Risk Perception of Oil Operations of Residents of Oil-producing Communities in Nigeria.

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Abstract

Oil-producing communities in the Niger Delta region of Nigeria believe they have been rendered vulnerable to impacts and risks of oil operations. Many studies have examined the environmental impacts of the operations, which stem from pollution caused by processes of exploration and production of the oil. This is reported to have social, economic, and health implications on the communities. The communities have demonstrated their outrage on the situation, including protests against the involved oil corporations. The corporations have employed some measures to deal with the risks, including cleaning up of the environment and providing development projects to counteract the difficulty. There is however, limited research on the risk perceptions of the communities, concerning their views on exposure to the risks, including management of the risks by the oil corporations. Thus, the aim of this study is to explore how residents of the oil-producing communities perceive risks of the oil operations. Interpretative phenomenological analysis (IPA) is the methodology adopted in conducting the study, which focuses on participants' experiences of a phenomenon and the meanings they attach to the experiences. This enabled the study to elicit how residents of the communities, while relating with their experiences regarding the oil operations, form their perceptions of risks of the operations. Residents of three communities in the ONELGA district in the Niger Delta, where onshore oil operations are carried out by Eni and Total were chosen for the study. Responses of the residents were gathered through individual interviews and focus group discussion. The residents have believed to be exposed to risks of food insecurity, income, health, and earthquake, due to the oil operations. They have explained the causes and factors of the risks, and how they may be affected by them. Their concern of the risks, however, has appeared not to be mainly influenced by the effects, but by their perceived inappropriate management of the risks by the oil corporations. They have suggested to accept the operations, if the risks will be managed from their viewpoints, by the corporations—for which the residents have specified certain measures. Their trust in the capability of the corporations to accordingly manage the risks has been found to be the key factor behind this. The findings of the study show the importance of the oil-producing communities' risk perception of the oil operations and its implications on the oil corporations vis-à-vis managing the risks. This can also be useful for developing further research on risk perception of not only the communities in the Niger Delta but also others affected by oil operations.

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Chapter One: Introduction

1.1 Overview of Study

Nigeria is endowed with huge reserves of oil mainly found in its south-south region of the Niger Delta. Development and business of the resource are dominated by foreign oil corporations, amongst whom the key players are Shell, Chevron-Texaco, Exxon-Mobil, Total, and Eni, who account for over 95% of oil operations (Obi, 2010). This is with a production-capacity of more than 2 million barrels a day, making Nigeria the largest oil producer in Africa (KPMG Africa, 2013). Ever since its development, Nigeria's oil industry has been at the centre of controversy on issues linked to adverse impacts of the oil operations, affecting many aspects of the lives of the oil-producing communities in the Niger Delta. The region is largely made up of small communities that are scattered in rural villages in which the oil operations are carried out (Niger Delta Development Commission, 2006). The exploration and production processes of the oil operations, involving seismic activity, oil spills, gas flaring, and dumping of untreated wastes, have been reported to generate the impacts on the communities. These affect the environment, including pollution and degradation of land and water (Omoweh, 2005, Emoyan, et al, 2008, Oludoro, 2012). This has been difficult for the communities, because they are reliant on the environment for farming and fishing, as the major means of food production and livelihood, accounting for about 60% of the labour force (United Nations Development Programme, 2006). The situation is considered to have caused socio-economic hardship, and aggravated poverty in the region (Ariweriokuma, 2009). The pollution of water by oil spills as well as of air by the flaring of gas have been linked to health problems, suffered across the region (Aluko, 2003, Ajugwo, 2013). Thus, damages of the operations should have significant impacts on the wellbeing of the communities.

The difficulty faced by the communities has generated policy debate on costs of the impacts on the communities as well as on the responsibilities of the oil corporations at handling the costs. The government has established several laws and regulations, which oblige the corporations to control the impacts (Isah, 2012). The public, particularly environmentalists and human-right

activists, accuse the oil corporations of bad operational practices, affecting the environment, and of neglecting the social costs on the communities (Eweje, 2006). The communities have, because of the impacts, staged riots and militancy against the corporations (Hamilton, 2012; Oluwaniyi, 2010; Alawode, et al., 2011; Asumi, 2009). These have brought into question the sustainability of the oil operations, making the matter to be of national importance and concern, as oil is the main pillar of the country' economy (Nwankwo, 2005). The researcher in this study was initially interested in how oil corporations manage political risk, stemming from their relationship with the oil-producing communities in the Niger Delta—which was the focus of his MSc research in risk management. He had considered to further explore the subject into a PhD research, but due to the difficulty of gaining a direct access to the oil corporations, the focus of the research was subsequently changed to the communities' perspectives on risks of the oil operations, including their management by the corporations. Given that this is a shift in the focus of the research, it became challenging for the researcher, as he needed to immerse himself into a dimension of the study of risk, involving the social and psychological processes through which people or the affected individuals for the study perceive or make decision on risks of oil operations. The development of the study was, thus, influenced by the researcher's background in risk management, particularly management of political risk by oil corporations in Nigeria. This in turn improved, if not changed, the researcher's previous perspective on risk, including managing political risk—this could also be of importance in the efforts to improve on issues of the safety and wellbeing of the communities regarding the oil operations.

Several studies, based on the continuation of the oil operations and their ensuing impacts, have reported that the communities are living a life with serious environmental, social, economic, and health risks (Ite, et al., 2013, Aluko, 2003, Amnesty International, 2009, Emoyan, et al., 2008). However, the studies have not examined the risks from the perspectives of

the communities. This is important, as the communities have demonstrated their outrage on the consequences of the oil operations. The literature on risk perception in the field of risk management explains how people assess risks. This includes the influences and factors behind people's fears and concerns of a situation or event, involving cultural and psychological thoughts or reasoning (Sjoberg, et al., 2004; Wildavsky and Dake, 1990; Inouye, 2014). Culturally, it is considered that people's risk perception can be shaped by their social view of the world or by their social belief system. This suggests that people with a particular social view (i.e. egalitarians) would perceive risk in a certain way (Oltedal, et al., 2004). Psychologically, people are considered to rely on the use of heuristics to assess risks. This suggests that what people fear is the creation of their individual minds, dependent on imagination, memories, and comparisons, which serve as the cues for probability assessments (Slovic, et al., 2005). Thus, people's experiences are at the centre of this, because feelings about situations or emotions such as pleasure, pain, fear, and awe that are associated with past events are often the dominant bases for making decisions on risks (Marx and Weber, 2015). There are certain factors, which are considered as important determinants behind people's psychological assessment of risks, including their concerns and attitudes towards risks. This is derived from individual-judgment of the characteristics of a set of hazards, which have been hypothesised to account for people's risk perception (Slovic and Weber, 2002). Some of the factors are severity of consequences of risk, benefit of risk, and controllability of risk (Slovic, et al, 1985). Furthermore, the ways risks are perceived by people is reported to influence their perceptions of management of risks. For instance, risk perceived to produce severe consequences would incite a high demand for its management, including applying of firm measures (Renn, 1990). Risk perceived as uncontrollable by personal actions, is likely to require institutional control—by institutions that are considered as capable (Schmidt, 2004). This notion of control can be related to perception of trust in risk management, as involving acceptance of

risky activities, because of trust in the abilities and intentions of the involved risk management institutions to protect the society from harm of the activities (Kunreuther, et al., 1996, Sjoberg, 2001, Siegrist and Cvetkovich, 2000, Rousseau, et al., 1998). These aspects of the literature on risk perception provide the academic context through which the study will be conducted and evaluated. Thus, this study will explore how process of the oil operations are shaping the residents' perceptions of risks of the operations. It is to evaluate the residents' fears and concerns related to the risks, and their judgments on how the oil corporations are managing the risks.

1.2 Aim of Study

To explore the perceptions of risks of the oil operations of residents of the oil-producing communities in the district of ONELGA.

1.3 Objectives of Study

To examine the residents' perceptions on how risks of the oil operations may arise. This focuses on their views regarding the ways and means through which the risks will stem from the processes of the oil operations. The purpose of this is to demonstrate how the risks would be identified and framed by the residents, including their sources or causes, which they would associate with the operations.

To examine how the residents would judge their exposure to risks of the oil operations. This focuses on their fears and concerns, and the ways in which they may be affected by the consequences, of the risks. The purpose of this is to show their assessment of the risks, including areas where and how they may be affected by the consequences of the risks.

To examine the residents' perceptions on how the oil corporations are managing the risks, involving their judgments on the ways in which the corporations are responding to their fears and concerns of the risks. While

this could show areas of the residents' content or discontent in the approaches or measures employed by the corporations, it would also provide insights on their expectations or demands as to how the risks are to be managed by the corporations.

1.4 Rationale of Study

The available literature on oil operations in the Niger Delta region has considerably examined the impacts of the operations on the oil-producing communities (Adekola & Igwe, 2014; Aluko, 2003; Ajugwo, 2013; Frynas, 2000; Okoh, et al, 2009), but has not in detail considered how the impacts could affect lives of the communities in the future, particularly from their viewpoints. This is to stress that the existing literature has not explored the impacts of the operations from the perspective of risk and risk perception of the communities. In this study, an attempt will be made to explore the subject area by engaging the residents of ONELGA (oil-producing) district in the region. This will involve delving into the residents' beliefs and reasoning as to how processes of the oil operations could constitute risks to their lives, including the ways or extent to which they may be affected by the risks. The residents' viewpoints, including their judgments and expectations or demands, concerning management of their fears and concerns of the risks by the involved oil corporations will also be considered. These aspects of the study are deemed to contribute to understanding of the oil-producing communities' perceptions of risks of the oil operations, thereby helping to bridge the gap of the subject area in the literature on impacts of the oil operations in the Niger Delta.

1.5 Significance of Study

The study will add more insights on how people's risk perception as related to oil operations could be formed, with a reference to affected community-perspective of the subject area. It will demonstrate the manner in which the apprehensions or concerns of those affected by oil operations can be shaped,

including the particular causes and factors. This can enable appreciation of the ways that certain events and issues related to oil operations could influence people's attitudes of risks of the operations, comprising their views on the possibility of their happening; of their consequences; and of their management. Although this study is not policy oriented, it can provide the basis for policy makers or risk managers in Nigeria's oil industry, especially of oil corporations, to understand how host-communities could in some ways perceive risks of oil operations, as well as form their related concerns and claims. In turn, this may help to provide the basis for improving dialogue between the oil corporations and the communities on the risks. In addition, given the limited research on risk perception of oil operations of oil-producing communities in the Niger Delta, this study can serve as a foundation for developing further research on the subject area.

1.6 Structure of Study

The subsequent chapters herein will cover the background, academic context, methodology, findings, and conclusion of the study. Chapter two will discuss on the Niger Delta region, including its resources and living conditions of the communities to show the socio-economic circumstances of the residents there, amidst the riches and investment in oil. Background on Nigeria' oil industry, comprised of development, investment, and operations by foreign oil corporations, will be discussed to explain the extent of involvement of the corporations in the Niger Delta. The techniques that are involved in how oil is operated, including exploration and production, in the surroundings of the communities, by the oil corporations will be examined. This is to enable the appreciation of how processes of the oil operations could impact the lives of the residents. The ways and extent to which the residents are reported to be impacted by the oil operations, including their associated outrage to the oil corporations, will be examined. This is to set out the focus of the investigation, concerning the residents' reactions or responses on the risks and their management by the

corporations. Theoretical conceptualisations of risk, risk perception, and risk management will also be discussed to enable the understanding of how people may perceive risks, including the means and factors behind their attitudes and reactions to risks and their management. This is to provide the academic context, which will guide the investigation and evaluation of the study. Chapter three will discuss the methodological aspects of the study, concerning the methods and means through which the study is carried out. This involves the adoption, including the rationale, of the methodological approach, including selection of area and sample for the study, and data collection and analysis. Chapter four is on the findings of the study, which will analyse the participants' views on how the oil operations pose risks to their lives, and where and how they may be affected by the risks. Their views, including content or discontent, on management of the risks by the oil corporations will also be analysed. Chapter five will make conclusions on the study by highlighting the overarching findings of the study, including the compelling and new insights on risk perception of the residents, and the implications of the findings to the corporations as well as the significance of the findings for further research.

Chapter Two: Literature Review

2.1 Oil Industry and Foreign Oil Corporations

Oil operations in Nigeria date back to 1956, when Shell-BP Nigeria, a joint venture of Shell and British Petroleum, made the first discovery of commercial oil in Oloibiri community in the Niger Delta region (Omeje, 2006). Following the discovery, exploration and production of oil have since then developed in the Niger Delta, with the first export to Europe in 1958 (Ariweriokuma, 2009). This can be considered as that oil operations in the region have been carried out for many decades, and thus the oil-producing communities have for long been exposed to the impacts of the operations—making it important to explore their experiences and narrations as may be relevant to their perceptions of risks of the operations. During the early years of the operations, prior to Nigeria's independence, the industry was in the control of the British colonial government, with operations and business of the resource totally under the control of British and British-allied corporations (US Energy Information Administration, 2013). Subsequently, after independence (1960), the government took control of the industry by forming the Nigeria National Oil Corporations (NNOC) in 1971, which was later transformed and renamed to be the Nigerian National Petroleum Company (NNPC) in 1977. The government obliged all foreign oil corporations to start operating joint ventures with the NNPC (Omeje, 2006). Although operations of the oil are still primarily carried out by the foreign oil corporations (Khan, 2004), involvement of the government may have some influence on the risk perception of the residents, for instance, concerning issues of responsibility of the corporations for risk management. Investment and operations by the foreign oil corporations have been instrumental to the development and growth of Nigeria's oil industry (United Nations Conference on Trade and Development, 2011). The corporations have deployed huge capital for exploration and production, amounting to about $8.0 billion a year, as reported in the study by

Ariweriokuma (2009). There are many foreign oil corporations operating in Nigeria, but five of them, including Shell, Chevron-Texaco, Exxon-Mobil, Total, and Eni, dominate over 95% of the oil operations (Obi, 2010). Most of the oil (60%) is operated at onshore, with the rest (40%) at offshore (Idemudia, 2009)—indicating that most of the operations are in the area of the Niger Delta communities, hence they are closely exposed to the impacts of the operations. The operations, both onshore and offshore, are massive that oil production is estimated at 2.5 million barrels per day, making Nigeria the highest producer of oil in Africa. In addition, the country produced about 1.2 trillion cubic feet of dry natural gas in 2012, with most of this refined and exported in the form of liquefied natural gas (LNG). LNG production has been estimated at 22 million metric tons per annum (KPMG Africa, 2013). The immensity of the oil operations implies the magnitude of their impacts or risks on the communities, hence suggesting the significance of the situation in the context of this study.

2.2 Niger Delta Region

The Niger Delta region is a coastal plain, situated in the southernmost part of Nigeria. Of Nigeria's thirty-six states, the region encompasses nine states that border the coastal waters of the Atlantic. The states are Akwa Ibom, Bayelsa, Delta, Edo, Ondo, Rivers, Cross Rivers, Abia and Imo (Abiodun, 2013). Based on Nigeria's census of the year 1991, the total population of the Niger Delta was about 20 million or 23% of the country's total population. But this was estimated to grow to about 28 million by the year 2006 (Niger Delta Development Commission, 2006). The region is mainly identified with its riches in oil resources, as most of Nigeria's productive oil fields and operations are located there (Niger Delta Development Commission, 2006). Its surface area is about 112, 110 square kilometres, representing 12% of Nigeria's total surface area (Niger Delta Development Commission, 2006). The region is considered as Africa's largest wetland, and amongst the largest in the world, (Aghalino, 2011), which is spread over many ecological zones:

sandy coastal ridge barriers, saline mangroves, freshwater (seasonal and permanent) swamp forests, and lowland rain forests (Omeje, 2006). The mangrove and swamp forests cover more than half of the region, and its vast floodplain is interspersed by a network of creeks and tributaries, which drain the River Niger into the Atlantic Ocean along the Gulf of Guinea (Omeje, 2006). The nature of the geography of the region is important for this study to explore how the residents would associate the oil operations to happenings or changes in the environment, which may influence their perceptions of risks of the operations.

The economy of the Niger Delta is mainly based on agriculture, involving fishing and farming (United Nations Development Programme, 2006). In addition to farming and fishing, forestry, involving rubber, cocoa, and palm oil plantations, is important to the agricultural sector in the region. The three agricultural activities account for about 44% of employment there (United Nations Development Programme, 2006). The importance of agriculture in the region suggests of its reliance on the environment for its socio-economic life—and therefore impacts of the oil operations on the environment could significantly affect the wellbeing and development of the communities. The report by Oviasuyi and Uwadiae (2010) indicated that despite the regions' riches in oil, and investment and operations by oil corporations, the majority of its population suffer poverty and underdevelopment. In addition, the report by the United Nations Development Programme (2006) suggested that indicators for social development are poor, with unavailable or inadequate infrastructure and social services. Thus, the investigation of this study considers how socio-economic conditions in the region may be related to the residents' risk perception of the oil operations.

2.3 Mechanics of Oil Operations

The mechanics of oil operations here explains the basic aspects of the techniques involved in the processes of oil exploration and production in the Niger Delta, as related to onshore activity. This helps in appreciating the

potential impacts of the processes on the surroundings and lives of the residents in the oil-producing communities. Oil exploration involves seismic surveys and drilling for searching of oil. The seismic surveys are used for gathering information of a site. Sound waves are sent into the earth's crust where they are reflected by the different rock layers (Frynas, 2000). The waves of sound bounce back from the rock layers and are received by a listening device called a geophone (Ifok & Igboekwe, 2011). The time taken for a wave to return to the surface is measured so as to reveal the depth of the layers and indicate the type of rock that lie beneath the surface, as different rocks transmit sound at different rates (Frynas, 2000). This is to identify the hydrocarbon potential of a site, by searching for patterns in the transmitted sound or information that are characteristic of known petroleum producing systems. In such way, a geophysicist can construct a map that highlights the sub-surface structures (i.e. buried hill and river deltas), which are likely to contain producible accumulations of petroleum (Fagan, 2006). A seismic survey starts by 'line cutting', which is clearing of land or water surface from any vegetation to prepare the site for the survey. Clearing of the vegetation is usually done by hand, using machetes. Explosives are mostly use as the energy source for seismic surveys that are carried out on land in the region, of which the explosives are detonated a few metres below the ground surface. In riverine areas, boats or barges, equipped with airguns are used to release compressed air into the water surface (Frynas, 2000). After findings of the seismic surveys, drilling of exploration wells is undertaken to accurately determine the presence of oil under the surface (Fagan, 2006). This involves construction of roads and canals to create access to site, as well as the clearing of vegetation or grading of site for drilling pad and associated infrastructure. The wells are drilled with track-mounted drills or with drills hung into position by helicopters (Ifok & Igboekwe, 2011). Rotary cutting tools with tough metal and diamond teeth, which can penetrate through the hardest rock, are applied for boring underneath of the ground surface. Drill cuttings that are returned to the

surface help in providing information about an oil field at various depths (Frynas, 2000). The information reveals which kind of fluid a field contains—whether water or oil—which enables a company to make decision on producing hydrocarbons from the field (British Petroleum, 2008).

