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Social Mobilization and Its Effectiveness in Mitigating the Adverse Effects of Climate Change on Vulnerability in the Niger Delta Region

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ABSTRACT

This study examines the role of social mobilization in mitigating climate change impacts on vulnerable populations in the Niger Delta. This study adopted the cross-sectional survey design using a questionnaire. Though the region constitutes nine states with a total population of 44,654,600, three States are purposely selected, namely Bayelsa**,** Delta and Rivers, with a population size of 15,650,300. A sample size of four hundred (400) was determined using the sample size Yemane's formula. out of the four hundred (400) questionnaires distributed, only three hundred and seventeen (317) were retrieved from respondents, representing seventy-nine-point three percent (79.3%) response rate. The hypothesis was tested using linear regression and t-test at a 0.05 level of significance with the aid of the Statistical Package of Social Science (SPSS version 23.0). The study revealed that social mobilization significantly impacts the mitigation of climate change's adverse effects on vulnerable communities within Nigeria's Niger Delta. Regression analysis confirms that social mobilization plays a statistically significant role in reducing climate vulnerability. The study concluded that a successful climate adaptation must be centered on the right policy tools that permeate all strategic ministries, departments and agencies at the state and regional institutions backed by strong political will, public awareness, stakeholders' participation and a consistent action plan which are not yet available and accessible in the Niger Delta region and therefore not being integrated in social development programmes. The study therefore recommended, among others, that governments at local and national levels should prioritize investments in the Niger Delta's infrastructure, healthcare, and educational facilities to build trust within communities. These improvements could foster a positive perception of governmental commitment and motivate community members to engage in climate resilience efforts.

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1. INTRODUCTION

One of the world's most commercially and environmentally important regions is the Niger Delta. The area has long been a hub of industrial activity and is rich in natural resources, especially oil and wildlife. However, the Niger Delta is also one of the most vulnerable regions to environmental degradation, much of it driven by both human activities and the growing impacts of climate change. Communities in the area consequently experience severe socioeconomic difficulties, from displacement to loss of livelihoods, which makes them more susceptible to economic and environmental disasters.

Climate change is exacerbating many of the existing environmental issues in the Niger Delta. Rising sea levels, increased frequency and intensity of flooding, coastal erosion, and unpredictable weather patterns are some of the adverse effects of climate change that have become more pronounced in recent decades. In addition to endangering ecosystems, these climate-related changes also interfere with local economies by upending long-standing fishing and farming methods. Climate change increases residents' susceptibility in an area already plagued by deforestation, spillage of oil and gas flaring, and inadequate environmental governance (Authority, 2020).

The Niger Delta's ecological problem has been brought to light in large part by social movements like the Movement for the Survival of the Ogoni People (MOSOP) and other neighborhood-based environmental advocacy organizations. In addition to opposing oil pollution, these groups have connected their battles to international climate justice campaigns, highlighting the necessity of climate adaption plans that involve local communities in decision-making (Echendu, Okafor & Olayinka, 2022). However, despite their significance, social mobilization efforts in the Niger Delta face numerous obstacles. These consist of intra-community conflicts, the oil industry's vested interests, unstable politics, and the oppressive activities of state authorities. Furthermore, the region's sociopolitical environment, which is marked by ethnic variety and long-standing disputes over resource control, makes it more difficult to create cohesive social movements that may bring about significant change (Eronmhonsele & Erhabor, 2021).

In this context, the nexus between social mobilization and climate change vulnerability in the Niger Delta presents a complex dynamic. Social mobilization serves as both a response to environmental injustices and a mechanism for building resilience to the adverse effects of climate change. Local communities in the Niger Delta can increase their ability to reduce the risks associated with climate change by banding together and promoting a fair allocation of resources, environmental credibility, and inclusive climate adaptation policies.

This study explored the dual role of social mobilization in confronting the adverse effects of climate change on vulnerability in the Niger Delta. It examines the socio-political conditions that have fostered environmental injustice, the effectiveness of grassroots movements in advocating for environmental and climate justice, and the challenges these movements face in achieving their objectives. Developing measures that can reduce climate vulnerability, safeguard local livelihoods, and advance equitable development in the Niger Delta requires an understanding of the dynamics of social mobilization in the area.

Conceptual Clarifications

Climate Change

Long-term changes in temperature, precipitation patterns, and other atmospheric variables brought on by both natural and man-made factors, most notably, the burning of fossil fuels, the destruction of forests, and industrial emissions, are referred to as climate

change. These changes increase the Niger Delta's vulnerabilities, which are already strained by habitat loss and pollution from crude oil extraction. The following are some effects of climate change on the Niger Delta:

Environmental Degradation: Oil spills, gas flaring, and deforestation have already significantly harmed the Niger Delta's ecosystems. These issues are made worse by climate change, which makes it harder for the area to recover from environmental harm. The delicate ecosystems of wetlands and swamps of freshwater, which are vital for both biodiversity and human populations, are in danger due to increased floods and coastal erosion (Nwafor, 2007).

Impact on Livelihoods: The economy of the Niger Delta relies heavily on agriculture and fishing. Climate-induced changes in weather patterns and sea levels undermine these sectors. Farmland is harmed by flooding, and soil fertility is diminished by saltwater intrusion. Fish stocks are also decreasing for fishermen as a result of shifting water temperatures and the loss of mangrove forest breeding habitats (Ikelegbe, 2005).

Health Concerns: The spread of vector-borne illnesses like malaria and watery illnesses like cholera and dysentery is facilitated by rising temperatures and more frequent flooding. Flooding makes the area more susceptible to disease outbreaks due to poor sanitation and tainted water sources (Odjugo, 2010).

Conflicts and Migration: Environmental stress caused by climate change intensifies social tensions in the Niger Delta, which has long experienced resource-related conflicts. The scarcity of arable land and declining fish stocks create competition among communities, which can lead to increased violence and displacement. This further complicates the region's already delicate socio-political landscape (Okpara et al., 2015).

Vulnerability

The degree of exposure to harm, injury, or damage is referred to as vulnerability. The extent to which geophysical, biological, and socioeconomic systems are vulnerable to the negative effects of climate change and unable to adapt to them is known as vulnerability to climate change (IPCC, 2007). The degree to which coastal populations are unable to adapt to the effects of climate change and increased sea level rise is known as their vulnerability. There are many research on assessments of vulnerability in the literature, but as vulnerability is a problem that cuts beyond political, socioeconomic, environmental, and biophysical borders, there is no clear definition of what vulnerability is. Given the cross-cutting nature of the effects of climate change, policies must be adapted to be an essential component of government initiatives. There is also a crucial intersection between advancement and climate change adaptation and remediation, as both endeavour to lessen the fundamental root causes of vulnerability (Eronmhonsele & Erhabor, 2021).

