International Journal of
Development Strategies in Humanities, Management and Social Sciences
p-ISSN: 2360-9036 | e-ISSN: 2360-9044
IJDSHMSS
February, 2024
Vol. 14, No. 1

The Environment and Gendered Livelihood Outcomes in Pollution-Impacted Rural Communities of the Niger Delta

[1]Tubodenyefa Zibima &
[2]Amafunu Amaoru
[1]Department of Political Science, Niger Delta University
[2]Institute for Niger Delta Studies, Niger Delta University

Article DOI:
10.48028/iiprds/ijdshmss.v14.i1.30

Keywords:
Environment, Gender, Livelihood, Pollution, Niger Delta, Women

Corresponding Author:
Tubodenyefa Zibima

Abstract

This study interrogated how environmental pollution in two communities have contributed to gendered livelihood outcomes in Bayelsa state. The study proceeded with the premise that while it is common knowledge that environmental pollution has negatively impacted traditional livelihood activities in oil producing communities, the negative impact on livelihood outputs may be different for women compared to men. Based on this premise, the study raised two related questions: Is there a gendered livelihood impact in the selected rural community due to environmental pollution? Can women make similar levels of income when they instrument the same livelihood opportunities as men in these communities? To answer these questions, the study utilised the survey research design and randomly selected the study participants from households in the selected community. From the analysis, the study finds and concluded that with increased environmental pressures from degradation, the emergent livelihood mobility arising from dwindling livelihood opportunities creates and entrenches a gendered limitation to finding and maintaining alternative livelihood activities. Further, the study noted that with increasing environmental pressures, finding, participating in and maintaining livelihood activities become critical. In the face of shrinking opportunities, issues such as physicality and increased exertion shape traditional forms of income generation, gender differences become even more pronounced. This dynamic further highlights the differences in pressures on men and women, especially for single-parent households with female heads.

Background to the Study

In describing the Niger delta, Lubeck, Watts & Lipschulz (2007) maintain that the extensive oil infrastructure in the region which amounts to more than 600 oil fields, 10 Oil export terminals, 5284 onshore/offshore oil wells, 4 refineries, a Liquefied Natural Gas (NLNG) project and 275 flow stations has contributed to the negative environmental outcome in the region. They also note that it is the weak environmental regulation processes in the country that has led to incessant pollutions and spillages in the region. This expression of the failure of environmental governance in the region has contributed to pollution that now has over the years affected livelihood outcomes in communities that have suffered pollution from crude oil. The question then is not whether these communities suffer livelihood challenges, ths has been shown by research and in the literature. The question is, what is the dynamics of these livelihood challenges and do all rural dwellers suffer the same degree of challenges in these communities? We are further driven to as if there are identifiable differences in how men and women suffer livelihood challenges and do everyone enjoys the same opportunities for adaptation and survival?

A further consideration of the literature on oil-related environmental degradation in the Niger delta highlights the externalized economic cost of increasing levels of environmental degradation from drilling activities on host communities. The very dynamic of the externalization of environmental costs, intentionally or unintentionally, shifts the economic and social weight of these costs towards private individuals in locations of pollution. This is expressed mostly in traditional livelihood spheres, such as fishing and farming that are dependent on natural and environmental resources. In such conditions, the intricacies of survival in the face of environmental stress and the expression of livelihood practicalities are bound to create and generate increased burdens on rural households.

More importantly, even among private individuals, the question remains whether the burdens and pressures from externalized environmental cost are borne differently by individuals based on gender differentiations and related livelihood practicalities. From the literature, one identifiable means through which external costs of environmental pollution affects rural dwellers on an individual basis is through the impacts on rural livelihoods as caused by the destruction of traditional livelihood structures (Zibima & Okoye, 2016; Daw et al, 2012). It is no longer in contention within research on the negative impacts of environmental pollution on rural livelihoods in across Niger delta states. What can be of contention is the variable negative impacts of pollution on rural livelihoods as it affects the different gender. Do men and women, based on the prevailing cultural differentiations suffer the same impacts on their livelihoods? Does making use of emerging livelihood opportunities a function of one's gender? Can women instrument the same opportunities in the same way and gain similar levels of income from identifiable livelihoods as men? What other factors increase or limit the available opportunities for increased income from available rural livelihoods for men and women?

