ASPROWORDA

Working Paper 08/2022

Gender Sensitive Responses to Climate Change in Nigeria: The Role of Multinationals' Corporate Social Responsibility in Oil Host Communities

Joseph I. Uduji
&
Elda N. Okolo-Obasi

Gender Sensitive Responses to Climate Change in Nigeria: The Role of Multinationals' Corporate Social Responsibility in Oil Host Communities[1]

Forthcoming: Journal of Global Responsibility

Joseph I. Uduji
(Corresponding Author)
Department of Marketing,
Faculty of Business Administration, Enugu Campus,
University of Nigeria, Nsukka, Nigeria
E-mails: joseph.uduji@unn.edu.ng; joseph.uduji@gmail.com;
joseph.uduji@yahoo.com; Phone: +2348037937393

Elda N. Okolo-Obasi
Institute for Development Studies, Enugu Campus,
University of Nigeria, Nsukka, Nigeria
E-mail: eldanduka@yahoo.com; ndukaelda@yahoo.com;
Phone: +2348063631111; +2349094501799

Abstract

The purpose of this paper is to critically examine the multinational oil companies' corporate social responsibility (CSR) initiatives in Nigeria. Its special focus is to investigate the impact of the global memorandum of understanding (GMoU) on gender sensitive responses to climate change in oil host communities in Nigeria. This paper adopts a survey research technique, aimed at gathering information from a representative sample of the population, as it is essentially cross-sectional, describing and interpreting the current situation. A total of 1200 rural women were sampled across the Niger Delta region. The results from the use of a combined propensity score matching and logit model indicate a significant relationship between GMoU model and women, gender and climate change in the Niger Delta Nigeria. This implies that CSR of a multinational oil companies is a critical factor in the need for gender sensitive responses to the effect of climate change. It suggests that, for adaptation to climate change effects, understanding gender dimensions and taking gender responsive steps be incorporated into GMoU policies and action plans of multinational enterprises. This research contributes to gender debate in climate change from a CSR perspective in developing countries and rationale for demands for social projects by host communities. It concludes that business has an obligation to help in solving problems of public concern.

1 The views expressed in this working paper are those of the authors and do not necessarily represent those of the ASPROWORDA, its Executive Board, or its management.

Keywords Climate change, Gender equality, Corporate social responsibility, Multinational oil companies, sub-Saharan Africa

Paper type Research paper

1. Introduction

Climate change is clearly seen as the alteration in natural or human systems as a reaction to actual or anticipated climate stimuli or their outcomes which moderate damage or exploits useful openings (IPPC, 2007). The damaging effects of climate change can be sensed in the short-term via natural hazards like landslides, tidal waves and tempests; and in the long-term, via more gradual wreckage of the environment (Kompas *et al,* 2018). The destructive nature of these events are already felt in many areas, including water resources, human health, human settlements and migration patterns, agriculture and food security, biodiversity and ecosystems, energy, industry and transport (Stanley *et al,* 2021). In most of these circumstances, women are more at risk than men, primarily due to their making up the majority of the world's destitute and being more reliant for their survival on natural resources already threatened by climate change (Aguiler *et al,* 2015). In addition, they face communal, fiscal and civil barriers that limit their capacity to cope (Beg *et al,* 2002). Those in rural areas in developing countries are particularly at risk when they so much depend on local natural resources for their survival (Pihkala, 2018). Those given the responsibility of securing water, food and fuel for usage face the greatest problem (Akerlof *et al,* 2015). Again, when the situation is worsened by uneven access to resources and process of decision-making as well as limited mobility, women in rural areas are placed in a position where they are evenly affected by climate change (Beneria, 2016). Thus, it is essential to identify gender-sensitive line of attack to respond to the environmental crises due to climate change (Corral-Verdugo *et al,* 2017).

In the meantime, the economy of the multination state, Nigeria, is heavily dependent on the oil sector. The Niger Delta where multinational oil companies (MOCs) keep up a weighty presence has become a region of continuous violent conflicts. Traditionally, those from Niger Delta are mostly farmers and fishermen. Yet, a long time of suffering from oil spillage and gas flaring, as well as the problem of climate change, has negatively affected dependence on these traditional sources of income; thus, the region's rates of being without a job are higher than the national average (NDDC, 2001). Nevertheless, MOCs take part in a plethora of corporate social responsibility in the Niger Delta as well as some other parts of Nigeria. Annually, MOCs put in

money in social projects and programmes in communities predominantly in the Niger Delta. The earlier investments were in agricultural development programmes in the sixties and have expanded over the years to take in roads and civil infrastructure, water projects, health care, education and small businesses which should be gainful to the host communities (NDDC, 2004). As years passed by, MOCs improved on how they take part in issues concerning the local communities in delivering these projects effectively. In 2006, MOCs presented a new system of working with communities called the Global Memorandum of Understanding (GMoU). The GMoUs is actually a great shift in approach, placing importance on clearer and accountable processes, regular interaction with the grassroots, sustainability and ways of prevention of conflict (SPDC, 2013). The agreement with the GMoUs was such that the communities decide the development they want, while MOCs provide financial assistance for five years, in seeing to it that the communities enjoy steady financing as they carry out the enactment of their community development policies (Chevron, 2014).

Nevertheless, the advent of GMoU model has largely been seen as a tactics employed by MOCs to refract public disapproval of their behavior, and a strategy for evading government regulation in the region. As a model, GMoU has been sturdily disapproved, and there is now strong debate over its efficacy and practical implications (Frynas, 2009; Idemudia, 2014). While promoters view GMoU as a vehicle for possible bolstering of an long-standing dynamic in MOC – community relationships, detractors see it as a policy for new tasks to be demanded of old establishments. This variance in opinions invariably sets the background for the GMoU model debate, pitting those in support of maintaining an already entrenched MOC – community relationship against those who believe that MOC – community affiliation must embrace shifting community value (Okolo-Obasi *et al,* 2021; Renouard and Lado, 2012; Uduji *et al,* 2020; Amaeshi, *et al,* 2006; Asgil, 2012; Ekhator, 2014; Eweje, 2006; Ite, 2007; Lompo and Trani, 2013). At present, deliberations on GMoU are not so much in the direction of whether MOCs have social responsibility, but over whatGMoUs mean in practice, how it can be vindicated and how such signed agreements with GMoU clusters are to be executed (Uduji and Okolo-Obasi, 2018). For example, Akpan (2006) has argued that CSR initiative of the MOCs have failed to contribute to community development and in some instances have caused inter- and intra-community conflicts. In contrast, Ite (2007) suggested that the CSR initiatives of MOCs have actually contributed to community development in Niger Delta given the extent of governmental failure; and that MOCs have continually improved upon their CSR strategies so as to better respond to the need of their host communities. Yet, in climate change, the region is facing the

biggest challenge to human rights of the 21st century, which warrants an urgent transformation in the GMoU clusters that is supported by the host communities to design and intervene in climate change policies that consider the needs of the most vulnerable people (Uduji *et al,* 2022).

