RESEARCH PROPOSAL:

Full Proposal Title

Exploring the socio-economic effects of oil spillage on fishing as a source of livelihood for Women in the Niger Delta: A Case Study of Bodo Community in Rivers State, Nigeria.

Name: Ojiugo Chisom Akpachiogu

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1. Introduction

Tamuno Dapper, a subsistence farmer, prods in the soil supervising his farmlands. He plants cassava, sweet potatoes, yams, maize and cocoyam. Because the land is fertile, he grows more than enough to look after himself and family and sell the rest at the local farmers market.

Priye Spiff is a fisherman who sets off before daylight to go out in the stormy weather. This is his livelihood, using metal clasps to fish from healthy, natural and safe waters.

A wild habitat, where you can enjoy the scenic beauty of the area as you walk along water-planted creeks, trudging into the woodland, surrounded by birds also "thanking mother nature" in sweet melody.

That was the state of the Niger Delta before the discovery of crude oil!

The Niger-Delta area is inhabited by small populations that rely heavily on the natural ecosystem for their continued existence (UNDP, 2006). In other words over 70 per cent of the people rely on the natural world for their livelihood (Adekola and Mitchell, 2011).

The Niger Delta is a geographical area in Nigeria where crude oil was discovered in large quantities. It consists of a wide variety of habitats that host many populations of land and underwater wildlife and vegetation. This zone is regarded as one of the biggest wetlands and aquatic ecosystems in Africa (Okonkwo, Kumar and Taylor, 2015), it is endowed with a lengthy shoreline, large saltwater and forests swamps while also supporting a broad spectrum of marine species such as sea cat fish, snappers, tilapia, cray fish, sea turtle, lobsters, sardines, "bonga" fish, moon fish, shark, bivalves, thread fins, shrimps, periwinkle and many others.
Owing to the abundant marine species and large quantities of freshwater in the Niger Delta, there is a huge potential for the area to produce and deliver a very significant proportion of fish production at a domestic or local scale calculated at over three million metric tons in 2018 (Olaoye and Ojebiyi, 2018). Even so, statistical data have shown that Nigeria's bodies of water are generating less than the expected fishing capability as Nigeria still imports over two million metric

tons accounting for more than sixty percent of its yearly production of fish (Osuagwu and Olaifa, 2018). This is further occasioned by increasing populace and damage to the environment in the Niger Delta brought about by the unsustainable practices from the exploration actions of the corporations working in this region which ultimately reduces the supply of fish and also endangers the survival of the ecosystem. The incidence of oil spills raises concerns about the safety of seafood because the population as a whole depends almost entirely on the marine environment for their livelihoods and, as a direct consequence, any environmental destruction affecting natural resources decreases the possibility and potential for sustainable livelihoods, creates extended food insecurity owing to loss of farmlands, loss of viable waters for fishing activities and death of fish in the once viable waters thereby leading to increasing poverty as a result of deficiency in means of support. There is no escaping the fact that the devastating consequence of oil spills hinders the specific nature of food production and fishing, which in the longer term has significant consequences for the pecuniary life of the individuals residing in this area (Elum, Mopipi and Henry-Ukoha, 2016).

This study therefore aims at exploring the socio-economic effects of oil spillage on fishing as a livelihood in Niger Delta and its outcomes in relation to sustainable development in Nigeria using the Women in Bodo Community in Rivers State as a case study. This study captures the complexity of the connections between human beings and the environment, in other words it is a research pertaining to Socio-Ecological Systems (SES), field of research that sees interactions between people and nature as complex adaptive systems (Folke, 2016).

The main concentration of this SES research is the concept of resilience or resilience thinking which is embedded in the subject of complexity and systems thinking. This subject is interdisciplinary because the social and ecological processes cannot be treated separately in hybrid social-ecological systems owing to the inherent feedbacks and interdependencies between the systems. This field of research is important in my proposed study because I would like to look into the ability of this system to endure, become accustomed, or even evolve and perhaps become totally transformed (Folke, Carpenter, Walker, Scheffer, Chapin and Rockström, 2010). It will also promote natural and social sciences integration and bridge the conceptual approaches.

