

Ways to Achieve Sustainable Development in the Oil and Gas Industry in Ghana

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ABSTRACT: *Sustainable development as a discipline has engaged the attention of governments, development practitioners, academics and non-governmental organizations globally in their concerted attempts to indicate how useful it is in the world today. This paper examines the ways by which Ghana can achieve sustainable development in its emergent oil and gas industry. It explores likely strategies that can be adopted and their implications for the oil and gas industry and national development as a whole. A retrospective look at sustainable development approaches adopted by other countries is taken with a view to analyzing and evaluating how successful they were and to justify their relevance for adoption in Ghana. Efficient management practices and strong leadership are required in any step towards achieving sustainable development in Ghana's oil and gas industry. As the nation is only a part of the legion of oil producing countries in the globe, it is important to draw on lessons that can readily be learnt from other countries as an aftermath of their interventions. It ends with an interrogation of whether sustainable development in the sector is achievable at all.*

KEYWORDS: *Sustainable, Development, Oil, Gas, Intergenerational*

I. INTRODUCTION

The discovery of hydrocarbon resources in countries across the globe is viewed with mixed responses and reaction. Thus, whilst its exploitation has translated into an improvement in quality of life of people in some countries, it is yet to become a blessing in many other countries in the world today. Crude oil accounts for over 90% of global energy consumption. In China, India and Russia, increased economic growth and improvement in welfare has led to increased energy consumption.

Unfortunately however, while there exists a strong link between rising economic growth/improvement in the welfare and increased energy consumption, the same cannot be said about increased hydrocarbon discovery and improvement in quality of life of citizens in oil and gas producing countries. In some countries, the discovery of

hydrocarbons has led to the weakening of predominantly vibrant sectors of their economies due to shift in focus and emphasis on the oil and gas industry; a situation known as the Dutch disease.

Environmental degradation which inter alia follows the commercial exploitation of hydrocarbons, threatens the lives of people who live around fields that produce these resources. The insatiable expectations of these people grow with the hope that, hydrocarbon exploitation will lead to improvement in their social wellbeing.

In oil rich African countries like Sudan and Nigeria, the majority of poor citizens of these countries has been yet to notice the importance of hydrocarbons in positively transforming their lives. Indeed, the choice of petroleum revenue model being adopted by various countries remains a fundamental denominator between resource blessed nations and resource cursed ones in light of the deterministic role it plays in defining the ownership structure of the hydrocarbons.

This paper therefore, attempts to examine the social and economic implications of hydrocarbon discovery in Ghana in relation to the Royalty-Tax System model adopted by Ghana to govern the fiscal regime of the oil and gas industry. It underscores the economic value of hydrocarbon exploitation in Ghana vis-à-vis the citizenry expectation of likely improvement in their welfare.

II. RESEARCH REVIEW/METHODOLOGY

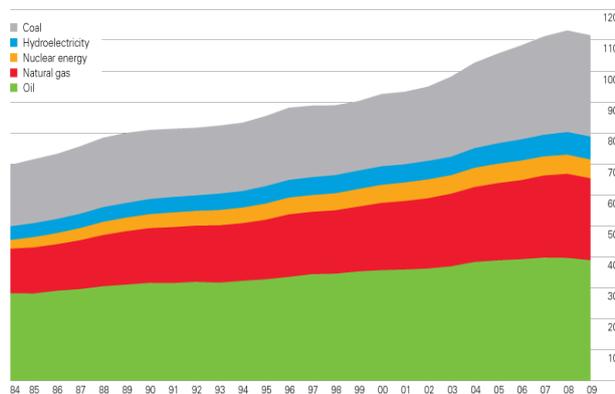
A range of secondary sources has been reviewed and juxtaposed in the context of sustainable development and specific relevance to Ghana's oil and gas industry. The content analysis approach was adopted to examine the subject matter under review whose veracity was tested using 'External

validity' concept. In some instances, the author's interaction with industry practitioners shed significant light on prevailing issues in Ghana's oil and gas industry.