There has been a growing concern and acknowledgement of the need to consider possibilities of gendered outcomes in rural livelihoods especially when there is pervasive environmental pollution and scarcity (Fröhlich & Gioli, 2015). Gender differences can determine the challenges people face in relation to environmental scarcity and livelihood challenges especially when livelihoods are dependent on natural capital such as lands and rivers and streams. Based on this consideration, this study proceeds from the premise that the specific and local dynamics of the nature and type of environmental pollution may limit women participation in more profitable, emerging, and adaptive livelihoods. This requires interrogating how on the one hand, and describing the outcomes on the other, within the specific contextual and cultural dynamics in pollution-impacted rural communities of the Niger Delta.

Oil, Environmental pollution and Livelihood impacts in rural communities

The life of man depends heavily on his ability to alter and control his environment. This suggests that the environment sustains life on earth. The nearby environment offers rural residents a source of income in the form of wood, fish, fur, and non-timber forest products. Even though these societies depend on the services that ecosystems provide for food and shelter, the services that ecosystems provide for regulating, supporting, and cultural needs are also very important to human well-being.

Improving the management of Earth's ecosystems to ensure their conservation and sustainable use is crucial for human welfare (United Nations Environmental Programme, 2009; Organisation for Economic Co-operation and Development, 2006, p. 7). Where an ecosystem is functional, it services fuel, water, food and other related outcomes for the people through livelihood actions in sectors such as fishing, tourism, agriculture, and forestry. As communities exploit these ecosystems over time, they become a critical determinant in long-term economic development and human well-being and improvement, as well as a prerequisite for meeting the Millennium Development Goals (UNEP, 2009b). this is a critical component of survival as even poor communities' wellbeing and the potential for turning around their fortunes can depend on the environment.

According to Bizkova (2011), rural communities rely disproportionately on environmental services for their wellness and fundamental necessities. These communities rely on the environment for their livelihoods in industries like agriculture, fishing, forestry, and tourism, through both formal and informal markets. The state of the environment determines whether livelihoods are sustainable or not and the nature of implementation of environmental protection can either exacerbate or reduce poverty (Liu et al., 2008; Magis, 2007). Where environmental protection is weak, unanticipated environmental outcomes combine to negatively impact interconnected livelihoods that depend on natural capital (Ledogar & Fleming, 2008; Larocque & Noel, 2009) especially in the absence of integrated solution for environmental protection (UNDP 2009; UNDP-UNEP, 2007).

It is typical for indigenous groups and households to rely on the available resources in their place of origin, as the availability of resources is a prerequisite for sustaining life. Therefore, a contaminated environment (polluted waterways, forests, and air) poses a hazard to subsistence. Pollution of land destroys crops and degrades the quality and productivity of soil used by farming communities, while pollution of water harms fisheries and contaminates water used for drinking and other domestic purposes, thereby impeding the improvement of people's livelihood activities in oil-producing regions (Amnesty International, 2009). The majority of those affected are the poorest and those who live in rural areas and rely on traditional livelihoods like fishing and agriculture (UNDP, 2006).Consequentially, environmental pollution has caused chronic and cumulative harm, resulting in a severely degraded coastal ecology that threatens the livelihoods of the region's destitute population.

Pollution has a negative impact on livelihood in the form of decreased crop and fish harvest yields. The principal sources of subsistence (including land and water) for the bulk of the world's poor have been severely compromised. Depending on the severity, soil contamination impairs soil stability, resulting in decreased growth and production among farmers in the region (Akpan, 2012). According to Akpan (2012), contaminants can reach a depth of 0.65 meters, thereby damaging crops and inhibiting plant growth. Moreover, he mentioned that pollutants could blanket certain plants and fruit trees, which could disrupt normal photosynthesis and transpiration processes, resulting in chlorophyll deficit and rapid demise. In reality, soil and air pollution make it hard for seeds to sprout, for plants to grow well, and for crops to produce enough food (Osueke & Emeka-Okpara, 2014).