The production stage comprises the flow or lifting of oil, which is mixed with gas and water, to the surface. Oil is not found or lifted separate of gas, because they are both, with water, together deposited in a petroleum trap. But gas can flow to the surface by itself because it is very light (Chikwere, et al., 2015). Oil may also flow to the surface by itself, if there is enough pressure in the well, which is common in the Niger Delta (Chikwere, et al., 2015). If the pressure in a well is weak, oil is lifted to the surface artificially by pumping, for example, through electrical submersible devices (Chikwere, et al., 2015). From the wellhead on the surface, the mixed oil, gas, and water is transported via a pipeline to a flowstation. A flowstation is an oil gathering station, which receives oil from many wells. At the flowstation, gas and liquids are separated, with most of the gas being flared in horizontal flares, which are installed on the ground, close to the flowstation (Frynas, 2000). The remaining mixed oil and water is from the flowstation transported via a pipeline to an export terminal on the coast, where the two are separated. The oil at the terminal is loaded onto tankers and shipped abroad for trading purposes (Frynas, 2000).

The above discussion on the mechanics of the oil operations shows that the exploration process, including cutting and clearing of sites, explosion of sites, drilling of sites, and occupation of areas of land, are directly associated with the oil-producing communities' environment. The production process, as involving the lifting of crude oil to the surface and flaring of gas into the air, are also directly associated with their environment. These thus will be important to this study in exploring the ways in which the processes of the operations may influence the risk perception of the residents, including their

fears and concerns of the operations as well as their viewpoints on management of these by the oil corporations.

2.4 Impacts of Oil Operations on Residents of Oil-producing communities

The mechanics or processes involved in the oil operations, as well as their continuance, in the Niger Delta, suggest that the residents of the oil-producing communities are exposed to a variety of environmental and social problems. In the study by Frynas (2000), it is discussed that the impacts of the operations mainly affect the environment, causing difficulties in many forms to the lives and livelihoods of residents in the affected communities (Frynas, 2000). A study by a team of Nigerian and international experts, concerned with the preservation of the environment, reported in 2006 that the Niger Delta is one of the ecosystems most severely 'petroleum-impacted' in the world (Amnesty International, 2009). According to the report by the United Nations Development Programme (2006), more than 60% of the people in the Niger Delta region depend on the natural environment for livelihood. This suggests that the impacts of the operations on the environment could significantly affect the livelihood of the residents, thus making it compelling for this study to delve into the residents' perspectives of the situation.

The impact or damage to the environment by the oil operations is reported to be largely attributed to oil spillages and gas flaring (Adekola and Igwe, 2014). Oil spillage is the uncontrolled discharge of oil or its by-products, including chemicals and wastes, which mainly result from equipment failure, operational error or deliberate damage to equipment (Adekola & Igwe, 2014). Deliberate damage to equipment, particularly of pipelines, has not been attributed to the oil corporations, but largely to criminals, who aim to steal the oil. But equipment failure and operational error have been attributed to the corporations. The corporations have claimed that most of

the oil spills are caused by deliberate damage and not because of their failure or error. This has been disputed by the communities, who accuse the corporations of denial of oil spillages due to failure or negligence from their own end, to avoid liability for compensation (Amnesty International, 2009). Apart from the oil spills from pipelines, wastes with varying chemical compositions are introduced to the environment while treating the mixed oil/gas/water during the production stage. Such wastes, which are often referred to as waterwaste, are discharged into rivers in the region (Amnesty International, 2009). The spillages and wastes have polluted land and rivers across the region, disrupting farming and fishing. The study by Okoh, et al., (2009) describes the way that oil spillages compact the soil structure and reduce crop yields; also causing water logging and flooding of the soil, which lead to poor germination of crop seeds. This implies a reduction of the fertility of land or reduction of the availability of fertile land for farming. Aluko (2003) stressed that some areas of land in the region have been so contaminated by oil spillages that they can never be practically restored for framing. The polluted rivers have caused death of fishes, which reduce the availability of fish (Okoh, et al., 2009). The implications of these to the residents have been considered as not only detrimental to their source of food, but also source of income—since they are mainly dependent on farming and fishing for sustenance (Adekola and Igwe, 2014). The polluted rivers have also been reported to cause water-borne diseases such as diarrhoea, dysentery and cholera in the region (Aluko, 2003). Regarding the gas flaring, the oil operations in the Niger Delta are considered as key source of gas emission, polluting the environment in Africa (Ubani and Onyejekwe, 2013). Gas flaring is the burning of natural gas or surplus combustible vapours at both drilling and production stages of oil operations, either as a means of disposal or a safety measure to relieve well pressure (Ubani & Onyejekwe, 2013). As of 2013, it has been reported that there are over 123 flaring sites in the Niger Delta (Ite, et al., 2013), which are stated to discharge about 17.2 billion m^3 of natural gas into the atmosphere of the

region (Ajugwo, 2013). This has been claimed to be associated with a variety of health problems, suffered by residents in the oil-producing communities. These include neurological and reproductive effects, and respiratory and skin problems (Ajugwo, 2013). In relation to farming, flaring of gas in the region is reported to give rise to atmospheric contaminants (i.e. oxides of Nitrogen, Carbon, and Sulphur), which acidify the soil, hence depleting the soil-nutrients (Ajugwo, 2013). According to Ajugwo (2013) research has shown that nutritional value of crops within the vicinity of flaring sites have been reduced. This has been explained as that the soil of the study area is fast losing their fertility and capacity for sustainable agriculture, due to the acidification of the soil by the contaminants from the flaring (Ajugwo, 2013). The above studies' explanations of the implications of the oil spillages, wastes, and gas flaring on the environment and wellbeing of the communities are central to the investigation of this study to explore the ways in which they may be important to the residents' risk perception of the oil operations—including how their fears and concerns of the risks may be linked to their views on management of the risks by the oil corporations.

Other important impact of the oil operations on the communities is the interference with their cultural values—people of the region are strongly guided by their cultural beliefs (Omoweh, 2005). They have shown resentment to what they have considered as the continual violation, with impunity, of the sociological basis of their culture. This has been particularly related to the invasion of sacred sites for exploration by the oil corporations, as well as poaching of totemic animals by oil workers, most of whom are foreigners (Omoweh, 2005). Omoweh (2005) reports that, it is a traditional belief of the people of the Niger Delta that trespassing onto sacred sites by non-indigenes or foreigners will anger and expel the ancestral spirits in the sites, which will in turn be an omen for hardship to the communities. This points to the possible influence of cultural beliefs vis-à-vis the residents' risk perception of the oil operations, which this study considers as important to its investigation.

Residents of the oil-producing communities have in many occasions demonstrated their outrage on the impacts of the oil operations in the forms of protests and riots (Hamilton, 2012). This is to compel the oil corporations to end damages to the environment, restore the damaged areas, and compensate for the ensued effects (Hamilton, 2012). These transformed into militancy by many youths from among the residents, as a more effective way of compelling the corporations to respond to their concerns (Oluwaniyi, 2010). Activities of the militants include use of explosives to blow up oil installations, particularly pipelines, as well as the seizure of oil wells and flowstations, amongst others (Alawode, et al., 2011). Other notable activity of the militants is kidnaping of expatriate oil workers, which is aimed at seeking of huge ransoms from the corporations (Asuni, 2009). These reactions or actions of the residents signify the degree to which they feel affected or vulnerable to the negative consequences of the oil operations. This study thus considers how this may play a role in the residents' risk perception of the operations, including their content and discontent, as well as demands or expectations, on management of the consequences of the operations by the corporations.

2.5 Measures by Oil Corporations to Manage Risks of Oil Operations on their Host-communities.

Community-acceptance of business operations can be dependent on how the involved corporations would manage the associated risks or how this may be judged by the communities as appropriate to addressing their concerns or perceptions of the risks (Zollinger, 2009). This study will on this basis seek to consider the residents of the oil-producing communities' perceptions of risks of the oil operations and their judgment on management of the risks by Eni and Total. Thus, discussion on the measures for managing risks of their operations in their host communities by Eni and Total is important for setting the foundation of the investigation of the study. In the context of oil corporations and their host-communities, managing risk has been explained

as measures by corporations to control the negative impacts or risks of their business operations on host-communities. This is aimed at achieving community acceptance of business operations or to secure social license to operate (Siri, 2009, Idemudia, 2009). Social license to operate is a concept of the United Nations that requires corporations that operate in the territories of indigenous people to secure free, prior, and informed consent of those indigenous people, while they have been informed on the impacts of operations. The purpose of this is that those whose lives or livelihoods could be harmed by a corporation's use of property or resources must be informed of the associated industrial-plans and must consent to them (Wilburn and Wilburn, 2011). The consent is normally stipulated at addressing the negative impacts of operations on the affected community by the involved corporation (Smith and Richards, 2015). In this regard, corporations engage with their host-communities on impacts of operations. This exercise is referred to as stakeholder engagement, whereby corporations relate with community stakeholder-representatives to develop relationships and mutual understanding, aimed at responding to concerns or fears of the communities, regarding business operations (Zollinger, 2009). Measures commonly employed by corporations to respond to concerns of host-communities include restoration of environmental damages and compensation for loss or damage of assets, due to business operations (International Finance Corporation, 2007). Community development is specifically the widely-applied policy by corporations to mitigate the negative impacts of their operations. This includes the provision of education and health facilities, and employment of locals, amongst others (Mckeller, 2010). These are provided in the form of corporate social responsibility (CSR) initiatives. CSR is a universal corporate idea of off-setting hardship that could be caused by business by tailoring operations for minimal negative effects on host communities, and by directly contributing to the long-term wellbeing of host communities. The net effect of this is that affected communities are better off while exposed to risks of business operations

(Mckeller, 2010). This suggests that managing risks of business operations on host communities involves providing benefits to mitigate the consequences as well as to help in improving their social wellbeing. The measures that have been applied by Eni and Total in achieving this, including its importance to the risk perception of the residents, is important to the inquiry of this study.

2.5.1 Measures Reported by Total

Environmental impact assessments are conducted in areas of oil operations to identify environmental, social, economic, and health risks that may affect the host-communities. This involves assessing the potential consequences of the operations on the air, soil, water, and flora and fauna (Total, 2014). In the event of oil spillage, polluted sites are 'swiftly and efficiently' cleaned up, remediated and restored in accordance with international and national guidelines (Total, 2014). Reduction of gas flaring in the air through the Liquefied Natural Gas (LNG) project, involving conversion of natural gas to liquid form, is a measure targeted to reduce the environmental and associated risks of oil operations on the communities (Elf Petroleum Nigeria, 2004). CSR initiatives are important to mitigating risks of oil operations. This involves the provision of basic social infrastructure, including electricity, water, schools, scholarships, roads, jetties, community halls, and markets. Healthcare services, particularly related to infectious diseases, are provided. This is centred on awareness campaigns, involving promoting preventative measures against prevalent infectious diseases (i.e. Malaria) in the communities (Total, 2014). Vacancies in the corporation are purposely advertised in the communities to ensure indigenous employment. (Elf Petroleum Nigeria, 2004). There is also a special measure for economic empowerment of the indigenes, involving skill development program,

where unemployed youths are trained in a variety of trades; carpentry, plumbing, masonry, electrical installation and maintenance, bakery/confectionary, as well as fishing and farming. This is supported by entrepreneurial training to help the development of local businesses (Elf Petroleum Nigeria, 2004). Representatives of the communities, including relevant government agencies, are directly engaged and consulted to solicit their feedback in order to ensure that strategies for controlling risks are effective and that CSR projects are provided in accordance to community-needs (Total, 2014).

2.5.2 Measures Reported by Eni

According to the corporation, managing risks of oil operations is tied to management of the environment in the host communities. It is about managing operational risks to the environment, as may be significant to the social, economic, and health of the communities (Eni, 2014). This, while compliant with relevant international and national regulations, is based on the principles of prevention and protection, including community-involvement to identify and control adverse environmental events linked to oil operations; and to adopt site-specific practices for the protection of the environment (Eni, 2014). A measure for reducing the adverse environmental impacts of oil operations is the reduction of gas flaring through LNG project, which is aimed to gradually lead to achieving what is described as "Zero Gas Flaring" at all sites of operations in the region (Eni Group, 2002). CSR initiatives are regarded as central to mitigating risks of operations on host communities, which is geared towards addressing their basic social and infrastructure needs. This includes construction of roads, jetties, sewage/drainage networks, water treatment plants, and rural electrification (Eni Group, 2002). An integrated agricultural program has also been instituted, which is comprised of land management practices; development of fish farming through supply of improved species and associated training;

facilitating access to micro-credit facilities; and promotion of community based agro-business through training in food processing and introduction of simple mechanization for land tillage, as well as aiding transportation of agricultural products (Eni Group, 2002). These projects are targeted to contribute in creating employment opportunities and self-sufficiency, and thus to improve the overall socio-economic wellbeing of the communities (Eni Group, 2002). Healthcare services are also part of the CSR policy. Health facilities are upgraded and constructed to provide first aid and preventive medicines against infectious diseases—which is also accompanied by health-related awareness (Eni Group, 2002). Stakeholder-representatives of the communities are engaged in the form of dialogue to negotiate and ensure that CSR projects are provided according to their specific social and economic needs (Eni Group, 2002).

2.5.3 Critique of the Measures for Managing Risks of Oil Operations.

The measures and approaches of oil corporations, including Eni and Total, for managing risks of oil operations on the host communities in the Niger Delta have been criticised by some studies. Idemudia (2007) stresses the initiatives for risk mitigation by the oil corporations are inadequate. Payments of compensation for environmental damages to the affected residents, particularly involving oil spills, are considered as disproportionate to the magnitude of the consequences of the problem on land and water. The benefits of CSR are also contended as inadequate, which is explained as that the amount of wealth (in oil) generated by the corporations is not comparable to the high cost of environmental problems as well as the low level of development noticeable in the communities (Ujo, 2012, Idemudia, 2007). This suggests of imbalance between the level of harm of the operations and the measures taken for managing the harm, including more harm and less benefits for the host-residents. The corporations are accused of having the attitudes of delay and of breaking promises in the implementation of the measures for risk mitigation—particularly concerning

environmental protection in the case of the former and CSR projects in the latter (Idemudia, 2007). This could be explained as unreliability of the corporations in managing risks of the operations or ensuring the safety and wellbeing of the residents. Ujo (2012) states the corporations substitute operational requirements for management of the environment with development projects. For instance, when an oil spill occurs, instead of the prompt clean-up, the corporations will introduce development project in the affected area—which is considered as a trick for evading environmental liability (Ujo, 2012). This could be interpreted as that the corporations use CSR projects to avoid standards for management of the environment or to reduce operational cost against the protection of the environment. Implementation of CSR projects are at times decided by the representatives of the oil corporations and local contractors, without involving or consulting the communities. This has been explained as a deliberate way of enabling the contractors to deficiently execute the projects, while claiming full payments, believed to be shared with the representatives (Idemudia, 2007). In addition, the corporations have been accused of bribing traditional rulers in exchange of unhindered access to exploration sites or to prevent community interference, including protest on damages or demand of compensation for damages (Hamilton, 2012). These indicate dishonesty and avoidance of responsibility or untrustworthiness of the corporations in managing risks of their operations on the host-residents.

This study sees that Eni and Total have not reported on the reactions of the residents regarding management of the risks. For instance, the extent to which the residents are content with the measures or how the measures are consistent with their perceptions and concerns of the risks. This is worth considering, because the oil-producing communities have not stopped protesting and have continuously demanded the corporations to adequately respond to their concerns of the operations (Hamilton, 2012). In addition, the corporations have for many years faced litigation from the communities, which have mainly concerned the lack of or inadequate payments of

compensation regarding damages of oil spillages and acquisition of land for operations (Frynas, 2000).

This study thus examines the residents' viewpoints on the risk management measures of the corporations—to understand their judgement of the measures, including their content or discontent of the measures, and the consistency or inconsistency of the measures to their perceptions and concerns of the risks.

2.6 Risk

The concept of risk has been varyingly defined, as it is a concern of diverse fields and activities. Hazards, the sources of risks, are heterogeneous (Rohrmann, n.d), and people or organisations can in different ways be exposed to and impacted by a particular hazard, and thus contextualisation of risk will differ. This contributed in making the concept of risk ambiguous and contentious, stressed by Power (2004). In the attempt to provide a standard definition for risk management, the Institute for Risk Management (2002), defines risk as the combination of the probability of an event and its consequences. The consequences of an event can be either negative or positive, or combination of both (Institute of Risk Management, 2002). In other words, risk consists of the potential for detriments as well as opportunity for benefits. This is particularly recognised in the field of finance, as risk in finance is a matter of variability in expected returns on investment, either negative or positive (Power, 2004). In acknowledgment of the possibility of rewards and detriments of risks, Douglas (1992), defined risk as the probability of an event and the magnitude of the losses and gains that it will entail. There are those that are primarily focused on the positive dimension of risk, and see risk as the product of the probability and utility of a future event. Risk is thus measured by considering its potential rewards, as opposed to its potential losses (Adams, 1995). The positive dimension of risk in other contexts (i.e. adventure) is described as 'desired risk', where risk is considered as mainly involving the prospect of excitement, for example,

mountain climbing or downhill skiing (Slovic and Weber, 2002). In many fields, risk is more associated with danger of loss or disastrous outcomes, than with the probability of gain or benefit, and thus most definitions of risk have focused on the probability of negative consequences (Damodaran, n.d, Rohrmann, n.d, Botterill and Mazur, 2004). This is caused by the modern rise of industrialisation or introduction of new technologies, and people's growing concern and attention on their potential dangers (Botterill and Mazur, 2004). The field of health and safety is particularly recognised for focusing on the negative dimension of risk (Institute of Risk Management, 2002, Power, 2004). In the report by Inouye (2014), the National Safety Council in the United States defined risk as "a measure of the probability and severity of adverse effects". The concern of this definition is on the probability of an event occurring, and if it occurs, how severe the consequences would be. Events and their negative consequences in the field of safety is largely attributed to people's behaviours or actions, and with a consideration for this, Walker, et al., (2007), defined risk as the probability of adversity that is related to our actions, due to our commitments. This is relevant to explaining the view that technological or industrial human actions are the predominant source of risk, capable of causing harm in several ways to people, animals, and plant or the environment in general (Fischhoff, et al., 1984). In this regard, as stressed by Graham and Weiner (1997), risk can be summed up as the "chance of an adverse outcome to human health, the quality of life, or the quality of the environment".

Risk calculation in terms of the negative consequences, must however, involve a positive dimension. This is about acceptance of risk for benefit, where people will be willing to bear hazardous behaviours or activities, because they carry some benefits (Slovic, 1987). This, for example, can be related to smoking of cigarettes, as the health risk of smoking is subdued by the taste and feeling of tobacco. In other words, smokers, although aware of the negative consequences of smoking, will continue with the behaviour for the benefit or pleasure that they are deriving from it. Another example is the

siting of a hazardous facility, involving the discharge of toxic waste to the environment. In this situation, a community exposed to the risk may accept it, if they believe the operator of the facility will provide benefit, for example, in the form of compensation to counteract the risk (Kunreuther, et al., 1996). In general, it has been stressed that people's belief in institutions responsible for risk management to provide appropriate or beneficial measures to counteract risk, is an important factor, which influences their risk perception, including acceptance of risk (Schmidt, 2004, Kunreuther, et al., 1996). This is consistent with this study's exploration of risk, focusing on the residents of the oil-producing communities' perceptions of risks of the oil operations, comprised of their views on the possibility of negative consequences of the operations and on the measures taken by the oil corporations to deal with the consequences.

2.7 Risk Perception

Risk perception as a concept is generally considered as the ability of an individual to discern some amount of risk in a behaviour or event (Inouye, 2014). Put explicitly by Sjoberg, et al. (2004), risk perception is people's assessment of the probability of a specified type of mishap occurring as well as concern for the potential consequences. This can be explained as being about people's fear in relation to the estimated likelihood of what is feared will happen and of its potential consequences. According to Hudspith (n.d), people's perceptions of the probabilities of risk are subjective and involve intuition, and he thus described risk perception as people's intuitive judgments of both aspects of risk: the probability of an event happening and of the severity of its consequences. However, perception of risk is in other context guided by scientific process, which is believed to be objective. As this points to the differing ways of making sense of risk, many studies have analysed this situation by relating it to the difference of risk perception between experts and the lay public. Indeed, for one to adequately explain

or understand risk perception, there is need to examine it from the perspectives of experts and the lay public.