Adverse effects of toxic waste from oil spills and environmental damage in the Niger Delta have been well reported and publicized added to major studies and investigations focused on global corporate or issues of fair treatment as far as the environment is concerned, governmental failures as well as the political mechanisms of high-profile members of the affected communities. Nevertheless, the responses of the indigenous communities have drawn fairly limited attention from research groups and, in particular, there's little understanding of the complex factors that shape the efforts of households in tackling or addressing the effects and implications of environmental destruction especially because the people of Bodo community were predominantly engaged in local creek fishing.

This research will attempt to address this gap by focusing on exploring the effect of oil spills on fishing for the female residents in the Bodo area whose lives and economic security were directly impacted and how households are building their day-to-day responses in the apparent lack of external assistance. I will be exploring the means in which families in this region have tried to acclimatise and restructure their means of support and what strategies they have used in responding to these changes in their environment.

1.1 Context: The Oil Spill in Bodo Community.

The interpretation of Bodo connotes “on the sea” which originates from “Boodor” meaning “because of the sea” (Tanen, 2005). Bodo is situated on the southern part of the Gokana in Ogoniland, Rivers State. In 1958 oil was detected in profitmaking quantities in Ogoniland and as the years went by there were 5 flow stations and over 55 oil wells within that area.

One of the flow stations is positioned in the core or mangrove of Bodo Creek. Dangers and occasions of spills in this region are exacerbated as a result of unsealed gantries, conduit leakage, spills accompanied with illegal well extractions, conveyance of stolen oil and illegal oil refining (Zabbey and Uyi, 2014). Then, in 2008 there were two serious oil discharges into the waterways in this community which led to a plethora of environmental, social and economic issues.

Oil spills are releases of oil (crude or refined) into the environment that usually take place as a result of a mishap triggered by equipment malfunction or human fault (Michel and Fingas, 2016).

The introduction of elements and toxic substances by humans into the environment may result in detrimental effects to living organisms and pose a significant threat to human health, alter agricultural output, hinder aquatic activities, such as fishing, and impair the quality of the water and so on. Oil spills cause considerable economic and social damage. It can cause imbalances in the environment through effects on food sources, conflict with fish and fish farming infrastructure through physical pollution, toxic effects and disturbance of business activities (Osuagwu and Olaifa, 2018).

In order to fully grasp the current state of affairs in Bodo, it is important to put this in context and to appreciate the significance of creeks and rivers to the local people of this community. Predominantly, the dwellers of Bodo participated not only in fishing but also in subsistence agriculture. The waters provided passages for transportation and due to its strategic positioning, Bodo was identified as a significant center of bilateral trade and investment between the fishing communities in the Niger Delta, such as Bonny, and the countryside agricultural areas (Pegg and Zabbey, 2013).

The fishing industry in Bodo, as with other Niger Delta areas, is based on shared properties, creeks, rivers and fishing groups managed by the community for the benefit of all. The fisherfolk usually work from their immediate residential home environment or of their own volition elect to spend some periods at an in-creek fishing colony. Still other times, a small number of male fisherfolk may voyage to distant areas to fish and also to keep away from social demands connected with working in proximity to the community. Fishing for the women is limited to the creeks and rivers as it is forbidden for women to be involved in deep sea fishing in this community (Cliffe and Akinrotimi, 2015). This is largely attributed to their role as the mothers in the home as well as the responsibility naturally bestowed on them to meet daily needs for their families.

Bodo community in Niger Delta is a case in point of how to explore community's response behaviors and actions in the face of danger as the region struggles with the repercussions of these oil spill occurrences.