III. EXPERIMENTAL/SERVE RESULT ANALYSIS

According to BP forecasts, "global demand for energy is expected to increase by 50% between now and 2030. 85% of the energy to meet this demand is expected to come from fossil fuels" [3].

World consumption
Million tonnes of equivalent



World primary energy consumption fell by 1.1% in 2009, the first decline since 1982. Consumption was weaker than average in all regions. While oil remains the leading fuel (accounting for 34.8% of global primary energy consumption), it continues to lose market share. Coal's share of global energy consumption was the highest since 1970.

IV. OVERVIEW OF GHANA'S OIL AND GAS INDUSTRY

Ghana's oil and gas industry is a recently emergent one. Ghana joined the legion of oil producing countries in 2010 as it marked the year the nation started commercial production of hydrocarbon resources. Production of crude oil begun with 85,000 barrels of oil a day in the Jubilee Field off the coast of Ghana as was announced by Tullow Ghana Limited, one of the jubilee partners [17]. There are three partners in the Jubilee Field, namely Kosmos Energy, EO group and Tullow Ghana Limited. During the second half of 2012, Tullow Ghana and its partners discovered three other fields and therefore submitted a development plan to the government in those fields. The fields are Tweneboa, Enyena and Ntomme popularly known as 'TEN'. In a related development, Kosmos Energy also announced 'huge investment plans in Ghana' as the company plans to invest 55% of over \$500 million in Ghana with the remaining 45% allocated for exploration and appraisal activities across the company's global

exploration portfolio. The Chief Executive Officer of Kosmos, Brian .F. Maxted stated that, their plans for such investments is anchored on the present outstanding performance of the Jubilee Field saying the current field deliverability is substantially above the FPSO capacity. The FPSO has the capacity of processing 120,000 barrels of oil and injecting more than 230,000 barrels of water and 160 million cubic feet of gas per day.

Currently, production stands at 105,000 barrels a day with the discovery of more wells offshore. In 2011, the structure of the Ghanaian economy changed dramatically as a result of the commercial oil production as it witnessed a significant growth in the industrial sector from 5.6% in 2010 to 36.2% at the end of the year [8]. In the same year, then minister of Finance and Economic Planning, in presenting the 2012 budget statement stated that, "the three oil lifts in the past amounted to 2,980,720 barrels worth \$337.3 million dollars or 506 million Ghana Cedis. Of that amount, \$112 million dollars were transferred to the Consolidation Account and \$54.8 million dollars went into the Stabilization Account, and \$14.4 million dollars were put in the Heritage Fund"[20]. In 2011, Tullow Ghana Limited acquired the interest of the EO Group Limited for \$305 million which increased its interest in the Cape Three Points license by 3.5% to 26.4% and in the Jubilee field by 1.75% to 36.5 % [7].

The Jubilee field is a world-class oil field, substantially with estimated recoverable resources of about 1 billion barrels.

More development wells are being drilled by other licensed companies and the jubilee partners with some indicating gas reserves. The latest of such exploratory drilling was completed in the first quarter of 2013 by HESS Corporation as it drilled seven exploratory wells. The wells labelled as Paradise-1, Hickory North-1, Beech-1, Almond-1, Pecan-1, Cob-1 and Pecan North-1 were drilled on the Deepwater Tano/Cape Three Points block offshore Ghana [10]. According to Hess Corporation, Paradise-1 contains both oil and gas while Hickory North was found to contain large quantities of gas.

Previous discoveries include;

- Mahogany-1/ Hyedua-1
- Odum-1
- Ebony-1
- Mahogany Deep
- Sankofa
- Dzata
- Teak
- Akasa

These discoveries indicate huge prospects in Ghana's hydrocarbon production capacity. In light of this milestone in the hydrocarbon industry, many foreign companies have moved into the country to acquire blocks for exploration and production activities. The licensed companies include Eni Exploration & Production Ltd, Hess E & P Ghana Ltd, Vanco Ghana Ltd, Saltpond Offshore Production Ltd and Tap Oil Ghana Ltd.