It has been documented that the effect of pollution on agricultural output has eliminated people's interest in traditional sources of income and displaced them to nonexistent sources of income (Ahmadu & Egbodion, 2013; Chindah & Braide, 2000). In the region, there is also evidence of a deterioration in the technical efficiency of polluted soils relative to unpolluted soils. As a result of oil spills, unproductive soils impede farmers' efforts to achieve technological efficacy. Idumah and Okunmedewa (2013), who studied the Niger Delta region, found that farmers in the area are not technically efficient on average, but farmers in unpolluted areas are more technically efficient than farmers in polluted areas, with a mean technical efficiency of 78 percent in polluted areas and 88 percent in unpolluted areas.

In Nigeria's Niger Delta region, polluted fishing zones have been associated with a decline in fish yield and income for local fishermen. According to the findings of a study conducted by Gbigbi (2013), artisanal fishermen in polluted environments of the Niger Delta region incurred higher production costs and a poor fish harvest, presumably as a result of oil extraction activities, resulting in a lower profit for fishing activities in the Niger Delta. According to Asoma (2013), unproductive soils owing to pollution are killing people's enthusiasm for agricultural activities, particularly crop cultivation and fishing.

1. Gender and Livelihood outcomes

Existing research indicates that livelihood outcomes vary by gender. In developing nations, rural and agricultural communities are the poorest, while women are the most affected by extreme poverty. This is largely attributable to rising inequality in developing nations. Numerous academics have demonstrated that the unequal distribution of newly acquired wealth, barriers to accessing education, resources, and health infrastructure all contribute to this predicament (Svallfors, 1997; Phillips, 2004; Qian, 2017). Several scholars have noted that planning and programming that prioritize gender differences helps reduce rural poverty (Kimani and Kombo, 2010; Meinzen-Dick et al, 2011). Other scholars have noted that duty bearers must focus on increasing access to technology for women as a strategy for ballancing livelihood outcomes for men and women (Kimani and Kombo, 2010; Kumase, Bisseleua, and Klasen, 2010). Men typically have greater input measurements than women (Peterman, Behrman and Quisumbing, 2010; Manfre, Rubin, Allen, Summerfield, Colverson and Akeredolu, 2013; Sraboni, Malapit, Quisumbing and Ahmed, 2014).

Gender-based inequities impede women's participation in initiatives to increase agricultural production and decrease poverty and food insecurity (Ransom and Bain, 2011; Seebens, 2011). Reducing these inequities will improve people's living situations and, as a result, reduce poverty (Holmes and Jones, 2011). The link between gender and poverty has therefore been the subject of extensive debate in the area of research on the economic and social development of countries in the Southern hemisphere. In recent years, uneven access to land between men and women has emerged as a strategy for reducing poverty and enhancing the living conditions of rural populations. In rural areas, and inequalities in land rights are impediments to economic and social development, and thus to poverty reduction (Maksimov and Luo, 2017). Land rights inequality between men and women is viewed as an additional element impeding development and poverty reduction.

2. Feminist Propositions and the framing of gendered livelihood outcomes

Most feminist theories operate under the underlying premise that gender is socially constructed, that masculinity and femininity are constructs, and that it is this construct that is to blame for the structural imbalance in society that favors men over women. Most feminists concur and "bring attention to women's invisibility and subjugation" in society from this premise (Tickner and Sjoberg 2013: 205). Although there are various interpretations of how this socially constructed system functions and the imbalance it causes in society, each understanding and interpretation is a product of the various views that make up feminism. As a result, there are many feminisms that frequently cross paths and overlap. These include, but are not limited to, ecofeminism, Marxist and socialist feminism, Black feminism, radical feminism, cultural feminism, visionary feminism, transnational or global feminism, and (Grovogui, 2013; Sakue-Collins, 2017).

The foundation of this subject is Radical feminism. feminists aim to project the patriarchal theory, which illustrates the link between dominance and oppression. According to

radical feminism ideology, women are exploited, oppressed, and subordinated in both the private and public arenas of existence. In contrast to the liberal perspective of legal systems or the socialist perspective of class conflict, radical feminists ascribed the origin of women's oppression to patriarchal gender relations.