2.8 The Difference of Risk Perception between Experts and the Public

People's perceptions of the probabilities of risks have been observed to differ across many cases. In most studies, experts have been found to judge the probability for many risks, as low, which the lay public has showed serious concern about, and judged their probability as high (Sjoberg, 2009). There are, however, cases where risk-estimates of the lay public have been found to be lower than that of the experts, for example, for electric power, surgery, X-rays, downhill skiing, and bicycles. In addition, there are some cases where both experts and the lay public have given similar (high) risk-estimates, for example, cigarette smoking (Slovic et al., 1995) and offshore oil operations (Wright et al., 2000). People's differences of risk estimates are in general attributed to two fundamental systems through which they make decisions on risks. These are the analytical processing system and the experiential processing system. The analytical processing system uses statistically summarised information and description-based decision making, which requires the extensive use of one's brain. The process is effortful and deliberate, and involves conscious awareness and knowledge of rules, e.g., probability calculus, Bayesian updating, and formal logic—applied during conscious and calculation-based judgments. This is the approach of experts, as it involves quantifying the frequencies of occurrence of risk, and of the expected number of fatalities that may result from occurrence of risk (Gurian, 2013, Kavlock, 2014, Stamatelatos, 2000). Thus, the analytical processing system is scientific and usually felt to be comprised of objective reasoning on risk.

The experiential processing system is an experience-based decision making, which relates with the part of the brain that links current situation to memories of one's own or others' experiences. This is because experiences

shape our feelings of situations or emotions such as pleasure, pain, fear and awe, and as these are associated with past events, they often form the dominant bases for making decisions on risks (Marx and Weber, 2015). As this process is experiential and based on feelings, it is faster and automatic (Marx and Weber, 2015). This is the approach of the lay public, where judgment of risk is based on subjective thoughts, involving reliance on psychological and cultural traits to assess risk (Oltedal, et al., 2004), which are influenced by a broad range of factors; these are examined in sections 2.9 and 2.10 of this chapter.

A major effect of the difference in the assessment of risk by the lay public and the experts has been found to be the focus of the former on consequences and of the latter on probability. The lay public's reliance on feelings to assess risk is argued to cause their decision on risk to be neglectful or insensitive to probability of occurrence of risk, especially when consequences are thought to carry sharp and strong meaning, as is the case with cancer; variation of probability in this situation often carries a little weight (Slovic, et al., 2005). Empirical support for this observation is provided in the study by Slovic and Peters (2006), which showed that if the potential outcome of a risk evokes a strong feeling, its attractiveness or unattractiveness is relatively insensitive to variation in probability as great as from .99 to .01. This is because when people's attention on a risk is focused on the outcome, they are unmindful of its likely occurrence. It is, for instance, found that many women tend to neglect a professional probabilistic information about risk of breast cancer (suggesting a relatively low risk), because their feelings of the risk are concentrated on the dreaded aspects of the disease, and thus they would overestimate their exposure to the disease (Peters, et al., 2006). To put concisely, risk perceived in terms of consequences (by lay public) is likely to cause alarm than if it is perceived in terms of probability (by experts).

The divergence of risk perception between experts and the lay pubic has also been explained in terms of knowledge gap (Merkelsen 2013). At the root of

this, in general, is that the public is considered by some experts as ignorant, and with the tendency to react subjectively and emotionally to future events, especially those which are complex i.e. nuclear technology. The public, on the other hand, criticises experts for using inaccessible information and technical language, and for failing to provide clear and complete data on risks (Chowdhury and Haque, 2011). Hence, this makes it difficult for the two to agree on risks or for the experts to provide data or solutions about risks, which should be convincing to change or allay the lay public's prevailing perceptions of risks.

It is understandable to state that the absence or inaccessibility of data on risks to the lay public makes their experiences and feelings a reasonable basis for making risk-decisions. In this regard, it can be argued that experts' risk perception may differ from that of the lay public not because experts are essentially analytical, but because they have access to data. But if the knowledge gap between experts and the lay public could be bridged by making risk-facts of a situation accessible and comprehensible by both, does it mean that their risk perceptions would be the same? This is contended to not necessarily be the case as knowledge is by no means the only factor determining perceptions of risks—as indicated above subjective feelings that may be psychological or cultural are critical to how the lay public perceives risks (European Commission., 2004).

However, there is argument that even experts' perceptions of risks are not free of subjective feelings. This is put in the study by Brotterhill and Mazur (2004) that risk is not something that lends itself readily to objective assessment or calculation, but it is rather subjectively constructed. For instance, a toxicologist's quantitative estimate of a chemical's carcinogenic risk can be based on a theoretical model, whose structure is subjective and assumption-laden, and whose inputs are dependent on judgment—which is also subject to the question of "whose judgment", argued by Brotterhill and Mazur (2004). In addition, Eller, et al., (2013) have argued that the scientific or seemingly rational assessment of risk by professionals, should be

recognised as also prone to psychological or intuitive judgments, because "intuition cannot simply be switched off". In situations when data that is available for probability calculations of a risk is considered to be inadequate by experts, it is stressed that they will incorporate experience and intuition to make estimation (Kahnemann, et al., 1982, Fischoff, 1986). Thus, it is difficult to explain, which system of risk estimate, either technical or non-technical, is more important in determining the validity of people's perceptions of risks. While technical analysis is often limited by incomplete theoretical understanding of the mechanisms behind risks, experience and instinctive beliefs are subjective and can be psychological impressions of risks (Sjoberg, 2009, Slovic and Weber 2002, Wright, et al., 2000). But the predominance of the non-technical estimation may be more critical to understanding people's risk perception. This is especially important in relation to modern technologies i.e. oil exploration and production, which are complex and increasingly attracting public concern and becoming a global issue (Ite, et al, 2013).

Experts' divergence of risk perception from those of the lay public, has created a sense of distrust for them by the public. Experts have in many cases found themselves pitted against public opinion, which rejects its conclusions of risks (Sjoberg, 2009). The public tends to be suspicious of the experts' claims, as the public often considers them biased and corrupt, because of their association with business or government. Independent experts, who publicly warn about risks (whistle blowers) are more trusted by the public. In a study on nuclear waste risk, for example, it was found that there was more trust in dissident experts than in experts associated with the nuclear industry (Sjoberg, 2009). The implication of such distrust for industry experts or risk managers is not only that their explanations on risks could be rejected, but also that they may face public-pressure, which could lead them to take measures that may be deemed as inappropriate by them to the real needs of risk management (Sjoberg, 2009).

As can be deduced from the above discussion, the lay people are of the tendency to have a high degree of differences in their risk perception of a given technology, as their individual circumstances and experiences, which are diverse and varying, would be at play in influencing their risk-judgments. This is as opposed to experts' risk perception of technologies, which are based on specified and established standards for making risk-judgments, and hence may be less differing. It is with a focus on the complexity of the lay public's estimates of risks that this study considered it compelling to explore the aspects and issues, which could be important in shaping the subjective and individual minds of the residents of the oil-producing communities' perceptions of risks of the oil operations.

2.9 Processes of Risk Perception

2.9.1 Cultural Theory

Sociological and anthropological studies of risk perception have explained that the way people perceive risk is rooted in their social and cultural view of the world; and the cultural theory has been proposed to rationalise this perspective of risk perception (Otedal, et al., 2004). The cultural theory helps in predicting how people of a particular social group would perceive risks in a certain way (Otedal, et al., 2004). This approach focuses on the socio-cultural system of people and how this influences their collective notions of how the world functions (Douglas and Wildavsky, 1982). The collective notions contain socially constructed views of the world, comprised of social beliefs about events that are shared within a group or society (Schmidt, 2004). Such beliefs can be important for individuals of a society to evaluate situations and act in a certain way. This, for instance, suggest that what is feared is socially and culturally framed. It is that, as reported by Rippl (2002), values and worldviews of individuals in a social or cultural setting, can be influential to their perceptions and decisions on risks. This, according to Funicane (2002), implies that perceived risk is a collective phenomenon, where every cultural group chooses to attend to some risks

and ignore others in order to maintain a particular worldview. In the attempt to explain this argument, four distinct cultural worldviews have been identified and related to perceptions of risks. These are: individualist, egalitarian, hierarchic, and fatalist. They are considered as important to people's thoughts about the nature and other people (Oltedal, et al., 2004).

Individualists are considered to have the tendency to fear things that might obstruct their individual freedom, and object control of people by others. The individualists support liberalism and the broad distribution of power and wealth. They see nature as self-preserving, with the ability to re-establish its own status quo, and hence people do not need to care a great deal about how nature is treated. (Oltedal, et al., 2004). Individualists are thus likely to perceive risk as opportunity, if it does it limit their freedom. New technologies, for example, are perceived as more of economic possibilities or prospects, than of potential dangers (Rippl, 2002).

Egalitarians are seen to have the tendency to fear any development that would introduce or increase inequalities amongst people. They are sceptical of expert-knowledge, because of the suspicion that experts and institutions may misuse authority granted to them (Oltedal, et al., 2004). They could reject risks that may be imposed on them by the decisions of (a small elite) experts (Rippl, 2002). The egalitarians consider the nature as fragile and vulnerable to human interferences (Oltedal, et al., 2004), and thus may reject risks, which could alter the state of nature or cause harm to many people or future generations (Rippl, 2002).

Those of the hierarchic culture emphasize on the hierarchical order of society and the preservation of the order. They fear things that are related to social disorder. To them, nature is largely a self-preserving, but under a strict and rigid control. People with the hierarchic orientation would thus accept risks, if the decisions about risks are justified by experts. They, therefore, will fear risks that may threaten the existence of social order (Oltedal, et al., 2004).

Fatalists hardly participate in social life, but consider themselves to be restricted and regulated by social groups that they do not belong to (Oltedal, et al., 2004). In the Dictionary of Cambridge (1995), a fatalist is defined as a person who believes that people cannot change the way events will happen and that events, especially bad ones, cannot be avoided. The point is that people cannot influence the being or preservation of nature. The fatalists try not to worry about things that they feel they cannot do anything about. This, thus, makes the fatalists indifferent about risks, and apathetic to decisions and fears of risks by others. They would rather be unaware of risks, since they believe that people cannot avoid future events (Oltedal, et al., 2004).

The empirical support for the cultural theory has been argued to be surprisingly meagre. This is considerably related to limitation of the theory in adhering to the complexity of culture, involving the differentiated and dynamic nature of beliefs and values, and the intricacies of relating these to ecological or socio-political factors (Oltedal, et al, 2004). However, the theory can guide this study in explaining how the oil-producing communities' perceptions of risks of the oil operations could be influenced by their collective social or cultural views of the world. This, for instance, could be about their collective beliefs about human interference with the environment or use of it—as may be related to the egalitarians view of the nature.

2.9.2 Psychological Dimension

The psychological dimension of risk perception is argued to be relatively more reliable for explaining how people's fears of event could be formed, because it has demonstrated remarkable similarities in the way most people assess risks of many activities or technologies (Renn, 1990). A considerable contribution to understanding of the psychological dimension has been derived from studies related to heuristics and the psychometric paradigm—which showed that what we fear is a creation of our mind or a function of

our individual thoughts and constructs (Sjoberg, 1979). The studies measured how individuals use common-sense approaches to assess probabilities or the mental processes they employ in estimating and judging risks (Wilkinson, 2006). Aspects of the heuristics and the psychometric paradigm found to be shaping people's assessment of risks are examined in the subsequent sections so as to meaningfully appreciate the psychological dimensions of risk perception.

2.9.2.1 Heuristics

Heuristics are referred to as mental estimations that guide people in making decisions (March, et al., 2004). This is explained by Cimpian and Salomon (2014) as intuitive means of making sense of the world, which allow people to simplify complex problems while making judgments. In this manner, perceptions of risks are relatively quickly formed, as the process is highly dependent on imagination, memories, and similarities of events or situations—serving as cues for probability judgments (Slovic, et al., 2005). Reliance on these cues is considered efficient and described as mental shortcuts, because they enable people to easily make decisions, and reduces cognitive stress associated with complex situations (Peters, et al., 2006). These mental shortcuts help people to instantly form impressions about the riskiness of a given situation, for example, how the procedures of a new technology may in certain ways be potentially harmful. In the field of risk perception research, the processes of use of heuristics have been stressed to be largely aided by people's experiences (Botterill and Mazur, 2004). This is elaborated in the study by Gana, et al. (2010), in which they argued that heuristics mediate the relationship between one's experience and his/her risk perception, involving the linking of new information to stored experiences, by activating schemata and mental images, to make sense of potential dangers to oneself. For instance, people living in hurricane prone areas could make intuitive assessment and judgment on the probability of being affected by a hurricane based on past experience, related to warning symptoms and

subsequent events, which they have observed (Marx and Weber, 2015). Heuristics are thus important for considering how the lay public would perceive risks. Four forms of heuristic have been identified as particularly influential to individual-assessment of risks, as discussed below.

Affect Heuristic: The affect heuristic is referred to as people's perception of the specific quality of "goodness" or "badness", experienced as a feeling state (consciously or unconsciously), and demarcating a positive or negative quality of a stimulus. The experienced feelings serve as the information to guide decision or judgment on risk (Slovic, et al., 2005). Such feelings are constructed as images in people's minds and are marked to varying degrees with affect, and this collection of affect in the mind is described as the "affect pool", which people consult in the process of making judgments. It is the affect pool that is demarcated by positive and negative feelings—as to how a feeling can be associated with the stored images (Slovic, et al., 2006, Peter, et al., 2006). The feelings that may emerge as salient for making a judgment would depend on how the affective qualities of a stimulus are interpreted (Slovic, et al., 2005). In the study by Vastfjaill, et al., (2008), it is reported that decision-making as related to risk perception can be influenced by two forms of affect; integral affect and incidental affect. The integral affect refers to affective responses that are experienced and directly relevant to the object of judgment. This includes feelings experienced through direct exposure to the object, and thus making the feelings as the basis for making judgment of the object (Cohen et al., 2008). The integral can be explained as the affect attached to mental representation of risks that are associated with relevant experiences. For instance, people who have personally experienced cancer are likely to develop strong and a relatively higher negative affective-reactions to the disease. The experience will be used as a cue for determining their own risk, with the negative feelings as a basis for determining their risk estimates, including the degree of concern or fear (Peters, et al., 2006). The incidental affect refers to affective responses which are influenced by feelings

from experiences that are unconnected to the object of judgment. This typically involves people's moods or emotions, which have no link to the object of evaluation, but influence judgment of the object (Cohen, et al., 2008). The study by Johnson and Tversky (1983) in Drace and Rick (2012), has shown the role of people's emotional state or mood, which are unrelated to a risk under evaluation, but affecting their judgement of the risk. In the study, participants who have read a story that induced a negative mood, happened to have had a higher perception of risk for various causes of deaths than participants in a non-manipulated mood. In contrast, participants who have read a story that induced a positive mood have had a low perception of risk related to the causes of deaths. The implication of this is that people's moods or emotions can influence their perceptions of risks, which may result in overestimating or underestimating their fears.

Availability Heuristic: The availability heuristic influences how people judge probabilities of risks based on what they can readily remember or retrieve from their memories. That is, the easier the examples of an event are retrieved from the memory, the higher is the estimated probability of its happening (Marx and Weber, 2015, Peters, et al., 2006). Slovic and Peters (2006), defined the availability heuristic as a form of mental shortcut used by people for judging the likelihood of events based on the ease with which instances or occurrences can be brought to mind. For example, people who will undergo genetic testing for cancer susceptibility may overestimate their risk of cancer and underestimate the risks associated with genetic testing, because it is easier to recall cases of cancer morbidity and mortality than of negative cases associated with the testing (Peters, et al., 2006). The media plays a key role in this form of heuristic, since the media is often skewed towards novel and poignant events (Pachur, et al., 2012). Risk events of this sort, when widely publicised, are likely to be salient in people's memory, and thus can be readily recalled, and may be perceived as highly probable in the future (Peters, et al., 2006). The availability heuristic can be summarised

as people's tendency to rely on their experiences of hazards, which they can readily recall from their minds, as a cue for estimating the probabilities of risk.

Representatives Heuristic: The representativeness heuristic is defined as people's judgment of the probability of an event by the degree to which they consider it to be similar to other known or experienced event(s) (Menapace, et al., 2012). In this way, the assessment of the probability of an event will be based on its similarity with a stereotype, schema, or other pre-existing knowledge (Peters, et al., 2006). People often use this form of heuristic by relying on stereotypes of the effects of risk-incidents to make judgment of their personal vulnerabilities. But such judgments are likely to be biased, when a stereotype appears not to fit the fear or concern of the individual that is estimating his/her vulnerability to the risk in question. This has been helpful in explaining why some individuals misjudge their risk of certain diseases, if they perceive that they do not physically resemble people affected by the diseases (Peters, et al., 2006). For instance, because heart disease is more stereotypic of men, women tend to perceive their risk of breast cancer as greater than the risk of heart disease; although this is contrary to scientifically established evidence (Peters, et al., 2006). In addition, because of the epidemiological link between smoking and lung cancer, people, both smokers and non-smokers, have been shown to overestimate how likely smokers are to contract lung cancer. This may lead to a smoker misjudging that he/she is more likely to die from a lung cancer than other diseases i.e. a heart disease, which he/she may be more vulnerable to (Peters, et al., 2006). The representativeness heuristic is thus a means of reasoning, which individuals rely upon to simplify the judgment of a risk through identifying its relationships with a known or experienced risk, focusing on their similarities, including origins, processes, causes, and effects.

Anchoring and Adjustment Heuristic: The anchoring and adjustment heuristic is a strategy in which risk judgments are made based on an initial anchor. An initial anchor in this context is referred to as a certain reference point, which is associated with a problem or event in question, and perception of which is formed by how the associated problem or event is formulated or communicated. While the reference point (anchor) will serve as the criterion for estimating risk, it is then adjusted until a judgment is reached (Gana, et al., 2010). The mode of adjustment is determined by the nature of the anchor (Fiedler and Sydow, 2015), for example, how the estimate-level of one's exposure to a risk is presented. If the estimate is high, an overestimated judgment of the risk is likely to be made, and if the estimate is low, an underestimated judgment of the risk will likely be the case. It has been shown that adjusting an anchor to make risk-judgments can be influenced by the degree of affective feelings or experiences that one may have for a risk. For example, women who have heard the statement that "1 in 8" women are likely to develop a breast cancer, could be an indication (anchor) to a woman without a family history of breast cancer for estimating her chances of the disease as 1 in 8, whereas a woman with a family history of the disease might adjust upward from that anchor and perhaps estimate her chances as 1 in 5 (Gana, et al, 2010). Risk assessment based on anchoring and adjustment is thus dependent on how information on risk is presented and the nature of experience related to the information.

To sum up, although people's reliance on heuristics seem effective in enabling them to assess risks, they can lead to making erroneous views on risks. This is because the processes are speculative and reliant on feelings, which are subjectively experiential (Botterill and Mazur 2004). Nevertheless, heuristics cannot be discounted in appreciating risk perception, because they are the most common and efficient means through which people make risk-decisions, given the instinctive and quick nature of their associated processes (Slovic, et al., 2003). They are considered relevant to this study, because

they could guide in identifying and explaining how residents of the oil-producing communities would draw and recollect their experiences of the oil operations in forming their thoughts or feelings of risks of the operations. While the heuristics are helpful in illuminating the processes and assumptions behind risk perception, the factors, which are helpful in illuminating risk perception are provided by the psychometric paradigm.

