

# STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

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## The Oil and Gas Sector

*Executive Summary*

FOREWORD

It is a pleasure to endorse this report which appraises the policy, practice, findings and recommendations of the Strategic Environmental Assessment (SEA) of the Oil and Gas Sector. The SEA was conducted by the Petroleum Department of the Environmental Protection Agency (EPA) in Ghana. The SEA Report, the SEA Policy Report and the SEA Concept Report, both dated July 2013.

The SEA process is a key tool for ensuring that the environmental impacts of the oil and gas sector are properly assessed and managed. It is a process that involves the identification, prediction, evaluation and mitigation of the potential impacts of the oil and gas sector on the environment. The SEA process is a key tool for ensuring that the environmental impacts of the oil and gas sector are properly assessed and managed. It is a process that involves the identification, prediction, evaluation and mitigation of the potential impacts of the oil and gas sector on the environment.

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## **FOREWORD**

**W**e are pleased to endorse this report which summarizes the entire process, findings and recommendations of the Strategic Environmental Assessment (SEA) of the Oil and Gas development in Ghana. This Executive Summary reflects the content of the main SEA reports; the SEA Process Report and the SEA Content Report, both dated July 2013.

In addition to the offshore basins that are currently being explored for petroleum resources, Ghana has a large sedimentary basin onshore, which could be opened up in the near future for oil and gas exploration increasing the potential of Ghana becoming a major oil and gas producing country. In the light of this development, there is the need to consider serious policy choices and environmental concerns that need to be addressed to ensure that oil and gas development contributes to sustainable broad-based development. It is therefore important to quickly understand and respond to the risks and opportunities related to this new industry.

The SEA demonstrates that environmental sustainability is critical to ensuring long-term viability of the emerging oil and gas industry. The concept of environmental sustainability is related to the balance between natural resource, socio-cultural, economic and institutional issues. Current global concerns such as climate change safety and emergency response in offshore operations have been considered in the SEA.

The SEA Process involved a wide range of stakeholders including public and private sectors, civil society, NGOs, traditional authorities, fishing communities and international agencies. The involvement of these stakeholders and capacity building in the SEA Process has helped all participants to understand the wider impacts of the oil and gas development on the environment and economic growth.

The general expectations of oil revenue-led growth and prosperity cannot be achieved without factoring in environmental considerations to achieve sustainable development of the petroleum resources. Through engaging a wide range of stakeholders, the SEA provides a basis for transparent and accountable decision-making which will enhance smooth development of the oil and gas sector.

It is expected that the Ministry of Energy and Petroleum and the Ministry of Environment, Science, Technology and Innovation will coordinate and facilitate the integration of the findings and recommendations into the various relevant sector policies, plans and programmes. We extend our appreciation to the SEA Team, Consultants and collaborating agencies, both local and international, for their efforts in completing this noble task.

.....  
**Hon. Emmanuel Armah Kofi Buah**  
(Minister of Energy and Petroleum)

.....  
**Hon. Dr. Joe Oteng Agyei**  
(Minister of Environment, Science,  
Technology and Innovation)

## Statement by Collaborating Agencies

The discovery of oil in commercial quantities in Ghana in 2007 and subsequent commencement of production in 2010 has generated high expectations of rapid economic growth and prosperity among the population. However the long-term viability of oil and gas production raises significant opportunities and risks for environmental sustainability that must be addressed to ensure that the expected benefits can be achieved. The Strategic Environmental Assessment (SEA) of Ghana's Oil and Gas development is a means to ensure that the petroleum resources, both offshore and onshore, are managed in an environmentally sustainable manner. The SEA of the Oil and Gas development is the result of collaboration between the Ministry of Energy and Petroleum (MoEP), the Ministry of Environment, Science, Technology and Innovation (MESTI), the National Development Planning Commission (NDPC) and the Environmental Protection Agency (EPA) with technical support from Ghana National Petroleum Corporation (GNPC). The heads of these organizations formed the Steering Committee that provided oversight for the SEA.

The wide-ranging process of the SEA covered the period from 2009 – 2012. The process involved a broad range of stakeholders including public and private sectors, Civil Society Organizations, NGOs, Traditional Authorities, fishing communities and international agencies. The SEA has produced two (2) main reports covering the Process and Content as well as this Executive Summary that highlights the main aspects of the SEA including the findings and recommendations.

This Report is intended to meet the expectations of a wide range of stakeholders including Government, Civil Society, Academia and International Agencies among others. Those who require more detailed information are advised to refer to the Process Report and Content Report which are available at the Ministry of Energy and Petroleum website [www.energymin.gov.gh](http://www.energymin.gov.gh) and the Environmental Protection Agency websites: [www.epa.gov.gh](http://www.epa.gov.gh) and [www.epaoilandgas.org](http://www.epaoilandgas.org).