Following the stated contrasting points of view of the CSR initiatives in the Niger Delta, this paper puts in more on the discourse about women, gender parity and climate change from the CSR standpoint. The region is widely recognized to be one of the most climate vulnerable regions in the country. Disaster impact men and women differently with women being more vulnerable than men, both to short-term recurring oil spillage, gas flaring and climate events (major natural disasters) and long-term climate – induced changes (sea level rise, salinity intrusion in water and soil, land erosion, draughts) because they magnify existing social and gender inequality (NDDC, 2001). Gender-based shifts in economic opportunities, women's mobility outside the home, and income are slowly changing family and social norms; however, unequal intra-household power relations and gender-based socio-economic, cultural, and institutional constraints remain. So for adaptation to climate change impacts, understanding gender dimensions and taking gender responsive steps will be vital for MOCs' CSR in the Niger Delta. It is imperative to remember, however, that women are not only at risk when it comes to climate change but are also operative actors and agents of change in line with both extenuation and adaptation. Women are often strongly aware of and possess expertise that can be used in climate change extenuation disaster control and adaptation policies (Francis *et al,* 2011). Moreover, women's duties in households and communities, as curators of natural and household resources, stations them well to add to occupation strategies amended to suit changing environment veracities (UNDP, 2006). In consequence, this paper seeks to make clear the level of CSR investment that the MOCs have engaged in as it concerns climate change, as well as ascertain the level of such investment that is connected to the need for gender sensitive reactions to the impact of climate change. The five areas of focus that are basic represent five main questions. They are:

i. To what extent does the MOCs' CSR investment contribute in fighting climate change in Niger Delta, Nigeria?
ii. What impact does the MOCs' CSR investment putting the GMoU to work have on gender parity in biodiversity and climate change in Niger Delta, Nigeria?
iii. How effective is the MOCs' CSR investment using GMoU on gender parity and health as it concerns climate change in Niger Delta, Nigeria?

iv. What is the measure of impact of MOCs' CSR investment using GMoU on gender parity in the pattern of relocation due to the wreckage of environment in Niger Delta, Nigeria?

1.1 Study hypothesis

The menace of climate change, revealed in the upsurge of extreme weather conditions such as draughts, tempests and tidal wave, has been acknowledged as an issue of main concern in the Niger Delta, Nigeria. Climate change is a maintainable growth challenge, with wide-ranging impact not only on the environment but also on fiscal and social development of the local communities in the region. The way men and women react to climate change vary; and people residing in rural areas have witnessed tremendous impacts in the region. Women, to a great extent, form the poor in this region. This is due, in part, to their lower adaptive abilities, in addition to ethnic and traditional norms. Women in rural areas in Niger Delta so much depend on local natural resources for their sustenance: they are responsible for securing food, water and energy for cooking cum heating. The problems associated with climate change including draught, indeterminate rainfall and deforestation, make it tougher to secure these resources. In comparison to men in these deprived rural communities, women face historical drawbacks, which include restricted space for decision-making and lack of economic resources that worsen the challenges of climate change. Due to climate hazards in the Niger Delta, women's livelihoods are affected by the destruction of crops and livestock, which are the major means of female livelihood in the region. Salinity intrusion reduces the option for fresh water supply, causing women to travel long distances to collect drinking water. Extreme temperatures, lack of rainfall and draught like conditions destroy homestead gardens and any vegetable production. Land erosion and water logging force host communities to migrate. The migration of male members of a family makes the entire family socially and economically vulnerable, especially women who then need to take on additional tasks and find more money for the household. The other associated impact of the climate hazard in the Niger Delta includes children dropping out of the school due to financial or social reasons. Thus, we postulate as follows:

- CSR of MOCs using GMoU has failed in making gender penetrating responses that influence climate change in Niger Delta, Nigeria.
- CSR of MOCs using GMoU has been poor in affecting women, establishing gender equity and managing climate change in Niger Delta, Nigeria.

In line with the above, the key reason for this research is to ascertain the level of CSR involvements of MOCs in managing climate change and how such involvements influence women and encourage gender equality in host communities. The paper adds to discourse on women, gender and climate change in Africa as well as inclusive growth literature from the CSR standpoint. The study made use of quantitative approach and also applied survey research technique. The outcome of the use of logit model show a substantial relationship existing between CSR and women, climate change and gender equality in oil-producing communities in Nigeria. The positioning of this research departs from contemporary environmental sustainability literature, which has focused on, *inter alia*: corporate social responsibility and environmental performance: the mediating role of environmental strategy and green innovation. (Kraus *et al,* 2020); environmental sustainability orientation and corporate social responsibility influence on environmental performance of small and medium enterprises: the mediating effect of green capability (Rehman *et al,* 2022);factors affecting environmental performance during the covid-19 period in the leather industry: a moderated-mediation approach (Akram *et al,* 2022);the role of environmental management accounting and environmental knowledge management practices influence on environmental performance: mediated-moderated model (Bresciani *et al,* 2022); the role of environmental management control systems for ecological sustainability and sustainable performance (Rehman *et al,* 2020); analyzing the relationship between green innovation and environmental performance in large manufacturing firms (Rehman*et al,* 2021); and the problem of CSR: an exploration of relationship between CSR initiatives and excess work ethic(Ali, 2022).

The other parts of the paper can be adumbrated as follows: literature and theoretical perspective (section 2); description of the materials and method (section 3); empirical results and corresponding discussion (section 4), and the conclusion -- policy implications and future research directions (section 5).

2. Literature and theoretical perspective

2.1Climate change

Due to urgent problems of environmental protection and sustainable development, in 1992, not less than 100 Heads of States met in Rio de Janeiro, Brazil for the first International Earth Summit. The assembled leaders signed the United Nations Framework Convention on Climate Change (UNFCC) and the Convention on Biological Diversity, validated the Rio Declaration

and the Forest Principles, and approved Agenda 21, a 300-page plan for realizing sustainable development in the 21st century (United Nations-Earth Summit, 1997). The countries that signed the UNFCC committed themselves towards finding ways to cut global warming and to manage how it influences the environmental and population (United Nations-Climate Change, 1998). Although the UNFCC is not directed on gender equality, there are several global obligations and agreements that make the connection between gender equality and climate change. In 2002, the Commission on the Status of Women (CSW) deliberated on the issue of climate change at its 46th session; and came to agreement on environmental management and the extenuation of natural disasters; and asked for necessary action to be taken to mainstream a gender viewpoint into ongoing research on the impact and causes of climate change, and to boost the application of results of research and programmes (United Nations-Women, 2009). The CSW deliberated on climate change as an evolving issue in its 52nd session in 2008; and partakers made it obvious that climate change is not a gender-neutral phenomenon, accentuating that it has a direct impact on women's lives due to their work at home and makes their daily substance even more challenging (UNDP, 2007). The CSW called for efforts on making money available for gender equality and the enabling of women, especially as it concerns the effect climate change has on women and girls (IPCC, 2007).

In 2009, the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) presented something on gender and climate change. They expressed concern about the absence of a gender perception in the UNFCC and other global and national action plans and initiatives on climate change; and demanding that State parties include gender equality as an principal guiding principles in the UNFCC agreement expected at the 15th Conference in Copenhagen (United Nations –Climate Change, 2007). Many of the previous studies on gender and climate change also requested that governments should incorporate gender perspective into the strategizing, execution, monitoring, appraisal and reporting of national environmental policies; to brace mechanisms; and to make available sufficient resources to ensure women's full and equal input in decision-making at all levels on environmental issues, mainly on strategies in line with the impact of climate change on the lives of women and girls (Steg, 2018; Asongu *et al,* 2019; Okolo-Obasi and Uduji, 2022; Baker *et al,* 2012; Bassett and Shanda, 2010; Lambrou and Piana, 2006;McManus *et al,* 2014; Okolo-Obasi and Uduji, 2021; Sharifi, 2021; Asongu *et al,* 2020;Burch, 2011; Demski *et al,* 2017).

2.2 Environmental issues

According to Akram *et al* (2022), one of the fastest growing problems facing international society today is that of environmental degradation. Bresciani *et al* (2022) have argued that this phenomenon not only threatens to erode the possibility of future development in dynamic industries, but also seriously threatens to undermine the economic development of society as a whole. Rehman *et al* (2021) also concur that this phenomenon has intensified public concern over environmental issues, especially in developing countries of the world. Rehman *et al* (2020) noted that media coverage of such environmental catastrophes of climate change has inflamed public opinion. However, a central issue in corporate social responsibility and business ethics is that of a company's responsibility to the society and physical environment in which it operates (Uduji *et al,* 2022). Kraus *et al* (2020) agree to this statement when they argue that corporate social responsibility implies more attention to company relationships with governments and other stakeholders. In developed countries, ecological issues have been brought to bear on business pressure groups and by law (Eweje, 2006). There has also been heightened awareness among stakeholders of environmental dangers and increased pressures on business to act responsibly (Frynas, 2009). Companies in developed countries have found themselves bearing greater costs for their environmental degradation through fines, taxes, and litigation and have enjoyed greater benefits as a result of green practices through subsidies, marketable pollution permits and a fewer bureaucratic hassles from public authorities (Rehman *et al,* 2022). In varying degrees, governments, businesses, non-governmental organizations and individuals are taking measures to ward off the threat of climate change disasters (Kraus *et al,* 2020; Rehman *et al,* 2022; Ali, 2022). In this paper, we posit that business should protect their stakeholders from the environmental impact of both the activities and climate change, and the desire for ecologically sound, clean and safe environment implicitly recognizes the women and men the right to a livable environment.