Feminists, however, contend that simply granting more rights and power to women through the legal system will not be sufficient to bring about change because societal stereotypes will continue to exist. Radical egalitarianism, defined as "an approach to the distribution of economic resources aiming at eliminating disparities among people based on culture or a way of life," was another radical theorist strategy (Wildavsky 1991). By addressing the underlying causes of the issue, this viewpoint aims to find a longer-lasting solution to the patriarchal problem. Nonetheless, this theory is relevant to this study as it not only brings to the fore the peculiarity of the social conditions women face, but also the fact that there can be an environmental perspective to the economic and social disadvantages faced by women in rural communities.

Methodology

This study is descriptive in nature given that the objective is to frame extant livelihood outcomes from a gendered point of view. Given the nature of the questions raised and the identifiable characteristics of potential study communities (being a rural community with a history of oil-related environmental pollution), the researcher purposefully selected two communities in Bayelsa state that satisfied these two criteria. These communities are Azuzuama community in Southern Ijaw local government area and Bassambiri in Nembe Local government area both in Bayelsa state. The study employed the use of survey questionnaires in the collection of relevant data for the analysis. The study made use of a mixture of open and closed ended questions in eliciting responses from the selected respondents. The questionnaire was divided into two major sections. The first section captured socio-demographic details while the second section captured the issues raised in the research questions. This section was further divided into themes that correspond with the research questions. This was done to enable a coherent analysis. Descriptive statistical tools were employed in the collation and analysis of the data.

Results and Discussion

Environmental pollution and Gendered Livelihood outcomes

In this section, field data was analyzed to help frame expressive forms of gendered livelihood outcomes in the study communities. The paper proceeds to frame this by looking at baselines of prevailing livelihood dynamics and how these creates expressions of gendered livelihood outcomes.

Table 1: Prevalent Livelihood activities in the communities

Livelihoods that are more prevalent in the communities?		
Response	Frequency	Percentage
Fishing	43	35.8%
Crude Oil-related	48	40%
Trading	18	15%
Farming	5	4.2%
Others	5	4.2%
Total	120	100%

On current and prevailing livelihoods in the community, the data shows that fishing and crude oil related livelihoods are more prevalent with 35.8% and 40% respectively. Fishing as a prevailing livelihood activity is not surprising as these are traditionally riverine and fishing communities, known for history of fishing as a livelihood. On the other hand, crude oil related business for individuals in the community are mostly engagements linked with artisanal crude oil refining known locally as kpo-fire, which can cut across the actual refining, transporting of refined petrol or resale of refined products within and outside the community.

Trading and farming show a participation level of 15% and 4.2% respectively. The data on trading is also reflective of the context as most of the trading has to do with more prevailing activities and the outputs such as trading in fish products or locally refined petroleum products. Other activities that support livelihood according to the data are combined to make up for 4.2%. The implication of the data is that fishing and businesses tied to crude oil are now more prevalent in these communities. The very nature of these businesses and the capital that may be required for people to participate in them systematically would determine gender differentiations in who participates and generates significant livelihood from them. Fishing, being traditional and with the available natural capital like rivers and swamps would mean that both men and women can actively participate. However, the extent and levels of pollution have over the years, as research has shown, reduced the productivity of fishing in pollution impacted communities in the Niger delta, not just in Bayelsa state. Crude oil related businesses on the other hand, giving the skills, strength and capital needed, has more exclusionary tendencies that fishing, trading or other livelihood activities. The study further asked respondents whether they think oil pollution has affected how much people make from these types of livelihoods? The responses are presented below.

T**able 2:** If Oil Pollution has affected how much women make from the above livelihoods.

If oil pollution has affected how much women make from livelihood activities.		
Response	Frequency	Percentage
Yes	84	70%
No	23	19.2%
Do Not Know	13	10.8%
Total	120	100%

As the data in table 2 shows, majority of the respondents making up for 70% hold the position that oil and environmental pollution has affected how much women make from traditional livelihood activities. This assertion can be justified by the position that women participate more in traditional livelihoods like fishing that has been impacted negatively from oil and environmental pollution. Conversely, we can draw from this position that less women participate in more lucrative activities like artisanal refining of crude oil outside the reselling of refined products. Based on the data, another 19.2% do not think that oil pollution has negatively affected how much women make from livelihood activities in the community. Another 10.8% on the other hand have no idea whether pollution has negatively affected how much women make from livelihood activities.