2. Significance of the study

Most of the locals of Rivers State, Nigeria, are engaged in sustenance fishing and farming. Mangrove forests and waterways along Bodo Creek are essential pieces of the structure of a community's typical ability to make a living. However, in 2008 two separate oil spills that struck Bodo Creek causing devastating effects in terms of quality of water, aquatic life, local incomes, jobs, livelihoods and economic development. As fishing forms a part of the core identity of the people of Bodo Community, the oil spills also threatened the loss of both local fishing knowledge and traditional cultural heritage (Zabbey and Uyi, 2014). Over the years, so much has been said about efforts of the Nigerian Government to embark on environmental clean-up of the damage caused but little or nothing has been done to date.

Although various reports or findings have accurate awareness of the implications and reactions of oil spills at a broader level and also their diverse experiences and interventions from diverse sources both local, national and international (Ipingbemi, 2009; Pegg and Zabbey, 2013; Albert, Amaratunga and Haigh, 2018) less is well-known about daily responses at the grassroots level and the various ways in which people within the communities absorb or develop strategies and responses. My work will add to the pool of knowledge in the area of Socio-Ecological Systems to show the importance of social adaptation (Izah, 2018) and to explore the socio-economic consequences of environmental destruction in the region. It will also It will also reflect the experiences of the residents and lend a voice to those whose voices have remained unheard.

3. Research Objectives

This thesis explores the socio-economic dynamics caused by oil spillage and the ways households carry out livelihood strategies as responses to the impact. It spreads the impact argument to more focused discussions about the social relationships at stake in shaping household capacity response and how they are changing in view of the economic recovery strategies being implemented.

In view of this, my research questions are:

1. To what extent has oil spillage influenced fishing in Bodo Community?
2. How does this affect the women’s ability to generate income used in caring for their families?

3. To examine the factors that encumber households' daily responses, especially the role that social differences play in shaping the abilities or know-how of household members.

4. Proposed Research Methodology

I intend to use the literature review to provide a framework for this study and to gain a better understanding of recent research developments and trends. I will engage broadly with writings in the study area such as reports, literature from sources in the public sphere, published academic peer reviewed journals, books and grey literature.

Research Method will involve the combination of both quantitative and qualitative research methods including Questionnaires, semi-structured interviews and focus group discussions. These are for enabling the capture of multiple forms of data and for research to reach different sets of research participants in the community due to local diversity, gender sensitivity as most cases women are invisible or voiceless in the community.

The location for this research is set in Bodo Community of Rivers State, Nigeria. This is where I will provide significant explanatory detail about the background of my research. It will launch the setting where observations and interrogations about people's behaviors and the reason/s behind it will take place (Yin, 2011). I intend to use an approach that is semi structured to allow for flexibility and make room for emerging insights, theories, ideas and concepts to flow in the course of collecting data (Bryman et al. 2014). This approach will hopefully lean on evidence from different sources and I am optimistic that I will draw conclusions I can trust.

Two major reasons for choosing the qualitative research approach is that it is fitting for exploratory studies (Creswell 2007; Maxwell, Bickman and Rog 2013) and also "qualitative research involves an interpretive, naturalistic approach to its subject matter; it attempts to make sense of, or to interpret, phenomena in terms of the meaning people bring to them" (Lincoln and Denzin, 2003).

5. Theory and literature review

This segment will highlight deliberations from bodies of literature and the prominent themes I consider relevant to this study. These themes will be taken from books and accredited academic journals to reflect concepts that align with my research questions.

5.1 Concept of Social Ecological Systems

A system is simply defined *as "a conceptualisation of a portion of reality in terms of a set of interrelated elements. The elements can be molecules, organisms, machines or their parts, social entities, or even abstract concepts. The interrelations, inter-linkages, or "couplings" between the elements may also have very different manifestations (economic transactions, flows of matter or energy, causal linkages, etc"* (Gallopín, Funtowicz, and Ravetz, 2001:8).