Ministry of Energy and Petroleum

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Ministry of Environment, Science, Technology and Innovation

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National Development Planning Commission

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Environmental Protection Agency

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Republic of Ghana



## Acknowledgements

This report has been prepared by the SEA Team and the Consultants under the direction and support of the Steering Committee. The SEA Team is grateful to all stakeholders who have participated in the processes that have led to a successful completion of the study. The names of all the participating stakeholders are recorded in the reports issued at the end of each main process activity and annexed to the Process Report. The SEA Team appreciates the contribution of the Government of Ghana (GoG), Netherlands Commission for Environmental Assessment (NCEA), the Oil for Development Program (OfD) of Norway, the Royal Norwegian Embassy in Ghana, the Natural Resources and Environmental Governance Programme (NREG), Royal Netherlands Embassy, World Bank (WB) and other Development Partners (DPs).

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## List of Abbreviations

BoG	Bank of Ghana	NDPF	National Development Planning Framework
CSO	Civil Society Organization	NOC	National Oil Companies
DP	Development Partner	NADMO	National Disaster Management Organization
EITI	Extractive Industries Transparency Initiative	NCEA	Netherlands Commission for Environmental Assessment
EPA	Environmental Protection Agency	NDPC	National Development Planning Commission
GNPC	Ghana National Petroleum Corporation	NGO	Non Governmental Organization
GoG	Government of Ghana	NREG	Natural Resources and Environmental Governance Program
GPRS	Ghana Poverty Reduction Strategy	OfD	Oil for Development program (Norway)
GSGDA	Ghana Shared Growth and Development Agenda	PNDCL	Provisional National Defence Council Law
IOC	International Oil Companies	PPP	Policies, Plans and Programs
MMDAs	Metropolitan, Municipal and District Assemblies	SEA	Strategic Environmental Assessment
MDAs	Ministries, Departments and Agencies	ToR	Terms of Reference
MoEP	Ministry of Energy and Petroleum	WB	World Bank
MoFEP	Ministry of Finance and Economic Planning		
MESTI	Ministry of Environment, Science, Technology and Innovation		
MoU	Memorandum of Understanding		

## 1. Introduction

### 1.1 Ghana's Oil and Gas Development

Ghana is endowed with four sedimentary basins where hydrocarbon accumulations could be found. These basins are the offshore Western Basin, Central Basin, Eastern Basin and onshore Voltaian Basin.

Hydrocarbon exploration in Ghana started in 1896 along the onshore portions of the Western Basin with the first documented discovery well producing five (5) Barrels of oil per day (BOPD) between 1896 & 1897.

The period covering 1970 – 1984 saw extensive activity leading to the beginning of offshore exploration with the first well drilled offshore Saltpond in the Central Basin. A total of thirty-seven (37) wells were drilled. In 1970, two (2) of these wells resulted in discoveries. This period led to the promulgation of the PNDCL 64 (Ghana National Petroleum Corporation ACT 1984) establishing Ghana National Petroleum Corporation (GNPC) and PNDCL 84 establishing the Petroleum (Exploration and Production) ACT 1984.

Figure 1: Discoveries

During the period 1985 to 2000, GNPC accelerated the exploration process which led to the acquisition, processing and interpretation of the first 3D seismic over the South Tano Field and subsequently to the drilling of three wells over the field by GNPC between 1991 and 1994.

## The Discoveries

**Figure 1:**

### Deepwater Tano and West Cape

#### Three Points Blocks

- Tullow Oil (Jubilee Field Unit Operator)
- Kosmos Energy
- Anadarko Petroleum Corporation
- Sabre Oil and Gas
- E.O. Group
- GNPC

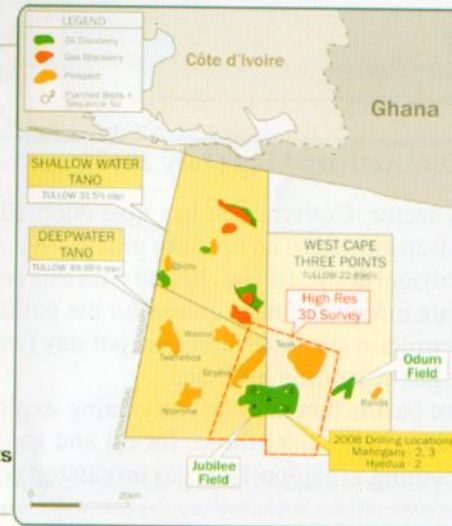
#### History

- June 2007: Mahogany-1 discovery
- August 2007: Hyedua-1 discovery

- February 2008: Odum-1 discovery  
– 13 km E. Mah-1. 60m gross oil column

- Extensive and large further prospects

- Other active operators in neighbouring blocks





There was a gradual and systematic shift of focus from the shallow water (depth of 0-200metres) to the deepwater (depths of over 200metres) areas from 2001. The most significant result crowning years of concerted efforts finally arrived in 2007 with the Mahogany and Hyedua discoveries by a consortium of Kosmos, Tullow, GNPC, Sabre Oil, E.O. Group and Anadarko in the West Cape Three Points concession area.