Accordingly, vulnerability is the propensity of people, families, and communities to sustain damage as a result of outside shocks or stresses. This vulnerability is multifaceted and includes environmental, social, and economic elements that reduce local communities' resilience. Sociopolitical marginalization, economic disparities, and a history of bad governance that has permitted international oil firms to operate with little accountability are all strongly linked to the Niger Delta's susceptibility to climate change (Urenmisan, 2022).

Social Mobilization

The process by which people or groups band together, frequently through concerted efforts, to promote social or political change is known as social mobilization. Campaigns, protests, and other types of collective behaviour aimed at impacting policy or societal norms are common examples of this notion, which involves teamwork and can be motivated by a variety of social, economic, or political factors. In a variety of social and political contexts,

researchers have investigated its mechanisms, actors, and effects (Buechler, 1995). Thus, collective efforts by communities or groups to seek social change, often through campaigning, lobbying, or protests, are referred to as social mobilization.

One of the most important strategies for addressing the negative impacts of climate change and degradation of the environment in the Niger Delta is social mobilization, which is defined as the process by which people band together to take action to solve social, political, or environmental challenges. In order to oppose the damaging actions of oil companies, call for stricter environmental laws, and promote sustainable development strategies that lessen the effects of climate change, grassroots organizations, local authorities, civil society organizations, and even international organizations have united. These mobilization efforts focus not only on protecting the environment but also on addressing the broader social and economic inequities that contribute to the region's vulnerability.

Climate Change and Vulnerability in the Niger Delta

Petroleum resources abound in the Niger Delta region; more than 90% of Nigeria's yearly income comes from oil and gas. Therefore, from the perspective of Nigeria's economy, it is a strategic location. However, the environment suffers greatly as a result of the overuse of these resources. The region's environment has suffered as a result of the ongoing oil spill. There is contamination on the land. In many places, the crops and other plants are destroyed, leaving the terrain stark. Water bodies, including streams, rivers and the Atlantic Ocean coasts, are polluted and contaminated. Aquatic plants and animals are destroyed. Gas is flared extensively in many of the oil fields and this has contributed seriously to environmental pollution. The presence of a large number of heavy vehicles and machines because of the oil business also contributes to serious emissions, which add to environmental pollution (Urenmisan, 2022).

The Niger Delta is highly susceptible to climate change effects due to its geographic characteristics and socio-economic conditions. Climate-induced phenomena such as rising sea levels, increased rainfall, and storm surges lead to flooding and coastal erosion. According to Ologunorisa (2009), these problems have led to livelihood losses, community displacement, and the destruction of vital ecosystems like mangroves, which naturally guard against flooding.

Vulnerability in the region is compounded by the reliance of local populations on agriculture and fishing, both of which are highly sensitive to environmental changes. In addition to natural vulnerabilities, oil exploration and extraction activities have exacerbated environmental degradation. Deforestation, gas flaring, and oil spills all make the area less resilient to climate change (Oluwatayo & Ojo, 2016).

The vulnerability of coastal communities to climate change in the region can be analyzed in relation to induced natural and anthropogenic causes such as modification of river flow due to construction of jetties, dams, channelization and mining of mineral resources (oil, sand, gravel, and gas), as well as urban sprawl on flood plains. Hence, an increase in frequency and duration of floods in the region over time has affected its basin hydrology, stream morphology, and shoreline dynamics, causing wave erosion, salinization of rivers, and modification of fragile ecosystems

Climate change adaptation in the Niger Delta requires holistic, systematic planning, risk and impact assessment of social, environmental, and economic vulnerabilities of key sectors at the state, local government and community level. Policy strategies must be centered on quality and reliable data sets on environmental aspect such as forest cover, water resources, soil, biodiversity, and socio-economic data including population dynamics,

economic development forecast, urbanization trends, infrastructural development and gender and as well as climate data which include seasonal forecast, national and local weather data on precipitation and temperature and climate model projection into the future (Eronmhonsele & Erhabor, 2021).

Adaptation is the process by which natural or human systems or conditions are changed in response to environmental changes in order to avoid or lessen harm and investigate possibilities for sustainable growth. Because of advanced research, mechanized farming, direct funding, high awareness, advanced adaptation strategies, political commitment, and legal enforcement, the effects of climate change are less severe in industrialized nations. Given that communities in the Niger Delta are exposed to risks and disasters as a result of both natural and man-made sources of vulnerability, climate change adaptation is imperative, rational, and explicit (Echendu et al., 2022).

There is need for SMART (Specific, Measurable, Achievable, Realistic and Time bound) policy adaptation planning that involved case and field study research which analyze estimated damages to specific vulnerable areas and assets, types and nature of damages or losses and provide cost effective adaptation options, long and short-term high priority issues with budgetary breakdown, clear and flexible adaptation plan where the implementation can be monitored and replicated. Furthermore, it is necessary to design and finance elaborate regional education programmes in ministries and development agencies, including primary, secondary, and tertiary institutions of learning, aimed at inculcating knowledge and understanding of the reality of climate change risk, measurable impacts, and available opportunities for human empowerment to adapt and effectively mitigate the impacts of climate change at the community level. In the same way, the government and oil companies in the Niger Delta should give young people flexible job possibilities to learn about and develop innovative scientific and commercial solutions to reduce greenhouse gas emissions and improve the resilience of communities to climate change at all levels of human endeavour (Urenmisan, 2022).

Due to a lack of scientific evidence in many areas, the Niger Delta region and other regions of Nigeria are now surrounded by high levels of uncertainty regarding their vulnerability to climate change as well as the strategies and pathways for adaptation. Scholarly works on the social, physical, and economic susceptibility of coastal communities in the Niger Delta to climate change, as well as their response to sea level rise, are scarce. Thus, this study looked at social mobilization and how it affects the Niger Delta region's susceptibility to the negative consequences of climate change. Stakeholder diversity, including members of the community, policymakers, researchers, experts, civil society, non-governmental organizations, and the media, is crucial to assessing vulnerability to climate impacts at the local and neighbourhood levels and creating adaptation options. Even if they are not specifically acknowledged as aiding in lowering vulnerability to climate change, many adaptation strategies are already well-known to local people, and they possess important knowledge about the effects of climate change. Building on the familiarity of these actions increases the empowerment of local communities and decision-makers, as they can see themselves as valuable sources of knowledge for developing responses to climate change (Eronmhonsele & Erhabor, 2021).

The federal authorities have made proactive measures to address environmental issues as part of their attempts to mainstream climate change. These include floods, coastal erosion, and efficient waste management. Additionally, it has strengthened our advocacy programs through public lectures, workshops, seminars, media campaigns, summits on wastewater and climate change, planting trees, reclaiming land, landscaping, beautifying, fighting desertification with the Desert Warriors, and controlling air, noise, water, and land pollution.

