0.13)
RESET Test	0.36 (0.72)

Interpretation of Parameters

Figure 1 below is model stability test (CUSUM) graph which confirms that the mean and variance of the model is stable to any unknown change to the model. In Table 5 below, since the coefficient of cointeq(-1) is negative (-0.859766), significant and in between -1 and 0, it ensures that the equilibrium formed is converging and stable. It means that if policy-makers intervene by 1% change in the independent variables (GEF, GEN, GOV (CC), IVAG and AGEI) to improve environment (reduction in Co2) in Nigeria, 86% of the policy target will be achieved in one year. This means that the policy lag of this model is 1.16 years (Policy lag = 1 / (conteq (-1), that is 1/0.86).

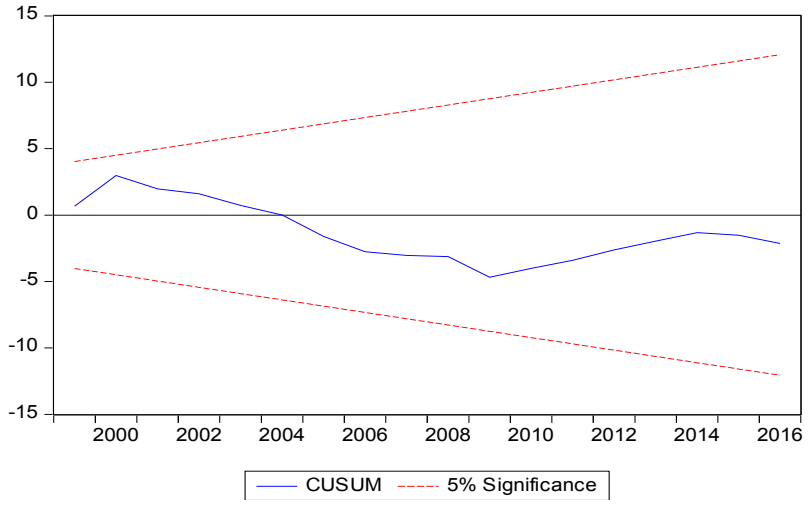

Figure 1. Model Stability Test (CUSUM)

Table 5. Short-Run Estimates

Variables	Coefficients	Standard Error	t-Statistic	Prob.
D(DEF)	-0.000040	0.001353	-0.029775	0.9765
D(GEN100)	-0.161238	0.059776	-2.697367	0.0129
D(CC)	0.096587	0.096695	0.998880	0.3282
D(IVAG)	-0.002094	0.002013	-1.040044	0.3091
D(AGEI)	-4.499022	2.164087	-2.078947	0.0490
CointEq(-1)	-0.859766	0.164516	-5.226034	0.0000

Table 6. Long Run Estimates

Variables	Coefficients	Standard Error	t-Statistic	Prob.
DEF	-0.000047	0.001571	-0.029826	0.9765
GEN100	-0.187537	0.071792	-2.612211	0.0156
CC	-0.302098	0.089168	-3.387977	0.0025
IVAG	-0.002435	0.002270	-1.072918	0.2944
AGEI	1.459667	0.527420	2.767564	0.0110
C	17.238208	7.160766	2.407313	0.0245

From the long-run estimates in Table 6 above, it can be seen that a 1% increase in the defense expenditures (DEF) will led to decrease in the Co2 emissions by 0.047 of 1000 metric tons per capita, and it is not significant at 5% level of significance. It implies that enhanced peace and security (proxied by defense expenditure) contributes to improved environment (decrease in Co2 emissions). Also, a 1 percent increase in gender index (GEN100) will decrease Co2 emissions by 0.18 metric tons per capita, and is significant at 5% level of significance. It indicates that gender equality brings less pressure on environment as a result of reduction in Co2 emissions because of gender mainstreaming on environmental management. Similarly, a 1% increase in the quality of governance (control for corruption [CC]) will decrease Co2 emission by 0.30 metric tons per capita, and is significant at 5% level of significance. It indicates that good governance leads to a decrease in Co2 emissions and thus, substantial improvement of environment. Similarly, a 1% increase in industry value addition (IVAG) will decrease Co2 emission by 0.002 metric tons per capita, and is not significant at 5% level of significance. This means that very high industrialization which should have naturally led to poor environment actually resulted in excellent environment, perhaps due to the moderating effects of environmental impact assessment. On the contrary, a 1 % increase in age index (AGEI) will increase Co2 emissions by 1.45 metric tons per capita, and is significant at 5% level of significance. The implication of this finding is that it confirms the age-long devastating effects of human (adults and youths) exploitation of land and its resources.

Conclussion

This paper examines gender equality in environmental issues for achieving sustainable peace and security in Nigeria. The study adopts an ex-post facto research design. The findings confirm the age-long devastating effects of human exploitation of land and its resources. Based on the findings, policy-makers should design policies that could be accomplished within about 14 months in view of the policy lag of this model which is 1.16

years. In addition, government should increase the defense expenditures (DEF) since it will lead to decrease in the Co2 emissions, and thus good environment. Also, since increase in gender index (GEN100) will decrease Co2 emissions, gender equality for less pressure on environment should be encouraged through gender mainstreaming on environmental management. Similarly, anti-corruption fight be intensified because increase in the quality of governance which is control for corruption [CC]) will decrease Co2 emissions and indicates that good governance and thus, substantial improvement of environment. In the same way, since the moderating effects of environmental impact assessment curtail Co2 emissions from high industrialization, environmental impact assessment should be mandatory for every firm that would be established. On the contrary, as an increase in age index (AGEI) will increase Co2 emissions, policies should be established to curtail the devastating effects of human exploitation of land and its resources.

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