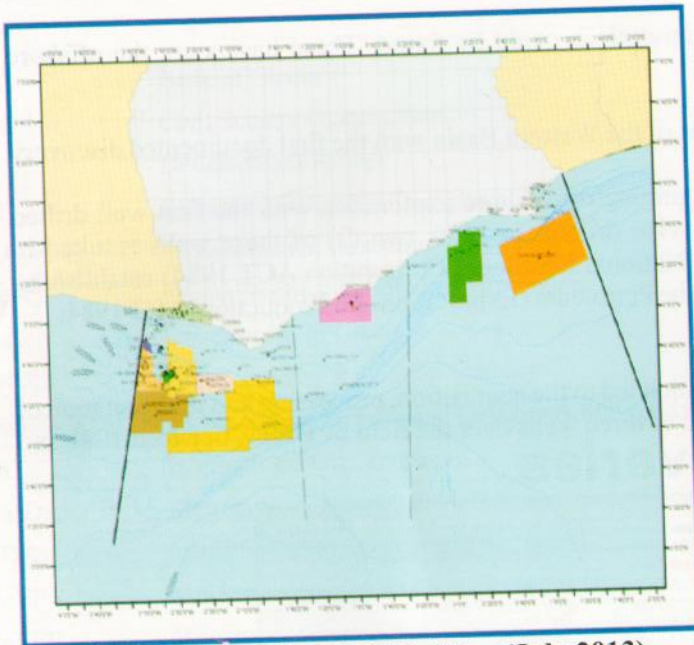


Figure 2: GNPC Activity Map (July 2013)

emerging Oil and Gas sector, Government has also adopted a policy to monetize all gas discovered in the country. This policy makes provision for gas to be transported to an onshore processing plant for further processing for power generation, petrochemicals (Ammonia, Methanol, Fertilizer, etc) and domestic use. In line with this policy, government established the Ghana National Gas Company (Ghana Gas) to build, own and operate infrastructure required for the gathering, processing, transportation and marketing of natural gas resources from the Jubilee Field – 120 million standardcubic feet per day (mmscfd), rising to 240 mmscfd, and later gas from other fields, as an important opportunity to increase gas utilization in Ghana.

Apart from the offshore basins that are currently being explored for petroleum resources, Ghana has a large sedimentary basin onshore, which could be opened up in the near future for oil and gas exploration activities. All these activities when successful will increase the potential of Ghana becoming a major oil and gas producing country.

Preliminary evaluation proved that these discoveries, lying in two separate concessions, are of common origin. The discoveries were therefore unitized to be developed as a single field named Jubilee Field, to mark the coincidence of the discoveries with Ghana's Golden Jubilee year. This discovery has resulted in intense interest in the country's oil and gas potential. Currently there are thirteen (13) offshore licenses granted for exploration and over twenty (20) companies have either submitted applications or have expressed interest in acquiring exploration license.(source GNPC).

In addition to the Jubilee Field, the following other discoveries have gone beyond the appraisal phase whilst some are being appraised and will soon come on stream for production:

- Tweneboa, Enyera, Ntomme (TEN) - Tullow operated
- Mahogany East, Teak, Akasa and Banda (MTAB) – Kosmos operated
- Sankofa 1A/Sankofa East-1X/Gye Nyame-1 – ENI operated
- Paradise 1/Pecan 1/Beech/Hickory North/Almond – Hess operated

In order to maximize the potential benefits that can be derived from the

However, there are significant policy choices and environmental considerations that need to be addressed if this is to lead to sustainable broad-based development. There is the need to fully appreciate the risks and opportunities related to this emerging industry and to develop the institutional capacity to manage these positive and negative challenges.

It is against this background that the Ministry of Energy and Petroleum (MoEP) and the Environmental Protection Agency (EPA) carried out the Strategic Environmental Assessment (SEA) of the oil and gas sector. The SEA is necessary in order to have a holistic view of the entire offshore and onshore environmental<sup>1</sup> effects that may arise as a result of the exploration and the production of oil and gas resources.

### 1.2 Purpose and Objectives of the SEA

*There are various definitions for SEA, however the definition of SEA in the Ghanaian context is: "The formalised, systematic and comprehensive process of evaluating the environmental effects of a policy, plan or programme and its alternatives, including the preparation of a written report on the findings of that evaluation, and using the findings in publicly accountable decision-making". (Brown & Therivel et al. (1992).*

The SEA is generally considered as a key tool for ensuring sustainable development by considering natural resources, socio-cultural, economic and institutional issues at the policy, plan and programme levels of decision making. SEA helps to identify obscure or hidden effects including their cumulative and induced effects and focuses on sustainability principles. The purpose of this SEA is therefore to ensure that environmental issues are considered in all decisions concerning the oil and gas sector at the conceptual stage in order to achieve the following:

- protecting and enhancing the natural resources (flora and fauna, wetlands, etc.) on which people depend for their livelihoods,
- improving health and well being by eliminating pollution and reducing accidents,
- reducing risks associated with the industry, including user conflicts,
- enhancing opportunities for the vulnerable and excluded, and
- creating institutional systems that allow broad participation in decision making processes.