In 2012, the oil and gas sector contributed 8.0% to GDP. It must be noted however that, oil production during the second quarter period of 2012 fell short of projected output. Since the start of production on the Jubilee Field, Ghana has produced more than 37 million barrels of oil [6]. There exists a state owned refinery known as Tema Oil Refinery (TOR) with limited capacity to refine crude oil.

Presently, the Ghanaian oil and gas sector is expected to push the growth rate of the economy as government plans to complete the gas infrastructure to commence commercial production and supply of natural gas.

Additionally, ENI (one of the major oil drilling companies in the country) has submitted a development plan proposal to the government of Ghana for three wells that were explored; among other major advancements being made by the jubilee partners for extended oil well developments and drilling. All these are expected to trigger the growth of petroleum revenue as well as contribute to significant growth of the economy.

V. DEFINITION OF SUSTAINABLE DEVELOPMENT (SD)

The term sustainable development has been defined variously by many development pundits and organizations in an effort to deepen its feasibility and relevance to humanity. However, the one that appears universally comprehensible is the definition proffered by the Brundtland report in 1987. It gives a more human and corporate "face" to explaining Sustainable Development in our present era when the struggle for basic needs of life is not only an ideal but a reality. The International Institute for Sustainable Development (IISD) quotes the Brundtland report's definition as "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- The concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet the present and future needs" [2] [11].

This definition suits the discussion as we look at a country saddled with the challenges imposed by the state of technology and thus, creating a situation where a resource owner risks losing the benefits of natural ownership. Be it as it may, the purported resource owner appears to be like a "caretaker" leading to the undesirable resource curse and thereby undermining the attention that should have been accorded to the poor in society. Ghana's ability to maximize and sustain the benefits of oil and gas production could mean achieving long-term food security, reduction in housing deficit, citizenry empowerment, sustainable environment, and intergenerational equity.

I cannot but agree strongly that, oil and gas resources are not ends in themselves but means to an end. It is for this reason that, the concept of sustainable development is crucial especially as it pertains to Ghana's oil and gas industry.

VI. PROPOSED WAYS TO ACHIEVE SUSTAINABLE DEVELOPMENT IN GHANA'S OIL AND GAS INDUSTRY

A. ENVIRONMENTAL SUSTAINABILITY AS A SINE QUANON

Robert Goodland explains environmental sustainability as a concept that “seeks to improve human welfare by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans” [18]. Goodland’s perspective is not different from Rio’s Declaration which accentuates the relevance of human as being in the center of the quest for sustainable development. Indeed, the 1992 Rio Declaration on Environment and Development asserts that, “human beings are at the center of concerns for sustainable development” [21] and advocates for conscious ways of protecting the environment from any possible harm. In today’s modern society however, the quest to develop speed and make life comfortable for human beings has rather taking overriding priority than a means to keep the environment safe. So serious has this become that, marine life is continually endangered on the altar of offshore oil drilling operations.

The magnitude of damage that oil spills offshore causes to marine ecosystem cannot be overemphasized. Oil spillage is a plausible effect which poses’ severe consequences to the environment and the affected companies involved in oil drilling operations.

In the account of Robert Grace [19], during drilling, completion and production operations, an oil well can get out of control or blow out which presents severe consequences such as spills and its concomitant environmental effects and cost to companies involved [19]. He further opines that, growth in technology has led to offshore exploration in water depths of up to 10,000 feet [19]. This presents the dire need for sound environmental security practices as there is a high probability of oil spills in such depths of exploration activities.

Yet, most E&P companies have paid very little or no attention at all to the consequences of their operations on human beings and marine life. Equally blamable are governments of oil producing countries that have the onerous responsibility to exercise control and regulate the activities of these companies to ensure compliance with environmental regulations. But this responsibility appears to be very much neglected to the core especially in Africa. Quintessential emphasis is always placed on the financial returns accruing from petroleum production at the expense of the degraded environment.