2.9.2.2 Psychometric Paradigm

The psychometric paradigm is considered as a landmark to research on public attitudes towards risks (Marris, et al., 1997), and the most influential model in analysing lay public's perceptions of risks (Siegrist, et al., 2005). The paradigm helped in authenticating the role of psychology in risk perception, as it involves the use of psychological scaling and factor analysis to produce quantitative representations of risk perception (Slovic, et al., 1985). By this way, several studies have relied on the paradigm to study people's perceptions of risks related to the environment, health, food, and leisure, amongst others (Schmidt, 2004). The application of the paradigm included making participants evaluate rating scales for a set of hazards in order to make quantitative judgments about the riskiness of the hazards. The judgments derived from this, are then related to the participants' judgments about the characteristics of the hazards, which have been already hypothesized to account for people's risk perceptions (Slovic and Weber, 2002). The characteristics were found to serve as factors helpful in determining people's concerns about risks, and indicators of why people may accept or reject risks (Slovic and Weber, 2002). Below are explanations of the characteristics, which have been provided in studies related to the paradigm.

Voluntariness: whether people get into risky situations voluntarily or involuntarily (Slovic, et al., 1985). In this case, perception of risk is attenuated if the risk is chosen voluntarily, and amplified if the risk is imposed. People are of the tendency to accept voluntary risks that may be

far more risky than involuntary ones. It is about the perceptions of freedom of choice and autonomy in making risk-decisions (Schmidt, 2004).

Controllability: the extent to which those exposed to a risk feel they could by skill or diligence have control over the risk (Slovic, et al., 1985). People are likely to have the impression that if they can have control over a risk, they can handle it. Lacking such control creates a feeling of powerlessness or helplessness and heightens concern. Thus, risks perceived to be under one's control are more acceptable than risks perceived as uncontrollable (Schmidt, 2004).

Familiarity and Habituation: whether a risk is novel or familiar to those exposed to it (Slovic, et al., 1985). This suggests that as people get to be experienced or familiar with a risk, they gradually habituate and start to accept it. New risks that appear to be unknown are about which people have only a little experience, and are often perceived as more dangerous, because of the feeling of uncertainty (Schmidt, 2004, HM Treasury, 2005). In this regard, people are more likely to accept risks which they are familiar with than those unknown to them.

Knowledge of risk: similar to familiarity and habituation of risk is knowledge of risk, which involves the extent to which risk is known by those exposed to it, as well as the extent to which it is known to science (Schmidt, 2004). This is explained as people may be more fearful of, or reject, a risk if its cause-effect mechanism is unknown or if it is difficult to ascertain from the available information what effects it may have and how likely it may be harmful (HM Treasury, 2005).

Immediacy of effect: this concerns the extent to which a risk is perceived as likely to immediately cause harm or as likely to cause harm at a later time (Slovic, et al., 1985). The length of the interval between the initial event of a risk and its actual effect of damage is shaping this perception. Risk perceived as immediate in its impact is less likely acceptable than a risk with a delayed impact (Schmidt, 2004). The delay or lengthy interval causes difficulties in

appreciating the impact of a risk, as the relationship between the initial event and the (delayed) impact is not immediately evident (Schmidt, 2004).

Natural vs. Manmade: natural risks are more accepted than manmade, because the latter is considered as more likely to be avoided (by caution and prudent behaviour) than the former. In general, natural processes are better accepted, as many believe in God's will or to the laws of nature (Slovic, et al, 1985).

Risk-Benefit Distribution: risks perceived to be fairly distributed, in terms of harm and benefit, are more likely to be accepted than risks perceived to be unfairly distributed. The least acceptable situation is when the harm of a risk is suffered by one group but the associated benefit is enjoyed by other group. It is also hardly acceptable when the harm of a risk is equally suffered by all, but only a minority enjoys the associated benefit (Schmidt, 2004).

Chronic-catastrophic: the extent to which a risk is perceived to catastrophically harm people at a time or harm a large number of people at a time (Slovic, et al, 1985). This can particularly heighten concern, if the risk is perceived to involve a long term and extreme pain, affect future generations, and with a widespread impact (HM Treasury, 2005).

The characteristics of the psychometric paradigm have been emphasized to suggest that people's reactions or judgments of hazardous activities are dependent upon how the activities are perceived in relation to the characteristics (Sjoberg, 2006, Oltedal, et al., 2004). This implies that people's risk perception could be attenuated or amplified in a typical pattern as to how they will (similarly or differently) relate the characteristics to potential hazards. Through a factor analysis of the characteristics, they have been reduced or categorised into two components, which are the 'dread risk' and the 'unknown risk'. This is based on the relationships of the implications of the characteristics as they may affect people's risk perception of an activity (Slovic, 1987, Schmidt, 2004, HM Treasury, 2005). The dread risk is defined by the extent of perceived involuntariness of risk,

uncontrollability of risk, inequitable distribution of risk and benefit, and catastrophic potential. The unknown risk is defined by the extent to which risk is judged to be new, unknown to those exposed and to science, and delayed in causing harm (Peters, et al., 2004). This categorisation appears to give insight as to why people may react in certain ways to specific activities or technologies. For example, hazards such as nuclear-power technology is likely to be judged on the dread components, because the technology is beyond the controllability of individual persons, and in the event of a mishap, it may produce a high level of concern, due to perception of the possibility of severe destruction on lives and property, as well as protracted social impacts (Peters, et al., 2004).

The dread factor is argued to be the major determiner of risk perception for a wide range of hazards, because of its dreaded components (Slovic and Peters, 2006). For example, people's high concern for the risk of radiation from nuclear-power plants than that of medical X-rays (which experts believe should not be the case) is seen to be influenced by the perception of dread associated with the nuclear plants (Slovic and Peters, 2006). There would be less concern for the risk from medical X-ray, because it is for example, not involuntary or uncontrollable, and hence there is choice of exposure to the technology (Slovic, 1987).

Despite the importance of the psychometric paradigm in exploring the psychological dimensions of risk perception, Marris, et al., (1997) have argued that because the model is statistical and based on mean score for whole samples, it is unable to explain the details behind the risk perception of individuals or group of people in a given situation. Although this study will not employ the paradigm, it will relate with the model's characteristics to explain the details involved in how individuals' risk perception may be shaped. This is because the nature of the investigation of the study is qualitative and exploratory, and thus open to the broad and varieties of views and issues, which may be important to the oil-producing communities' fears and concerns of risks of the oil operations.

2.10 Risk Perception and Risk Management

People's risk perception is considered to have relationship with their perception of risk management. Some characteristics of the psychometric paradigm have been particularly found to be relevant in explaining the relationship. Risk perceived as producing a high severity of consequences is seen to incite a high demand for its control, including the applying of firm measures, by those affected (Slovic, 1987). Such demand can be shaped by how a person imagines or expects the extent to which the consequences of risk will be harmful (Renn, 1990). Many risks are introduced or taken by the public without its consent, and under this situation, if a risk is perceived as involuntary (or imposed) by those affected, they are less likely to accept the associated measures for mitigating the risk, argues Renn (1990). Related to this perception is that of control of risk, where if people exposed to a risk, perceive a lack of ability to control it through personal actions, they are likely to require its institutional control. This is explained in the study by Schmidt (2004) as that risks perceived as uncontrollable are less likely to be accepted unless they are to be controlled by others, who are perceived as capable of handling them. Perception of control of risk by others can be related to perception of trust in institutions responsible for risk management, which has been discussed in many studies as particularly critical to people's acceptance of risky activities. This notion of trust is about reliance on risk management institutions to protect the society from possible harm, especially the harm that stems from industrial activity (Kunreuther, et al., 1996, Sjoberg, 2001, Siegrist and Cvetkovich, 2000)—as industrial activity is usually complex and difficult to control by individual abilities (Peters, et al., 2004, HM, 2005).

In relation to risk perception and risk management, trust is defined as a psychological state that involves the intention to accept vulnerability based on the positive expectations of the intentions or behaviours of another (Rousseau, et al., 1998). This implies of people's tendency to accept their

vulnerability to risky activity of others, because of the expectation that the others will take appropriate actions to deal with the risk(s). Trust of this nature is argued to be developed by one's state of reasoning comprised of combined perceptions of intentions and abilities of the other or the trustee (Rousseau, et al., 1998). In a variety of research contexts, the dimension involving the intentions of the trustee has been shown to be more important (in greater demand and more heavily weighted) than the dimension involving the abilities of the trustee. It is that knowing whether the intentions of the trustee are good or bad (relative to oneself) is more important for people than knowing what the trustee can do (Rousseau, et al., 1998). In situations entailing risk, this can be explained as public trust in institution responsible for risk can be shaped by their belief that the purpose of the activity of the institution is not intended to be detrimental to the wellbeing of the society, or public trust in institutions responsible for managing risk to be shaped by the public's reliance on the institution based on the belief that the intent of the institutions is to favourably or appropriately respond to society's concerns of risk.

People's trust in risk management, generally, as suggested by Renn and Levine (1991), can be determined by five core factors. These are competence, which represents the degree of technical expertise; objectivity, refers to lack of biases in information; fairness; refers to acknowledgment and adequate representation of all relevant perceptions; consistency, refers to predictability of arguments and behaviour based on past experience or performance; and faith; refers to perception of goodwill. Likewise, along the perspective of risk management, Kasperson, et al. (1992), have identified four determinants of trust: commitment to a goal; competence; caring; and predictability. They explained that commitment to a goal will be shaped by perceptions of objectivity, fairness, and information accuracy, which can also serve as indicators of openness and honesty. Commitment to a goal, where concerning fulfilling fiduciary responsibilities, i.e. to protect public health, can be related to caring, and both can be perceived as a demonstration of

concern and care for others. Competence and predictability are related to perception of knowledge and the extent of expected reliableness of knowledge of risk and of managing risk.

Given that trust is about expectation on the possible actions of others, it involves some degree of uncertainty regarding the motives or behaviour of the others (Krumer, 1999). In other words, trust involves the possibility of disappointment, because expectations are not always met by the trustee. This possibility of disappointment in relying on institutions has raised discussions on its implication on risk management institutions. Sjoberg (2009), reports that many studies have shown that the public often accepts with some degree of scepticism the claims or actions of responsible institutions to manage risks (Sjoberg, 2009). This is largely associated with the public's common perception of institutions, particularly business, as being biased and more motivated by profit-making than public safety (Viklund, 2002, Sjoberg, 2009). Such scepticism has raised the issue of public distrust in risk management. Distrust in this context is referred to as expectation of harm rather than rewards by a person, resulting from the intentions of the actions of the other (McKnight and Chervany 2001). This can be explained as a person's doubt over the actions, involving intention or the ability of responsible institutions to bring about the positive aspects of a risky activity to society or to favourably manage risks to society.

Although trust and distrust in institutions responsible for risks and their management will seemingly shape the affected public's perceptions of the risks in different ways, both have been argued to coexist in the minds of the public. Lewicki, et al. (1998), have suggested that it is possible for a person to have both trust and distrust in an institution, because people can trust institutions in one aspect but not in another. This is because as people interact with institutions, the relationship becomes multifaceted, due to both negative and positive experiences that may be encountered (Lewicki et al., 1998). Hence, risk management institutions entrusted to manage risks may operate with some degree of public suspicion, as the institutions would have

at times behaved in ways that will be deemed negative or unacceptable by the public. But even with the suspicion, the public will possibly accept to rely on the institutions. It is emphasized by Pidgeon, et al., (2010), that risk managing organisations can be trusted by the public, but usually not unconditionally. Whatever the track record of the institutions, the public will always have doubts in their motives, resources or other aspects of the 'truster-trustee' relationship (Sjoberg, 2009). Therefore, people's perception of trust in an institution responsible for protecting them against the possibility of harm can exist along with their perception of distrust in the institution.

The above theoretical perspectives as explaining the relationships between people's feelings of risks and of managing risks, including trust in institutions responsible for risk management are deemed as important to the investigation of this study. This will provide the basis for considering how the communities' perceptions of risks of the oil operations may be related to their judgments, including trust, on management of the risks by the corporations.

Chapter Three: Methodology

3.1 Interpretative Phenomenological Analysis

The approach for conducting this study is to rely on the residents' experiences and interpretations of the processes and consequences of the oil operations, as well as their experiences and interpretations of the performances or behaviours of the oil corporations in addressing the consequences. This is to specifically consider how the residents' experiences of the processes and consequences of the operations would be perceived by them as constituting risks to their lives, including where and how they may be affected. It is also to consider the residents' experiences concerning the measures or approaches of the corporations in handling the risks, which they

may relate with to express their viewpoints, including content or discontent, and expectations, of the corporations in responding to their fears and concerns of the risks. With this approach, the study can elicit how the residents would translate their experiences of the oil operations to form their risk perception, and how this would be important to their views on risk management of the corporations.

This approach of the study involves utilising aspects of the research methodology of interpretative phenomenological analysis (IPA). The methodology is relevant here, because it is centred on exploring how research participants are making sense of their personal and social experiences, and therefore, the meanings particular experiences hold for participants are essential to the methodology (Smith, et al., 2009). In this way, IPA studies attempt to explore individual and subjective experiences and interpretations of a phenomenon, as opposed to an attempt to produce objective statements of the phenomenon (Smith and Osborn, 2007). It is in relation to this, the study will give primacy to the residents' subjective experiences and interpretations as the basis for its investigation and analysis. This is considered appropriate, because people's subjective experiences and intuitive reactions of events are the predominant means through which they assess and make decision on risks (Slovic and Peters, 2007)—and these are associated with feelings determined by psychological and social factors, which are wide-raging and varying according to specific and individual circumstances (Gooby, 2004). This, therefore, enables the study to understand how the residents would individually attach meanings to their experiences of both the oil operations and the corporations, while forming their viewpoints on risks of the operations.

Given the study's focus on the residents' individual senses of risk, it will be carried out from an idiographic basis. An idiographic based study is established, and particularly recommended to IPA studies, to focus on study of 'specifics' as opposed to study of 'things in general', which suggests focusing on individual persons to explore a particular case. The aim of this is

to enable the researcher to elicit how each participant is uniquely making sense of the phenomenon under investigation (Larkin, et al., 2008). This study, therefore, will on a case by case basis consider the experiences and perceptions of each participant as in the context herein. The idiographic approach makes this study a type that is not aimed at making generalisations on the subject area. Rather, it intends to concentrate on the specific situation and experiences of the residents to show some aspects of their apprehensions and claims of the oil operations. Hence, evaluation of risk perception of the residents will be made from their circumstances and viewpoints. However, this is not to suggest that the findings of this study will only be relevant for considering the perspectives of risks of oil operations of the residents. It has been emphasized that an idiographic based study will also provide the basis for carrying out similar studies with other individuals or groups, and comparing the studies may allow for generalizations over time (Pietkeiwicz and Smith, 2014). This study can provide a particular context or angle for understanding risk perception, which may be of help for comparison with other similar studies by researchers, who may wish to make some generalizations on the subject area.

3.2 Sample

Decision on selection of sample is critical to the methodology of this study, because it involves selecting the most appropriate people, who are also willing to participate and provide the relevant information. In research, sampling is defined as the act or technique of selecting a suitable representative-part of a population for determining a particular aspect(s) that is related to the whole population (Amer, 2011). This research was undertaken in four oil-producing communities operated by Eni and Total, namely, Obite, Obuburu, Obiofu, and Obrikom, which are situated in Ogba/Egbema/Ndoni (ONELGA) local government district in Rivers state in

the Niger Delta region. ONELGA is at the extreme north of Rivers (Isife, et al, 2012), lying on flat plains and around a network of rivers and their tributaries along with a series of creeks (Yehuwah and Efe, 2013). The overall population of ONELGA is estimated at 225, 000, and its major sources of livelihood are fishing and farming (Chidi, 2006). The district has one of the highest onshore operations of oil in the Niger Delta, with over thirteen active oil fields and more than 900 oil wells. Oil operations in the area commenced as early as 1964, and have continued ever since (Yehuwah and Efe, 2013). The onshore operations in the communities is the reason for rendering them closely and directly vulnerable to risks of the operations. (Omeje, 2006). The oil corporations are bound by Nigeria's legislation to protect the environment from the impacts of the oil operations (Isah, 2012). The laws are mainly administered by agencies of the Nigerian National Petroleum Company (NNPC) and the Federal Ministry of the Environment. Some of the key legislation is provided below in Table 1.

Table 1: Nigeria's Oil Related Legislation

Year of Enactment	Legislation	Aim of Legislation
1956	Oil Pipeline Act	Provides, among others, for the prevention of pollution of land and water resources. Amended 1965 to include petroleum and production activities.
1958	Criminal Code Act	Provides a legal framework for seeking redress from environmental degradation.
1969	Petroleum Act	The major legislation on the petroleum industry to date. Provides

		encompassing framework for related regulations of upstream and downstream petroleum activities for safe working and environmental protection.
1978	Land Use Act	Reforms existing land ownership rights through nationalisation with adequate and fair compensation to be paid for loss of surface rights.
1979	Associated Gas Re-Injection Act	Statutory basis for the control of gas flaring in Nigeria. Amended 1984 and 1985.
1990	Oil Pollution Act	Provides guidance on oil spill prevention, mitigation, clean up and liability.

Source: Isah (2012).

The legislation covers environmental and social consequences of the oil operations that could affect the host communities. The legislation has captured protection of the environment, including prevention and mitigation of environmental damages; and compensation for occupation of land that is licensed for oil operations. This makes residents of the communities legitimate stakeholders of the oil corporations, which the corporations have to in some ways consider and respond to their concerns of risks of the operations. Therefore, residents of the four communities are appropriate to the investigation of this study.

The approach for selecting participants for this study was adopted in relation to the purposeful approach of sampling in research. Purposeful sampling is about carefully selecting individuals or groups, which are particularly knowledgeable or experienced about the phenomenon of investigation (Palinkas, et al., 2013). The criteria for selection in purposeful sampling as suggested by Marshall (1996), can be based on a researcher's practical knowledge of the research area, on the available literature, and on evidence

from the study itself. In this study, going by the researcher's knowledge (literature review) on the extent of the consequences of the oil operations on the communities, including his field observation of the communities targeted for the study, all the residents can be considered as having common experiences of the consequences of the oil operations. This is due to the proximity of the operations to the communities, as well as the enormousness of the operations to the communities, which, are relatively small in size. While the researcher considered that the residents' perceptions on management of risks of the operations by the oil corporations is fundamental to the investigation of the study, selection of the participants was made based on those who are directly or particularly experienced on the measures of the corporations in handling the consequences of the operations. Thus, the participants selected were deemed to be appropriate and useful to the nature of the investigation of the study, as they have experiences of the consequences of the oil operations and measures taken in dealing with the consequences by the corporations. This approach for sample selection is consistent with the purposeful sampling. However, using the purposeful sampling to select the participants is not to suggest that the researcher was seeking to simply focus on their shared experiences, and thus, their shared perceptions of the subject matter of the study. But to also focus on their possibly divergent perceptions and viewpoints, as could be derived from their shared experiences.

With the support of indigenous guides, who were recruited for the study, the residents selected included; those who claimed to have received compensation or interacted with the corporations on matters of compensation for loss of land or farmland due to the oil operations; members of local groups who have engaged with the corporations on impacts of the operations; and those who have participated or benefitted in the corporations' CSR initiatives (i.e. vocational training) aimed at providing alternative means of livelihood, due to the difficulties caused by the operations to their livelihood. The selected participants subsequently also

helped in identifying and mobilising other participants, who have met the selection-criteria. This role of the participants is described as snowball sampling, a strategy or type of purposeful sampling, where participants can be allowed to recommend suitable candidates that can partake in the study (Patton, 1990).