The SEA should feed into the following key elements for proactive planning:

- Phasing of oil and gas development
- Spatial/ land use planning
- Safety and emergency response planning
- Waste management and
- Management of utility/social service needs.

<sup>1</sup>Environment is multi-dimensional, and it is necessary to refer to many geographic components and variables, which contribute to the 'environment' of Ghana. Therefore, the SEA has adopted a broad definition of 'environment'; embracing not only the biophysical environment but also the social, cultural, micro-economic and institutional conditions that constitute the human habitat. This definition accords with Act 490 and LI 1652, but is wider than that adopted by some SEA processes which are restricted to natural phenomena. (SEA of the GPRS, Content Report 2004)

In addition, it is expected that it would contribute to the quality of strategic decisions to be made on future development of:

- the fields adjacent to the Jubilee field,
- the other offshore oil and gas sector developments and
- onshore oil and gas areas.

The specific objectives of the SEA are to:

- integrate environmental and social considerations in the development of the oil and gas fields and related industries in order to ensure sustainable development
- identify potential sensitive environmental areas and provide guidance for protecting such areas whilst at the same time exploiting petroleum resources
- identify environmental opportunities and risks associated with various stages of the oil and gas development and present necessary guidelines to enhance opportunities and to minimize risks
- establish thresholds for acceptable development with a view to providing a benchmark for the assessment of cumulative environmental effect
- outline mitigation and monitoring requirements and objectives that establish best practice and ensure effective management of future oil and gas developments
- ensure that environmental issues are addressed at the earliest stage of decision-making
- develop comprehensive baseline information on the natural resources, socio-cultural, economic and institutional conditions of the communities that are likely to be effected
- ensure a wider stakeholder participation in decision-making

### 1.3 Policy, Legal and Regulatory Framework

The SEA was conducted in conformity with the Environmental Assessment Regulations, 1999, (LI 1652) and also the Guidelines for SEA in Ghana, issued in May 2009. The SEA Guidelines provide for stakeholder analysis, screening, scoping, assessment and monitoring and evaluation which have all been applied in this SEA. In addition, the SEA considered a wide range of policies, laws and regulations both national and international relating to the Environment, Oil and Gas, Maritime, Land Use, Labour, etc. that cover all the aspects of the emerging oil and gas sector. The details can be found in the Process Report (Vol. II) of the SEA.

#### **1.4 International Cooperation**

In February 2008, Ghana and Norway entered into a Memorandum of Understanding (MoU) on cooperation in the field of oil and gas. The MoU was designed to be implemented through a general framework agreement and by separate institutional agreements on resource, finance and environmental management, as appropriate. To further detail a cooperation program on environmental management, a Needs Assessment Workshop was arranged in December 2009. Participants for the workshop were drawn from responsible relevant institutions in the two countries, NCEA and other development partners. From the discussions there was wide consensus on the need to go ahead with the SEA.

In fulfillment of the need to support the SEA, a meeting was held to formally endorse the kick-off of the SEA of the Ghana oil and gas sector. The meeting was attended by representatives from EPA, Norwegian Institutions, NCEA, World Bank, NREG, MESTI and other key stakeholders. It was decided that the Norwegian Oil for Development Program (OfD) and the Netherlands Commission for Environmental Assessment (NCEA) should provide external technical assistance for the conduct of the SEA with financial support under the NREG program. Collaboration between institutions from both countries was further agreed.

## 2. Baseline Information

Extensive and detailed general baseline information for the SEA is presented in the Process Report (Volume II). Fact Box 1 below presents condensed baseline information connected to the four pillars of the SEA.

### Fact Box 1: Short Baseline Information

#### Background

Ghana lies between longitudes 3° 15' W and 1° 12' E, and latitude 4° 44' and 11° 15' N. The country is bordered on the East by the Republic of Togo, the West by Cote d'Ivoire, the North by Burkina Faso and the South by the Gulf of Guinea. The total land area of Ghana is 238,533 km<sup>2</sup> with an Exclusive Economic Zone (EEZ) of 110,000 km<sup>2</sup> of the sea, forming the territorial area of Ghana. Ghana has a coastline of 550 km. Oil and gas prospects span the entire coastline as well as onshore in the Voltaian basin.

#### Natural Resources

Ghana is rich in biodiversity. The country boasts of a wide variety of birds, (including migratory birds), reptiles and animals with unique habitats; a wide range of plants and flowers. The aquatic systems associated with the coastline of Ghana include the lagoon systems, the adjoining sea, and the swamp complexes. The near shore fishery forms part of the prolific and dynamic fishery complex that characterizes the whole Ghanaian coastline. During the recent (2012) baseline survey carried out by the Fridtjof Nansen programme under the Oil for Development Programme, a live coral reef was discovered in the western part of the offshore environment of Ghana. Hitherto the country believed that there was no live coral reefs and only reports on a dead reef. Other resources include gold, timber, industrial diamonds, bauxite, manganese, rubber, salt and limestone in addition to extensive hydrocarbon deposits both onshore and offshore.