B. SO WHAT SHOULD BE DONE?

Environmental accounting should be adopted and pursued if Ghana is to achieve sustainable development in its oil and gas industry. Environmental accounting is a system of preparing physical accounts of natural resources and their use and includes the ‘calculation of depletion and estimation of the maintenance costs required for sustainable use of resources’-United Nations, European Commission, International Monetary Fund, OECD and World Bank, 2003.

A system known as a System of Integrated Economic and Environmental Accounting (SIEEA) proposes an integration of the different methods for environmental accounting into one organized framework and suggests the preparation of the accounts starting with physical with a focus on issues such as soil erosion, depletion of forest and other natural resources [13].

Evidence exists of the adoption of environmental accounts to keep a balance in the use of natural resources in European countries. Indeed, the first environmental accounts were prepared in a European country, notably Norway. Norway is a textbook example of how a country can use environmental accounting to measure its use of natural resources, their depletion and extent of air emissions. Results of environmental accounting serve as a basis for environmental policy modification [13].

Furthermore, ensuring environmental sustainability should be viewed as a shared responsibility between government and the Exploration & Production (E&P) companies.

Over the years, some E&P companies have employed environmentally sound measures in their drilling operations not only to safeguard the environment but reduce losses arising from hazards such as oil spills. While some of these companies abide by environmental regulations in their operations, other pay little or no attention at all to them. In response to the need to protect the environment, the Environmental Protection Agency in Ghana has developed the Environmental Management, Health and Safety, and Community Issues (EMHSCI) component of the Oil and Gas Master Plan which “seeks to fully mainstream and integrate environmental management, health and safety, and community issues into the petroleum sector operations” [10].

At the international level, several laws, treaties and conventions on the environment have contributed enormously to maintaining sanity in oil drilling operations with quintessential emphasis on offshore activities.

One such convention is the United Nations Convention on the Law of the Sea (UNCLOS). This convention stipulates “the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources” [20]. It among others highlighted the exigency for prudent protection of marine ecosystems and its resources in a manner that would guarantee optimum sustainability.

No doubt, this among other treaties has recorded success in at least adding more meaning to the Polluter Pays Principle (PPP). Yet, the actions of some oil companies are still to be justified in spite of the existence of these conventions, treaties, principles and laws on the sustainable use of the environment.

Intergenerational Equity As A Means Of Ensuring Sustainable Development

Intergenerational equity (IE) may be defined as fairness and balance in the distribution of the gains arising from a resource(s) in a manner that it satisfies the needs of present generation and those yet unborn (future generations). At the macro-economic level, it is used to advocate equity in national resource allocation to mean a balance in

sharing the benefits of a resource in a sustainable way in order that, it does not compromise the needs of future generations. This concept is particularly important to the oil and gas industry as petroleum is an exhaustible resource which requires prudent management.

The fundamental question that arises when discussing intergenerational equity is whether sustainable income is what it seeks to achieve or sustain impact. A number of experts in the oil and gas industry have argued that, utilizing oil revenue to secure a sustainable livelihood for citizens of the oil producing country through the provision of better social amenities and developing the human resource base is the best form of achieving sustainable impact arising from pursuing intergenerational equity. In Ghana, a concerted effort to achieve this equity has been made by government leading to the creation of two National Accounts that would guarantee IE.

They are:

- The stabilization Fund/Account and;
- The Heritage Fund/account.

According to the Ghana Petroleum Revenue Management Act (Act 815), these two funds are collectively referred to as Ghana Petroleum Funds. Whereas the stabilization account could be referred to as a contingency one, the heritage account could best be described as “Equity account” intended to guarantee endowment for the welfare of future generations.

The stabilization fund by its object is to absorb the “Impact on or sustain public expenditure capacity during periods of unanticipated revenue shortfalls whether caused by a fall in the petroleum price or through adverse production changes” [5]. When truly pursued, it would assist in the realization of sustainable development in the oil and gas industry because the benefits of oil production can be felt in the way oil revenues are used to sustain public expenditure while setting aside a buffer for generations to come.