Berkes (2017) used the term "social-ecological", rather than "socio-ecological", because "social-ecological emphasizes that the two subsystems are equally important, whereas socio- is a modifier, implying a less than equal status of the social subsystem" (Berkes 2017:3). Social-ecological systems (SES) are connected systems of persons and nature, people must not be seen as separate from nature but indeed as a significant part of it (Berkes and Folke, 1998). This means that SES is a multi-level system that provides vital services to social system, such as provision of safe drinking water, food and energy supply.

The cardinal philosophies of SES research are established on the opinion that the fusion of ecological and human systems are Complex Adaptive Systems (CAS) and the meanings of concepts in SES are all related to the assumptions that shape our understanding of the attributes and features of CAS (Preiser, Biggs, De Vos and Folke, 2018), such as resilience, adaptability, stewardship and also the ability to transform (Folke, Carpenter, Walker, Scheffer, Chapin and Rockström, 2010). Such findings have further influenced SES research principles, techniques and strategies that have relevance for resilience thinking (Folke, 2016) and they have also become critical mechanisms for comprehending how adaptation and change in the SES are navigated.

My proposed study on the effects of oil spillage on fishing in the Niger Delta deals with both humans and the environment and I will be exploring major themes and concepts that pertain to SES in the ways that they apply to the Nigerian context.

5.2 History of Oil Exploration in Nigeria

The enactment of the Mineral Oil Act of 1914 in Nigeria served as a legal licence but was also the introduction of capitalism in petroleum. The administrators of that period gave liberties to the Britain and to the British corporations, which suggested a type of "neo-colonialism". This provoked grievances among some of the post-independent leaders which gave rise to the abolition of the Mineral Act and substituted it with Decree 51 of 1969, also known as the Petroleum Act (Akubor, 2016). This Act gave legal title and the right of ownership, regulation and control of oil discovered and extracted anywhere on Nigeria soil to the Nigerian Government.

The Petroleum Act laid the foundation for the involvement of Nigerian citizens and companies in the oil industry and provided the State with the legal justification for promoting an operational, political and economic environment that would best benefit the needs of Nigerian society - infrastructure, development and even security needs. It seemed good in the face of things especially because it encouraged and stimulated Nigerians themselves to involve oil companies in Nigeria and established syndicates, joint ventures and partnerships with offshore oil companies through the Nigerian Government through Nigerian National Petroleum Corporation (NNPC), its own indigenous corporation (Watts, 2004). These oil companies then became players in the various agreements, but in actual fact, these rights were handed to opportunistic middlemen and unscrupulous political entrepreneurs. The common-sense outcome of the right of the Nigerian government to "full property in and control of all minerals, mineral oils and natural gas in, under or on any land in Nigeria or in territorial waters" is that the state may use private property for any facet of the development of oil (Akpan, 2005). This means that individual land uses such as buildings, shrines, crops and so on are considered private, while mineral oils and its related components as well as natural gas found under or above land are regarded by the Federal Government as public goods and the involvement of Government in exploitation is a "matter of public use" (Akpan, 2005). In Nigeria, just as in many other nations, mineral rights take precedence over surface rights, but unfortunately, The Petroleum Act creates resentment in the oil-producing

regions primarily because it doesn't provide definite recommendations about what should be given as reparation (Frynas, 2000).

The Petroleum Act of 1969 raised fears that the Niger Delta compensation legislation could give rise to unrest, consequently, the Government promulgated Decree 9 of 1971, which divides exploration activities into "onshore and offshore resources". Offshore resources dealt with territorial disputes on the basis of oil extracted on shallow waters as well as on land. So undeniably while oil is on the land that owned by the State, humans also live on this land which is being degraded and poses negative consequences on the people living in it.

While oil exploration has created unfavourable socio-economic and environmental challenges in the Niger Delta, it has contributed significantly to the nation's economic development since it was detected in large quantities in Oloibiri, Bayelsa State, in 1956.