The Socio-Political Conditions that have Fostered Environmental Injustice in the Niger Delta

The Niger Delta region of Nigeria is a classic example of a resource-rich area plagued by environmental injustice, rooted in complex socio-political conditions that have persisted for decades. These conditions have fostered widespread environmental degradation, economic exploitation, and social marginalization. The adverse effects of climate change further exacerbate these issues, making the region a hotspot for environmental and social vulnerability. Several key socio-political factors contribute to the environmental injustice experienced in the Niger Delta:

1. Historical Exploitation and Resource Control Conflicts

The discovery of oil in the Niger Delta in the 1950s marked the beginning of large-scale environmental degradation, as oil companies, predominantly multinational corporations, began extensive exploration and extraction activities. Despite the immense wealth generated from oil, local communities saw little benefit. Instead, they experienced environmental destruction due to oil spills, gas flaring, and deforestation, which destroyed agricultural lands and waterways, on which local populations depend (Urenmisan, 2022). The core of the environmental injustice lies in the inequitable distribution of oil wealth and the lack of local control over natural resources. Only a small portion of oil income is returned to the states that produce it, and the federal government of Nigeria maintains considerable control over these revenues. Deep-seated animosity and hostility between community members and the federal government have resulted from this. The local populace bears the weight of environmental degradation and feels deprived of its natural resources. Political instability has been exacerbated by the struggle for control of resources, as militant organizations have emerged to demand a larger portion of the oil money, frequently using violent methods to achieve their goals (Watts, 2004).

2. Weak Environmental Governance and Corruption

Environmental injustice is further sustained in the Niger Delta due to institutional fragility and corruption in environmental governance. Monitoring oil extraction operations and maintaining environmental standards are the responsibilities of regulatory agencies like the Department of Petroleum Resources (DPR) and the Nigerian National Petroleum Corporation (NNPC). Nevertheless, these organizations frequently lack the political will or ability to properly implement legislation. Frequent oil spills, uncontrolled gas flaring, and other environmentally damaging activities are the result of this regulatory failure, which permits oil firms to operate with impunity. Corruption within both government agencies and the oil industry exacerbates the problem. Officials often prioritize corporate profits and personal gains over environmental protection and the welfare of local communities. Consequently, communities suffer the effects of environmental harm while oil firms avoid responsibility for their activities (Omeje, 2006). The ecological and socioeconomic requirements of the Niger Delta are systematically neglected as a result of the government's tight ties with oil companies and the lax implementation of environmental laws.

3. Marginalization and Underdevelopment

Another significant factor contributing to environmental injustice in the Niger Delta is the long-standing marginalization of the region’s communities. The Niger Delta is one of Nigeria's poorer and most underdeveloped areas, even though it is the source of the country's oil wealth. There is a serious dearth of basic infrastructure, including roads, schools, and medical services. Because people are ill-prepared to deal with the loss of their ancient

livelihoods, including fishing and agriculture, which are becoming more vulnerable by climate change and air pollution, this underdevelopment exacerbates the effects of environmental degradation. Environmental injustice is also influenced by political marginalization. The voices of Niger Delta communities are often excluded from national decision-making processes, particularly concerning resource management and environmental policies. Elites from other parts of Nigeria have historically controlled the central government, leading to policies that put national oil earnings ahead of local development requirements (Ikelegbe, 2005). Niger Delta residents' frustrations have been exacerbated by this political isolation, which has led to a prolonged period of protest, bloodshed, and additional environmental damage.

4. Militarization and Violence

The militarization of the Niger Delta adds to an already complex sociopolitical environment. The Nigerian government has used military troops to quell dissent in reaction to demonstrations and calls for more control over its resources, which frequently results in violent clashes between state authorities and local people. In addition to aggravating violations of human rights, this militarized response also degrades the environment. For example, during conflicts between militant groups and the military, oil infrastructure is frequently sabotaged, leading to additional oil spills and environmental destruction (Obi, 2010). As part of their plan to put pressure on the government for more control over resources and local development, militants, including those from the Movement for the Emancipation of the Niger Delta (MEND), have attacked oil infrastructure. Even while these militant actions are a reaction to structural injustice, they frequently cause more environmental damage by causing pipeline damage and oil spills into streams and farmlands. The cycle of violence, repression, and environmental destruction leaves local communities trapped in a situation where they suffer both from corporate environmental harm and state repression (Eronmhonsele & Erhabor, 2021).

5. Oil Companies' Influence on Policy

In Nigeria, multinational oil corporations like Shell, Chevron, and ExxonMobil have a big economic and political impact. They can avoid environmental duties because of their financial clout, which provides them significant influence over public policies. Because oil firms may negotiate advantageous arrangements that allow for little environmental supervision, the political elite's reliance on oil profits frequently results in an emphasis on oil production above environmental protection. Moreover, these companies often engage in tactics of divide and rule, fostering divisions within and between communities to undermine unified opposition to their activities. This strategy not only weakens social mobilization efforts but also perpetuates environmental injustice, as fragmented communities struggle to present a cohesive front in demanding accountability from oil companies (Okonta & Douglas, 2003).

6. Climate Change as a Multiplier of Vulnerability

The Niger Delta's environmental and sociopolitical problems are made worse by climate change. The area, which is defined by large wetlands, low-lying beaches, and river systems, is disproportionately impacted by rising sea levels, erosion of the coastline, and increased flooding. More displacement, shortages of food, and diminished livelihoods result from these climate-related effects, which exacerbate the already precarious environmental circumstances brought on by pollution and oil exploration. The inability of the Nigerian government to implement effective climate adaptation policies, particularly in the Niger Delta, exacerbates the vulnerability of local communities. This failure stems from both a

lack of political will and the dominance of oil revenues in national economic planning, which sidelines sustainable environmental and climate initiatives. As a result, climate change intensifies the region's socio-political marginalization and ecological fragility, making environmental justice an even more pressing issue (Eronmhonsele & Erhabor, 2021).

The Role of Social Mobilization

Social mobilization in the Niger Delta has traditionally concentrated on resource management, environmental justice, and mitigating the adverse effects of oil exploration. These battles have been led by grassroots organizations such as the Movement for the Survival of the Ogoni People (MOSOP). International awareness has been enhanced by MOSOP's activities against oil firms' environmental destruction, which have resulted in important victories like the Ogoni Bill of Rights (Saro-Wiwa, 1995). These campaigns serve as prime examples of how local communities may use social mobilization to confront environmental injustices and promote laws that lessen vulnerability.

In the Niger Delta, social mobilization initiatives have lately started to specifically address climate change. Building local capacity for climate adaptation and resilience has been the focus of community-based organizations and non-governmental organizations like Environmental Rights Action/Friends of the Earth Nigeria (ERA/FoEN) (Nwokeoma, 2017). These organizations promote greater national and international climate action and the involvement of underrepresented voices in decision-making processes. A number of tactics are required for social mobilization to effectively deal with climate vulnerability in the Niger Delta. First, impacted communities' voices can be amplified through increased cooperation between regional movements and global advocacy networks. The Nigerian government and oil firms may be under pressure to adopt climate adaptation measures if international environmental organizations become involved (Urenmisan, 2022).