Other countries have adopted various measures towards ensuring that, there is transparency in allocating the gains arising from oil production.

They range between poverty alleviation interventions such as direct income/revenue distribution to social infrastructure provision. For instance, in Venezuela, direct income distribution was adopted by government as an effective means to alleviating the plight of the poor as 24% of the population lives in abject poverty with 8.9% in extreme poverty situation.

It was a proven approach to solving the problem of unequal society whose economy is overly reliant and driven by natural resource exploitation [9]. The Centre for Global Development in its working paper 306 (September 2012) refers to it as ‘Oil-to-Cash’ initiative that seeks to achieve the following;

- Improve social outcomes
- Improve governance outcomes. The Centre views it as an initiative of ‘fighting the resource curse through transfers’.

This is just an illustration of how countries perceive the idea of ensuring social and intergenerational equity; with the present social impact being the precursor to sustainable development. It should be noted that, even though this has been widely advocated, it has the tendency of igniting rent seeking behavior; a situation which makes citizens stretches/claims a natural ownership of natural resources which may not augur well for a developing country.

C. Local Content Development And Participation

Local content development and participation entail the building of indigenous infrastructure and human resource base of a nation so as to make its citizenry partake in the running of their own affairs. It may take several dimensions. For the purpose of this paper, let us look at two effective ways by which it can be realized. They are;

- Training local people/citizens with the requisite knowledge and skills to engender their effective participation.
- Developing oil and gas processing plants/refineries.

First and foremost, capacity building of citizens of an oil producing country is viewed as a proactive way to local content development as it empowers them and engenders their future participation. The government of Ghana through the Ministry of Energy has made strides in promoting local content development by the drafting of the local content bill. The local content bill when passed into law shall among other targets, ensure that, about ninety % (90%) of Ghanaians is actively engaged in many facets of work in Ghana’s oil and gas industry by the year 2020.

During the last quarter of 2012, the then deputy minister for energy in charge of power, Alhaji Inusah Fuseini in a presentation to parliament of Ghana stated that, about 840 Ghanaians have so far been employed in various capacities by the oil and gas industry representing 57% % in terms of local content participation with 660 expatriates also engaged in several capacities representing 43 % [15].

D. Proper Revenue Accountability And Transparency As A Pre-Requisite To Ensuring Sustainable Development

Petroleum revenue accountability and transparency is a significant step towards winning public trust and confidence; the absence of which could result in expression of dissent of many kinds. Of late, the upsurge of many militancy activities among citizens of oil producing regions has come to be a way of expressing their grievances about ‘seeming’ lack of transparency and accountability with respect to the use of petroleum revenue.

The case of continuing militants’ attack on oil pipelines and tankers in Nigeria’s major oil producing region-Niger Delta, readily comes to mind. It is crucial to mention that, without proper petroleum revenue accountability, the goal of achieving sustainable development in Ghana’s oil and gas industry will be a mirage. This is because, it is through effective accountability that, the country can measure and realize its optimum gains from petroleum production and the overall oil and gas sector’s contribution to GDP.

Economic development efforts may be thwarted if there lacks proper accountability in the sector. Furthermore, it is within the ambience of proper

transparency that every well-meaning citizen can access records of petroleum revenue inflows and outflows as well as participate in generating ideas towards building the oil and gas industry. One may say that, Ghana has made strides in attempting to achieve accountability and transparency by the passing into law of the Petroleum Revenue Management Act. But we must realize that, a lot more still needs to be done [1].

Indeed, Ghana must focus on effective and efficient accountability and full disclosure from the point of production (the last barrel of each daily oil production) to the point of actual monetary quantification. So how can this be achieved? It is in an attempt to answer this question that the concept of Physical Metering is very important as it provides data on physical quantities of petroleum produced and therefore, the basis for examining the amount of revenue accruing from the production process.