Nonetheless, we can construe from the data and the situation in these communities that the nature of the activity in relation to oil pollution, whether it is detrimental or associated, determines how much people make. More importantly, where the output from activities that women participate in are affected by pollution, such as fishing, and said women are limited from participating in other lucrative oil related businesses, the outcome and impact would represent a gendered outcome. An outcome where women would make less from traditional livelihoods that are actively impacted by oil pollution. To follow up with the previous question, the study asked respondents how has pollution affected the kind of livelihood activities women engage in for this community? For this question, we got several responses that are grouped into the themes captured in Table 3.

Table 3: How environmental pollution affects livelihoods women engage in within the study communities.

How pollution affects the livelihoods women engaged in around the study communities.		
Response	Frequency	Percentage
Poor outputs	72	70%
Reduced opportunities	34	19.2%
Extended periods for limited outputs	13	10.8%
Total	120	100%

From Table 3, the major way pollution has affected the livelihood activities women continue to engage in is poor outputs with 70% of the responses. Respondents who noted

reduced opportunities in available rural livelihoods make up for 19.2% while engaging in similar activities and actions now take longer time to produce tangible results make up for 10.8%.

The implication of the data in table 3 is far reaching. For one, due to pollution and the destruction of natural capital such as available land and river has contributed to poor outputs from traditional livelihoods like fishing and farming for residents of the community. Again, local knowledge and skills have been historically adapted to fishing and other related traditional livelihood activities that women engage in such as picking sea food and shell fishes, with pollution and the destruction of livelihood structures, it becomes even harder for local and rural inhabitants to develop adaptive skills without the requisite technical support of the state and local governments. As women continue to spend more time on domestic responsibilities, it makes it even harder to increase potential income from traditional livelihood activities in these communities that continue to suffer the effects and impacts of pollution. The study asked respondents to ran the reasons that best explain why women participate or not engage in popular livelihood activities in the community? The responses are presented in table 4.

T**able 4:** Factors that limit women participation in emerging and popular livelihood activities.

Factors that limit women participation in emerging and popular livelihood activities.		
Response	Frequency	Percentage
Risky/Fear	54	45%
Physical demands	32	26.7%
Lack of Capital	16	13.3%
Cultural considerations	7	5.8%
violence	11	9.2%
Total	120	100%

On factors limiting women participation in emerging livelihoods that are not tied to traditional livelihood activities, the respondents identified several factors. 45% of the respondents noted that the nature of risk and the fear of possible harm and hazard has greatly limited women in the community from participating in the emerging livelihood activities. Another 26.7% noted that the nature of the physical demands associated with emerging livelihood like artisanal refining makes it very difficult for women to actively participate. Another 13.3% of the respondents noted that lack of capital has also made it very difficult for women to participate in certain livelihood activities outside fishing which the community is known for. Other factors such as cultural considerations and violence making up for 5.8% and 9.2% respectively were also noted as limiting factors for women participation in these newer livelihood activities in the community.

What can be deduced from the table is that the social and economic context in these communities combine to create limiting factors for women to participating in emerging

and adaptive livelihoods in the face of increasing environmental pollution in the study communities. This brings to the fore seemingly gendered livelihood outcomes. It leads to situations where income of rural dwellers such as women in these communities are differentiated based on their gender and physicality which in turn limits them financially. Importantly, these limitations are arising from environmental scarcity in these communities caused by environmental pollution.

Gender and Participation in Emergent Livelihoods in Pollution-impacted communities.

In other to ground the analysis on the second question raised in the study, the study proceeded to question whether participation in emergent and adaptive livelihoods in the study communities are a function of one's gender. The results and analysis are presented below.

Table 5: Women and participation in emergent livelihoods in pollution impacted communities.