Second, efforts to increase capacity must concentrate on giving local communities the tools they need to create resilient, sustainable livelihoods. This could involve instruction on disaster preparedness, climate-smart farming methods, and alternate sources of income. Lastly, increased government transparency and accountability are required for environmental governance. Civil society must keep advocating for reforms that give the Niger Delta's climate resilience a priority and demanding that current environmental laws be enforced.

Challenges to Social Effective Mobilization in the Niger Delta Region

Despite the success of some mobilization efforts, several challenges remain. The Niger Delta is characterized by complex socio-political dynamics, including ethnic tensions, economic inequality, and a legacy of government neglect. These factors make it difficult to sustain collective action and achieve long-term policy change (Obi, 2009).

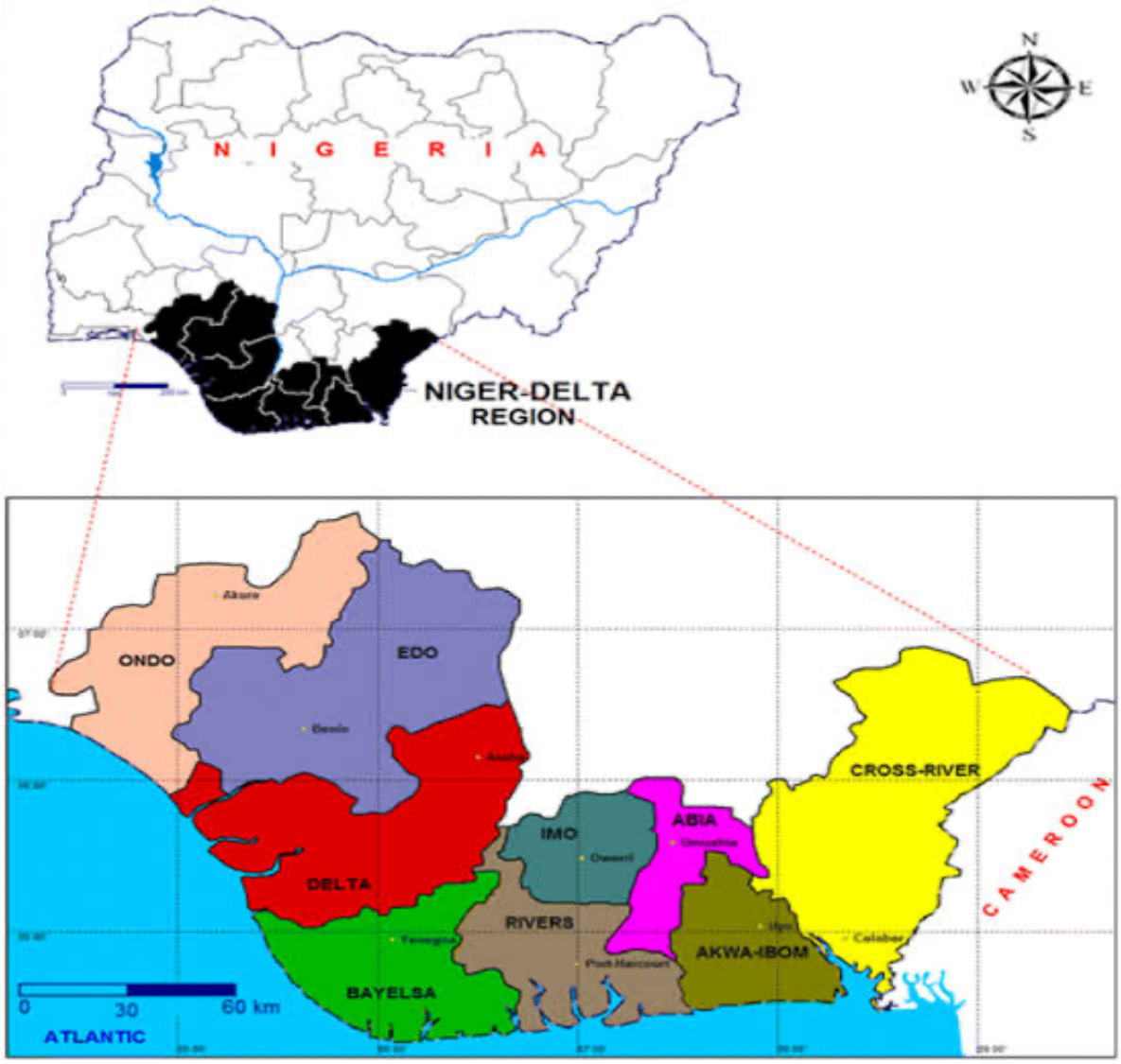
Furthermore, the oil industry's powerful influence over government policy often stymies efforts to regulate environmental practices. Communities seeking to mobilize against climate change impacts must also contend with security issues, as the region is prone to violence and militant activity. This insecurity often limits the ability of civil society organizations to operate freely and engage with local populations.

Study Area

The Atlantic coast of southern Nigeria, where the River Niger splits into multiple tributaries, is home to the Niger Delta region, which is regarded as one of the most polluted places on Earth. With a coastline of over 450 kilometres, it is the second largest delta in the world. It is the biggest and most productive wetland in Africa and one of the three largest on

Earth, with an estimated total area of 110,445.98 km2 (Ighedosa, 2019). The region is made up of nine coastal southern Nigerian states: two from the South East geopolitical zone (Abia and Imo), one from the South West geopolitical zone (Ondo), and six from the South-South geopolitical zone (Akwa Ibom, Bayelsa, Cross-Rivers, Delta, Edo, and Rivers). The National Population Commission estimates that the region's overall population will be 44,654,600 in 2022 (National Bureau of Statistics, 2022). Table 1 below shows the breakdown per state.

Figure 1: Nine States of Nigeria's Niger- Delta Region



Source: Ologunorisa (2009) Retrieved 23rd March, 2024

Table 1: Population of the Region

S/N	State	Population
1	Abia	4,143,100
2	Akwa Ibom	4,902,100
3	Bayelsa	2,537,400

4	Cross River	4,406,200
5	Delta	5,636,100
6	Edo	4,777,000
7	Imo	5,459,300
8	Ondo	5,316,600
9	Rivers	7.476,800
Total		44,654,600

Source: NBS, (2022).