2.3 Theoretical Perspective

This study makes use of quantitative methodology but explores the nature of gender-sensitive responses to climate change by integrating gender outlooks and getting women involved as agents of change in reaction. According to United Nations-Climate Change (2007), four areas have been recognized as critical building blocks in response to climate change: adaptation, mitigation, technology transfer and financing. The first two blocks are connected to expressions of climate change; and the latter two are connected to the means for realizing development goals (United Nations-Women, 2009). Adaptation comprises of a range of activities to lessen susceptibility and build pliability in key sectors, such as agriculture, water and human settlement (IPCC, 2007).

Mitigation consists of a process of curbing greenhouse gas emissions from the activities of human. For example, releases from fossils fuels as well as deforestation, with a view to steadying greenhouse gas concentration at a safe level (UNDP, 2007).New and better technologies and funding initiatives at all levels also require attention as part of joint efforts to address climate change (United Nations – Climate Change, 1998). In this background, adaptation and mitigation efforts should systematically and efficiently address gender-specific impacts of climate change in the area of, *inter alia,* health; food security, agriculture and fisheries; biodiversity; human rights; water; and peace and security. Also, we made the postulation that funding mechanism must be supple enough to reflect women's precedence and needs. Also, in this context, we take up that technological developments in line with climate change should put into consideration women's precise priorities, necessities and roles, and make effective use of their knowledge and skill, as well as indigenous knowledge and even practices that are traditional.

In addition to the above perspective, we also view the outcome of the study from the context of CSR in Africa. Carroll (1991) CSR Pyramid is probably the most well-known model of CSR, with its four levels indicating the relative importance of economic, legal, ethical and philanthropic responsibilities respectively. However, the exploration of CSR in Africa (Visser, 2006), is used to challenge the accuracy and relevance of Carroll's Pyramids in an African context. Visser (2006), argue that if Carroll (1991) basic four-part model is accepted, it is suggested that the relative priorities of CSR in Africa are likely to be different from the classic, American ordering. However, it is also proposed that Carroll's CSR Pyramid may not be the best model for understanding CSR in general, and CSR in Africa in particular. Amaeshi *et al* (2006) have argued that the Nigerian conception of CSR is remarkably different from the Western version. Uduji *et al* (2020) observed that philanthropic initiatives as CSR by multinational companies are prevalent in Nigeria. Frynas (2009), noted that in developing countries, the absence of government action in providing amenities for its citizens accentuates the role of multinationals in CSR and philanthropy which is not regarded as CSR in Western countries. Muthuri (2012), relying on the extant literature in Africa posited that the CSR issues prevalent in Africa include poverty reductions, community development, education and training, economic and enterprise development, health and HIV/AIDS, environment, sports, human rights, corruptions, governance and accountability, and inequality nexuses. Thus, this study adopts quantitative methodology but views the outcome from a combined perspective of gender-sensitive responses to climate change and the African CSR concept.

3. Materials and Methods

Research into CSR in Niger Delta is still relatively underdeveloped and tends to be adhoc with a heavy reliance on convenience – based case studies or descriptive accounts. Hence, there is an urgent need for further research on CSR in the region at sectorial levels, as well as on theoretical construct. According to Lompo and Trani (2013), there is a dearth of research which surveys the nature and extent of CSR in the Niger Delta. Next to this need for more data in general, there is need for more quantitative work which analyses CSR of multinationals in the region. Finally, all this different streams of empirical research would inform more conceptual work on CSR conceptions, frameworks, or models that are more applicable to Nigeria in particular and developing countries in general. What is clear from this study, therefore, is that CSR in Nigeria's oil producing region is a rich and fascinating area of enquiry, which is becoming ever more important in CSR theory and practice of oil multinationals. And since it is profoundly under-researched, it also represents a tremendous opportunity for improving our knowledge and understanding about CSR. In this study, we embraced explanatory research design using quantitative method. This is as a due to the scarcity of quantitative data on the complexities of CSR impact in the Niger Delta region (Uduji *et al,* 2021). Utilizing survey research techniques, we acquired information from a representative sample of the region's female population. It is in actual fact cross-sectional and describes cumconstrues what exist at present. Figure 1 ascertains the constituents' administrative states of the Niger Delta, Nigeria.

Figure 1: Constituent administrative states of the Niger Delta, Nigeria
Source: NDDC, 2004

3.1 Sample size

For the analysis, we found out the sample size using the Fisher formula which is mathematically denoted as follows:

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where, n = the sample size;

z = the standard normal deviation for a given level of confidence, (95% confidence =1.96)

d = margin of error at 0.05 for CI at 95%;

p= proportion to be estimated. If the value of p is not known with certainty, p is always assumed to be 0.5. Therefore, we calculated the sample size thus:

$n = \frac{1.96^2(0.5)(1-0.5)}{0.05^2}$= $n = \frac{0.9604}{0.0025}$ = 384; this, we approximated to 400, and also multiple it by 3 to further reduce the possible errors in the sample collection. Therefore, placing a number on total sample size utilized, it will be 1200 respondents.

3.2 Sampling procedure

In the sampling process, multi-staged sampling method was embraced to choose the 1200 final respondents needed for the study. From the nine states, we deliberately picked two local government areas (LGAs) each on the basis of the presence of MOCs in the areas. From the chosen LGAs, we also picked four host communities based on the strength of MOC presence in their communities. Two communities that are not part of any cluster development board (CDBs) were chosen (the non-CDB communities as control group) and two communities that are a part of CDBs were also picked (the CDB communities as treatment group). Out of these particular communities, we requested for the help of community gate keepers to arbitrarily select 1200 respondents. The circulation of the sample was done in the selected rural communities in in line with the population of the state in which the community is situated (Table 1).

Table 1. Sample size determination table

States	Total Population	Female Population	% of total population	State Sample	Community sample
Rivers	7,303,924	3,725,001	17	206	51
Delta	5,663,362	2,888,314	13	159	40
Akwaibom	5,482,177	2,795,910	13	154	39
Imo	5,408,756	2,758,466	13	152	38
Ondo	4,671,695	2,382,564	11	131	33
Edo	4,235,595	2,160,153	10	119	30
Cross River	3,866,269	1,971,797	9	109	27
Abia	3,727,347	1,900,947	9	105	26
Bayelsa	2,277,961	1,161,760	5	64	16
	42,637,086	**21,744,914**		**1200**	**300**

Source:UNDP, 2006/Authors' computation

3.3Data collection

We made use of participatory rural appraisal (PRA) technique of written semi-structured interview (SSI) questionnaire to create data used for the study from primary sources. Utilization of this technique was informed by the fact that, the understandings of the people being studied on all the matters are vital. The SSI was the main tool used for the assessment to gather data from the 1200 respondents. It was directly applied by the researchers with the help of research assistants. Local research assistants were necessary because the researchers were not able to speak the various local languages and dialects of the many ethnic groups in the rural communities that were sampled.