What this requires is the human resource for regular monitoring and recording of the actual gains arising from production. Perhaps, the government would need to negotiate with upstream E&P companies to have more than one representative to be doing this monitoring and recording such that, effective checks and balances could be maintained.

Again, the Right To Information Bill (RTIB) which has been presented to the Parliament of Ghana for years now, needs to be passed into law to guarantee all citizens the right to approach the oil and companies and demand relevant information on development plans and production benefits. Until this is done, the Petroleum Revenue Management Act would not achieve its intended objectives [1].

Promoting Offshore/Border Security To Reduce Possible Incidence Of Pirate Attacks

The incidence of piracy attacks has assumed alarming proportion and has attracted the attention of the international community. In Africa, it is concentrated in three main regions. They are the Somali coast being the Gulf of Aden along the East African coast, Nigeria's territorial waters in West Africa and the Mozambique channel/cape sea route in Southern Africa [14].

In 2011, there were 439 piracy attacks globally with 266 incidents of sea piracy occurring in the first six months of that year [14].

Offshore security is very vital to ensuring sustainable development in Ghana's oil and gas industry because, incidence of pirate attacks has impeded smooth transport of vessels offshore. The direct result of this is a record loss in oil revenues. Therefore, for any oil producing nation to realize optimum benefits from oil production, its security agencies must always be on the alert and jealously guard the oil produced to prevent possible "snatch" by pirates in its waters.

The International Maritime Organization (IMO), a global maritime watchdog, estimated that in 2011, West African countries lost nearly over \$1 billion in oil due to piracy. The increase in ship hijackings off West Africa also shows that the region could emerge as a new piracy hotspot, International Maritime Organization (IMO), a global maritime watchdog has warned.

The Ghanaian Daily Graphic on January 5, 2013, reported of a French oil tanker hijacked off Cote D'Ivoire; identifying the missing ship as M/T Gascogne. A day before the attack, pirates attacked an oil tanker which was anchored off Lagos-Nigeria, shooting and injuring one of the crew members [4]. This was the second of a series of attacks during the week in the Gulf of Guinea "which follows the continent's southward curve from Liberia to Gabon" [4].

The Developing Other Sectors To Avoid Over Dependence On The Oil And Gas Industry

It would be important to focus on the development of other existing sectors of the economy to preclude any possibility of over dependence on the oil and gas industry. A number of countries have stooped to the faith of the "Dutch disease", a situation where other existing sectors are not accorded the desired attention following the commercial exploitation of petroleum resources. Role Of Government, Oil Companies And Citizens In Promoting Sustainable Development In Ghana's Oil & Gas Industry.

The government of Ghana, oil companies and the citizens are the three key stakeholders in the oil and gas industry. Whereas government simply denotes

the executive, legislative and judicial arms of the democratic setup, the citizens here refers to civil society organizations, Non-governmental organizations (NGO's), chiefs, religious leaders and the nationals of the oil producing region. The third but very central stakeholder refers to the oil companies comprising multinational and local upstream and midstream companies that play a pivotal role in the drilling and processing of oil and gas resources.

E. ROLE OF GOVERNMENT

First of all, there is the exigency for government to put in place an environmental regulatory act and ensure its enforcement to make oil companies environmentally accountable and engender compliance with safety regulations in their operations in Ghana. This requires a strong political will as enforcement is mostly the challenge with acts promulgated. Moreover, the government needs to put in place physical metering mechanism that would ensure "clean" and transparent record of quantities of crude oil produced daily. It must be done alongside ensuring the placement of more than one person from the revenue authority at the FPSO for monitoring purposes (as we currently have one person representing government institutions for revenue monitoring and accounting purposes). It would also be prudent for the government to utilize the oil revenue judiciously by building social infrastructure and embarking on the establishment of oil and gas processing plants and empowering Tema Oil Refinery (TOR) to be able to continuously refine crude oil locally for use and exports.