Numerous aquatic and terrestrial plants and animals are supported by the Niger Delta's highly diversified ecology. Due to the presence of mangrove forests, which are crucial but endangered coastal ecosystems, it is the most ecologically varied region of Nigeria. Its various ecological zones include lowland rainforest, freshwater, mangrove swamp, and coastal inland zones. Historically, communities in the region have adopted cultural practices compatible with the flood regimes and the associated fluvial processes. But, with the increase in population pressure, accompanied by urbanization, industrial development and agricultural expansion, the subsisting equilibrium has been altered dramatically, leading to the situation in which flooding is impacting negatively on the land and people of the region. The result is that the area of the arable land that can no longer be cultivated owing to annual floods, environmental degradation from industrial wastes and drainage problems has increased (Akpan & Bassey, 2020). Onyena and Sam (2020) state that the Niger Delta wetlands offer a vast array of ecosystem services, the most important of which for climate change mitigation is their role as carbon sinks and sequesters. These services, which one could argue are a way to achieving human well-being, have deteriorated. The region has undergone significant change from having a diverse range of fish species that provided food, traditional plants, medicine, and coastal stabilization to a new ecosystem that is continuously being depleted and degraded, with air pollution posing a serious threat due to oil and gas flaring exploration.

Although air pollution is one of the biggest environmental issues facing the area, there is currently a dearth of evidence on how it connects to ecosystem health and climate change. The area lacks both extensive databases on air pollution and monitoring stations (Eduk, 2017). According to several research, the ongoing decline in fish populations and the forced relocation of some abundant animal species are not the results of traditional overfishing or overhunting, but rather of vast, unchecked oil and gas contamination. (Etemike, 2009; Clark, 2012). Niger Delta oil and gas reserves are the reason it is the continent's largest oil producer and the sixth largest globally. The region's oil and gas deposits, which account for up to 83% of national revenue and 95% of foreign exchange revenues, are crucial to the nation's whole economy (Onyena & Sam, 2020). The decades of oil production and ongoing gas flaring have severely impacted the rich and economically viable creeks, swamps, and mangrove forest, posing a serious threat to ecosystem health and impeding sustainable development. As a result, the rich-oil region is now also known as "the most polluted Delta on earth.

LEKOIL (2024) in the recent investigation noted that the oil industry had profound impact on the economy of the States however, it has also brought challenges such as

environmental degradation and conflicts of resource control and the oil-producing States owe 1.6 trillion combine (showing the high level of poverty), and recommends that as Nigeria continues to develop the oil industry it is important to recognize the significance of these top oil-producing states and support their efforts in sustainable development."

Figure 2: The Oil Producing Niger-Delta region.

Source: Ite, Ibok, Ite and Petters (2013)

Despite being the backbone of Nigeria's economy, the Niger Delta region is among the most impoverished in the nation (Babatunde, 2020). Climate change has a major impact on environmental sustainability and stability in the region since it is essentially the centre of Nigeria's oil and gas industry and a ground zero for the interaction between human socioeconomic activities and climate change. The recurrent increasing sea levels and incessant flooding threatening to displace more than half of the population, fostering resource scarcity and intensified conflicts overland and fishing rights. The region has become one of the most vulnerable global regions suffering high pollution and habitat degradation due to negative impact of oil exploration. Unquestionably, the Niger-Delta oil-producing region faces a serious environmental threat from frequent oil spills and gas flaring, as well as a widespread rise in hazards and disasters brought on by constant variations in the climate that have an impact on the region's social and economic growth. Put another way, the region's susceptibility to the effects of climate change is making environmental problems worse and escalating the already-existing poverty. In addition to undermining the region's progress in development, the problem of climate change poses a major threat to food security and adaptive ability, which calls for national policy and response strategy attention. In order to solve these issues, the region must develop efficient mitigation and adaptation strategies for climate change.

For effective, suitable, and focused comprehensive responses and adaption measures in accordance with the worldwide climate policy standard, this calls for the highest level of collaboration and coordination between all governmental levels and stakeholders. As a result, the national government's strategy and policy action in the Niger Delta became a specialized framework provided to address the complex issues of climate change in the country's oil-producing region, realizing the threat it poses to the country's survival and

economic progress. Fundamentally, these policies and strategies focus on reducing oil spills, gas flaring, and managing coastal erosion in the region. They also aim to build a resilient and sustainable environment that addresses the intricacies of climate change and the frequent adverse effects in the Niger-Delta region, which is the country's economic centre. Niger-Delta does, however, exhibit a clear gap between the passage of policies and their successful implementation after several years of implementation, which is consistent with Ogbuku's (2023) assertion that the region is most impacted by climate change and highlights the urgent need for renewable energy sources and community resilience to combat these obstacles and mitigate potential crises driven by climate change.

Theoretical Framework

Resource mobilization theory serves as the theoretical foundation for comprehending social mobilization in relation to the Niger Delta's vulnerability to climate change. Resource mobilization theory was primarily developed by Mayer N. Zald and John D. McCarthy. In order to explain the emergence and effectiveness of social movements, they presented this idea in the 1970s. Their work shifted the focus from purely grievance-based approaches to understanding movements to examining how movements gather and utilize resources, both material and non-material, to pursue their goals.

Resource mobilization theory argues that social movements are not just spontaneous reactions to social grievances but are highly organized efforts that depend on resources such as money, leadership, access to media, and organizational infrastructure (Jenkins, 1983). The success of a social movement, according to this theory, depends largely on its ability to efficiently acquire and manage these resources, as well as its ability to mobilize external support from sympathetic individuals and organizations, including elites, the media, and funding bodies (McCarthy & Zald, 1977).

According to resource mobilization theory, social movements are fueled by organization, leadership, and access to resources. Local groups like the Movement for the Survival of the Ogoni People (MOSOP) and global advocacy organizations are crucial in the Niger Delta because they help mobilize resources, including money, legal knowledge, and media coverage. This theory emphasizes how the Niger Delta social movements have effectively utilized external assistance to disseminate their message, particularly globally. In order to maintain long-term mobilization efforts and help communities develop resilience against the combined stresses of environmental exploitation and climate change, these resources must be made available. To achieve the goal of the study, the following hypothesis was investigated:

H_1: Social mobilization has no significant impact on the mitigation of climate change adverse effects on vulnerability in the Niger-Delta region of Nigeria.

2. METHOD

This study adopted the cross-sectional survey research design using a questionnaire. Though the region constitutes nine states with a total population of 44,654,600, three States are purposely selected, namely Bayelsa**,** Delta and Rivers, with population sizes of 2,537,400, 5,636,100, and 7,476,800, respectively, totaling a population of 15,650,300. The choice of the States lies in their unique location and being the core Niger-Delta States of the region. In these States, the researcher investigated the main oil communities with flow stations and gas flaring considered to be the more vulnerable to effects of climate challenges such as health hazards and ecologically diminution. These include Oloibiri in Ogbia Local Government Area , Etelebou in Yenegoa Local Government Area and Tebidaba in South

Ijaw Local Government Area in Bayelsa State, Ogini-Ozoro, Uzere, Irri and Oleh in Isoko North and South Local Government Areas, Erho-Ike Kokori in Ethiope East Local Government Area, and Escravos in Warri South-west Area in Delta State and Igwuruta/Umuchem in Ikwere Local Government Area, Ogba/Egbema in Ndoni Local Government Area and Umuedbulu in Etche Local Government Area of Rivers State.