Researches involving the use of IPA generally have a small sample size, which can be four, nine, fifteen and more. The logic behind this limited number is to allow the chance to commit to a detailed elicitation, interpretation, and analysis of the accounts of the participants (Smith and Osborn, 2007). This is a distinctive feature of IPA, and many researchers acknowledge that such detailed undertakings can only be realistically achieved on a small sample (Smith and Osborn, 2007). It is about sacrificing breadth for depth, which contrasts with the selection of a large number of sample in a quantitative study, because of concern for breadth of study (Patton, 1990). Therefore, 24 participants were engaged for this study by means of individual interviews and focus group discussion. This is explained in detail in the following section on data collection. A breakdown of the participants is seen in Table 2, and their profile in Table 3.

Table 2: Breakdown of sample-collection and participation

Community	Operating Oil Corporation	Number of Participants	Mode of Participation
Obrikom	Agip	8	4 in individual interview
			4 in focus group discussion
Obuburu	Total	5	Individual Interview

Obiofu	Agip	5	1 in individual interview
			4 in focus group discussion
Obite	Total	6	Individual Interview

As can be seen in Table 2, the number of participants from each community is not evenly distributed. This is because they were allowed to choose the time (between 12pm and 3pm) and date (within a period of two weeks) to partake in the exercise. This was to minimise interfering with their routine activities and to ensure their participation. Thus, they were engaged for either the interview or the group discussion based on their attendance or the make-up of their attendance.

Table 3: Profile of Participants

S/N	Pseudonym	Community	Relevance to Study	Mode of Participation
1	Alex	Obrikom	Community association member	Individual interview
2	Uche	Obuburu	Community association Member	Individual interview
3	Stanley	Obite	Received compensation for land acquisition	Individual interview
4	Moses	Obrikom	Received compensation for oil spillage	Individual interview
5	Marie	Obuburu	Received compensation for land acquisition	Individual interview
6	Ben	Obite	Community association member	Individual interview
7	Bony	Obite	Received compensation for land acquisition	Individual interview
8	Cotis	Obite	Community association member	Individual interview
9	Danjos	Obite	Community association member	Individual interview
10	Eche	Obite	Participated in CSR vocational training	Individual interview
11	Chioma	Obuburu	Participated in CSR vocational training	Individual interview
12	Claudia	Obrikom	Received compensation for land acquisition	Individual interview
13	Ene	Obiofu	Participated in CSR vocational training	Individual interview
14	Felix	Obuburu	Community association member	Individual interview
15	George	Obuburu	Community association member	Individual interview
16	Judith	Obrikom	Participated in CSR vocational training	Individual interview
17	Ike	Obrikom	Received compensation for oil spillage	Focus group discussion
18	Izge	Obiofu	Received compensation for oil spillage	Focus group discussion
19	Jaf	Obiofu	Received	Focus group

			compensation for land acquisition	discussion
20	Annie	Obrikom	Received compensation for land acquisition	Focus group discussion
21	Josh	Obrikom	Participated in CSR vocational training	Focus group discussion
22	Kelechi	Obiofu	Community association member	Focus group discussion
23	Landry	Obiofu	Community association member	Focus group discussion
24	Shea	Obrikom	Participated in CSR vocational training	Focus group discussion

3.3 Data Collection

Data collection for studies involving the use of IPA can be obtained through several means, but the most suitable way or the way most IPA studies have collected data, is through the semi-structured interview and focus group discussion (Smith and Osborn, 2007). The semi-structured interview involves setting up of an individual conversation with a participant in which he/she is allowed the time and room to freely express his/her opinions or perceptions on the subject of investigation (Qu and Dumay, 2011). The focus group discussion on the other hand, is a discussion-based interview aimed at obtaining data via a group setting and interaction. It involves gathering a small number of people (between six and twelve), to discuss the subject of investigation, provided that they share a common interest or experience on the subject (Milward, 2000). In this study, responses of the participants have been elicited through both the individual and the group means.

The use of focus group discussion may seem to contradict the IPA's concern on individual rather group perspectives. However, it is argued that people are likely to find it easier to talk openly about their personal experiences and perceptions in a setting in which these are shared with others (Milward, 2000). While this view is shared by Brocki and Wearden (2006), they stressed that it is dependent on the nature of the topic of discussion; for a

shared matter such as service provision, this may be the case, but for a matter that is more personal such as sexual health, it may not be the case. The participants in this study are all exposed to the consequences of the oil operations, as well as concerned with the measures of the oil corporations in dealing with the consequences. This, therefore, made the participants to be interested and willing to share among themselves their experiences and viewpoints of the matter. But to ensure that each participant responds on an individual basis, the researcher engaged each of them at an individual and experiential level in the discussion (Bradbury-Jones, et al., 2009). Thus, each participant was given the chance to narrate his/her experiences and perceptions as an independent story, and the researcher discouraged interruptions by other participants in the group. However, participants were allowed to later add their own perspectives to the story of a participant(s)—which in turn informed on their shared and divergent perspectives. The use of the two means of data collection were made in this study, because a combination of the two methods was considered to provide sufficient and rich data, and importantly to enable comparison of the participants' responses from the two types of elicitation—which also allows for examining the extent of consistency in their responses. This is encouraged by Lambert and Loiselle (2007), as helpful in validating trustworthiness of data and findings. In the course of data analysis (which is discussed in the subsequent section) this was considered to identify areas of divergence and convergence among the participants, for example, whether views on a particular matter were just as conflictual amongst the group as between the individuals.

There are criticisms made against the use of focus group discussion or individual interview. In a focus group discussion, the number of questions to be covered can be limited as the response time will vary amongst participants. Robinson (1990), who mentioned this point, however, argued that it can be an advantage by helping to restrict and steer the course of the discussion to the focal perspectives of the participants—which also leads in the direction of achieving the IPA's emphasis on the 'insider perspective' of

participants (this is discussed in the subsequent section on data analysis). Although the individual interview is considered as labour intensive and time-consuming (Diefenbach, 2009), it has the advantage of providing sufficient information. This is necessary to the nature of this study's inquiry, seeking to delve into the participants' beliefs and reasoning on risks of the oil operations.

The order in which questions are applied in a semi-structured interview or focus group discussion can be important to how one may adequately elicit participants' responses—as some questions at certain stage of the engagement could influence the extent of a participant's inclination to provide information (Leech, 2002). Generally, how questions are ordered will depend on the nature of the topic of investigation or the participants themselves. But the argument is whether it is appropriate to start with the sensitive or the most important questions or to start with the less important ones. Sensitive questions (i.e. on private matters) can be threatening to participants, especially at the start of the engagement, and could cause disenchantment or hamper the development of rapport between the researcher and the participants. (Harrell & Bradley, 2009). Although the researcher could have some discretion about the order in which he/she will ask questions, there is need to ensure that the questions are standardized or consistent with the aim of the inquiry, including providing probes, which could elicit adequate information (Harrell & Bradley, 2009). In addition, the researcher should use non-judgmental questions to avoid predisposing the participants to positive or negative responses (Leech, 2002). The researcher in this study, before administering the questions, engaged in a brief discussion with the participants on their general experiences and opinions of the oil operations and the corporations. The aim and significance of the research were also discussed. These initial measures were aimed at sensitizing the participants on the subject as well as to build rapport with them. Subsequently, the researcher begun the inquiry with some warm-up and

simple questions about the oil operations to make the participants feel relaxed and absorbed. This approach not only helped in developing the conversation, but also created some background upon which to ask the important or main questions. But the researcher did not dwell on the simple questions for too long, and gradually proceeded to the main questions—because one may run out of time by dwelling on the simple questions, and may miss the opportunity for asking the most relevant ones.

As 24 participants were engaged for the study, sixteen of them participated in the individual interview and eight in the group discussion, which is shown in table 2. They were allowed to narrate in detail their experiences of the processes of the oil operations and how they thought these could be of risk, including how they may be affected. Their experiences and viewpoints on the approaches and measures of Total and Eni to deal with the risks were also discussed. The interviews and discussion were largely steered along these issues to explore the factors and influences behind their perceptions of the risks and their management by the oil corporations. The following is a list of the questions for both the individual interviews and group discussion.

- How are you coping with the proximity of the oil operations to your life?
- How do the oil operations affect your life?
- In what ways could the oil operations affect your life in the future?
- How possible could the future-effects be on your life?
- How serious could the future-effects be on your life?
- Do Eni or Total discuss with your community on the oil operations and how the operations could affect your life? If yes, in what ways?
- Are there any measures taken by Eni or Total to ensure that the oil operations will not affect your life—if yes, how?
- Do Eni or Total involve your community on the measures and how they will be implemented—if yes, how?

- What are your views on the measures taken by Eni or Total to ensure that the oil operations will not affect your life?

The questions were not necessarily, sequentially, asked as in the order that they have been presented in the above. Although a certain nature of questions (simple questions) was asked to the participants in the beginning, most of the questions were put (or emerged) based on the dimension of the responses of the participants. Thus, the questions were applied in an open-ended manner to serve as guides to steer other possible questions. This is specifically recommended in IPA based studies, because it enables one to obtain comprehensive information (Pathak and Intratat, 2012). It also enabled the researcher to be flexible with the participants, and in areas where their responses were sketchy or compelling, they were probed for more details. With this approach, the participants have provided a detailed and unexpected insights that prompted other questions (not in the researcher's list of guiding questions). For instance, the researcher did not anticipate that the participants have their own ideas on how the corporations can specifically control certain risks, which they believe the communities are vulnerable to. This was found to be compelling and made the researcher to ask more questions, which enriched the discussions. In the group discussion, the participants were interactive and keen to explain their individual perspectives, especially in areas where some of them had divergent viewpoints.

The researcher as being a Nigerian was considered as an insider by the participants due to their suggestions, during the exercise, that he should be having a prior knowledge of their concerns and interests of the oil operations, as it has been a matter of national discussion. While this generated some perception of commonality on the subject, it also created an atmosphere of free-conversation. This is mentioned in the study by (Bourke, 2014) that some level of commonality between the researcher and

participants on the topic of investigation could aid the researcher to effectively connect with the participants. However, regarding issues of harm to their lives, the participants related with the researcher as an outsider, because of their indication that only residents of the communities really feel the negative consequences of the operations. This turned out to be an advantage, as the participants were keen to express their feelings in detail to enable the researcher to sympathise with the problem.

During the interviews/discussion, the participants were allowed the time to develop and organise their responses, and the researcher encouraged them to provide as detailed information as possible by showing interest and curiosity in their responses. Most of the participants were voluble, and even the few that were less responsive, provided useful information. While most of the interviews lasted between 30 and 40 minutes, the group discussion lasted for about 2 hours. These were tape recorded to sufficiently capture the participants' responses and to enable a detailed analysis.

Pilot interviews were, before the actual commencement of the exercise, conducted using the indigenous guides to practice the process and to test the suitability of the questions to the aim of the study and the potential level of knowledge or responses of the participants about the subject of research. In the course of the pilot interviews, the guides expressed relevance of the topic to their lives, they showed confidence and ample of experiences, while answering the questions. This assured the researcher on the appropriateness of his approach and plans for data collection, including suitability of the questions to the nature of the inquiry, and suitability of the mode of engagement (interview) with the participants.

The interviews and the group discussion were held in Omoku, the capital city of the district of ONELGA. This was for security reasons, because reported incidences of kidnapping in oil-producing communities across the

Niger Delta during the period of the exercise were high. The interviews were held in a café in the city. The owner of the café agreed for the interviews in exchange of patronage; refreshment and meals for entertaining the participants were thus bought in the café. The focus group discussion was held in the residence of a relative of one of the guides; who voluntarily provided it. This was convenient and secure for the study, because conducting a group discussion of the sort, involving oil operations and corporations, in a public place in ONELGA, normally draws public attention, and may disrupt the discussion process, warned by the guides. The participants' transport to and fro was sponsored by the researcher to make it easy for them and to ensure their participation. Not more than 3 participants were engaged for the individual interview in a day so as to have enough time for each of them.

3.4 Data Analysis

In keeping to this study's approach for exploring the experiences and perceptions of the participants, analysis of data was based on evaluating the participants' perspectives of the subject area. This is also to ensure the achievement of an insider perspective of a phenomenon, as it is the goal of data analysis in IPA (Smith, et al., 2009). The process of analysing data in IPA is derived from ideas of phenomenology and hermeneutics, making the researcher engage in a descriptive and interpretative exercise. Phenomenology is concerned with how participants are making the meaning of their experiences (descriptive), and hermeneutics is concerned with decoding that meaning to make sense of the participants' meaning-making (Interpretative) (Pietkeiwicz and Smith, 2014). In view of this dual process, this study initially described how the participants identified and assessed risks from the processes of the oil operations, and how they formed their judgments on management of the risks by the corporations. These were subsequently interpreted to make sense of their experiences and viewpoints about the risks, including their associated concerns, claims, and reasoning.

To achieve this form of analysis or the 'insider perspective' of the subject area, the researcher needs to gain access into the participants' individual minds (Smith and Osborn, 2007). Although access into the mind of a participant can only be partial, one may to a meaningful extent achieve this by 'putting him/herself in the participant's shoes' (Pietkeiwicz and Smith, 2014). So, in this study the researcher empathised with the participants' perspectives, by positioning himself in their narrated experiences regarding the risks, to sympathetically make sense of the meanings they attach to the experiences.

3.4.1 Thematic Analysis

Thematic analysis is commonly recommended for analysing data in IPA based studies, as well as for other forms of qualitative inquiry, for example, discourse analysis and grounded theory (Braun & Clarke, 2006). Thematic analysis is a method for identifying, analysing, and reporting patterns within data (Braun & Clarke, 2006). This method enabled the researcher to identity and examine the prevalent and influential beliefs and reasons of the participants that connect their experiences of the oil operations to their perceptions of risks of the operations. It is to concentrate on aspects of the participants' experiences that consistently in certain ways i.e. similarly, differently, and relatedly, may form their fears and concerns of the oil operations, including their viewpoints on how the oil corporations are responding to these. This is to bring out the predominant aspects of their beliefs and reasoning on the risks.

There are many ways of carrying out thematic analysis, but this study largely relied on the method proposed by Saldana (2013), of which he in a rather pragmatic form set out the process for developing patterns through the generation of codes and categories. From the codes and categories, themes encompassing the overall responses of the participants are created to bring out the essential meanings they attach to their experiences (Saldana, 2013).

Saldana's approach was supplemented by aspects of thematic analysis in other studies. This is to develop a process that will be more suitable to identifying, describing, and interpreting the perceptions of the participants.

A code, which is a summary of the main content and essence of the units of a data, is in this study generated by summarising the gist in each participant's responses (descriptive code) or taking as code the direct response of a participant (in vivo code) (Saldana, 2013). This enabled the researcher to capture individual experiences and how meanings are ascribed to them i.e. how experience of a particular process of the oil operations is translated as posing risk to the environment or social wellbeing of the society. A category, which is the step after coding is to bring those coded data that suggest the same meanings under a specific classification (Saldana, 2013). It is to group the codes containing similar or comparable beliefs and reasons, or issues and attributes, from the respective responses of the participants in a separate category—and each category is labelled in a term, which indicates the subject of the grouped codes. This step helped to generate a range of the predominant issues, for example, the factors behind the participants' judgments on the risk management of the corporations. The initial list of the categories was reduced by discarding, where there are overlaps, or by integrating those that suggest the same implication. Reducing the number of categories was undertaken to concentrate on a few but adequately connecting patterns in the data (Thomas, 2002). The categories were further reduced by consolidating and refining them into themes. The themes were created based on assessment of the characteristics, including reflecting on and linking the underlying meanings, of the categories. This is to ensure that the themes were strictly allowed to emerge within the perspectives of the participants; a key goal of IPA. As suggested by Brocki and Wearden (2006), development of themes in an IPA study should be guided by the content of the data, and not, for example, by the existing theoretical concepts related to the subject of investigation.

Table 4: The method adopted for thematic analysis

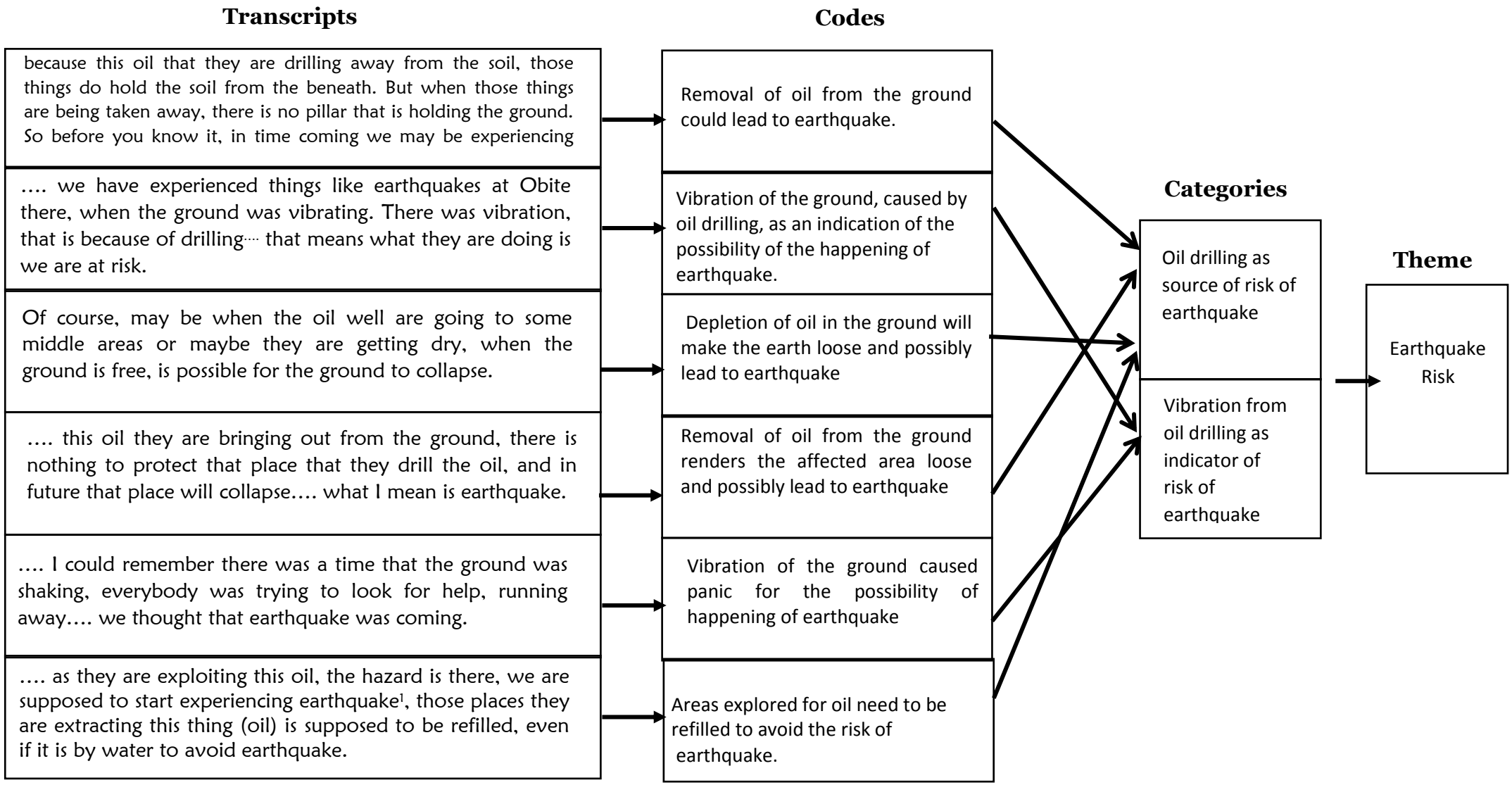

Table 4 illustrates how the process of thematic analysis was applied. The transcript for each participant was placed in a separate table (using the Microsoft excel sheet) to distinctively generate his/her codes and categories, which was to aid the identification of patterns in the overall responses of the participants.