Are women able to participate in the same emerging livelihood activities as men in the community?		
Response	Frequency	Percentage
Yes	22	19.1%
No	85	70.1%
Do Not Know	13	10.8%
Total	120	100%

From the responses, 19.2% of the respondents noted that women can and do participate in the same emerging livelihood activities as men in the community. On the contrary, 70.1% of the respondents noted that women are not able to participate in the same emerging livelihood activities as men in the community. 10.8% of the respondents maintain they do not know whether women do and can or cannot participate in the same emerging livelihood activities as men in the community. The implication of this data shows that there is a seeming cultural perception and acknowledgement that there are particular livelihood activities that women can participate in and there are others that women cannot participate in. This can lead to normative outcomes where women, even where there are limited options may be limited by cultural perceptions and knowledge. Moving forward, the respondents were asked if there are identifiable specific issues that limit women from engaging in the livelihood activities that men engage in?

Table 6: Specific issues that limit women in livelihood activities in the study communities.

Specific issues that limit women from engaging in livelihood activities that men engage in.		
Response	Frequency	Percentage
Family Pressure	36	30%
Available equipment	59	49.2%
Product distribution network	13	10.8%
Others	12	10%
Total	120	100%

As presented in table 6, the respondents noted that family pressure making up for 30% is one of the reasons why women in the community do not participate in the same emerging livelihood activities as men in the community. This may be due to familial responsibilities or family concern over the negative associated outcomes of these activities. Another factor noted as limiting the participation of women in these activities is the unavailability of support equipment to actively participate in these activities. This makes up for 49.2%. the implication of this data is that capital and the procurement of the necessary equipment combines to limit women from participating. This also means that there is a seeming lop-sidedness to access to support facilities for women especially in rural communities. Connections to oil product distribution networks including security agents was identified as another factor with 10.8%. The implication of this results shows that there is an increasing linkage between informal rural economic and livelihood activities with formal security and governance structures. This specific outcome makes it even more complex for women without these networks to make income from emerging livelihoods outside traditional livelihoods affected by oil pollution. Noting that even contextual and exclusionary factors still does not mean no women at all participate in emerging livelihoods outside traditional livelihood structures, the study inquired whether the few women who engage make the same amounts of income from these activities as men? The results are presented in table 7.

Table 7: Do women make the same amount of income as men from emerging livelihood activities.

Do women make the same amount of income as men from emerging livelihood activities		
Response	Frequency	Percentage
Yes	23	19.2%
No	76	63.3%
Do Not Know	21	17.5%
Total	120	100%

From the collated data, respondent who think that women make the same income from available and emerging activities as men make up for 19.2%. Those who hold a contrary

view and believe that women do not make the same income make up for 63.3% of the responses. those who have no knowledge of the income variances make up for 17.5%.

From the everyday experiences and knowledge of the respondents, there exists a wage and income differential between men and women when it comes emerging livelihoods that are not tied to traditional activities like fishing and farming. What the data implies is that livelihoods that are not connected to traditional activities like fishing and farming tend to exert income differential between men and women that in the mid to long-term lead to gender differentiated outcomes for rural women.

Discussion of Findings

The data and evidence are quite revealing on the gendered impacts of livelihoods in the communities. On whether there is a gendered impact on livelihood in the communities, arising from limited environmental resources due to pollution, the data was quite revealing. The result shows that the high levels of environmental pollution have led to limited engagements in traditional livelihood activities in these communities. Tis prevalence in environmental scarcity due to oil pollution has led to diminishing traditional livelihoods. This has led to increase in businesses that are tied to crude oil are now more prevalent in these communities.

The very nature of these businesses and the capital that may be required for people to participate in them systematically would determine gender differentiations in who participates and generates significant livelihood from them. Fishing, being traditional and with the available natural capital like rivers and swamps would mean that both men and women can actively participate. However, the extent and levels of pollution have over the years, as research has shown, reduced the productivity of fishing in pollution impacted communities in the Niger delta, not just in Bayelsa state. Crude oil related businesses on the other hand, giving the skills, strength and capital needed, has more exclusionary tendencies that fishing, trading or other livelihood activities.

Nonetheless, we can construe from the data and the situation in these communities that the nature of the activity in relation to oil pollution, whether it is detrimental or associated, determines how much people make (add ref). more importantly, where the output from activities that women participate in are affected by pollution, such as fishing, and said women are limited from participating in other lucrative oil related businesses, the outcome and impact would represent a gendered outcome. An outcome where women would make less from traditional livelihoods that are actively impacted by oil pollution.