Since the population is 15,650,300, the sample size was determined using the sample size Yemane's formula as;

n = N/1+Ne2

N = Population

n =Sample size

e = Sample error

Given the population size and with a sampling error of 5 percent, the required sample is computed as:

n = N/1+Ne2

n =15,650,300/ 1+15,650,300(0.05)2

n =399.9 approximately =400.

Consequently, a sample size of four hundred (400) was used.

Table 2: Sample Selection

State	Calculation of sample	Expected No of Q
Bayelsa	2,537,400x400 15,650,300	65
Delta	5,636,100x400 15,650,300	144
Rivers	7,476,800.x400 15,650,300	191
	Total	400

Source: Authors' Compilation, 2024

Thus, out of the four hundred (400) questionnaires distributed, only three hundred and seventeen (317) were retrieved from respondents, representing seventy-nine-point three percent (79.3%) response rate. It is pertinent to note that both male and female employees of the selected states participated in this study without gender discrimination.

The study employed a purposive sampling technique, "a non-probability sampling approach where not all the element involved in the research was included in the sample (Sanubi, 2011). The study employs this technique to obtain a targeted selection of participants with specific characteristics relevant to the study, which aligns with research objectives. The study applies a quantitative method of data collection that guarantees the work an opportunity of achieving a balanced data generation for a more detailed and encompassing study. The study applies a quantitative method of data collection that guarantees the work an opportunity of achieving a balanced data generation for a more detailed and encompassing study. Data were collected from primary source data from respondents through the administration of a questionnaire. The questionnaire focused on information about the awareness, implementation, and impacts of government climate change mitigating policies and strategies in the Niger-Delta region. The researchers

employed self-administered questionnaires in the core Niger-Delta States (Bayelsa, Delta and Rivers), considered to be more vulnerable to climate change impacts. It involves one-on-one administration, and the respondents were expected to personally complete either on paper or online.

Face validity was employed for this study to ensure the validity of the instruments by subjecting it to independent assessors for cross-examination. A pilot study was carried out to determine the reliability and test for internal consistency of the research instrument. Fifty (50) copies of the questionnaire were administered randomly to the people of the Niger-Delta region. The data collected from the retrieved questionnaire was tested with Cronbach's Alpha reliability test to determine the internal consistency of the questionnaire items. The Cronbach's Alpha value for each item on the questionnaire is shown in the table below.

Table 3: Reliability Statistics of Variable

Scale	Number of Items	Cronbach's Alpha
Social mobilization	8	.787
Climate change's adverse effects on vulnerability	12	.793

Source: Authors' Computation, 2024

The results yielded coefficients ranging from 0.87 to 0.793, which satisfied the general recommended level of 0.70 for the research indicators (Cronbach, 1951). The hypothesis was tested by applying linear regression and t-test at a 0.05 level of significance, which is most relevant for the study, with the aid of the Statistical Package of Social Science (SPSS version 23.0).

3. RESULTS AND DISCUSSION

As stated in Table 4, the distribution of respondents' categories according to age, gender, and authority level is depicted by the demographic features.

Table 4: Demographic Characteristics Results

Scale	Category	Frequency	Percentage (%)
Gender	Male	178	56.2
	Female	139	43.8
Age	**Total**	**317**	**100**
	<30 years	72	22.7
	31 - 40 years	104	32.8
	41 - 50 years	79	25.0
	Above 50 years	62	19.5
Level	**Total**	**317**	**100**
	Subordinates in the organization	81	25.6
	Supervisors	109	34.3
	Senior Officers	70	22.1
	Directors	57	18.0
Total		**317**	**100**

Source: Field Survey, 2024

The results in Table 4 show that 178(56.2%) were male and 139(43.8%) female respondents respectively. Furthermore, the age distribution of the respondents

indicates that most of them were in the 31-40 age range 04(32.8%), with 79(25.0%) falling into this group. between 41 and 50years, those under 30 years, accounted for 72(22.7%), and those above 50, accounted for 62(19.5%), was the last in queue. Given that the majority of respondents were over 30 years of age, this suggests that those who responded were not only from highly responsible offices but also sufficiently mature to express their thoughts. Most respondents, 109(34.3%) of the sample were Supervisors. Subordinates came in second at 25.6%, senior officers came third at 70 (22.1%), and directors came last at 57(18.0%). This establishes the representativeness and accuracy of data derived from those surveyed.

3.1 Testing of Hypothesis

Table 5: Summary of Regression Analysis of Social Mobilization on the Mitigation of Climate Change Adverse Effects on vulnerability in the Niger-Delta region of Nigeria

Source	DF	Sum of Squares	Mean Square	F- Value	Pr> F
Error	1	140.625	4.500	115.805	<.0001
Corrected	316	13.908	0.803		
Total	317	154.533			

Source: SPSS Output, 2024

Decision Rule

If F's calculated value is higher than F's tabulated value (F cal>F tab), we reject the null hypothesis; if not, we accept it. The F tabulated at the 95% significance level ($\alpha = 0.05$) was as follows: F at 0.05, (1, 317) = 9.535. The computed F, resulting in the value of 115.805, is higher than the tabulated F, which is 9.535. As a result, the null hypothesis is untrue. With a 95% confidence level, the study's regression results verify that social mobilization promotes the mitigation of climate change adverse effects on vulnerability in the Niger-Delta region of Nigeria. The results of the tested hypothesis demonstrated AI's substantial influence on Nigerian academic research. Furthermore, a number of issues have been noted in the literature as major barriers to successful social mobilization in the Niger Delta. These challenges were tested as shown below.

Table 6: Perceive Challenges to Effective Social Mobilization in the Niger Delta Region

S/N	Variables	Frequency	Percentage (%)	Cumulative percentage
1	Ethnic tensions	57	18.0	18.0
2	Economic inequality	69	21.8	39.8
3	Legacy of government neglect	78	24.6	64.4
4	The oil industry's powerful influence over government policy	73	23.0	84.4
5	security issues	40	12.6	100
Total		**317**	**100**	

Source: SPSS Output, 2024

In Table 6, findings showed that the main challenges to effective social mobilization in the Niger Delta region were the legacy of government neglect, the oil industry's powerful influence over government policy, and economic inequality. The cumulative response

percentages indicate that while each of these factors is significant, the legacy of government neglect and the influence of the oil industry have particularly profound impacts on social mobilization efforts in the Niger Delta. Effective intervention strategies would need to address these root issues comprehensively, requiring sustained government accountability and measures to mitigate the power imbalance posed by the oil industry's influence. At this point, it is critical to find out if the male and female respondents in the Niger Delta region have differing perspectives on the perceived challenges to effective social mobilization in the region. The result is displayed in Table 7 below.