3.4Analytical framework

The data collected and gathered from the field were handled carefully as they are thoroughly analyzed with both descriptive and inferential statistics in order to answer the research questions. Results from the descriptive statistics were made obtainable in tables, figures and charts; while inferential statistic based on a logit model of receipt and non-receipt of MOCs' CSR using GMoUs was assessed as functions of a number of socio-economic variables. In evaluating the model, we adapted with modification in Uduji *et al* (2019). For this, we postulate that for binominal response variables, the logistic link is the natural logarithm of the odds ratios normally represented as follows:

$$\text{Log}\left(\frac{Pi}{1-Pi}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \ldots\ldots\ldots\ldots \beta_n X_n$$

With this, we assessed the effect of MOCs' CSR investments using GMOU on gender parity in biodiversity conservation, migration pattern, climate change and health in Niger Delta region thus:

$$\text{Logit (BHM)} = \beta_0 + \beta_1 Gmou + \beta_2 C_{1....n} + \beta_3 M + \mu$$

Where:

BHM = represent the dependent variable which include biodiversity conservation, health and migration pattern.

GMoU = the MOCs' CSR using GMOU

C= other socio economic variables (Age, income, occupation, household size etc.)

M = other moderating variables and

μ = stochastic error term.

*In this model, the main parameter of interest is β_1 in terms of sign and significance.

4. Results and Discussion

4.1 Descriptive analysis

Analysis of the reactions in the study begins with an explanation of some of their demographic (age, household size, marital status), social (education), and economic (livelihood, household income) characteristics (Table 2). These characteristics are vital in understanding the variances in the social cum economic and demographic status of the CDB communities in comparison with their non-CDB counterparts in the Niger Delta region. Analysis (Table 2) reveals that while as much as 28% of respondent from the CDB communities are fishers, a bit more – 30% of their counterpart— are fishers. In addition, it shows that in the treatment group, 12% are traders, while control has less – 8%; then, 37% of treatment are farmers while for control it is 40 %). About 7% (treatment) are in Handicraft while a bit more (10%) are in control. In all, 10% of the treatments are employed by others (either government or private) but only 6% of their counterparts are in the same category. These reveal that the occupational status of the respondent is as good as the same. For respondents from treatment group, the average age is 32, while for the control, it is 36 years. Just about 5% of the respondent from the CDB communities have no formal education; for the control group, the number is about 16%. Conversely, regardless of being in CDB community or not, the average annual income of both groups are still very poor. While in the CDB communities, the average income is NGN200, 000 (about 400 USD) yearly, that of the non-CDN communities is NGN90, 000 (about 180 USD) yearly.

Table 2. Socio- economic characteristics of the respondents.

	Treatment Group			Control Group		
Variables	**Freq**	**%**	**Cum**	**Freq**	**%**	**Cum**
Primary Occupation						
Fishing	165	28	28	178	30	30
Trading	74	12	40	46	8	37
Farming	222	37	77	241	40	78
Paid Employment	58	10	87	38	6	84
Handicraft	43	7	94	62	10	94
Others	38	6	100	35	6	100
	600	**100**		**600**	**100**	
Age of Respondents						
Less than 20 years	10	2	2	24	4	4
21-25 years	110	18	20	86	14	18
26-30 years	139	23	43	113	19	37
31 - 35 years	109	18	61	121	20	57
35 - 40 years	96	16	77	102	17	74
41 - 45 years	62	10	88	71	12	86
45 - 50 years	48	8	96	51	9	95
Above 50 years	26	4	100	32	5	100
	600	**100**		**600**	**100**	
Level of Education						
None	27	5	5	97	16	16
FSLC	273	46	50	282	47	63
WAEC/WASSCE	222	37	87	143	24	87
Degree and above	78	13	100	78	13	100
	600	**100**		**600**	**100**	
Marital Status						
Single	102	17	17	110	18	18
Married	348	58	75	420	70	88
Widow	63	11	86	23	4	92
Divorced/Separated	87	15	100	47	8	100
	600	**100**		**600**		
Household Size						
1-4 Person	315	53	53	292	49	49
5-9 Person	198	33	86	214	36	84
10-14 Person	75	13	98	72	12	96
15 Person and above	12	2	100	22	4	100
	600	**100**		**600**	**100**	
Annual Income						
1000 - 50,000	19	3	3	92	15	15
51,000 - 100,000	85	14	17	105	18	33
101,000 - 150,000	125	21	38	155	26	59
151,000 - 200,000	128	21	60	97	16	75

201,000 - 250,000	119	20	79	73	12	87
251,000 - 300,000	82	14	93	56	9	96
Above 300,000	42	7	100	22	4	100
	600	**100**		**600**	**100**	
Value of receipts Through CG						
1000 - 50,000	32	5	5			
51,000 - 100,000	53	9	14			
101,000 - 150,000	79	13	27			
151,000 - 200,000	90	15	42			
201,000 - 250,000	95	16	58			
251,000 - 300,000	211	35	93			
Above 300,000	40	7	100			
	600	**100**	**200**	-		

Source: Computed from the field data by authors

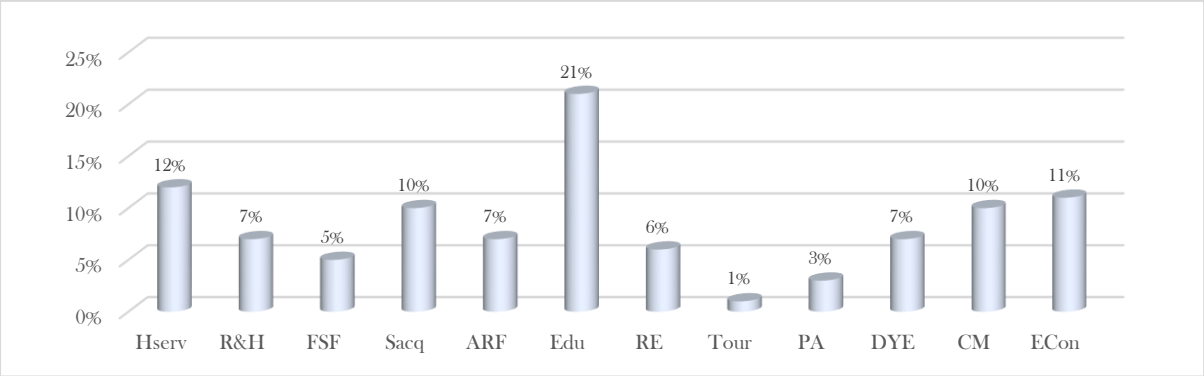

Figure 2. Percentage distribution of GMoUs intervention of MOCs by sectors in the Niger Delta[2].

Source: Computed from the field data by author.

Analysis (Figure 2) displays that while tourism got the least responsiveness of the CSR investment at 1%, education as it concerns provision of infrastructure, scholarship, library cum laboratory equipment, and training of teachers, accounts for 21%. Then, health services accounted for 12%; rural electrification took 6%; fishing and sea foods took 5%; rural roads as well as housing got 7%; agriculture and rural farming also got 7%; policy advocacy got as much as 3%. Interestingly, chieftaincy matters took a high 10%; then, environmental control and management accounted for 11% but unfortunately, there is no thoughtful effort aimed at women. Agriculture and rural farming is about the only involvement that is typically rural based. Most of other forms of CSR are urban-based.

[2]Hserv = Health services, R&H = Road and housing, FSF = Fishing and sea foods, Sacq = Skill AcquisitionARF = Agriculture and Rural Farming, Edu = Education, RE = Rural Electrification, Tour = Tourism, PA = Policy Advocacy, DYE = Direct Youth Employment, CM = Chieftaincy Matter, ECon&M = Environmental control and management

Table 3.Percentage rating of MOCs' CSR in helping women with climate change in the Niger Delta.