Again, local knowledge and skills have been historically adapted to fishing and other related traditional livelihood activities that women engage in such as picking sea food and shell fishes, with pollution and the destruction of livelihood structures, it becomes even harder for local and rural inhabitants to develop adaptive skills without the requisite technical support of the state and local governments. As women continue to

spend more time on domestic responsibilities, it makes it even harder to increase potential income from traditional livelihood activities in these communities that continue to suffer the effects and impacts of pollution.

The social and economic context in these communities combine to create limiting factors for women to participating in emerging and adaptive livelihoods in the face of increasing environmental pollution in the study communities. This brings to the fore seemingly gendered livelihood outcomes. It leads to situations where income of rural dwellers such as women in these communities are differentiated based on their gender and physicality which in turn limits them financially. Importantly, these limitations are arising from environmental scarcity in these communities caused by environmental pollution.

Importantly, in answering the first research question, the data shows that several factors combine to produce a gendered outcome. This starts from the acknowledgment of the negative impact of environmental pollution on fishing. With low output, the issue of capacity and support becomes another hurdle for women. Logically, in contexts of environmental scarcity especially in rural areas, people begin to adapt and livelihood mobility begins to take place. When this haapens, the issues that arise become what our data has shown. The potentials are high that the nature of the emerging livelihoods may be one where not all rural dwellers are able to effectively participate and generate income, especially where this differentiation is along gender lines. This becomes the basis for understanding the gendered livelihood outcomes as influenced by environmental pollution.

From acknowledging that there is a gendered livelihood outcome in the study communities. The data was further analysed to show whether women can participate and make similar livelihood incomes from the same emerging adaptive activities as men. In answering this question, the data shows a number of underlying factors that combine to determine whether women can and do participate in these emerging livelihoods.

From the analysis, the data shows that there is a seeming cultural perception and acknowledgement that there are livelihood activities that women can participate in and there are others that women cannot participate in. This can lead to normative outcomes where women, even where there are limited options may be limited by cultural perceptions and knowledge. This also means that there is a seeming lop-sidedness to access to support facilities for women especially in rural communities. Connections to oil product distribution networks including security agents was identified as another factor with 10.8%. The implication of this results shows that there is an increasing linkage between informal rural economic and livelihood activities with formal security and governance structures. This specific outcome makes it even more complex for women without these networks to make income from emerging livelihoods outside traditional livelihoods affected by oil pollution.

The data enables us to make the position, in relation to the second research question, that woman do participate in these activities. However, factors such as risk perception, family pressures, lack of access to requisite capital and the physical demands of these emerging livelihoods, combined with patriarchal dispositions around joining and maintaining networks all combine to limit the chances and the number of women who participate in these activities. This outcome combines with the pollution-influenced outcomes to shape the gendered nature of livelihood outcomes for men and women in the study communities.

Conclusion

Within the frames of the data and the analysis, the position can be taken that the issue of environmental pollution and livelihood while extensively researched, creates dynamic outcomes that affect women more than it does men in terms of livelihood outcomes. The study draws a coherent relationship between pollution, resource scarcity, adaptive and emerging livelihoods, and limit outcomes for women as they try to participate in these emerging livelihoods as a way of escaping low outputs from traditional livelihoods like fishing. The conclusion in this study starts from the acknowledgment of the negative impact of environmental pollution on fishing. With low output, the issue of capacity and support becomes another hurdle for women. Logically, in contexts of environmental scarcity especially in rural areas, people begin to adapt, and livelihood mobility begins to take place. When this happens, the issues that arise become what our data has shown. The potentials are high that the nature of the emerging livelihoods may be one where not all rural dwellers are able to effectively participate and generate income, especially where this differentiation is along gender lines. This becomes the basis for understanding the gendered livelihood outcomes as influenced by environmental pollution.

The data enables us to make the position, in relation to the second research question, that woman do participate in these activities. However, factors such as risk perception, family pressures, lack of access to requisite capital and the physical demands of these emerging livelihoods, combined with patriarchal dispositions around joining and maintaining networks all combine to limit the chances and the number of women who participate in these activities. This outcome combines with the pollution-influenced outcomes to shape the gendered nature of livelihood outcomes for men and women in the study communities.