Table 7: Opinion of Male and Female Respondents to the Perceived Challenges to Effective Social Mobilization in the Niger Delta Region

S/N	Variables	Group	N	Mean	SD	Cat.T	Crit.T
1	Ethnic tensions	Male Female	178 139	5.320 5.300	.350 .362	1.725	1.900
2	Economic inequality	Male Female	178 139	5.103 5.007	.374 .452	1.744	1.920
3	Legacy of government neglect	Male Female	178 139	5.000 4.895	.470 .433	1.756	1.935
4	The oil industry's powerful influence over government policy	Male Female	178 139	4.701 4.406	.501 .521	1.720	1.942
5	Security issues	Male Female	178 139	4.400 4.389	.505 .510	1.694	1.907

Source: SPSS Output, 2024

All calculated "t" values (1.725, 1.744, 1.756, 1.720, and 1.694) are less than the critical "t" value (1.900), in line with the results shown in Table 7. This means that the male and female opinions do not differ in their expression on how the legacy of government neglect, the oil industry's powerful influence over government policy, economic inequality, ethnic tensions, and security issues have affected social mobilization in the Niger Delta region.

3.2 Discussion of Findings

The regression analysis in Table 5 examines social mobilization and its effectiveness in mitigating the adverse effects of climate change on vulnerability within the Niger Delta region. The table presents key statistical indicators, such as the degrees of freedom (DF), sum of squares, mean square, F-value, and significance level (Pr > F), offering insights into the model's fit and strength. The results demonstrate that social mobilization has a statistically significant and meaningful impact on reducing vulnerability to climate change effects in the Niger Delta region. The high F-value and extremely low p-value suggest that initiatives aimed at strengthening social mobilization could be an effective approach to climate resilience in the region. This analysis provides empirical support for policymakers and development organizations to focus on community mobilization as a strategy to enhance adaptive capacity and mitigate climate vulnerabilities.

The data in Table 6 sheds light on the primary perceived challenges to effective social mobilization in the Niger Delta region, highlighting the complexities in addressing community grievances and achieving cohesive, sustained mobilization efforts. The table lists five main variables impacting social mobilization, with their respective frequencies and percentages based on respondent data.

1. **Ethnic Tensions**: Representing 18% of the responses, ethnic tensions emerge as a significant but relatively smaller concern compared to other factors. The Niger Delta's diverse ethnic landscape often contributes to local divisions, making unified mobilization difficult. Ethnic rivalries or historical grievances may hinder cooperation across communities, limiting social mobilization efforts intended to address shared issues like resource allocation or environmental protection.
2. **Economic Inequality**: At 21.8%, economic inequality stands as the second most-cited barrier to effective mobilization. Economic disparities within the region, often worsened by uneven access to oil-related wealth and employment opportunities, can create resentment and reduce community cohesion. When economic benefits are perceived to favor certain groups or individuals, social mobilization initiatives may struggle to gain widespread support, as those excluded may not feel incentivized to participate.
3. **Legacy of Government Neglect**: With the highest frequency and percentage (24.6%), this variable underscore a deep-seated perception of abandonment by the government. Historical underinvestment in infrastructure, education, and healthcare has left communities feeling marginalized, leading to distrust in government-led initiatives. This enduring neglect likely dampens the willingness of individuals and communities to participate in social mobilization efforts, as they may feel skeptical about any long-term commitment or change.
4. **Oil Industry Influence Over Government Policy**: The powerful influence of the oil industry, cited by 23% of respondents, reflects perceptions of corporate dominance in regional policy decisions. The Niger Delta's economy heavily depends on oil, and this industry's vested interests often override local demands, especially concerning environmental protections and equitable resource distribution. This influence creates a feeling of disenfranchisement among residents and poses a considerable obstacle to mobilization, as many may feel their efforts cannot counter corporate power.
5. **Security Issues**: Security issues, while representing the lowest percentage (12.6%), are still a crucial impediment to social mobilization. Persistent issues such as crime, militancy, and government crackdowns in response to protests create an environment of fear and instability. This challenge limits the scope of mobilization by preventing open and safe assembly, hindering the formation of collective action networks.

The data in Table 7 offer insights into male and female respondents' opinions on challenges to effective social mobilization in the Niger Delta, with five primary variables assessed through mean scores and standard deviations (SD). The table also presents calculated t-values (Cat.T) compared to critical t-values (Crit.T) for each variable to determine whether there are statistically significant differences between male and female perspectives. The t-values across all variables do not exceed their respective critical t-values, indicating no statistically significant differences in male and female perceptions of the challenges to social mobilization in the Niger Delta. Both genders share a similar outlook on these obstacles, suggesting that interventions addressing these issues would likely find resonance across genders.

4. CONCLUSION

The findings from the analysis indicate that social mobilization significantly impacts the mitigation of climate change's adverse effects on vulnerable communities within Nigeria's Niger Delta. Regression analysis confirms that social mobilization plays a statistically significant role in reducing climate vulnerability. However, several formidable challenges hinder effective mobilization efforts, including ethnic tensions, economic inequality,

government neglect, oil industry influence, and security issues. These challenges undermine community cohesion and collective action, making it difficult to achieve widespread support for climate resilience initiatives. Importantly, perceptions of these challenges do not significantly differ between male and female respondents, suggesting a broad consensus on the obstacles faced in mobilizing communities for climate action.

The negative consequences of climate change are posing serious problems for Nigeria's Niger Delta region. In order to overcome these vulnerabilities, social mobilization is essential since it gives communities the capacity to demand environmental justice and promote sustainable development. But successful mobilization necessitates overcoming a number of sociopolitical barriers, including as ineffective governance, security issues, and the oil industry's stronghold. In order to lessen the effects of climate change in the Niger Delta, social mobilization can be a very effective strategy by boosting local capacity, encouraging global collaborations, and holding governments responsible. The Niger Delta's vulnerability to climate change will be lessened with the help of community mobilization and sensitization, the promotion of alternative energy sources, alternative livelihoods, dry land agricultural technology, and alternative water sources for plant, animal, and human use through solar-powered boreholes.