#### Socio-Cultural

Ghana's population is approximately 25 million people. (DSS 2010) The country has diversified social structure with a rich cultural heritage due to the various tribal and ethnic groups. The official language of Ghana is English. Ghana's coastal zone represents about 6.5% of the area of the country and represents 25% of the nation's population (EPA/World Bank). Local communities, as custodians of natural resources, often possess immense knowledge about local ecosystems, resources, and their use that is often not available at the national level.

#### Economic

Ghana's economy is largely agro-based with more than 50% of the population engaged in agriculture – (farming, fisheries and animal husbandry). Other sectors of the economy are mining, manufacturing and services.

Ghana is a major exporter of gold and cocoa. Since 2008, high global prices for gold and cocoa have sustained economic growth rates above 8% annually. In recent years, the services sector has also shown significant growth led by communications and technology. With the production of oil and gas becoming a major component of the economy, it is expected that this will fuel substantial economic growth.

### **Institutional**

The Republic of Ghana is a unitary state divided into ten administrative units or regions, each headed by a regional minister appointed by the President. The principal units of the regions are the Metropolitan, Municipal and District Assemblies (MMDAs), which constitute the Local Government. The country is governed by a constitution which provides for a three tier system of governance: The Executive, the Legislature and the Judiciary acting independently and inter-dependently of each other. Chapter Six of the Constitution “The Directive Principles of State Policy” provides the broad framework and guidance for all decisions regarding application of the constitution itself and actions of all citizens, Parliament, the President, the Judiciary, the Council of State, the Cabinet, political parties and other bodies. The Constitution empowers the President to create Ministries and appoint Ministers for various sectors. The Ministry of Energy and Petroleum is the lead agency responsible for the oil and gas sector. Other relevant agencies are: Ministry of Environment, Science, Technology and Innovation, National Development Planning Commission (NDPC), Petroleum Commission, Ghana National Petroleum Corporation (GNPC), and Environmental Protection Agency (EPA).

### 3. The SEA Process

The SEA Process involved the following steps:

1. Screening
2. Scoping
3. Assessment
4. Capacity Building
5. Monitoring
6. Reporting

#### 3.1 Screening

The first step in the process was to determine the need for an SEA of the oil and gas sector through a screening exercise. A Draft Terms of Reference (ToR) for the SEA were presented by EPA in March 2009 as basis for a Screening to ascertain the need for carrying out the SEA. The Screening went beyond the desktop evaluations of the relevant PPPs to determine the need for SEA within the oil and gas sector by consulting stakeholders in the six (6) coastal districts in the Western Region in September 2009. The stakeholders responded to questionnaires about expectations and concerns of the public on the oil and gas developments. Fact Box 2 shows specific information about the screening survey. This resorted in the identification of the initial set of issues of concern in the SEA and a Screening Report.

#### Fact Box 2: Screening survey in the Western Region

Districts:

Jomoro, Nzema East, Ahanta West, Shama, Sekondi-Takoradi, Ellembelle

Participants:

Political leadership, Traditional leadership, religious groups, fishing communities, transport operators, artisans, civil society organizations, women etc.

Issues of Concern (examples):

- The need to create employment for the locals, particularly the youth
- Skills and training opportunities for locals
- Building capacity of local people/businesses to participate in the industry
- Potential oil spills and impacts on coastal communities
- Emergency response plans to deal with oil spills and other accidents/incidents
- Sustainable alternative livelihood schemes for persons affected by the projects
- Capacity of regulators to monitor and regulate effectively

- Safety zones and impacts on fisheries
- Land take
- The need to support security agencies such as Ghana navy to secure oil and gas operations
- Conflict resolution and management mechanisms
- Management of expectations
- Fisheries impacts and the need to support local artisanal fishing industry
- Waste management
- Transparency in all aspects of operations

### 3.2 Scoping

Scoping is a process which defines the geographical and thematic boundaries of the SEA. A workshop was held in Accra in February 2010 to discuss steps in the organization and implementation of the SEA Process. The workshop was organized by EPA and attended by representatives from the Ministry of Energy and Petroleum, GNPC, NDPC, NCEA, the Norwegian Ministry of Environment, the SEA Team and the consultants. The main outcome of the workshop was a Preliminary Scoping Report which was discussed with main stakeholders during workshops held in March 2010. This workshop concluded on the following:

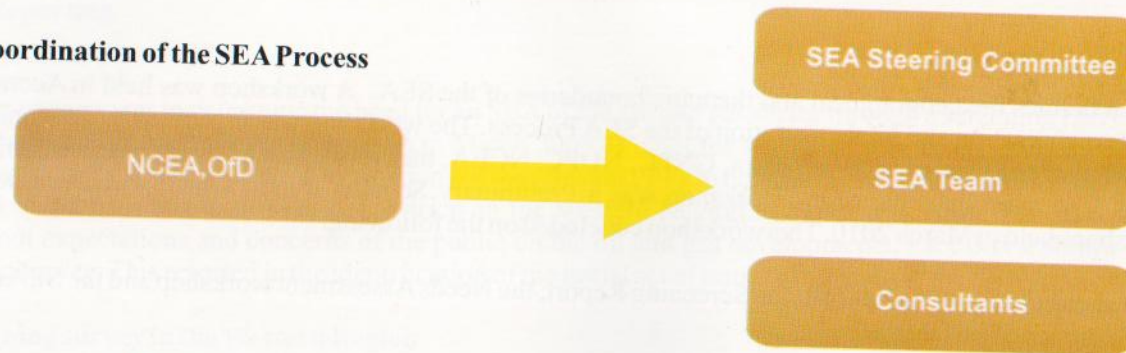
- The SEA should be based on the ToR, the Screening Report, the Needs Assessment workshop and the SEA review report of SEA experiences in Ghana.
- The sector ministry, MoEP, should lead the SEA Process.
- The purpose of the SEA was agreed.
- SEA linkages to planning/decision-making processes were clarified.
- The SEA focus on Key Issues as basis for the assessment was decided and the process of identifying the Key Issues was discussed and agreed upon.
- Relevant stakeholders to be consulted were identified.
- The SEA Core Team should carry out the SEA supported by international and local consultants.
- Budgets, timelines and workshops/consultations were settled.
- A Steering Committee was established (see Figure 4).



The Steering Committee was put in place in order to ensure effective coordination and direction of the SEA Process. The members of the Steering Committee comprised:

- Deputy Minister, MESTI - Co-chair
- Deputy Minister, MoEP - Co-chair
- Executive Director, EPA
- Director-General, NDPC
- Director of Operations and Exploration, GNPC

Figure 4: Coordination of the SEA Process

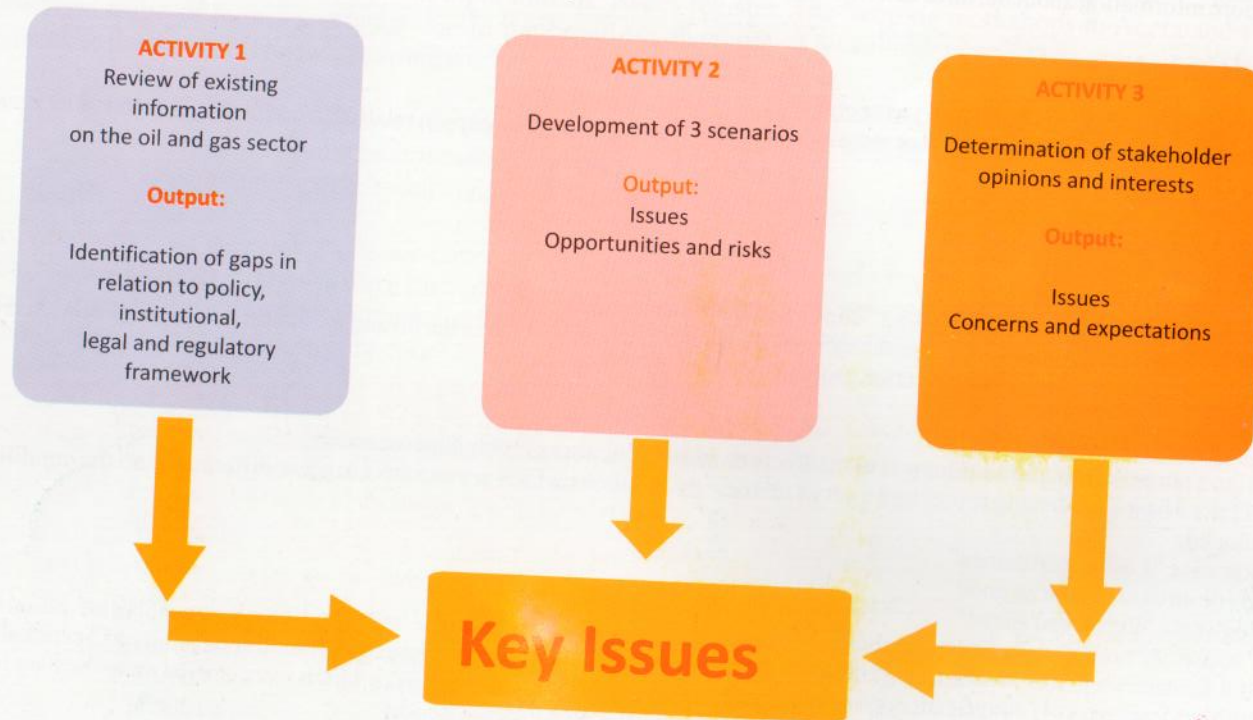


An inaugural meeting of the Steering Committee took place in Accra in April 2011 headed by the Deputy Minister of MESTI. Some of the issues focused by the Steering Committee were:

- Ghana must learn from mistakes of other countries
- Ghana should cooperate closely with Development Partners, especially Norway
- The SEA should use the opportunity to reach a wide range of stakeholders
- The process should promote democracy in decision-making
- Academia, NGOs and civil society organizations should be involved
- The SEA should promote proactive planning/phasing of the petroleum development
- Management of offshore waste products
- Linkages to be built with other sectors to promote rapid industrialization

Subsequent to the preparation of the Preliminary Scoping Report, the next set of activities was to identify the Key Issues to be considered in the assessment phase. This was done as shown in Figure 5 below where the issues emerging from Activities 1,2 and 3 were identified and prioritized.