With increased environmental pressures from degradation, the emergent livelihood mobility arising from dwindling livelihood opportunities creates and entrenches a gendered limitation to finding and maintaining alternative livelihood activities. Evidently, livelihood mobility is only positive when there are viable opportunities for movement and participation. With increasing environmental pressures, finding, participating in and maintaining livelihood activities become critical. In the face of shrinking opportunities, issues such as physicality and increased exertion shape traditional forms of income generation, gender differences become even more pronounced. This dynamic further highlights the differences in pressures on men and women, especially for single-parent households with female heads.

References

Amnesty International (2009). Nigeria. Petroleum, pollution and poverty in the Niger Delta, London: Amnesty International Publications. 65-79. Available: http://www.amnesty.org (Assessed 04/08/2022)

Ahmadu J. & Egbodion J. (2012). Effect of oil spillage on cassava production in Niger Delta region of Nigeria. *American journal of Experimental Agriculture. 3*(4):914-926

Akpan N. (2012). From agriculture to petroleum Oil production: What has changed about Nigeria's rural development. *International Journal of Developing Societies*. 2 (5):97-106.

Bizikova, L. (2011). *Understanding the contribution of the environment to human well-being: A review of literature.* The International Institute for Sustainable Development.

Chindah A. C. & Braide S. A. (2000). *The impact of oil spills on the ecology and economy of the Niger Delta. Proceedings of the workshop on sustainable remediation development technology held at the Institute of Petroleum Studies*, Rivers State University of Science and Technology, Port Harcourt.

Daw, T et al (2012) 'To fish or not to fish: factors at multiple scales affecting artisanal fishers' readiness to exit a declining fishery, *PLoS One* Vol. 7, No. 2, 1-16.

Fröhlich, C & Gioli, G. (2015), Gender, conflict, and global environmental change, *Peace Review*, 27:2, 137-146

Idumah F. O. & Okunmadewa F. Y. (2013). Oil pollution and technical efficiency of food crop farmers in the Niger Delta region of Nigeria., *Journal of Development and Agricultural Economics. 5*(12):519-526.

Larocque F. & Noël, A. (2009). *Aboriginal peoples and poverty in Canada: Can provincial governments make a difference*? Paper prepared for the Annual Meeting of the International Sociological Association's Research Committee 19 (RC19), Montreal, Quebec.

Ledogar R. J. & Fleming, J. (2008). Social capital and resilience: A review of concepts and selected literature relevant to Aboriginal youth resilience research. Pimatisiwin, *A Journal of Aboriginal and Indigenous Community Health 6*(2), 25–46

Liu J., Li, S., Ouyang, Z., Tam, C. & Che, X. (2008). Ecological and socioeconomic effects of China's policies for ecosystem services, PNAS 105(28), 9477–9482.

Lubeck, P. Watts, MJ, and Lipschulz, R (2007), 'Convergent interests: US energy security and the security of Nigeria's democracy, *International Policy Report*. Washington: Center for International Policy.

Magis K. (2007). *Indicator 38: Community resilience: Literature and practice review. Submitted to the U.S. Roundtable on sustainable Forests*. Portland: Leadership Institute and Portland State University.

OECD (2006). *Declaration on integrating climate change adaptation into development Co-operation*, Adopted by Development and Environment Ministers of OECD Member Countries. Paris: OCED.

Osuoke G. O. & Emeka-Okpara, F. O. (2014). Evaluation of the impact of crude oil spillage on Izombe community and their productivity implications. *International Journal of Research in Engineering and Technology. 3*(10):208-211.

UNDP.(2006). *Niger-delta human development report*. Available: http://hdr.undp.org/en/reports/national/africa/nigeria/name,3368,en.html

UNDP-UNEP Poverty-Environment Initiative Uganda. (2007). *Mainstreaming environmental issues into budget framework papers*, User's manual. Kampala: PEI Uganda.

UNEP. (2009). Mainstreaming poverty-environment linkages into development planning: A handbook for practitioners. Nairobi: UNDP-UNEP Poverty-Environment Facility

Zibima, T. & Okoye, A. (2016). Non-state actors and the human security dilemma in Nigeria's Niger delta, *University of Nigeria Journal of Political Economy*.