Activities	Total E&P	Exxon Mobil	Chevron	Shell	Agip	Others	Average
Conserving the biodiversity for tourism and planting of economic trees	13	15	18	13	11	14	14
Encouraging cultural and eco-tourism	9	8	7	12	16	16	11
Cleaning oil spillage	12	9	9	8	7	5	8
Encouraging eco-friendly farming and fishing	9	10	9	8	11	9	9
Skill training for women to reduce dependency on biodiversity resources	18	19	20	21	16	20	19
Provision of low skilled job for the local women	14	12	11	10	9	7	11
Inclusive business development targeting women	7	5	4	5	7	11	7
Provision of seed grant for women entrepreneurs	6	8	6	8	6	5	7
Increasing access to medical health care	12	14	16	15	17	13	7
	100	100	100	100	100	100	100

Source: Computed from the field data by authors

Analysis (Table 3) indicates the percentage rating of CSR investment in assisting women to cope with climate change in the Niger Delta by MOCs in the host communities. In their rating, the women said that the highest skill training for women to lessen reliance on biodiversity resources take the highest CSR investment (19%) in the region among the MOCs. Sustaining the biodiversity for tourism and planting of economic trees also got a high share(14%);setting up of low skilled job for the local women got 11%; encouraging cultural and eco-tourism had 11%; then, boosting eco-friendly farming and fishing got 9%. Such areas as inclusive business development focused on women, making available seed grant for women entrepreneurs, and growing access to medical health care accounted for 7% each while removal of the spillage of oil accounted for only 8%. This finding proposes that while the MOCs have done something noteworthy in assisting women in coping with climate changes, putting in more funds in the removal (cleaning) of oil spillage on both water and land will massively boost the diversification of the occupation of the rural women.

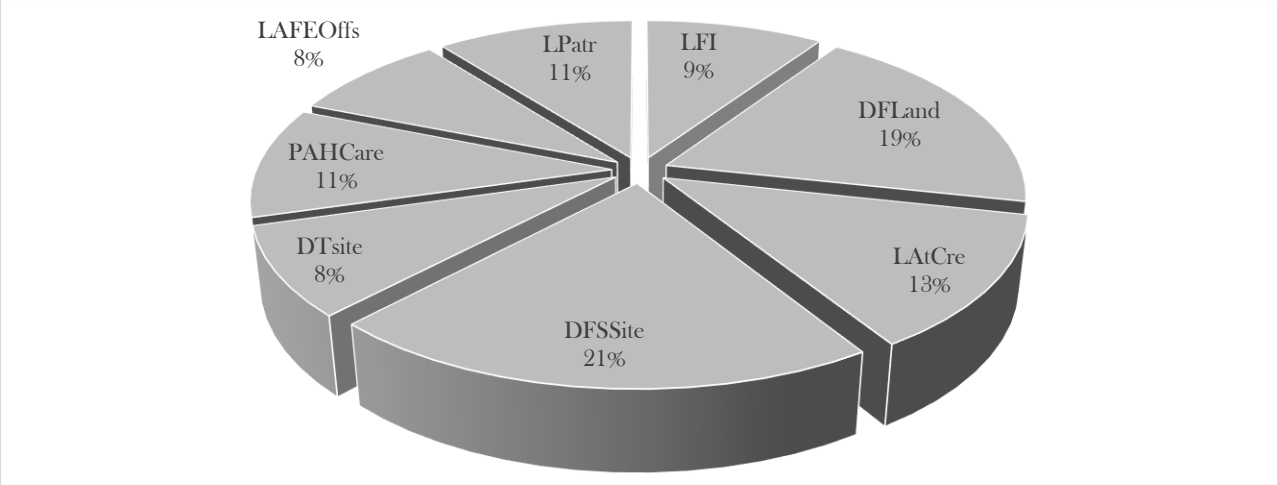

Figure 3: Percentage distribution of women according to their major challenge in the Niger Delta[3]
Source: Computed from the field data by authors

Analysis(Figure 3) reveals that the main problems rural women are confronting as it concern climate change which are destruction of fishing and sea food site got about 21%,ranking highest. Others are: wreckage of farm lands which ranked second (19%); next is lack of access to credit which was third (13%); then, lack of support from the MOCs that ranked fourth (11%). In addition, also ranking fourth with 11% is failure to access health care; to some, the challenge of lack of farm input is key which ranked fifth (9%), and the remaining 8% of the respondents ranked lack of access to fishing equipment to go offshore as their main challenge. With this, the results put forward that more CSR investment in cleaning oil spillage on water and land will certainly free about 40% of the women from their key challenges.

4.2 Econometric analysis

We appraised the average variances in the basic propensity scores and independent observable characteristics between respondents from both communities: CDB and the non-CDB. In all, the variance in means reveals that the score on the side of the treatment and scores on the side of the control are considerably different at 5% significant level.

[3]LFI = lack of farm input, DFLand = Destroyed Farm Land, LAtCre= lack of Access to credit, DFSSite = Destroyed Fishing and Sea Food collection site, DTsite = Destroyed Tourism sites, PAHCare = Poor Access to health care, LAFEOffs = Lack of access to fishing equipment for offshore fishing, LPatr = Lack of patronage, LSCap = Lack of startup capital

Table 4. Comparison of mean score and observable characteristics across Treatment and Control (N = 1200)

Score in Percentage of maximum score	Recipients	Non Recipients	Difference
Score on biodiversity conservation	34.57	19.34	15.23 **
Score on acquisition of new planted trees	41.32	26.28	15.04 **
Score on reduction in environmental degradation	35.65	27.82	7.83 **
Score on reduced maternal mortality	24.82	34.13	-9.31**
Score on access to health care services	37.25	31.48	5.77**
Score on reduced migration tendency	23.43	31.31	-7.88**
Scores on availability of tourism development opportunity	42.53	34.65	7.88**
Score on access to farm input	36.72	27.31	9.41**
Scores on access to fishing and sea food harvesting input	21.37	16.18	5.19**
Score on Economic capability of respondents	24.62	14.87	9.75**
Observation	600	600	

Source: Authors' compilation based on field survey

The dissimilarities in scores are as follows: on biodiversity conservation 15.23, on acquisition of new planted trees15.04; then, on decrease in environmental degradation 7.83; on reduced maternal mortality -9.31; for access to health care services, it is 5.77 while that of reduced migration tendency is -7.88; on ease of access to tourism development opportunity is 7.88 while on access to farm input, it is 9.41. In continuation, on access to fishing and sea food harvesting, it is 5.19, while economic capability of respondents recorded 9.75. This is an indication that the CSR of the MOCs is really impacting on the CDB communities.

4.3 Effects of MOCs' CSR investment using GMOU on Gender Equity in Biodiversity Conservation

Analysis of (Table 5) shows that the CSR investment of the MOCs has a reasonable effect on biodiversity preservation which in turn aids women's access to eco-tourism and cultural tourism entrepreneurship development. The finding makes it clear that the MOCs have made evenhanded investment in saving the high biodiversity areas in Niger Delta. This preservation of the biodiversity have assisted in conserving natural heritage and enhancing tourism. Partaking in tourism on the other hand has improved entrepreneurship development and economic enablement of women. A logistic regression analysis was carried out to predict the effect of the CSR of MOCs using GMOU on biodiversity conservation in line with climate change making use of the variables in equation below as the predictors.

Table 5: Projected effects of multinational oil firms' CSR investment using GMOU on Gender Equity in Biodiversity Conservation in the Niger Delta region

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Step 1(a)	*MS*	073	.135	.291	1	.038	1.930	.713	1.212
	PriOcc	.124	.212	.033	1	.856	.962	.635	1.459
	HHcom	-.219	.312	.033	1	.456	.562	.435	1.459
	Edu	.026	.021	.652	1	.419	1.017	.977	1.059
	AY	.096	.114	.715	1	.398	.908	.727	1.135
	HHSize	.321	.021	.492	1	.483	.986	.947	1.026
	Age	116	.009	3.205	1	.073	.983	.966	1.002
	EXP	027	.115	.171	1	.679	.954	.761	1.194
	Ychild	-324	.115	.171	1	.679	.954	.761	1.194
	CSR	.521	.061	5.137	1	.003	7.314	1.045	1.443
	Constant	4.216	.567	1.140	1	.064	3.331		

a Variable(s) entered on step 1: *PriOcc*, *MS*, *Age*, *Edu*, *AY*, *HHCom, Ychild,CSR,HHSize, EXP, YOMH.*

Source: Computed from the field data by authors.