3.4.2 Reflexivity

The nature of data analysis in this study, as comprising evaluating the participants' risk perception of oil operations, made it important to employ reflexivity in the exercise. While this is a scrutiny of the narrations or viewpoints of the participants on risks of the operations, it involves some reflection by the researcher on his own perspectives of the subject. Reflexivity or being reflexive by a researcher is explained in the study by Lambert, et al., (2010), as about reflecting upon one's own views, beliefs, and experiences in relation to the subject of research while considering how these might affect the outcome of the research. This is to help the researcher to be mindful of, as well as restrict, the impact of his assumptions and biases on the analysis of findings (Lambert, et al., 2010)—which enables for a reasonable evaluation of the risk perception of the participants. Smith, et al., (1999) explained this by emphasizing that the researcher's views are not to be seen as biases to be eliminated but rather as necessary for making sense of the experiences of other individuals. In a similar argument, Larkin, et al., (2006), state that in research associated with psychology, it is not actually possible to remove our systems of thoughts and meanings from ourselves in the attempt to find out how things 'really' are in some sense. The basis of this can be related to the view that the being of a phenomenon is found in encounter of the phenomenon, and can only be explained and made understandable from the phenomenal exhibition and interpretation of the structure of the encounter (Larkin, et al., 2006). While this suggests the primacy of the researcher's interpretations and views in data analysis (Smith

and Osborn, 2007), the researcher in this study employed reflexivity by relating with his pre-existing knowledge or understanding of risk perception and impacts of the oil operations—as examined in the literature review chapter herein. Thus, the researcher engaged, intellectually and reflexively, with the 'structure of encounter' or the narratives of the participants, to critically dissect and explain their thoughts on risks of the oil operations.

In line with the above, the themes were analysed by negotiating the key aspects of the participants' accounts on the risks and the researcher's pre-existing knowledge regarding the subject. This involved a dynamic and iterative task of evaluation, including identifying the compelling aspects of the participants' thoughts on the risks, and the areas of conflict and consistency between their perception and the researcher's pre-existing knowledge. The researcher painstakingly reviewed these to comprehend the risk perception of the participants and to recognise how aspects of this have impacted or revised his prior perspectives of the subject—which impelled him to make sense of the subject anew. Thus, the researcher asked questions to the participants' thoughts; he probed back and forth between the new and the initial understanding. He was open to aspects of the findings that may contradict or challenge his pre-existing knowledge. Some of the questions the researcher asked included: What is the nature of a participant's experiences of the oil operations? How these are perceived to constitute risks? What reasons did a participant provide for identifying or assessing the risks? Why these reasons? Did other participants with similar or different experiences have the same reasons? How could the beliefs or reasoning of the participants' concerns on the risks be compared to what is previously known by the researcher? This, thus, included questioning the thoughts of the participants, which Smith, et al (2009), referred to as the 'hermeneutics of questioning', where the researcher while standing alongside the perspectives of the participants, to look at them from a different angle, ask questions and puzzle over their thoughts. As mentioned above, relevant theoretical perspectives and reports, along with thoughts of the researcher,

were used for making such questioning or critical examination (Smith, et al, 2009). However, this is not aimed at establishing the truth or falseness of their thoughts, because as mentioned earlier in this chapter, a major concern of IPA is the subjective perception or account of the participants, as opposed to producing objective accounts of the phenomenon of investigation (Smith and Osborn, 2007). The purpose of this is to expound both, in the sense of attempting to see what and how the risks and their management are for the participants, and in the sense of comparing how some aspects of these are to others—and to appropriately evaluate and situate the participants' risk perception of the oil operations.

3.5 Ethics

Ethics in research refers to doing what is morally and legally right in engaging participants, including data collection and reporting (Dantzker and Ronald, 2012). This requires the researcher to use reasoning, to be rational and truthful, in his/her overall approach to research (Dantzker and Ronald, 2012). A fundamental ethical principle in research is that participants must voluntarily decide on participation. This involves the right to consent, without any pressure, while receiving all the necessary information on the research and the researcher (Neuman, 1997). The social position of a researcher plays a role in influencing his/her engagement with participants, especially to gain their trust and consent to participate in the research. This involves the researcher's identity in relation to the subject and the participants i.e. how the researcher views him/herself and how the participants view the researcher, or whether the researcher is an insider or outsider, in the exercise (Bourke, 2014). The researcher, in this study, explained to the participants of his position and interest in the research to make them aware of the academic nature of the research, including his independence—not working for the oil corporations or the government. This generated the participants' trust for the researcher and the consent for participation. This position of the researcher is important, because locals of

oil-producing communities in the Niger Delta generally perceive the corporations as more concerned with their business-operations than the concerns of the communities, and they see the government as more aligned with the corporations than the communities, because of the revenues (the major source of national income) it derives from the operations (Idemudia, 2007). Thus, a researcher that is working for the corporations or the government on matters related to oil is likely to face scepticism or rejection from the locals. The researcher's use of an official letter from Middlesex University, which introduced him and stated the purpose and nature of his investigation, also helped in gaining the participants' trust and participation in the research. They considered this as an opportunity to make their views and concerns of the oil operations to be heard in far places or help in drawing global attention to their situation, because they regarded the University as an international academic institution, which could be important in this regard. The researcher emphasised on their right to refuse participation in the research, if they so desire. The individuals that agreed to participate in the exercise were each given a consent form to sign.

Regarding the use of their responses as data, including retention, access, and reporting, they have been informed that the data will be stored and accessible through Middlesex University, and will also be published through peer reviewed articles and conference presentations. Matters relating to confidentiality or anonymity were discussed with them. This involved the assurance by the researcher that information about each participant, including real names and contacts, will not be shown in the study-report. Thus, a pseudonym was assigned to each participant. Anonymity is important to the participants due to government's vigilance or possible arrest of the residents for engaging in matters related to impacts of the oil operations on the communities. The incidences of riots and militancy by some residents of the communities against the oil corporations, due to the impacts, are the basis for the government's action on the situation.

Chapter Four: Results and Analysis

Analysis of the findings were guided by certain themes, which were found to be central and critical to the participants' risk perception. The themes include: perceived risks; judgments on managing risks; and demands for managing risks. These, as provided in the below, are discussed in relation to their respective inter-related sub-themes.

4.1 Perceived Risks

4.1.1 Risk of Food Insecurity

The impacts of the oil operations on land and rivers are perceived by the participants as threat to sustainability of farming in ONELGA. While this has been explained from several perspectives by them, they have generally pointed to fear of food insecurity in the future. This mainly concerns pollution of the land and rivers, and removal of oil from the ground. These are considered to affect fertility of soil and survival of fish in the district. The effects of the oil operations on fertility of soil have been stated as:

> *…..all our lands are being damaged due to oil exploration….We cannot be able to have our crops growing well, because the land will be no more fertile again.*
>
> Ike

> *…..this oil and gas, the thing is touching our land; that is effect that is affecting us, because the small land that we have we are supposed to farm but we will not have land to farm.*

Landry

The perception involves a link between the oil operations and the fertility of land, of which the operations are impairing the fertility of land, and thus rendering their farms to be less productive. This is seen to possibly lead to unavailability of fertile land for farming. The reasoning behind this perception is that oil in the ground is essential for achieving good farm-yields:

> *As they are drilling, the land is drying, the soil is drying, so it will not give a proper production to our crops, because crops use oil to germinate very well. So when the oil is drying, it will lead to low production. Sometimes our crops may be dying in time coming.*

Uche

> *Because of this dragging out of oil now from our land, we are seeing all our crops…..they are not green anymore, they colour somehow and may be later our crops will not grow again.*

Stanley

> *Yes, because of the operation, they are drawing the oil, our cassava is not coming out well. Before, when they didn't come, if you bring out cassava, it will reach this my lap, but now just*

small like this. After they draw the oil finish, all those crops, all those cassava, they will not do well again.

Moses

This can be interpreted as that oil is a source of nutrient to the soil and hence essential for yielding a quality harvest. Extraction of oil is considered as removal of soil fertility, and continuation of this could subsequently lead to collapse of farming in the district.

Thus, extraction or the 'drying of oil in the ground', as it is diminishing the soil-nutrient, can be explained as a perceived cause of risk of food insecurity. Their claims of shrinkage in the size of the farm yields and change from their normal colour are provided as indicators of the occurrence of the risk.

Continuous oil spillages from oil pipelines are stated to be going down into rivers and affecting the lives of fish. Oil spilled into a river is believed to reach the river's bed and consequently seal its surface and make it impossible for fish as well as other creatures to thrive:

…..because you know this seafood is the earth that produce it. But since the oil is sealing the earth, there is no way for those things to produce again.

Marie

Because the more this oil sticks to the ground of water, the more the impact on the fish.

Kelechi

They seem to suggest that the river-bed is the source of food for fish and as the bed is being continuously sealed by oil spillages, the survival of fish there will be affected, which could result in end of fishing in the district.

The effect of oil spillages on the future of fishing in the district is described by one of the participants as:

> *…..if the spillage is near lake, that lake there will be no fish there even in the next twenty years…..no fish can settle in that lake again.*
>
> Izge

This is an indication of fear and despair over the future of fishing, because of the feeling that the effects of the spillages on fishing will be protracted and intractable.

The participants' views on the communities' vulnerability to risk of food insecurity have appeared to be influenced by their experiences of the processes of the oil operations or their experiences, which they have attributed to the operations—as involving exploration and spillages of oil, and changes in the colour and size of crops. This is consistent with the assertion that people's experiences of a situation or incidences, which they feel as negative, could guide in forming their perception of the possibility of related harm (Slovic, et al., 2005). Relatedly, the participants' perception of the risk is based on their perceptual experiences of the relationship between the oil operations and the negative impacts on farmlands and rivers. This can also be explained by relating with Vastfjaill, et al., (2008) account of the role of integral affect in estimating risk, where people's risk perception is stressed to be possibly influenced by their experiences, which they consider to be directly relevant to their concern of the involved risk; hence explaining the suggestion that changes in the size and colour of crops as being directly relevant to the risk of food insecurity. Furthermore, this can be related with

the role of the representativeness heuristic as influencing risk perception. Menapace, et al., (2012), have stressed that people tend to judge the probability of the occurrence of a risk based on the degree to which an experienced-incident is perceived to bear resemblance or relationship with the risk. Thus, because the changes in the crops can be considered as representative of poor yields, it is conceivably the basis upon which the participants have associated them with the possibility of food insecurity.

As have been discussed in section 2.4 in this study, studies have examined the negative impacts of oil operations on farming and fishing in the Niger Delta. While this may provide some justification to the participants' fear of food insecurity, there is some inconsistency among the participants themselves in terms of their reasoning of the cause of the risk. They have stated that oil, as 'touching our land', is affecting and reducing the fertility of their soil, and thus oil is a menace to farming. But to others amongst them, oil is a nutrient for enabling quality farm-yields and extracting it from the ground will lead to the opposite, and thus oil is beneficial to farming. This is paradoxical, because oil is suggested to have opposing effects on farming. The study by Okoh, et al. (2009), for example, discussed the impact of oil spillages on soil fertility, but not oil as nutrient to the soil. Thus, the participants' views of the impact of oil extraction on soil fertility is complex.

Regarding the impact of oil spillages on fishing, although it is conceivable that oil spillages into rivers could affect the survival of fish and reduce access to fishing, it is worth considering if the spillages can generally affect rivers to the extent that fish are totally destroyed and that 'no fish' can be able to survive in the affected rivers for a period of up to 'twenty years'. This may be possible, depending on the degree of spillage and its toxicity, including the size of the affected river. But oil operations in the Niger Delta, including ONELGA, have been going on since the 1960s (Yehuwah and Efe, 2013), and reports published in this decade as consulted for this study (refer to section 2.2 in this study), have stressed that fishing is a main source of livelihood in

the region. Thus, the participant may have exaggerated the severity of the risk.

In any case, the participants' concern on the possibility of food insecurity is not baseless since several studies have reported on the negative impacts of the oil operations on farming and fishing in the region (Amnesty International, 2009; Okoh, et al, 2009; Aluko, 2003).

4.1.2 Income Risk

The participants believe their means of income could be lost due to the oil operations. This is related to the perceived possibility of inaccessibility to farming and fishing, which could result from damages to farmlands and rivers by the operations. They have stated:

> *…..definitely it's going to affect my life, because is those little things like farm, fishing ponds, is those things that we normally use to go and survive ourselves. Sometimes we kill the fish and sell it in the market. When all those things are not functioning, it's going to affect my life.*
>
> Stanley

> *…..in this locality we are predominantly farmers and fishermen. The effect of oil spillage on our fish and ponds will in the possible future affect the products from our soil and from our lakes, and that will affect our finances.*
>
> Ike

This suggests of a relationship between the risk of income and risk of food insecurity in the district. The implication of the perception is that as the residents are dependent on fishing and farming for income, damages to land and rivers or fishponds being caused by oil spillages are equally damages to sources of income. In other words, loss of access to farming and farming is consequentially loss of access to income. It is a sense of concern on harm to the wellbeing of the society, which is perceived to stem from harm to the source of the wellbeing.

Fear of the risk is heightened by the participants' belief that the oil corporations will someday withdraw their operations from ONELGA and abandon the communities, while having their sources of livelihood damaged:

> *…..when this people go, this thing is going to affect us seriously. Because we will lose job and those normal things we normally use to help ourselves in the village we will also going to lose it.*
>
> Bony

> *…..initially they do discover oil rapidly, but it is not like that again, everything is going down, so they will leave. So in a future it will turn back against the host-communities. Economically, it will turn back to us, because we don't have any production that we will take to the market and fetch up something. So where do we get the source of managing our economy.*
>
> Izge

This is a perception of eventual depletion of the oil reserves, and withdrawal from the district, by the corporations, while leaving the communities whose means of livelihood are dependent on the environment, with a damaged environment. It implies a fear that the corporations will in the future render the communities unable to make an economic living out of the environment and without an alternative source of living. This can also be explained as a concern that the communities will be exposed to the risk, while forsaken and without counteracting support by the corporations.

The participants have in relation to the consequences of the risk reported:

> *Today, every sons and daughters of ONELGA are into bondage by the oil companies. The economic effect it will cause in the future will be very disastrous, because you will not even have a good fish, because that is our source. We are fishermen, we are farmers; that is our real occupation.*
>
> Kelechi

> *Here in the Niger Delta we are into farming to make money but today you cannot go into farming due to the damage of this oil exploration. So in a future, I don't think we will survive it, because all our lands are being damaged.*
>
> Ike

The statements are expressions of the significance or gravity of the problem, not only because of fear of losing their only means of livelihood, but also that they may not be able to cope with the problem. These are feelings of pessimism and helplessness over their economic vulnerability.

The participants in relation to their concerns of the risk have expressed lack of benefits from the oil operations amid the impairment of their sources of livelihood:

> *…..all the crops that we normally produce…..are being damaged due to oil exploration…..we have no source of economic again due to oil exploration, because we have been denied the opportunity as a landlord or as a host-community to what we are supposed to derive from what the companies are exploring from our land.*
>
> Jaf

> *By right, they are supposed to be paying us since the oil is in our land. But if you are not employed, that means you will not benefit…you will not earn money…while the flame is still disturbing everybody, because the flames affect our waters, even our soil, it affect the soil….They pay the people they only employ.*
>
> Cotis

This is a perception of a legitimate right of the communities to benefit from the oil operations not only due to the negative consequences of the operations, but also of the benefits derived from their land by the corporations. They suggest a claim of deprivation of benefits to them by the corporations, despite their stakeholder-status to the corporations. The right of benefit is specified in terms of payment of compensation and employment of the residents by the corporations. The claim that only employees of the corporations are benefitting from payment can be construed as a

demonstration of discontent formed by feeling of unfairness. The references to 'landlord' and 'our land' seem to relate to justification for benefits not only because of the negative impacts of the operations, but also of sense of ownership of the oil.

Indication of discontent or unfairness of the situation can be seen from the statement:

> *You know most of the people that are doing all these things are not Nigerians…..the white men, they are the people that are gaining all these things…..When these things will happen, they will go to their place and nothing will happen to their place. But the economic effects will still remain on us.*
>
> Stanley

This is a sense that the oil corporations are the main producers and beneficiaries of the operations, but not bearers of the problems, while the host communities are bearers and not beneficiaries of the problems, which have been caused by the corporations. The notion of the corporations as 'not Nigerians' implies a perception that the communities will be left in their land to solely bear the consequences of the risk, while the corporations, whose operations are causing the risk, 'will go their place', when the consequences will manifest.

The participants' claim of the corporations' withdrawal from the communities when the oil reserves have been exhausted seems reasonable, since the corporations are there for the oil. The decline of onshore oil reserves in the Niger Delta has been reported. This is seen to be happening at a rate of 10% to 12% a year, because the oil fields have aged and their production peak is ending, including the decline in new investments. Most investments are currently focused on offshore areas in the region, indicating the future of expanding oil operations to be likely in deep offshore fields

(KPMG Africa, 2013). This, therefore, supports the participants' concern over depletion of the oil reserves and of the corporations' abandonment of the communities in the future.

Their perception of the risk of income has appeared to be linked to their perception of benefits of the oil operations, including discontent over lack of payment-compensation and employment—because of their exposure to the negative consequences of the operations and of their ownership of the oil. This can be related to the literature on risk perception concerning the factor of risk/benefit equity, as that risk perceived to be unfairly distributed in terms of harm and benefit is less likely to be acceptable. While this illuminates their discontent over benefits of the oil for the negative consequences of the operations, it may hardly be the case for the ownership of the oil. The corporations, as have been discussed in section 3.2, are liable by government legislation to control the risks of their operations on the oil-producing communities, including providing benefits in the form of compensation. Regarding benefits for ownership of the oil, this is rather the responsibility of the government. The corporations provide revenues to the government in the form of royalty or rent due to government ownership of the oil (Khan, 1994). Revenues derived from this are being used to fund social and economic needs of Nigeria (Adesola, et al., 2014)—of which ONELGA district must also benefit. In addition, there is a supplementary provision of 13% of the overall revenues derived from oil to exceptionally benefit the oil-producing states in the Niger Delta (Luqman, 2011). The government has also created the Niger Delta Development Commission and the Ministry of Niger Delta Affairs, the former in the year 2000 and the latter in 2008. These were in response to protests by the people of the oil-producing states against the government as well as the oil corporations for lack of or inadequate benefits of the oil (Luqman, 2011). The main goal and responsibility of the Commission is to provide development projects, including roads, health, education, employment, industrialization, agriculture and fisheries, housing and urban development, water supply, electricity and

telecommunications (Ebeku, 2004). Funding for the Commission is provided by the government, as well as by 3% of the annual budget of all the corporations operating in the region (Ebeku, 2004). The Ministry, the only regional ministry in Nigeria, is focused on development of the Niger Delta, with the specific responsibility to coordinate and execute federal projects related to infrastructural development and youth empowerment. The Ministry is also funded by the government from oil revenues (Luqman, 2011). It is not likely that the participants are unaware of these government interventions to use the revenues from oil to exclusively benefit the oil producing states, as they have been propelled by the people's agitations in the region. These are all pointed up to suggest that the participants' demand of benefits for ownership of the oil from the corporations, instead from the government, could be hardly justified.