In conclusion, the right policy tools, which are not yet available and accessible in the Niger Delta region and are therefore not being integrated in social development programs, must be at the heart of any successful climate adaptation. These tools must be ingrained in all strategic ministries, departments, and agencies at the state and regional institutions and supported by strong political will, public awareness, stakeholder participation, and a consistent action plan. The significance of government policies and the functions of government agencies regarding climate change adaptation and mitigation measures in the Niger Delta region are also not well known to many essential players. Most significantly, environmental policy is supposed to address unacceptable circumstances that impact the general population, and the first step in doing so is identifying environmental issues. Public involvement is necessary for the creation and execution of environmental policy since it results in the creation of suggested solutions to the issues. Nonetheless, the problem of climate change and its associated causes and impacts is not yet well recognized by law in the country, and not yet considered a priority in state policy development. The study's conclusions have led to the following recommendations being made:

i. Governments at local and national levels should prioritize investments in the Niger Delta's infrastructure, healthcare, and educational facilities to build trust within communities. These improvements could foster a positive perception of governmental commitment and motivate community members to engage in climate resilience efforts.
ii. Targeted economic programmes, such as job creation initiatives in non-oil sectors, skills training, and equitable distribution of resources, can address economic inequalities. Policies that ensure fair access to economic opportunities would help alleviate resentment and foster a sense of unity and shared purpose, making mobilization efforts more inclusive and effective.
iii. Stronger regulatory policies are essential to limit the oil industry's influence over regional policy decisions. By promoting transparency in oil revenue management and ensuring that oil companies are accountable for environmental and social impacts, policymakers can empower local communities. Such policies can help residents feel that their voices matter, which could encourage their involvement in mobilization efforts.

iv. Security improvements are vital to support safe and effective social mobilization. Increased protection against crime and militancy and ensuring that peaceful mobilization efforts are protected from crackdowns could reduce fear within communities. Establishing safe spaces for discussion and collaboration will support the development of resilient networks capable of mobilizing around climate-related challenges.

v. Although no significant gender-based differences were found in the perception of challenges, it is essential to include gender-specific approaches to fully utilize the diverse perspectives and resources available within communities. Gender-inclusive mobilization strategies can ensure that both men and women are actively involved, which can further strengthen climate resilience efforts.

REFERENCES

Akpan, C. O., & Bassey, S. A. (2020). The quandary on water pollution in Nigeria's Niger Delta: An environmental ethical analysis. *Bulletin of Pure & Applied Sciences-Geology*, 39, 102 - 14.

Authority, B. (2020). Social and environmental drivers of climate change vulnerability in the Niger Delta region, Nigeria. *European Journal of Environment and Earth Sciences*, 1(5), 1 – 10. http://dx.doi.org/10.24018/ejgeo.2020.1.5.69

Babatunde, A. O. (2020). Oil pollution and water conflicts in the riverine communities in Nigeria's Niger Delta region: Challenges for and elements of problem-solving strategies. *Journal of Contemporary African Studies*, 38, 274 - 93.

Buechler, S. M. (1995). New social movement theories. *The Sociological Quarterly, 36*(3), 441-464.

Clark, E. V. (2012) The environment and you. *Journal of Social and Management Sciences*, 7(2) 107 - 110.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika,* 16(3), 297 - 334.

Echendu, A. J., Okafor, H. F., & Olayinka, I. (2022). Air pollution, climate change and ecosystem health in the Niger Delta. *Social Sciences*, 11, 1 - 17. https://doi.org/10.3390/ socsci11110525

Eduk, R. A. (2017). Urban air pollution evaluation and mitigation: A case study of Uyo City, Niger Delta Nigeria. *International Journal of Science Inventions Today*, 6, 36 - 48.

Eronmhonsele, J. I., & Erhabor, I. N. (2021). Climate change and the economic vulnerability of household in Niger Delta region. *International Journal of Humanities Social Sciences and Education*, 8(7), 1 – 11. https://doi.org/10.20431/2349-0381.0807001

Etemike, L. (2009). *The struggle against exploitation and marginalization: A historical survey of and implications of the uprising and protests in Nigeria's Niger-Delta*. Bangkok: JAPSS Press Inc.

Ighedosa, S. U. (2019). Climate Change: Vulnerability of the Niger Delta Region in Nigeria. *International Journal of Environment and Climate Change*, 9, 764 - 788.

Ikelegbe, A. (2005). The economy of conflict in the oil rich Niger Delta region of Nigeria. *Nordic Journal of African Studies*, 14(2), 208 - 234.

Ite, A., Ibok, U., Ite, M., & Petters, S. (2013). Petroleum exploration and production: Past and present environmental issues in the Nigeria's Niger Delta. American *Journal of Environmental Protection*, 1, 78 – 90.

Jenkins, J. C. (1983). Resource mobilization theory and the study of social movements. *Annual Review of Sociology*, 9(1), 527 - 553.

LEKOIL. (2024, April 24). *The top oil producing states*. Lagos: Daily Trust Publication.
McCarthy, J. D., & Zald, M. N. (1977). Resource mobilization and social movements: A partial theory. *American Journal of Sociology*, 82(6), 1212 - 1241.
Nwafor, J. C. (2007). *Environmental impact assessment for sustainable development: The Nigerian perspective*. Abuja: Eldemak Publishers.
Nwokeoma, B. N. (2017). *Climate change and vulnerability in the Niger Delta Region: The role of community-based organizations*. *Journal of Sustainable Development in Africa*, 19(3), 34 - 45.
Obi, C. I. (2009). Nigeria's Niger Delta: Understanding the complex drivers of violent oil-related conflict. *Africa Development*, 34(2), 103 - 128.
Obi, C. I. (2010). Oil as the 'curse' of conflict in Africa: Peering through the smoke and mirrors. *Review of African Political Economy*, 37(126), 483 - 495.
Odjugo, P. A. O. (2010). General overview of climate change impacts in Nigeria. *Journal of Human Ecology*, 29(1), 47 - 55.
Ogbuku, S. (2023, *December 10) Niger Delta most affected by climate change, says NDDC*. Abuja: Punch News.
Okonta, I., & Douglas, O. (2003). *Where vultures feast: Shell, human rights, and oil in the Niger Delta*. Lagos: Verso Publishers.
Okpara, U. T., Stringer, L. C., & Dougill, A. J. (2015). Climate change, coastal erosion and livelihood adaptation in the Niger Delta: A case of fisheries communities. *Journal of Coastal Conservation*, 19(2), 181 - 197.
Ologunorisa, T. E. (2009). Strategies for mitigation of flood risk in the Niger Delta, Nigeria. *Journal of Disaster Risk Studies*, 2(1), 1 - 7.
Oluwatayo, I. B., & Ojo, A. O. (2016). *Oil and livelihood vulnerability in the Niger Delta Region of Nigeria*. *African Journal of Agricultural Research*, 11(32), 2942 - 2950.
Omeje, K. (2006). *High stakes and stakeholders: Oil conflict and security in Nigeria*. Lagos: Ashgate Publishing, Ltd.
Onyena, A. P., & Sam, K. (2020). A review of the threat of oil exploitation to mangrove ecosystem: Insights from Niger Delta, Nigeria. *Global Ecology and Conservation*, 22, 89 - 96.
Sanubi, F. A. (2011). *The science of politics: An introductory methodological and statistical approach*. Ibadan: University of Ibadan Press.
Saro-Wiwa, K. (1995). *A month and a day: A detention diary*. New York: Penguin Books.
Urenmisan, A. (2022). How serious is Nigeria about climate change mitigation through gas flaring regulation in the Niger Delta? *Environmental Law Review*, 24(4), 288 – 304. https://orcid.org/0000-0003-4070-9463
Watts, M. (2004). Resource curse? Governmentality, oil and power in the Niger Delta, Nigeria. *Geopolitics*, 9(1), 50 - 80.