Logit (BDC) = 4.216 + 073Ms +.652CSR + .116 Age + .124 PriOcc + .321 HHSize +.026Edu +.092 AY + (.324) Ychild + 073 *YOMH* + 027Exp

An assessment of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably differentiated between the "Yes" and "No" impact of CSR (chi square = 48.101, p <.000 with df= 8). Nagelkerke's R^2 of .856 showed a strong relationship between prediction and grouping. Prediction success overall was 91%. (92% for Yes and 90% for the No). The Z- value for CSR is 5.137, with an associated p-value of .007. In line with the set 5% significant level, the study established that CSRs of the MOCs under GMOU have failed to impact on *the biodiversity conservation in Niger Delta.* However, the EXP (B) value of the Predictor – CSR is 7.314means that if the MOCs increase their CSR Program focused on conserving the biodiversity in the Niger Delta by one unit, equivalent of 1USD, the odds ratio is 7.0 times as large. Thus, the rural women are 7 times more likely to be given enablement in the face of climate change.

4.4 Effects of MOCs' CSR investment using GMOU on health of the rural women

Analysis (Table 6) estimates the value of MOCs' CSR involvements using GMoU on the health of the rural women in the Niger Delta region. This discovery confirms that the MOCs' CSR have been beneficial to women in the rural host communities in the area of health care. A logistic regression analysis was conducted to forecast the impact of CSR of MOCs intervention using GMOU on health care delivery of women in the rural parts of the Niger Delta making use of the variables in equation above as predictors.

Logit (HE) = 2.186 + 1.141CSR + .057Age + (.217) PriOcc +.413HHSize + 007 Edu +. (016) AY + (.139) HHcom + (017)Y*child* + 321Exp + (013)MS

Table 6: Projected effects of MOCs' CSR investment using GMOU on health of the rural women in the Niger Delta region

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Step 1(a)	*AY*	-016	.114	.715	1	.398	.908	.727	1.135
	PriOcc	.- 217	.212	.033	1	.856	.962	.635	1.459
	HHcom	-.139	.312	.033	1	.456	.562	.435	1.459
	Edu	007	.021	.652	1	.419	1.017	.977	1.059
	Age	.057	.009	3.205	1	.073	.983	.966	1.002
	Exp	.321	.124	2.895	1	.029	1.810	.635	1.033
	MS	-013	.135	.291	1	.038	1.930	.713	1.212
	HHSize	. 413	.021	.492	1	.483	.986	.947	1.026
	Ychild	-028	.115	.171	1	.679	.954	.761	1.194
	CSR	1.141	.061	6.274	1	.003	11.143	1.045	1.443
	Constant	2.186	.667	1.940	1	.164	5.131		

a Variable(s) entered on step 1: *PriOcc*, *MS*, *Age*, *Edu*, *AY*, *HHCom, Ychild, CSR, HHSize, EXP.*

Source: Computed from the field data by authors.

An assessment of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably differentiated between the "yes" and "no" impact of CSR (chi square = 45.210, p <.000 with df= 8). Nagelkerke's R^2 of .816 showed a strong association between prediction and grouping. Prediction success overall was 92%. (96% for Yes and 88% for the No). The Z- value for CSR is 6.274, with an associated p-value of .013. in line with the set 5% significant level, the study settled that CSRs of the MOCs under GMOU have had a reasonable effect on the healthcare delivery of the rural women in Niger Delta. However, the EXP (B) value of the Predictor – GMOU is 11.143. This suggests that if the MOCs increase their CSR Program targeted at bettering the health care delivery of the rural women, by one unit, equivalent of 1USD, the odds ratio is 11.1 times as large and, hence, rural women's are 11.1 times expected to be given empowerment via this access to enhanced health care services.

4.5 Effects of MOCs' CSR investment using GMOU on Gender Equity in Migration Pattern

Table 7: Projected effects of multinational oil firms' CSR investment using GMOU on Gender Equity in migration pattern in the Niger Delta region

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Step 1(a)	*CSR*	.512	.016	6.317	1	.003	9. 431	1.045	1.443
	PriOcc	. 213	.221	.023	1	. 456	1.017	.761	1.459
	HHcom	-.219	.321	.0313	1	. 398	.562	.435	1.459
	Edu	.036	.012	.652	1	.419	.954	.977	1.059
	AY	.196	.141	.715	1	. 856	.908	.761	1.135
	HHSize	.213	.012	.492	1	.483	.986	.947	1.026
	Age	.161	.090	.205	1	. 769	.983	.966	1.194
	EXP	.027	.115	.171	1	.679	.962	.727	1.194
	Ychild	-213	.151	.171	1	.073	.954	.635	1.002
	MS	052	.153	.291	1	.038	1.930	.713	1.212
	Constant	3.021	.617	1.140	1	.064	3.331		

a Variable(s) entered on step 1: *CSR, MS, Age, Edu, PriOcc, AY, HHCom, Ychild, EXP, HHSize.*

Source: Computed from the field data by authors.

Logit (MP) = 3.021 + .512CSR + .161Age + .213 PriOcc +.213HHSize + 007 Edu +.196AY + (.219) HHcom + (213)Y*child* + 027Exp + 052MS

An examination of the full model against a constant only model was statistically significant, showing that the predictors as a set reliably distinguished between the "Yes" and "No" impact of CSR (chi square = 45.221, p <.000 with df= 8). Nagelkerke's R^2 of .884 revealed a strong link between prediction and grouping. Prediction success overall was 89%. (90% for Yes and 88% for the No). The Z- value for CSR is 6.317, with an associated p-value of .010. in line with the set 5% significant level, the study resolved that CSRs of the MOCs under GMOU have made a notable impact on *reducing migration tendency of rural women in Niger Delta.* However, the EXP (B) value of the Predictor – CSR is 9.431 meaning that if the MOCs raise their CSR program aimed at preserving the biodiversity in the Niger Delta by one unit, equivalent of 1USD, the odds ratio is 9.4 times as large. Hence, the rural women are 9 times more in the offing to be given the enablement to remain in their location even if there is a change in climate.

4.6 Discussion of main findings

Our study makes it obvious that Niger Delta is widely acknowledged to be one of the most climate susceptible regions in Nigeria (Table 3).In these oil producing communities, calamities affect men and women in different ways, with women being the worse hit, both to short-term environmental costs of extractive undertakings(gas flaring and oil spillage) and long-term climate-induced changes (drought, rise in sea level, salinity incursion in water and soil, land erosion) because they amplify current gender and social inequalities. In this Nigeria's oil producing communities, gender-based modifications in economics openings, women's suppleness outside the home, and revenue are gradually altering family and social norms; yet, uneven intra-household power relations, cultural, gender-based socio-economic and institutional restraints persist (Table 2). First, in line with climate change in this region, this discovery share the same view with Cliffe and Akinrotimi (2015) in that food sources that are traditional have become more erratic; women suffer loss of revenue as well as harvest – often their only means of getting food and returns; related surge in food prices worsen the poor's condition of inability to access food, especially women and girls whose health drop more than the health of males in such times of shortage. Second, in Niger Delta's rural areas, all (both sexes) are highly reliant on biomass, such as agricultural produces, wood, waste and forest resources for their energy and means of support (Table 5). However, with the challenges of climate change, the capacity of these local people to acquire such necessary resources is reduced. This result is in accord with IPCC (2007)

in that it is imperative to note that the falling biodiversity does not solely bear upon the material welfare and occupations of the people; it also negatively affect health, the security, social relations, resilience and freedom of choices cum actions. GMoUs of MOC can be vital in this case to preserve biodiversity and check its collapse in the host communities. Third, our results also indicate the usefulness of MOCs' CSR investment using GMoU on well-being of the rural women (health-wise) in the oil producing communities (Table 6). What's more? The risk of contracting serious illness is heightened by environmental hazards (drought, heat wave, torrents, storms, fire) caused by climate change. The result agrees with UNDP (2007) in that this brings about a greater occurrence of transmittable diseases such as cholera, dengue fever, and malaria due to extension of hazard seasons and broader geographic circulation of disease vectors. GMoUs of MOC can also play an important role in extenuating the increased illness and mortality in this region when directed intervention is made on women, health and gender equality in the context of climate change. Fourth, our results also show that climate change adds a new intricacy to the area of human mobility and settlement by aggravating environmental degradation, in that the slow process of environmental decline has heightened the flows of both internal and cross-border community movements in the Niger Delta (Table 7). This result match up with United Nations – Climate Change (2007) in that upsurge in human migration means that a larger number of indigenes are being moved due to severe coastal weather events, drought, coastal flooding, the erosion of shorelines and wreckage of agriculture.