4.1.3 Health Risk

The oil operations are considered to constitute a source of health problems in the district. This is associated with gas flaring, which are thought to pollute air and soil. The flaring is seen to introduce toxic substances into the air and soil, and thus cause diseases:

> *If this thing (flaring) is continuing, it will bring so many havoc to the people. Like right now, there are many people that are suffering from tuberculosis and this asthma. All these things are caused by all these things.*
>
> Marie

> *The flame of oil consists of some health hazard to the communities. They impact on the soil and farm itself…..the soil*

can impact negatively on the health of the people. It will affect our health in the future.

Jaf

The perception is of being at risk of diseases given the continuous emissions of the gas flaring. Their stated experiences of tuberculosis and asthma in the communities seem to serve as indicators of the effects of the risk. In relation to the soil, the mention of 'they can impact on the soil and farm itself' is an indication of emphasis on the potential ramification of the flaring on farmlands. This can be interpreted as that the flaring will contaminate the soil, which in turn will contaminate farm-crops or food, and thus, consumption of the food 'can impact negatively on the health of the people'.

The participants believe that inhaling the air as being contaminated by the gas flaring will reduce their life expectancy:

The flaring there is affecting everywhere. Like we mentioned…..even the air we are breathing, people are not living as long as they used to again. They are dying earlier.

Izge

…..you know is not good to inhale all those burning of gasses, they are burning there, is not good for our health. So that is how it can affect my life. It can short my life, is not good, because of the inhaling of that thing.

Eche

The flame, the gasses on the air, they shorten our people's lives. Because most of our people you will see them healthy but when they get sick, you will just find out that before they are rushed to hospital, they will give up. Because some people will think it is attack (heart attack), but it is not like that, it is those things in the air that causing some sickness for us.

Stanley

This belief that the gas-contaminated air is the cause of deaths, which are perceived as untimely, suggests that the deaths are out of the ordinary—or would not happen without the gas flaring. The visibility of the flame or smoke on the flaring stakes is seemingly at play in shaping this belief since the participants have stated 'those burning of gasses' and 'those things in the air'. This can be explained as that because the flame and smoke are continuously being observed to emit into the air, they are easily associated or perceived as the cause of diseases and deaths, rather than other cause(s), which may not be easily visible, for example, the cause of 'the attack'.

The way in which the participants have reported their perception of the risk from the gas flaring can be analysed from the theoretical explanation of the affect heuristic of risk perception (Slovic, et al., 2005). The flaring is considered hazardous, because of the feeling of the negative or 'badness' of the smoke and flames, which are being emitted from it. It has been reported that flames and smoke are generally important to people's fear of risk associated with fire, because the two are seen as the agents of fire, which can cause harm or death (Department for Communities and Local Government, 2008). This is possibly the reason why the participants have relied upon their negative feelings of the flames and smoke to judge their vulnerability to health risk from the flaring. In addition, because they have directly associated the toxicity of the flaring to their experiences of tuberculosis and

asthma, and deaths, this can be explained as a function of the 'integral affect' of the affect heuristic (Vastfjaill, 2008). Such association is not without any basis, as the study by Ajugwo (2013) has also reported on the link between gas flaring and respiratory problems in oil-producing communities in the Niger Delta. However, neither the study, nor the participants have provided explanation on the extent to which the flares have or could cause diseases and deaths, especially untimely, in the communities. A possible implication of this is that the participants are erroneously ascribing 'untimely deaths' to toxic effects of the flaring or that people are more likely to die from the effects than other from other causes of deaths—which are possibly prevailing in the district. This is to suggest that the participants may be overestimating the harm of the risk.

The participants' association of gas flaring and contamination of soil to possibly affect farm crops and consumption of the crops to affect human health cannot be considered to have no basis. Ajugwo (2013) similarly reported on the possibility of the pollutants of gas flaring to reduce fertility of soil as well as of nutritional values of crops in areas close to the sites of flaring in the Niger Delta. But Ajugwo confined the problem to the sustainability of agriculture in the affected communities. In other words, there was no mention in his study of if or how consumption of the affected crops could affect human health. While this does not necessarily debunk this aspect of the participants' perception or fear of the risk, it could be a basis for reasoning with it.

4.1.4 Earthquake Risk

The participants are of the belief that oil exploration could in the future cause earthquake in ONELGA:

Of course, may be when the oil well are going to some middle areas or maybe they are getting dry, when the ground is free, is possible for the ground to collapse.

Bony

…..this oil they are bringing out from the ground, there is nothing to protect that place that they drill the oil, and in future that place will collapse…..what I mean is earthquake.

Chioma

…..because this oil that they are drilling away from the soil, those things do hold the soil from the beneath. But when those things are being taken away, there is no pillar that is holding the ground. So before you know it, in time coming we may be experiencing earthquake.

Annie

The reasoning behind the perception of the risk is that as oil is being extracted from the ground, it will eventually finish and render the ground empty of oil, and this may loosen the ground of the affected area. This implies that oil in the ground is a natural support for keeping the earth firm, and removal of the oil will expose the earth to possibility of earthquake. Thus, oil in the ground is considered as vital to their wellbeing since it is believed as instrumental to the steadiness of the earth. In other words, upsetting the natural presence of oil in the ground is tantamount to upsetting the wellbeing of the communities.

The participants' experiences of vibrations caused by the oil operations in the district have served them as the indicator of the risk. They have reported the situation as:

> *…..I could remember there was a time that the ground was shaking, everybody was trying to look for help, running away…..we thought that earthquake was coming.*
>
> Claudia

> *…..because we have experienced things like earthquakes at Obite there, when the ground was vibrating. There was vibration, according to them that is because of drilling. So if such a thing continues in our land that means what they are doing is we are at risk.*
>
> Cotis

Experiences of the vibration seem to not only serve as the indicator of the risk, but also apprehension of the risk, because their descriptions of the events involve expressions of fear and vulnerability.

Concern for the risk is influenced by information on incidences of the event in other places, as one of the participants reported:

> *At least, we do see earthquake happen abroad, other places. When there is earthquake, you see people dying, homes collapsing. So it is hazardous.*

Chioma

This is a substantiation of the potential consequences of the risk, because of the learnt consequences of the risk event in other countries. In relation to the potential consequences, the participants stated:

> *…..we are talking of earthquake, we are talking about sinking of a community, and it will only not be like only the community in Oboburu, the suburban cities around the oil area, that is the whole area….that is what we are.*

Marie

> *It (earthquake) will be very bad, mostly my community there are many oil wells there, so the thing will really affect us. Because I don't think if there is any where we can run to…..*

Ene

These are feelings of fear on the severity of the risk, involving a wide-scale destruction of the communities, and of their inability to handle the situation.

The participants' association of vibration to possibility of earthquake can ordinarily be considered as conceivable, because it is a common knowledge that vibration of the earth is a core effect of the happening of earthquake (Folger, 2013). This association can be suggested as the role of the representativeness heuristic in their perception of the risk (Menapace, et al., 2012). As they believe that oil extraction could cause earthquake, hence it is easy to perceive the resultant vibration as representative and warning of the 'collapse' of the earth. Therefore, this in relation to the heuristics of risk

perception, can be explained that the participants' view of the probability of the happening of earthquake is based on their experiences of vibration, which they perceive as bearing relationship with the happening of the disaster elsewhere.

Their concern for the risk, which is influenced or elevated by their awareness of the severity of harm that could result from it and of their sense of inability to handle the harm, can be related to the literature on the characteristics of risk perception. This specifically explains the perceptions of catastrophic potential and of uncontrollability of risk, which are considered to heighten concern for risk, as they have been found to be important to peoples' judgment of risk as dread (Slovic, et al., 1985, Peters, et al, 2004). The participants' perception of the possibility of earthquake due to oil extraction is not only unique to them. There is also a growing concern by scientists in the United States of America (U.S) that oil drilling is causing many earthquakes across the country. In 2015, the U.S Geological Survey has released a report showing more than a dozen areas in the central and eastern regions of the country that have been jolted by quakes, which the involved researchers have linked to oil drilling (Talley, 2015). The cause of this has been related to the process of drilling, which involves injecting of wastewater deep underground in order to enable free flow of oil. The wastewater contains a toxic concentration of salt, which is a by-product of water pumped up during oil extraction. The wastewater is injected back into the ground under high pressure to again enable or force free flow of oil. This is where the risk is considered to originate, because if fluid is added to a place where faults are already a little unstable, the additional pressure is thought as enough to cause seismic shocks (Francis, 2015). However, the quakes have been reported as relatively small (of magnitude 3 or 4) and have done little damage, including cracking of plasters and toppling of bricks (Francis, 2015). But seismologists have warned that these can increase the chances of more serious and dangerous quakes (Talley, 2015).

Both the participants and the scientists have related their perception of the risk to the drilling of oil, but their reasoning differs on how the risk is specifically being caused. While the participants believe this may happen due to removal of oil from the ground, the scientist believe it may happen due to injection of wastewater (produced by removed oil) into the ground. Thus, perceptions of the cause of the risk by the two sides are opposite and conflicting. But what makes the perception of the scientists possibly persuasive is that their claims are comprised of incidents of the actual earthquake, which they believe can lead to more dangerous earthquakes, as opposed to the participants' claims of incidents of drilling-vibration, which they believe can lead to earthquake. In this regard, it may be difficult for one to rationalise with the participants' belief on the possibility of earthquake, as they have not reported any previous occurrence of earthquake in the region, because of oil drilling.

4.2 Judgments on Managing Risks

4.2.1 Deficient Measures for Managing Risks

The participants have commonly judged the measures by the oil corporations in managing the risks as inadequate, inappropriate, and unfair. This, in relation to compensation for damages and loss of land, have been stated by the participants as:

> *We have oil and gas in my father's land as am discussing with you now……but by right, we are supposed to have at least 1 or 2 persons from the family that is supposed to work in the company, because they have taken and damaged our land. Even if they have paid the family, you know those monies*

come and go, we can't depend on it, highest it will take you two to three months; the money will just end there.

Annie

Like sometimes their pipe will even burst, it will explode everywhere, even water, may be your pond is there, everything including your fish will die. You will put claim, but before they will attend to your claim is a big problem. Sometimes they will comply…..if the damage is like one million Naira, they can say take five hundred thousand Naira.

Moses

These constitute a claim of inadequate compensation for damages caused by the oil operations on their livelihoods. The compensations are considered to be incommensurate to the extent to which they are being impacted by the damages. The participants' mentions of 'if the damage is one million Naira, they say take five hundred thousand Naira' and 'we can't depend on it' are indications that payment of compensation by the corporations are deemed as inadequate to mitigate the impacts of the damages. The claims of 'by right' that the affected residents are 'supposed to work in the company' are expressions of legitimacy of compensation in the form of employment. This seems to have been put as a call for a sustainable way of mitigating the impacts, since payment of compensation is seen as inadequate and cannot for a long term support the residents.

The CSR projects that have been provided in the communities by the corporations are believed to be not aimed at mainly mitigating the risks:

The things are helping, because some people are helping themselves and their family to work and get money, and even if they don't farm. But the training, school, clinic they are doing is not used by most of us. Many of our children don't go to school, the light is not steady. Let them do it well, let everybody benefit.

Claudia

Yes, something like schools, something like skill acquisition, at least somebody is working. So you can fix your house and bring something like food and other things. But these things are a kind of myopic trainings, school and health centre are substandard, no drugs. It is just for formality to let other people see that they are doing well…what they are concerned is their money.

Ene

They are just doing it; let it not look as if they have done nothing, is just to cover their business…In case if something like this (interview) occurs, they will say yes, we have been helping them, we have been doing this, we have been doing that. So they want others from far to think they are helping us.

Felix

They appear to appreciate the contribution of the CSR initiatives in mitigating the impacts of the oil operations, with emphases relating to the risks of food insecurity and income. Education and skill acquisition or

vocational training are particularly acknowledged to be helpful in providing alternative means of sustenance, because these are suggested to enable the residents to engage in other activities, apart from farming, in order to cater for 'food' and 'money' to 'family'. The participants thus are positive about the CSR approach in mitigating the risks. However, the CSR projects are considered as either less accessible, unreliable, or deficiently provided. These are related to the indications that the projects are substandard, and most in the communities are not benefiting from them. This implies that the CSR approach of the corporations is not adequate to effectively and widely mitigate the risks. The participants are of the view that the CSR projects are not genuinely intended by the corporations to mitigate the risks, rather to demonstrate to others from outside of the communities of their concerns on the residents.

This suggests a belief that the CSR policy of the corporations is mainly targeted at building or protecting their corporate image, and not at managing the wellbeing or safety of the residents—as one of the participants mentioned 'is just to cover their business'.

They also view the corporations' CSR approach or measures are in some ways inappropriate for controlling or preventing the happening of the risks.

> *The health centres they are building is just for healthcare, and the schools is also for our people to be educated, the road is just for we to have roads so that we can go to any place easily. But the particular thing is, what of if the oil finish in the soil and it happens to be earthquake, there is no provision to stop that.*
>
> Cotis

> *Let us take it for instance, if they come today and give everybody treatment because of the effect of the gas…., but in*

the next three days, you will still see the same thing (gas flaring), that means they are not doing anything……But what we are specifically pointing at is our health. Our health is the most important thing.

Uche

…..because you cannot come and give us fish, later in the day we start having the problems that is bigger than that fish you are giving to us…..unless they are going to touch those things that are going to affect our life tomorrow, because the future matters.

Stanley

These are criticisms of the social or developmental benefits of the CSR as inappropriate for controlling the sources of the risks, of which one of the participants has emphasised, 'unless they are going to touch those things that are going to affect our life tomorrow'. This suggests that the provision of benefits for managing the risks are not important in reducing the possibilities of the occurrences of the risks. It also implies that the participants are more concerned about their wellbeing in the future, than the present benefits of the CSR, as perceived to alleviate but not to prevent the risk.

The participants reported that the oil corporations would take care of the oil spillages, when they occur. But they claimed that this is not mainly aimed at protecting the residents against the impacts of the spillages:

When there is a spillage, they will not clean the ground, they will just leave it like that; so many places. They are just after their pipe, when they wield it they will just leave the oil on the

ground. They only want to secure their oil, because they know that the one on the ground is already a waste. So they want to secure their oil. They don't care whether the oil on the ground could cause damage.

Landry

You know, when the spillage comes out, it affects them, the company itself, because what comes out is their own product. So they will not allow their oil to waste. But only when people begin to lament that is when they will come and do the cleaning of the place.

ke

These are feelings of discontent and unfairness that the corporations are more concerned about loss of oil than harm on the environment and the residents. It implies that the corporations' motive in dealing with the oil spillages is to mitigate the loss of their product, and not the ensuing impacts on the residents—as one of the participants alleged the corporations for taking care of the spilling-pipe and not the spilled-oil on the ground. While this can be taken as the participants' perception of prioritization of business over safety of the residents, it is also their judgment of disregard and indifference by the corporations to vulnerability of the residents to the negative consequences of the oil operations.

Their disapproval of the compensations by the corporations for mitigating the impacts of the risks as inadequate is consistent with theoretical explanation of the relationship between risk perception and risk management. This is related to the perception of the extent to which risk

could be harmful. Risk perceived by people to severely affect society have been stressed to influence their demand for some high or firm measures for managing it (Slovic, 1987, Renn, 1990). While taking into consideration that the sources of food and income of the residents are directly connected to the environment, damages to land and rivers by the oil operations can be taken as significantly detrimental to them—thus demand for high compensation should be expected from them. But it will be difficult for one to judge whether, or to what extent, the compensations by the corporations can be adequate to counteract the impacts. This is because, there is no generally accepted standard for determining impact and compensation between the oil corporations and residents of oil-producing communities in the Niger Delta (Rim-Rukeh, 2015). The oil corporations have been at liberty to initiate such decisions, although they respectively in different ways decide on the cause of impact, the extent of impact, and the amount of compensation (Rim-Rukeh, 2015). The residents on the other hand, have their individual basis for claiming compensation for the impacts (Frynas, 2000). While these can be considered to make the situation complex, the residents could be said to be rather at a disadvantage, since the basis for impact and compensation is initiated by the corporations. Representatives of the residents, mostly very few, are involved in the process, but often focused on the cause of oil spill. If a spillage is attributed to vandalisation of a pipe, there will be no compensation to those affected, but there can be compensation if a spillage is due to equipment failure (Rim-Rukeh, 2015). However, the process for determining this judgment has been argued as unfair, because it includes sophisticated assessment, involving the use of diagnostic tools to ascertain the nature of damage to pipes, in which the representatives lack the technical competence to effectively participate (Rim-Rukeh, 2015). Under this situation, the representatives can hardly appropriately decide or agree whether and how the affected residents will be compensated. The study by Oluduro (2012), emphasized the lack of adequate compensation and fair procedure for adequate compensation to the communities by the oil

corporations. In addition, in a report by Amnesty International (2009), it is asserted that the oil corporations have used false claims of vandalism to avoid payments of compensation. With these, one could sympathise with the participants for accusing the corporations of inadequate compensation.

The participants' disapproval of the CSR policy of the corporations as targeted at building corporate image can be accepted, but not without some explanation. It is a globally common business policy to have CSR as a tool for creating or enhancing brand image and reputation, which is aimed at winning the goodwill of investors, customers, and governments (Asemah, et al., 2013). Thus, using CSR to achieve corporate image or reputational acceptance of others from outside the host-communities are not necessarily a disregard to the communities' concerns of the CSR. But what could be considered as reasonable about the participants' discontent is their indication that the corporations have prioritised corporate objectives over wellbeing of the communities. This is because one could argue that the corporations should prioritise the concerns of the residents in their CSR policy, since they are directly exposed to the impacts of the operations, and perhaps not the customers or investors. However, it is important to consider the extent to which the corporations can prioritise or respond to the CSR concerns of the residents. The idea of CSR, as mentioned in section 2.5 in this study, is to reduce business hardship on host communities by directly contributing to their wellbeing (Mckeller, 2010). As the CSR policy of oil corporations in the Niger Delta is voluntary, which is to aid social and economic development of their host-communities, it is emphasised by Asemah, et al., (2013), as an ethical or philanthropic responsibility. This is to explain that the CSR by the corporations is not obligatory, but to contribute to the government's developmental obligations to the communities. The corporations' legal responsibility to the communities in terms of the negative impacts of the operations have been discussed in section 4.1.2 in this chapter. Therefore, while it is not unreasonable for the participants to protest that the corporations have in their CSR policy deprioritised the wellbeing and safety

of the residents for business reputation, the corporations can only to a limited extent respond to the CSR concerns or demands of the residents.

The participants' judgment of the inappropriateness or inefficacy of the CSR measures in controlling the risks, particularly of earthquake and health, seems to be influenced by their understanding of the causes of the risks. It is logical that CSR measures are hardly appropriate for controlling the sources of the risks, if considered from the participants' perspectives of the risks; involving the attribution of oil extraction from the ground to the loss of firmness of the earth, and of flames and smoke of gas flaring to diseases and deaths. The idea behind this seems to be that development projects, particularly health centres, may be useful in reducing the impacts of the risks, when they have happened, but not the chances of the occurrences of the risks. With this, it can be said that it is less difficult to question the credibility of some aspects (causes or severity) of their perceptions of the risks, than their judgment of the inefficacy of the CSR measures to prevent the occurrences of the risks

4.2.2 Poor Community-engagement:

The participants have decried the corporations for not discussing with the communities on the risks:

> *They don't talk about our environment. It is only the human right activists that talk about the environment. Apart from the human right activists, the company cannot come and meet you and say look this thing is hazardous and we can make it like this to change it, they don't.*
>
> Felix

They don't educate our community on things that will affect us, and the way to avoid them; they don't talk to us about that.