Recent reports indicate that, the state owned TOR does not refine crude locally as a result of the breakdown of its machines and refinery plant. TOR is said to be losing 1million US dollars per day presently as a result of its inability to refine crude oil for the past six months. It is my hope that, government would intervene to ensure the effective rejuvenation of TOR to able it discharge of its mandate. The government of Ghana's intention to spend 1billion dollars of the China Development Bank loan on strategic projects in the oil producing region (Western region) is laudable as it would facilitate the growth and development of the oil and

gas industry. In particular, the present development of gas infrastructure to process and store natural gas would help arrest perennial gas shortage in the Ghanaian society when completed and managed efficiently. It is equally expected that, the government will remove all bottlenecks that may impede the smooth operation of the oil companies while not compromising quality in terms of environmental safety and protection. So far, the government of Ghana has tried its best to make the process of acquiring permits for development of wells easy and has therefore avoided encumbrances that might impede smooth business in the industry.

F. ROLE OF OIL COMPANIES

Second, the oil companies should reckon the dire need to protect the environment within which they operate. Since research has shown that, there is a strong link between environmental security and organizational profitability especially with oil companies. The BP oil spill for instance, resulted in untold financial consequences on the company; notwithstanding the severe environmental consequences that it brought on marine ecosystems. It also to a large extent, damaged the BP's corporate image. Indeed, the United States of America's temporal ban on offshore oil drilling following the BP Deep-water Horizon platform bow-out in 2010 lends credence to the immediacy and significance of environmental protection in any oil drilling operation.

In a research conducted in 1996 on "Impact of environmental management on firm performance" by Robert D. Klassen and Curtis P. McLaughlin, they 'proposes a theoretical model that links strong environmental management to improve perceived future financial performance, as measured by stock market performance'[12]. It was discernible that, significant positive returns were measured for strong environmental management as shown by environmental performance awards whereas significant negative returns were assessed for weak environmental management as indicated by the environmental crisis. This deepens support for environmental protection as a hallmark of a firm's financial performance as it impacts largely on it.

Furthermore, the oil companies should be seen as doing more in promoting Corporate Social

Responsibility initiatives that would impact positively on the wellbeing of people living around the environment within which they operate. It is only through this that, 'militancy' activities can be avoided. The case of the Niger Delta in Nigeria presents us with a clue as to how companies' promotion of CSR initiatives could bring relative calm to a region that was synonymous with militancy operations that troubled SHELL's oil pipelines and equipments. The intervention of Amnesty International which suggested the need for SHELL to offer compensation packages to people living in the Niger Delta who appear affected by the company's operations helped in restoring relative peace in the area. It also saw the sponsoring of a majority of the youth of the area to learn vocations such as tailoring, carpentry, masonry and other skills-based training schemes that would empower the people economically. For a long time, the people felt neglected and cheated as they could view the drilling of huge quantities of oil for which have nothing to point to as perceived benefits of the exploitation.

The attendant consequences of oil drilling in most parts of Nigeria such as Ogoni land have been very severe. Pyagbara in 2007 as an International Expert Group Meeting on the protection of the Environment, stated that, one of the major effects of oil spill in Nigeria is soil degradation which affects crop yield and harvest especially in the Ogoni land [16].

On its socioeconomic impact, he noted the destruction of the traditional local economic support system of fishing and farming as significant fallout of oil pollution by oil companies in the Ogoni community [16].

G. ROLE OF CITIZENS

The last but very important player/stakeholder is the citizens who should guarantee the requisite peace and enabling ambience for the oil companies to operate successfully without hindrances.

VII. CONCLUSION

Drawing from the foregoing, I concede that, since oil and gas resources are exhaustible, any strategy for guaranteeing sustainable development of

Ghana's oil and gas industry should focus on infrastructure development and a meaningful transformation of the citizens' lives through quality education, health care and job creation. It has to be done in a manner that, it provides intergenerational impact for posterity if the goal of achieving sustainable development is to be realized. Hence, if the goal of achieving sustainable development in Ghana's oil and gas industry is to be taken literally, then the empowerment of other existing sectors of the economy is a core part of the story.

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