The findings of this study converge with Rehman*et al* (2022) in that dealing successfully with the challenge of risk management, disaster preparedness and climate change-induced-weather challenges require resources beyond those that are available to meet the day-to-day needs of individuals and household. The findings also arrive at the same opinion with Kraus*et al* (2020)in that empowering and investing in women are key to combating the effects of desertification and paving the way for poverty alleviation in the world's less developed countries; however, under the current climate change finance regime, women do not have sufficient access to funds aimed at covering weather-related losses, nor do they have funds to service adaptation and mitigation technologies. In summation, the results of this study advocates that the relative priorities of MOCs' CSR interventions in the Niger Deltashould vary from the classic, American ordering, as proposed by Carroll (1991). Placing significance on a cultural context in the determination of suitable CSR priorities and programmes, as argued by Visser (2006), is crucial in the context of climate change in the Niger Delta. There is also the need for pliability, as argued by Amaeshi *et al* (2006), in handling the uniqueness of socio-economic problems in the region, which include

gender-sensitivity reactions to climate change. However, in addition and support, if we are to add to how CSR intervention can improve on women, climate change and gender equality in the Niger Delta, we would reason that MOCs' CSR can play a vital role in progressing gender equality when investment integrating gender viewpoints and making use of women as agent of change in responses is designed for the intricacies of real life(adoption, mitigation, technology transfer and funding); which have been noted as critical building blocks in reaction to climate change. MOCs' CSR should be invigorated to integrate gender viewpoints into their GMoUs action plans and other measures on viable development and climate change, via carrying out systematic gender examination; amassing and utilizing sex-disaggregated data; instituting gender-sensitive benchmarks and pointers; and evolving practical tools to back increased responsiveness to gender perspective.

5. Conclusion and policy implications

The menace of climate change, revealed in the upsurge of extreme weather conditions such as draughts, tempests and tidal wave, has been acknowledged as a priority issue in Niger Delta region of Nigeria. Women in rural communities of this region greatly depend on local natural resources for their survival, because of their obligation to secure food, water and energy for cooking cumheating. The problems that go with climate change, including drought, indeterminate rainfall and deforestation, make it tougher to secure this resources. Comparing women with men in this oil producing communities, women historically are at disadvantage, in the areas of restricted access to decision-making cum economic assets that worsen the problems of climate change. Thus, we set out to look at the effect of MOCs' CSR using GMoU on gender sensitive reactions (responses) to climate change in Nigeria's oil host communities. A number of rural women totaling 1200 were sampled across the region. What was observed from the use of a combined logit model and propensity score matching shows a significant connection between CSR and gender sensitive reactions with effect of climate change in the Niger Delta Nigeria. This denotes that CSR of a multinational oil company is a serious factor in gender sensitive reactions to biodiversity, migrations and health in the perspective of climate change. The outcomes suggest that integrating gender perspectives into GMoUs action plans and other measures on sustainable development and climate change should be invigorated by MOCs via carrying out systematic gender examination; collecting and applying sex-disaggregated data; instituting gender-sensitive yardsticks and indicators; and evolving practical tools to back increased responsiveness to gender standpoint.

Explicitly, it is worth stating that while this study add to extant literature on the role of oil from the outlook of CSR in women, climate change and gender equality in the Niger Delta region, it also makes available crucial policy direction on the relationship. However, the key caveat of the study is restricted to the scope of Niger Delta in Nigeria. Therefore, the discoveries may not be applicable to other regions of the world facing policy challenges. In the light of this inadequacy, reproducing the analysis in other developing countries is advisable in order to find out if the proven nexus survives empirical analysis in diverse oil-host communities of developing countries.

Disclosure statement

No potential conflict of interest was reported by the author(s)

References

Aguilar, L., Granat, M. and Owren, C. (2015). *Roots for the Future: The Landscape and Way Forward on Gender and Climate Change,* Washington, DC: IUCN & GGCA.

Akerlof, K., Maibach, E.W., Fitzgerald, D., Cedeno, A.Y. and Neuman, A. (2013). Do people personally experience global warming and if so how, and does it matter? *Global Environmental Change,* 23(1): 81-91.

Akpan, W. (2006). Between responsibility and rhetoric: Some consequences of CSR practice in Nigeria's oil province. *Development Southern Africa,* 23(2), 223-240.

Akram, K., Saeed, A., Bresciani, S., Rehman, S. U. and Ferraris, A. (2022). Factors affecting environmental performance during the covid-19 period in the leather industry: a moderated-mediation approach. *Journal of Competitiveness,* 14(1), 5-22. doi: 10.7441/joc.2022.01.01

Ali, M. (2022). The problem of CSR: an exploration of relationship between CSR initiatives and excess work ethic. *Journal of Global Responsibility,* 13(2): 177-196, https://doi.org/10.1108/JGR-03-2021-0029

Amaeshi, K., Adi, B., Ogbechie, C., and Amao, O. (2006).Corporate social responsibility in Nigeria: Western mimicry or indigenous influences? *Journal of Corporate citizenship,* 24, 83-99.

Asgil, S. (2012). The Nigerian extractive industries transparency initiative (NEITI): Tool for conflict resolution in the Niger Delta or arena of contested politics. *Critical African Studies,* 7, 4-57.

Asongu, S.A., Uduji, J.I., and Okolo-Obasi, E.N. (2019). Transfer pricing and corporate social responsibility: Arguments, views and agenda. *Mineral Economics,* 32(3), 353-363,https://doi:10.1007/S13563-019-00195-2

Asongu, S.A., Uduji, J.I. and Okolo-Obasi, E.N. (2020). Fighting African capital flight: trajectories, dynamics and tendencies. *Financial Innovation,* 6: 14https://doi:10.1186/s40854-020-00179-0

Baker, I., Peterson, A., Brown, G. and McAlpine, C. (2012). Local government response to the impacts of climate change: An evaluation of local climate adoption plans. *Landscape and Urban Planning,* 107(4):127-136.

Bassett, E. and Shandas, V. (2010). Innovation and climate action planning. *Journal of the American Planning Association,* 76(4): 435-450.

Beg, N., Morlot, J.C., Davidson, O. Afrane-Okesse, Y., Tyani, L., Denton, F. Sokona, Y. Thomas, J.P., la Rovere, E.L., Parikh, J.K. and Rahman, A.A. (2002). Linkages between climate change and sustainable development. *Climate Policy,* 2(2-3): 129-144.

Beneria, L. (2016). *Gender, Development and Globalization: Economics as if all people mattered,* New York Routledge.

Bresciani, S., Rehman, S. U., Giovando, G. and Alam, G. M. (2022). The role of environmental management accounting and environmental knowledge management practices influence on environmental performance: mediated-moderated model. *Journal of Knowledge Management*, ahead-of-print (ahead-of-print).

Carroll, A.B. (1991). The pyramid of corporate social responsibility: Towards the moral management of organizational stakeholders. *Business Horizons* 34, 39-48.

Chevron. (2014). *Corporate responsibility report of Chevron in Nigeria.* Lagos: Policy, Government & Public Affairs (PGPA) Department of Chevron in Nigeria.

Cliffe, P.T. and Akinrotimi, O. A. (2015). Role of women in fishery activities in some coastal communities of River State, Nigeria. *International Journal of Agricultural Research,* 10:24-32.