Figure 5: Activities related to Identification of Key Issues



Fact Box 3 below provides more information about the three activities leading to the identification of Key Issues.

### **Fact Box 3: Identification of Key Issues**

#### **Activity 1: Review of existing information on the oil and gas sector**

This involved desktop review of various existing and relevant sector documents to identify potential gaps in relation to environmental and other issues. The review covered the following:

- Energy Policy
- Draft oil and gas policy
- Draft oil and gas master plan
- Jubilee EIS review report
- Various documentation from GNPC such as “The Gas utilization project concept”

It was found that while aspects of the Energy Policy had been the subject of earlier SEA, it did not cover the oil and gas sector as it pertains now. Activity 1 identified 39 issues of significance for the Key Issues selection process.

#### **Activity 2: Development and analysis of scenarios**

Scenarios are used to describe a range of future conditions and their effects on strategic actions (PPPs). Each scenario represents an image of the future based on driving forces and a set of realistic assumptions which are used to visualize different futuristic conditions. Three scenarios were developed:

1. The low case “Lost opportunities”
2. The medium case “So far so good”
3. The high case “Full speed ahead”

The development of the scenarios provided an initial qualitative estimation of the potential positive and negative consequences of oil and gas exploitation in Ghana and it focused on identification of significant opportunities and risks. It covered issues within all four pillars of Sustainability. The scenario analysis identified fourteen (14) significant opportunities and twenty-one (21) significant risks which were carried on to the Key Issues selection process. Detailed description of the scenario analysis has been presented in the SEA Process Report.

#### **Activity 3: Determination of stakeholder opinions and interests**

Identification of major issues, concerns and expectations were determined using the:

- The findings of the public hearings held in the Western Region during the Screening Process in 2009
- Findings of the broad stakeholder Scoping workshops held in March 2010
- Findings of Sector meetings
- Findings of focus group meetings with various stakeholders

More than 30 major issues were identified to be carried on to the selection process. It should also be mentioned that a number of relevant issues (15 major issues) were identified from other consultations and submissions from interest groups, practitioner’s forum etc.

All three activities provided significant input into an issues register. The Scoping workshops in Accra and Busua in March 2010 are considered to be of high importance due to the broad involvement of stakeholders and their active participation and very relevant feedback to the process. The two Scoping workshops determined that:

- The SEA should cover the overall oil and gas potential in Ghana, both offshore and onshore.
- The study should be structured on a basin-by-basin basis.
- An inventory of relevant main issues and a list of stakeholders to be involved.

More than seventy (70) relevant issues covering all four pillars were identified as a result of the three activities. These were further harmonized, and fifty (50) issues were carried on to the identification of Key Issues. In order to select key priority issues, a methodology based on significance was adopted using criteria such as frequency of occurrence during the three processes described above. This methodology concluded with twenty-four (24) Key Issues as follows:

#### Natural Resources

- Invasive species associated with the disposal of ballast water and its effects on marine environment
- Accidental spillages and incidents at all stages
- Waste management at all stages
- Climate change

#### Socio-cultural

- Increase in social vices
- Public and occupational Health and Safety
- In-migration and related social and health implications
- Unrealistic or exaggerated expectations in the local population
- Oil spills and their effects on the livelihoods of the coastal communities, especially women, children and the vulnerable

#### Economic

- Job creation and increase in employment leading to improvement in the living standards of the people particularly the youth
- Avoidance of over-dependence on oil and gas (Dutch Disease) by investing in agriculture and allied sectors
- Sustainable Alternative Livelihood schemes for persons affected by the oil and gas development
- Proper management of petroleum revenues and gas resources
- Price distortions arising from income dispositions in oil producing areas
- Drain of skilled workforce from other sectors into the oil and gas sector

### Institutional

- Institutional mandate and arrangement for offshore petroleum safety and emergency training.
- Need for a dedicated port to support oil operations
- Institutionalization of a forum for continuous stakeholder engagement/consultations and conflict Resolution & Management
- Capacity building, skills training and technology transfer for local businesses to participate in the oil industry
- Institutional capacity building for monitoring and regulation
- Need to ensure transparency and fairness in the operations of the oil and gas industry
- Management of expectations including issues relating to naming of fields and wells, etc
- Land use Planning and Control
- Health and other Emergency Response Facilities

A Scoping Report was completed in August 2010 after a comprehensive process involving sectorial meetings with the authorities of fisheries, health, tourism, the oil and gas industry, spatial planning/land use and others. The SEA Team also reviewed existing information on the oil and gas sector, and finalized the scenario analysis to be included in the report. An abridged version of the Scoping Report was produced and disseminated to all stakeholders.