Over the years, crude oil prices have fluctuated as Nigeria's crude oil exports record over 2 million barrels daily at a current price of $65 per barrel (NNPC, 2019). Discovery of unrefined oil in Nigeria has ironically become a cause of paucity and oppositions as a direct consequence of the coerced confiscation of shared or shared land by the Federal Government in support of oil and gas companies and the effluence of neighbouring lands, streams, rivers, creeks and the sea on which societies rely for their source of revenue. Oil exploration and extraction has had a catastrophic effect on the socio-physical environment of Niger Delta communities over the last four decades, threatening their economy, the climate and ultimately the entire livelihood and survival of the inhabitants (Dauda, 2017; Osuagwu and Olaifa, 2018).

5.3 The Niger Delta Region

There are nine states out of thirty-six that make up the Niger Delta area of Nigeria. These are, Rivers, Bayelsa, Cross-River, Ondo, Akwa-Ibom, Edo, Imo, Delta and Abia States. This zone, which is populated by ethnic minority groups, is situated in the south of the country shares seacoast with the Atlantic Ocean (Nwilo and Badejo, 2006). Although all nine states are considered the oil producing states, only three states - Delta, Bayelsa and Rivers states have recorded the most

incidences of oil spills (Amnesty International, 2018) and more prone to upsurge in sea levels and to experience other associated risks.

The discovery of crude oil and natural gas in this region constitutes great wealth as these elements contribute the most to Nigeria's Gross Domestic Product (GDP). As a result, "if the Niger Delta sneezes, Nigeria as a whole will get the flu" as these services benefit the population's livelihoods, even if this area contains a number of rural areas who rely wholly on the nature for food (UNDP, 2006). Nigeria has over six hundred oil fields in the Niger Delta, both onshore and offshore (Nwilo and Badejo, 2006) and it is one of the leading producers of unrefined oil in Africa (CIA World Fact Book, 2018).

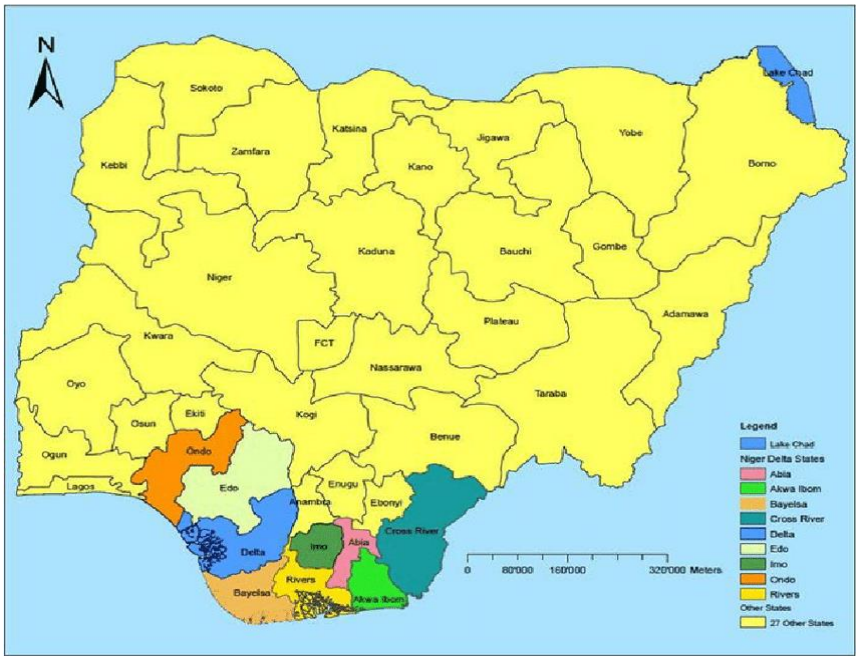

Figure 1: Map of Nigeria showing the oil producing states Source: researchgate.net

The Niger Delta region is a highly biodiverse area which accounts for more than six per cent of Nigeria's entire land mass, covering an area of over twenty- four square kilometers (Nwilo and Badejo, 2006) encompassing mangrove swamps, lowland rainforests, coastal barrier islands and freshwater swamps.