Corral-Verdugo, V., Caso-Niebla, J., Tapia-Fonllem, C. and Frias-Armenta, M. (2017). Consideration of immediate and future consequences in accepeting and responding to anthropogenenic climate change. *Psychology,* 8(10): 1519-1531.

Demski, C., Capstick, S., Pidgeon, N., Sposato, R.G. and Spence, A. (2017). Experience of extreme weather affects climate change mitigation and adaptation responses. *Climate Change,* 140(2): 149-164.

Ekhator, E.O. (2014). Corporate social responsibility and Chinese oil multinationals in the oil and gas industry of Nigeria: an appraisal. *Cadern De Esthudos Africanos,* 28, 119-140.

Eweje, G. (2006). Environmental costs and responsibilities resulting from oil exploration in developing countries: the case of the Niger Delta of Nigeria. *Journal of Business Ethics,* 69(1), 27-56.

Francis, P., Lapin, D. and Rossiasco, P. (2011). *Securing Development and Peace in the Niger Delta: A Social and Conflict Analysis for Change,* Washington DC: Woodraw Wilson International Center for Scholars.

Frynas, J. (2009). *Beyond corporate social responsibility: Oil multinationals and challenges.* Cambridge: Cambridge University Press.

Idemudia, U. (2014). Corporate-community engagement strategies in the Niger Delta: Some Critical reflections. *The Extractive Industries and Society,* 1(2), 154-162.

IPCC (2007). Technical report by working group II of the intergovernmental panel on climate change (IPCC). Cambridge University Press, UK.

Ite, U.E. (2007). Changing times and strategies: Shell's contribution to sustainable community development in the Niger Delta, Nigeria. *Sustainable Development,* 15(1), 1-14.

Kompas, T., Pham,V.H. and Che, T.N. (2018). The effects of climate change on GDP by country and the global economic gains from complying with the Paris climate accord. *Earth's Future,* 6(8): 1153-1173.

Kraus, S., Rehman, S. U. and García, F. J. S. (2020). Corporate social responsibility and environmental performance: The mediating role of environmental strategy and green innovation. *Technological Forecasting and Social Change,* 160, 120262.

Lambrou, Y. and Piana, G. (2006). *Gender: the missing component of the response to climate change.* Food and agriculture organization of the Unites Nations: Rome.

Lompo, K. and Trani, J.F. (2013). Does corporate social responsibility contribute to human development in developing countries? Evidence from Nigeria. *Journal of Human Development and Capabilities,* 14(2), 241-265.

McManus, P., Shrestha, K.K. and Yoo, D. (2014). Equity and climate change: Local adaptation issues and responses in the city of Lake Macquarie, Australia, *Urban Climate,* 10:1-18.

NDDC. (2001). *The Niger Delta: A brief history.* Port-Harcourt: Niger Delta Development Commission.

NDDC. (2004). *Niger Delta regional development master plan: Draft 3.* Port-Harcourt: Niger Delta Development Commission.

Okolo-Obasi, E.N. and Uduji, J.I. (2021). Does agri-business/ small and medium investment scheme (AGSMEIS) impact on youth entrepreneurship development in sub-Saharan Africa? Evidence from Nigeria. *Journal of Economic and Administrative Sciences,* https://doi.org/10.1108/JEAS-05-2021-0094

Okolo-Obasi, E.N. and Uduji, J.I. (2022). The impact of national home grown school feeding programme (NHGSFP) on rural communities in Nigeria. *Journal of Economic and Administrative Sciences,* https://doi.org/10.1108/JEAS-10/2021-0211

Okolo-Obasi, E.N., Uduji, J.I. and Asongu, S.A. (2021). Strengthening women's participation in the traditional enterprises of sub-Saharan Africa: The role of corporate social responsibility initiatives in Niger Delta, Nigeria. *African Development Review,* 32: s78-s90, https://doi.org/10.1111/1467-8268.12484

Pihkala, P. (2018). Eco-anxiety, tragedy, and hope: psychological and spiritual dimensions of climate change. *Zygon,* 53(2): 545-569.

Rehman, S. U., Bhatti, A., Kraus, S. and Ferreira, J. J. (2020). The role of environmental management control systems for ecological sustainability and sustainable performance. *Management Decision,* 59(9), 2217-2237.

Rehman, S. U., Kraus, S., Shah, S. A., Khanin, D. and Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. *Technological Forecasting and Social Change,* 163, 120481.

Rehman, S. U., Bresciani, S., Yahiaoui, D. and Giacosa, E. (2022). Environmental sustainability orientation and corporate social responsibility influence on environmental performance of small and medium enterprises: The mediating effect of green capability. *Corporate Social Responsibility and Environmental Management,* https://doi.org/10.1002/csr.2293

Renouard, C. and Lado, H. (2012).CSR and inequality in the Niger Delta (Nigeria). *Corporate Governance: The International Journal of Business in Society,* 12 (4), 472-484.

Sharifi, A. (2021). Co-benefits and synergies between urban climate change mitigation and adaptation measures: A literature review. *Science of the Total Environment,* 750, 141642.

SPDC. (2013). *Shell in Nigeria: Global memorandum of understanding.* Port-Harcourt: Shell Petroleum Development Corporation in Nigeria.

Steg, L. (2018). Limiting climate change requires research on climate action. *Nature Climate Change,* 8(9):759-761.

Uduji, J.I. and Okolo-Obasi, E.N. (2022). Does corporate social responsibility initiative dissuade the increasing electoral violence in sub-Saharan Africa? Evidence from Nigeria's oil producing region. *Journal of Global Responsibility,* 13(2):101-126, https://doi.org/10.1108/JGR-05-2021-0052

Uduji, J.I. and Okolo-Obasi, E.N. (2018). Does corporate social responsibility (CSR) impact on development of women in small-scale fisheries of sub-Saharan Africa? Evidence from coastal communities of Niger Delta in Nigeria. *Marine Policy,* 118:103323, https://doi.org/10.1016/j.mapol.2018.10.0366

Uduji, J.I., Okolo-Obasi, E.N. and Asongu, S.A. (2019). Corporate social responsibility and the role of women in sustainable agricultural development in sub-Saharan Africa: Evidence from the Niger Delta in Nigeria. *Sustainable Development,* 27(4), 692-703, https://doi.org/10.1002/sd.1933

Uduji, J.I., Okolo-Obasi, E.N., Onodugo, V.A., Nnabuko, J.O. and Adedibu, B. (2020c). Corporate social responsibility and the role of rural women in strengthening agriculture tourism linkages in Nigeria's oil producing communities. *Journal of Tourism and Cultural Change,* 19(6): 754-780,https://doi.org/10.1080/14766825.2020.1826500

Uduji, J.I., Okolo-Obasi, E.N. and Asongu, S.A. (2021). Oil extraction in Nigeria's Ogoniland: the role of corporate social responsibility in averting a resurgence of violence. *Resources Policy,* 70(March):101927, https://doi.org/10.1016/j.resourpol.2020.101927

UNDP. (2006).*Niger Delta human development report.* Abuja: United Nations Development Programme.

UNDP (2007). Fighting climate change human right solidarity in a divided world. Human Development Report 2007/2008, New York.

United Nations-Earth Summit (1997). Special session of the general assembly to review and appraise the implementation of agenda 21, New York, 23-27, June.

United Nations-Climate Change (1998). Kyoto protocol to the United Nations framework convention on climate change.

United Nations-Climate Change (2007). Bali climate change conference, December 2007.

United Nations-Women (2009). Statement of the committee on the elimination of discrimination against women (CEDAN) on gender and climate change. CEDAN, 44th Session, New York, 20 July – 7 August.

Visser, W. (2006). Revisiting Carroll's CSR Pyramid: An African Perspective. In Pederson, E.R., & Huniche, M.(eds), *Corporate Citizenship in Developing Countries,* Copenhagen: Copenhagen Business School Press, 29-56.