Danjos

These statements indicate a lack of engagement as well as of disregard of the communities on their vulnerability to the risks by the corporations. The claim of only the 'activists', as opposed to the corporations, could be taken as that the corporations are seen as unwilling to involve the communities on management of the risks.

Other participants have reported that the corporations engage with representatives of the communities, but lamented over the nature of the engagement:

But you only call two to three persons, and the people go and listen… while others did not know what they went for. This problem is not only here in Oboburu, I may say all the areas that they are producing oil are suffering from this very problem.

Landry

I know they do discuss with the youth and the chiefs, but they don't discuss about the future problems.

Claudia

What they are after is only the community leaders and community chiefs. So after settling with them, after discussing

with them, that is a kind of MoU, they reach an MoU, how they are going to work, may be when they come for a particular contract……They are not thinking about how the thing will affect us in the future. They are not thinking about it, they don't talk about it, they don't talk about it.

Josh

These constitute disapproval of the corporations' approach for restricting their engagement with the community-representatives, who are stated as lacking accountability to the communities on the risks. The representatives are alleged for being unconcerned to discuss the risks with the corporations. This is because, as one of the participants has stated, the representatives' discussion is centred on how they can procure 'a particular contract' from the corporations, and not on the risks. Thus, the engagement by the corporations and the representatives are viewed as centred on business interests rather than the risk-concerns of the communities.

The reason given by the participants for the corporations' lack of discussion on the risks is for fear of community-outrage or disruption of the oil operations.

I don't think so, because if they should discuss with the community, the community will not allow them to go ahead. If they should tell the disadvantage of what they are doing, they will not allow them to go ahead.

Claudia

They don't tell us about the problems we face in the future. They will never tell us, because they know when they tell us, we will stop them from doing that.

Uche

But I don't think they will ever come and talk to us about these things. Because if they should come and talk to us that this is the…disadvantage, they know we will retaliate.

Eche

The participants are strong about their possible outrage on the operations, if engaged by the corporations on the risks—and thus they claim the corporations' refusal to engage the communities is to avoid outrage on the risks. This is particularly in consideration of the statements ''I don't think they will ever come and talk to us about these things' and 'They will never tell us'. This view of the participants also signifies intentional disregard by the corporations on the residents' vulnerability to the risks, as well as their sense of despair that the corporations will not discuss on the risks.

The participants' claim that the residents will be outraged if informed on the risks by the corporations, indicates some degree of pre-existing antagonism towards the corporations. This is because the participants have not indicated the possibility of negotiation or concession on the risks. Although there may be several underlying issues or reasons for this, it could generally suggest as an absence of a mutual understanding between the two sides on the oil operations. This also draws one's attention as to whether the idea of the social license to operate has been negotiated with the communities by the corporations—which requires corporations to inform host-communities on negative consequences of business operations and how they will be

addressed (Wilburn and Wilburn, 2011). Given that the participants' have averred that the corporations would not engage with the residents to avoid disruption of the oil operations, this could be taken as an indication that the corporations have experiences of the disruptive actions. Disruptive actions of the residents against the corporations due to the negative impacts of the oil operations have been examined in section 2.4. While this suggests vulnerability of the corporations to the disruptive actions, it could also serve as the basis for deeming that the corporations are operating without a social license to operate. This, according to Ojo (2012), is the case across the Niger Delta, and the corporations have been able to operate under this circumstance, only because they have through industry lobby infiltrated relevant government agencies and politicians, which allow them to operate even without the social license. To sum up, it appears that the communities and the corporations lack a mutual relationship and understanding on the oil operations; hence the corporations are possibly not effectively engaging the communities on the risks.

4.3 Demands for Management of Risks

The participants have recommended specific measures, which they consider as appropriate or effective for managing the risks by the corporations. But some of the participants could not provide any recommendations and suggested that the corporations know the appropriate measures to take. Regarding the latter, they stated:

> *They know how they have the drilled the oil, so they will know how they will fix it. For me, I don't know. But let them do something about it.*
>
> Ene

They know what they are supposed to do. Our own is just that since they have discovered all these things in our place, they know how to manipulate to get those things. So as they do that, they even know what to do to prevent those things.

George

I know they have the power…..they know what they can do; are they not the one dragging the oil, so definitely I know…..they have the better things to do for us that will help our future tomorrow.

Josh

Their statements suggest their belief in the proficiency and ability of the corporations to manage the risks. This is influenced by their experiences of the involvement and capabilities of the corporations in exploring oil in the district. It is a sense that since the corporations are capable of exploring oil in the district, they are equally capable of dealing with the associated risks. But this can also be construed as a perception of the responsibility of the corporations for identifying and implementing the appropriate measures. This is given the participants' mentions of 'they have drilled the oil, so they will know how they will fix it' and 'they know what they can do, are they not the one dragging the oil'—implying that since the corporations are the ones carrying out the operations, it is their responsibility to know how to manage the risks. Thus, overall, the participants seem to believe that the corporations have the responsibility and capability to manage the risks.

The participants who have recommended specific measures for managing the risks have, in respect of the risk of earthquake, suggested that the corporations should refill the areas they have drilled for oil:

And this oil and gas that they are collecting and the thing they are not filling it. Let them fill it as they are doing it…so that the earthquake thing will not reach us.

Judith

If they can bring out the oil and fill it back with something else, whether with mud or sand, with sharp sand or mud, at least I don't think if we will experience earthquake in the future. But if they are not doing it, that means we are in problem, we are in trouble.

Ene

They are only taking the oil, nothing is going back. So the hazard is there. We are even lucky, if not, by now we are supposed to start experiencing earthquake. Those places they are extracting this thing is supposed to be refilled, even if it is by water.

Izge

It seems logical to the participants to refill areas drilled for oil as a measure for controlling the risk. This is consistent with their perception that extraction of oil from the ground could result in the removal of the steadiness of the earth. Thus, refilling the drilled areas with sand, mud, or water is considered as a way of restoring the steadiness of the areas of the

earth that have been affected by the drilling, thereby reducing the likelihood of the occurrence of the risk. This can be explained as a recommendation of a preventative measure against the occurrence of the risk.

Another recommendation made to the corporations is to provide economic support to the residents.

> *As they are drawing this thing, if they should give us job, may be from there we will survive. This time if you don't go fishing, there is no way to eat.*
>
> George

> *Let them give us work, we need job, because the thing will affect us. As now if they don't give us job, it will affect our grand-children.*
>
> Judith

> *Let them see a way that may be they can be able to be paying everybody….so that everybody will use his or her money and invest for himself…..if it happens to be an earthquake in the years to come, and majority of the people is not empowered, those people will suffer, because they don't have access may be to mobilise themselves to another position where they will be safe.*
>
> Cotis

> *Because in time coming we know that we are going to face earthquake and famine, because our crops will not grow, will not produce anymore. So all those things are what we know that will happen in the future. So in other words, they have to*

give us job opportunities so that we will equip ourselves when it happens we will know the way to stand our situations.

Uche

This is a demand for support of the residents in managing the risks by themselves, through employment or business-finance by the corporations. It is about giving the residents the economic capacity to mitigate the negative consequences of the oil operations. As the participants consider this as an effective approach for managing the risks, they also seem to indicate that leaving the residents without such capacity is equally leaving them vulnerable to the consequences of the risks. This can be appreciated from the participants' statements as ''if it happens to be an earthquake in the years to come and majority of the people is not empowered, those people will suffer' and 'if they don't give us job, it will affect our grand-children'. This recommendation can overall be explained as an appeal for enabling the residents to have control over, at least part of, their vulnerability to the hazards of the operations.

Management of the risks from their viewpoints seem important to their acceptance of the oil operations:

Like that our future, if they can protect all those things for us, collapsing of the land they have already polluted the air, our fishing ponds, our farming, and other crops. If they can take care of this things, we will be happy for them and we say they should continue

Stanley

If they will find a solution to protect the lives of people and do things that will benefit everybody, they can operate because nobody wants

bad things, we all want good things, we want good things to happen to us.

Marie

Yes (will accept oil operations), but if they can listen to the people and do whatever things that the people want. But if they cannot be able to manage the people, listen to the people, then they should leave.

Landry

These quotations indicate that, if the corporations will take actions, which are appropriate to the participants' beliefs and concerns or interests of the risks, they could live with the oil operations. This involves providing protective and compensative measures against the risks, including community-engagement in the process. Lack of these by the corporations are indicated as unacceptable or that 'they should leave'. Furthermore, this can be interpreted as that the participants are of the belief that the risks can in their own terms be managed by the corporations; otherwise they would not have stipulated this as condition for acceptance of the operations.

The participants' demands or specifications for managing the risks are influenced by the nature of their perceptions of the risks. This is ordinarily not illogical—to propose measures that are consistent with their understanding of the sources, causes, and probabilities of the risks. What may possibly be the problem is whether the corporations share the same views about the risks with the participants. Personnel or risk managers of the corporations, who are responsible for managing the residents' concerns of the oil operations, may be technical experts, and thus likely to disagree or have some differing views with those of the participants. It has been a

matter of debate in the field of risk research and policy, whether lay public perception of risk or risk assessment by technical experts should guide the basis for managing risks (Renn, 1998). Many social scientists, particularly those who claim that risk is a subjective construction, have argued in favour of a democratic and inclusive (risk management) process that incorporates the lay people's views, including acceptability of risks and how they should be managed (Renn, 1998). Many technical experts on the other hand, have argued that lay people's perceptions of risks, involving intuitive biases, may be misguided and thus misperceptions should not govern the priorities of risk management (Renn, 1998). Thus, the participants' perceptions of the risks may hardly be the basis for decision-making by risk managers of the corporations. However, since it is the residents who are directly exposed to the risks, it can be argued that they ought to have a voice in management of the risks. The democratic and inclusive process should thus be useful in this regard.

The link between the participants' willingness to accept the oil operations and their suggested belief in the ability of the corporations to manage the risks, can be explained as about their expectation that the corporations can make the risks acceptable. This is because despite the participants' apprehension of the risks, they have not outrightly rejected the operations. They have rather demanded the management of the risks in ways, which are appropriate to their associated perceptions. This can hardly be the case if the participants lack the belief and expectation that the corporations can appropriately respond to their concerns and interests of the risks. This can be related to the literature on trust in risk management, as emphasising that people's acceptance of risk can be determined by their sense of trust in the institutions responsible for risk management to protect them from harm, including taken measures that are seen as appropriate or favourable by them (Kunreuther, et al., 1996, Sjoberg, 2001, Siegrist and Cvetkovich, 2000, Peters, et al., 2004, Bonn and Holmes, 1991). This can be related with the participants' stipulation for protection as well as compensation against the

negative impacts of the operations for acceptance of the operations—implying expectation of risk management approach that will be favourable to them. Hence, this explains the basis for the participants' stated tendency to accept the operations or to bear the risks of the operations—for their associated trust in the corporations.

However, the participants' reported experiences with the corporations concerning the risks involve elements of distrust in the corporations. This is because their judgments on management of the risks are related to inadequacy, inappropriateness, unfairness, and lack of engagement by the corporations. These have been core to their perceptions of disregard by the corporations to the vulnerability and safety of the residents, because they have largely indicated that the corporations are more concerned with their profitability. This is helpful in explaining the importance of people's perceptions of the intentions of a risk management institution in developing or shaping their trust in the institution, which as indicated by Rousseau, et al. (1998), is more important to the people's perceptions of the abilities of the institution. But, it is the participants' belief in the abilities of the corporations to handle the risks, which have served as the basis of their tendency to accept the oil operations. The concept of 'critical trust' by Pidgeon, et al., (2010), explains this, as that people can rely on institutions for management of risks, even though they are sceptical about the associated motives or behaviours of the institutions. Such scepticism may be related to the common notion that business-institutions are more motivated by profitability than public safety (Viklund, 2002, Sjoberg, 2009). Therefore, the corporations with respect to managing the risks may hardly gain the full trust of the residents, as they may always have some doubt over the motives of the corporations. This is to suggest that trust in the corporations by the residents to protect them against the negative impacts of the oil operations would exist along with their distrust in the corporations.

Chapter Five: Conclusions

5.0 Conclusions

This study explored some aspects of the risk perception of oil operations of residents of the oil-producing communities in the district of ONELGA. This has been related to their experiences of the processes and impacts of the operations, and how these are managed by the oil corporations. The participants for the study have demonstrated their cognizance and views on the risks of the operations. This included some pattern in their beliefs on the possibilities of occurrence of the risks and the ways and extent to which they may be affected. Their experiences of the oil operations have been instrumental to their explanations of the causes and indicators of the risks. Their experiences of the corporations in dealing with the impacts of the operations, along with the nature of their perceptions of the risks, have been influential to their judgments on management of the risks.

The researcher has given deep thoughts on the participants' experiences of the oil operations as they have linked them to their beliefs and reasoning on the risks of the operations; while the researcher has reflected on these from different angles and in a comparative manner with his pre-existing understanding of the subject area, enabled him to make a rational interpretation and evaluation of the participants' perceptions of the risks. This process changed the researcher's prior knowledge and views regarding the impacts of the oil operations, as concerning how local of the oil-producing communities would perceive risks from operations. This in turn enriched the researcher's perspective of the subject of inquiry, and of the general area of risk perception.

The findings of this study, as involving the processes and factors, which have shaped the participants' fears and concerns of the oil operations are consistent with the literature on risk perception, as have been explained to influence people's views on risks. The risks they have identified from the

operations can be related to the literature on the processes and impacts of the oil operations, which examined the effects of the operations on the environment and social wellbeing of the communities. But the ways in which they have explained their vulnerability to the risks or related their experiences of the operations to the risks, particularly as involving the causes and extent of the effects of the risks, are in many aspects inconsistent with the literature. This implies that the study on the one hand shows the reliability of the literature on risk perception, but on the other hand shows some discrepancy in viewpoints between the participants and the literature on how risks of the operations could emanate and affect the communities. Such discrepancy may bring about some conflicting viewpoints on how the risks should be managed between the communities and the corporations. This suggests the importance and implications of the communities' perceptions of the risks on the corporations' risk management of the operations.

The study has illustrated the relationship between the participants' experiences of the processes of the oil operations and their perceptions of how these constitute risks to their lives. This in turn has enabled the study to bring out some details about their beliefs and reasoning of the risks. The participants' explanation or framing of the risks is from environmental and social contexts, because the risks are seen by them to impact the environment, with social consequences on the residents. While the participants have shown to be apprehensive about the risks due to their perceived magnitude of the potential consequences of the risks on their wellbeing, this is further heightened by their perceptions of inability to manage the consequences by themselves and of the corporations' disregard to their plight. The participants have explained their discontent on the corporations' management of the risks, including inadequacy, inappropriateness, and unfairness in their measures. They have stated their opinions and demands on appropriate management of the risks, which have

been found to have some relationship with their beliefs on the occurrence and consequences of the risks. This suggests the need for the corporations to acknowledge the implications of the communities' perceptions of the risks on risk management of the operations.

The study finds that the risk of food insecurity seems to be more critical to the communities, as virtually all the participants have given a relatively greater emphasis on the risk. They have associated most of their perceived consequences of the oil operations to their fears of food insecurity. For instance, the drilling or removal of oil from the ground is seen to reduce the fertility of land and affect the quality of farm-produce; oil spillage is seen to reduce the fertility of land and affect the survival or wellbeing of fish in rivers; and gas flaring is considered to affect the safety of farm-produce. In addition, the participants see that the risk of food insecurity directly brought about the risk of income. Thus, suggesting that the risk of food insecurity is the (only) risk of the operations seen to have produced another risk. Given the communities' reliance on the environment as the source of food as well as of livelihood, it is not difficult for one to appreciate the significance of the risk to the participants.

The oil operations have appeared to be largely not unacceptable to the participants, but the way in which the corporations are managing the risks is making the operations as unacceptable. The participants have stipulated their decision on acceptance of the operations to their demands of appropriate management of the risks, which is influenced by their associated senses of trust in the corporations—as shown by their belief in the capability of the corporations to manage the risks, while doubt the associated motives of the corporations. This is compelling, because it suggests that the main problem for the participants is not the risks but how the risks are being managed by the corporations. In other words, the problem is not the operations but the corporations. This attests the significance of trust in risk perception,

demonstrating how people's decision on acceptance of risks can be influenced by their senses of reliance and scepticism on the responsible institutions to manage the risks. In addition, it provides the basis to explore whether the communities' perceptions of the risks are more influenced by the dangers of the risks or by their trust in the corporations to manage the risks.

The findings of this study have revealed the communities' perspectives on the processes and risks of the oil operations, which although are relevant to the oil corporations, have not been reported by them. This is while considering the literature, including the reports by the corporations, on impacts of the oil operations, as has been covered herein. The communities have been shown here to be conscious, with certain considerations, of risks of the operations to their lives. This includes disclosing their understanding of the connection between the processes of the operations and the risks. They have explained their viewpoints on how the corporations should manage the risks, which are connected to their perceptions of the causes and impacts of the risks—hence indicating the extent of their consciousness of the risks. Their apprehension of the risks is associated with their dissatisfaction on the corporations' approach for managing the risks. The study also finds that the communities need to be engaged by the corporations purely on the risks, as the literature on impacts of the operations to the communities as well as the findings herein show that the corporations' adopted engagement is focused on compensation for damages, which have already happened, and not on what could happen to the lives of the communities. Engagement on the risks could provide the corporations with the avenue to adequately understand the risk perception of the communities and serve as the basis for instituting an acceptable risk management approach. This presents the opportunity for a professional intervention (by the researcher or other experts) between the communities and the corporations on the risks. The commonly advocated means of achieving this goal is risk communication (Aakko, 2012). This should be a practice of engagement, involving both the

communities and the corporations, to discuss the risks. This should be tailored towards conflict-resolution and trust-building. Some of the benefits of this approach include resolving the complexities of the risks and distrust related to management of the risks—which can bring about mutual understanding and enable the orientation for amicable acceptance of the oil operations and actions aimed at managing the risks.

The findings provide the communities with the benefit of having their fears and concerns of the oil operations written and disseminated—this is important as they feel neglected by the oil corporations. The findings represent the communities' viewpoints on risks of the operations, which can serve not only as a reference point to the corporations, but also the government or independent organisations, which may seek to relate with the communities on the risks.

The application of IPA in this study shows the potential of the methodology for the field of risk perception. It has helped in demonstrating the association between people's experiences of events and their fears or concerns of the events. This is to say that the focus of IPA on human experiences provides the avenue for developing and enriching the field of risk perception—as research has shown that people's experiences of events are the predominant means through which they assess and make decisions on risks (Slovic and Peters, 2007). However, the approach in this study has limitations. The small size of the sample and its purposeful selection excludes the viewpoints of others in the district, who would have provided different perspectives on the subject. There is need for considering further studies with a different methodology, for example, a wide survey, which will capture a wider perspectives and representation of the risk perception of the residents. This may also involve targeting or including other oil-producing communities, outside of the ONLEGA district in the Niger Delta, which can enable for a broader and comparative research. The study has only focused on the

viewpoints of the residents, due to lack of accessibility to the oil corporations. This limits the significance of the study by excluding the corporations, who are responsible for generating and managing the risks. Thus, there is a need for a study, which will incorporate the viewpoints of the residents and the corporations to achieve comprehensive and balanced perspectives on the risks.

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