However, with growing populace and growing environmental degradation in this area as a result of human activities and other natural disasters the mmangrove forests are being wiped out, aquatic

species are dying off, the production capacity of fish is progressively declining and the "wellbeing" of the ecosystem is at risk. The aftermath of oil spills on the Niger Delta are truly disturbing.

5.4 Fisheries Sector in Nigeria

It is known that fisheries are a significant economic segment in terms of earnings from foreign exchange, business development and employment, food availability and security as well as in terms of the livelihoods, living standards and sustenance of many people especially those in rural areas (Ovie and Raji, 2006). This sector is crucial to the economic system of the nation adding to the Gross Domestic Product (GDP) by almost six per cent (FDF, 2005). "Artisanal fishing" refers to harvesting of fish from natural water sources such as streams, lagoons, lakes and local rivers, by small-scale fishermen via both old-fashioned and contemporary fishing gear (Okwu, Yahaya and Obinne, 2011). Participants in this aspect of fishing include the indigenous fishermen and women who fish either freelance or on permanent basis using diverse forms of apparatuses and methods that are inexpensive and locally sourced and it is typically run at subsistence level in rural areas but sometimes also for commercial uses (Olaoye and Ojebiyi, 2018).This category of fishers lack infrastructural amenities and involves little or no credit facility. This sector is significant because it is the most generic and affordable source of animal protein to humans particularly for persons of low and no income in Nigeria. As a result of its activity at survival or subsistence level, it is recognized as small-scale fisheries and historically occupies the most essential element of domestic fish production, representing up to Ninety per cent (Ogunbadejo, Alhaji, and Otubusin, 2007).

Industrial or mechanized fishing is a highly advanced type of fish processing, which relies on the use of trawling vessels for fishing in coastal and upstream waters for aquatic species in large commercial quantities. This sector is primarily industrialized and extremely capital intensive, needing more than one hundred million Naira for just a one-boat project (Olaoye and Ojebiyi, 2018). The range of activity is at least five kilometers. It is a technologically advanced application with approximately fifty billion Nigerian Naira expended by the private economic sector in trawlers, deepwater handling facilities (Olaoye and Ojebiyi, 2018).

A study analyzing the importation of major foods collected from the National Bureau of Statistics in Nigeria revealed that between 2006 and 2010 fish ranked second place in food products with

the highest cost of importation billed at an annual average One hundred and thirteen billion naira (Vaughn et al, 2012). These figures indicate that the value of fish imports rose while domestic fish production took a declining rate. This has been ascribed to the factors such as progressive expansion rate of the Nigerian population, climate change and other environmental factors.

5.5 Fishing Regulations in Nigeria

A variety of laws, rulings and statutes have been implemented by various regimes in the Nigerian administrations as a means of controlling marine resources throughout the country. Some of them are the "Sea Fisheries Act of 1971, the Sea Fisheries (Licensing) Regulations of 1971, the Sea Fisheries (Fishing) Regulations of 1972, the Exclusive Economic Zone Decree of 1978, the Sea Fisheries Decree of 1992, and the 1995 Sea Fisheries Regulations" (Adebolu, 1983). Each of them includes regulations for operations at different levels, ranging from coordinating events targeted at increasing production of fish through inputs at reasonable amounts, improving technological knowhow, skills development and collaborative loan arrangements between fishermen to legislation defining areas for trawling, and even by-laws for fish monitoring, inspection and quality assurance and the penalties for contravening the regulations such as imprisonment, fines or both (Vincent-Akpu, 2013).

5.6 Limitations to Fishing in Nigeria

The most favourable production of aquatic species from both fisheries and fish farming is subject to a number of constraints. These limitations are the results of threats to marine resources and may well be split into human and environmental factors. Natural variations influencing marine resources include wind speed, wind direction, ocean currents, rain and snow, concentration of carbon dioxide in the water, salinity, nutrients, ocean currents, upsurge intensity, as well as activities and interactions between these various factors (Stenseth, Mysterud, Ottersen, Hurrell, Chan, and Lima, 2002). The ingesting of small sized species by large marauder fish also poses a severe risk to particular species of fish. The "close to the bottom-lying" character of the Nigerian coast also influences rising sea levels, erosion, storms and flooding the mangroves and wetlands, which devastate the ecosystems for aquatic species (Nwilo and Badejo, 2006).

The human factors that threaten marine resources can be seen in environmental activities, climate change and overfishing. Some of the problems of overfishing are brought about by various connected factors such as problems associated with "ghost fishing", insufficient data in a country like Nigeria, high interest rates on loan, increase in population and of course the creation of Exclusive Economic Zone (EEZ) in Nigeria, where "the inability of coastal states to effectively monitor and enforce conservation measures in their EEZ encourages fishing in the area by unauthorized persons including foreign fishing vessels, thus exacerbating the depletion and collapse of marine fish stocks" (Olaoye and Ojebiyi, 2018). Loss of habitat has occurred in the open oceans by wrong deep-sea fishing practices. This state of affairs has been particularly acute in Nigeria since the discovery of oil in the 1950s and the resultant abandonment of agriculture by the citizens and government who ignited rural-urban mobility (Osuagwu and Olaifa, 2018), thereby giving rise to an increase in population expansion, particularly in cities and has therefore contributed to concentrated suburbanization, particularly along the coastline (Mohammed and Khalil, 2015).

5.7 Fishing as a livelihood in the Niger Delta

Research on the effect of oil spills on fishing production are now becoming increasingly valuable, not only because they provide a framework for understanding the disreputable operations of exploration and production but also because it reveals the philosophical and theoretical viewpoint of the connection between oil spills and ecological degradation and the general impact on the livelihoods of the residents of the affected region.

The Bodo community previously popular for its small-scale commercial fishing operations, has now been left with little to no means of sustainable or viable livelihood. Despite the potentials of fish production in Nigeria, the effects of oil spill and other causes such as climate change threaten these potentials and give room to food insecurity (Onwuemele, 2015). Many families use conventional fishing equipment and lack the ability to either fish in remote waters or significantly increase catch by unit effort and store catch in large quantities. Therefore it is suggested that state and industrial enterprises seek to improve fishing operations, have effective mitigation strategies to promote the growth of this occupation.

6. Supervisory Committee

The study of such complex social-ecological phenomenon thus requires concerted effort by a group of scholars with inter-disciplinary interests – it requires natural scientists to think like social scientists and it requires social scientists to make extra efforts to understand the natural world. This need for inter-disciplinary thinking has spawned various kinds of efforts in conducting inter-disciplinary research where various fields draw theories from their particular areas of study and "inter-marry" these theories and concepts in order to better understand its complex nature. For example my proposed research spans through various disciplines cutting across Humanities and Social Sciences, Ecological Sciences, Gender Development Studies and Sustainable Development Studies and in order to understand social-ecological systems researchers draw on theories from the academic disciplines of sociology, philosophy, environmental sciences, Public Administration, geography, economics, anthropology and some other related disciplines.

Conclusion

My research subject involves a Social-Ecological Systems concept. I will be exploring the socio-economic effects of oil spillage on fishing as a source of livelihood for women in the Niger Delta using the women in Bodo Community in Rivers State, Nigeria as a case study. I will be studying the means in which rural families in this region have tried to adapt and restructure their livelihoods and what strategies they have used in responding to the changes in their environment after the major oil spills occurred in their community. The idea of resilience has continued to provide a valuable cognitive framework for understanding by what means socio-ecological systems become accustomed or react or survive changes arising from social and environmental factors (Walker and Salt, 2006). I will be looking into how these households are building and/or rebuilding their day-to-day responses in the ostensible lack of external assistance.

I will consult journals and peer reviewed articles for the literature review and deploy both the qualitative and quantitative research methods for this study. Through this research, I will contribute to the existing literature on SES, impact of oil spills in Niger Delta area of Nigeria and also give "voice" to the unheard whose daily activities may have been affected by this crises.

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