### 3.3 Assessment

The SEA Assessment involved the identification of typical indicators and relevant sources of information for each Key Issue. Furthermore, it was imperative to clarify in what context and to which extent the Key Issues are integrated into existing Policies, Plans and Programmes (PPPs) in Ghana. Consequently data sources were identified for all Key Issues and "Issues-Response" matrixes were filled in for more than 20 PPPs.

*It became however clear that most of the PPPs prepared and issued before Ghana's oil discoveries in 2007 did not address issues related to oil and gas since it was not relevant at that period of time. It was therefore decided to focus on the Ghana Shared Growth and Development Agenda (GSGDA 2010-2013) which is the Government's main development policy framework for two reasons:*

- *The GSGDA reflects the Government policy and sets the framework for all sector plans and district plans for the period 2010-2013 in terms of priorities and budget allocations*
- *The GSGDA scored highest in terms of issues-response since many Key Issues are addressed*

This made it necessary to discuss the Key Issues in the context of the objectives and strategies of GSGDA with direct involvement of the sectors/thematic groups. All sector medium term plans and budgets require that all sector strategies and activities are linked to relevant objectives of the National Development Policy Framework (NDPF) which currently is the GSGDA. This means that funding can only be provided for implementation of the SEA Key Issues when they are captured under appropriate objectives of the NDPF. The procedure for linking the SEA Key Issues to the NDPF objectives is as follows:

- Step 1: Identify the respective policy objectives within the NDPF.
- Step 2: Link the sector strategy to the identified policy objective from Step 1
- Step 3: Determine the activities, resources and time frame for implementing the sector strategy.
- Step 4: Determine cost associated with the activities, resources and time frame.
- Step 5: Identify key collaborating institutions.

A sector meeting was arranged in May 2011 during which the 24 Key Issues were assessed against relevant issues addressed in the oil and gas section of the GSGDA. The evaluations were made by sixty (60) participants from the target MDAs, NGOs as well as the petroleum industry. They found that a great amount of issues were matching and they identified gaps between the issues in the GSGDA and the SEA. They also identified indicators for future monitoring.

The sector participants in the meeting were instructed to ensure that the issues and responses relevant to their sector/thematic group were duly incorporated in their sector PPPs and for the budget process. A final stage of the Assessment was to engage staff within the Policy, Planning, Monitoring and Evaluation/Budget Divisions to follow up and ensure that the Key Issues are incorporated into sector PPPs and to guide on how to match the Key Issues against the GSGDA issues, policy objectives and strategies. A specific matrix is attached to the SEA Process Report comprising this information. These final activities established a good working atmosphere among relevant institutions and raised awareness on how to deal with the results of the SEA Process.

Subsequent to the Assessment process, series of information dissemination and feedback meetings were held in July/August 2011 in the various communities along the coast and with representatives of inland communities where onshore activities are imminent. The purpose of these meetings was to present the results of the assessments and to get reactions from the participants, their concerns and what they think the oil and gas development would bring or has brought to them.

These are the conclusions from the meetings which were concentrated on the fishing communities:

**Western Basin**

Four meetings in Half Assini, Esiama, Axim and Shama.

Conclusions (selection):

- Issues raised were not different from issues identified in the previous consultations.
- The communities are however tired of the numerous consultations without direct results.
- The fishermen were experiencing low fish catch since the laying of West Africa Gas pipelines and other activities with its attendant decreasing income, stiff competition from commercial and larger fishing vessels and the need for alternative livelihood and support schemes.



**Central Basin**

Two meetings in Saltpond and Winneba

Conclusions (selection):

- Exclusion zones are established without prior discussions with the fishermen.
- Government should include fishing in the educational system.
- The petroleum industry should employ natives along the coast, not entirely people from other countries.

### Eastern Basin

Two meetings held in Accra and Keta.

#### Conclusions (selection):

- There should be visible boundaries to avoid the fishermen encroaching on the exclusion zones of the petroleum industry.
- Chemicals used during drilling affect fishing.
- Fishing activities should be modernized with the support from Government.

### 3.4 Capacity Building

The development of SEA in Ghana has always involved a conscious effort to build the capacity of participating stakeholders through the participatory processes. The aim is to encourage the people to consider environmental considerations at the earliest stages of decision-making and thereby promote sound environmental stewardship by developing the petroleum sector.

- During this SEA, all stakeholders involved got a basic understanding of the petroleum industry, for example through the development, evaluation and communication of development scenarios. The broad range of participants drawn from public and private sectors, traditional authorities, religious groups, fishing communities, transport operators, artisans, civil society organization, women's groups etc., were exposed to the application of basic SEA tools, such as opportunity/risk matrices, and identification and assessment of issues related to the petroleum sector.
- A number of capacity building opportunities have been provided to the SEA Team. Not only through the daily execution of the SEA, but also by exposing the Team to international perspectives of the oil and gas sector. Study tours to the Netherlands and Norway and participation in international professional conferences have contributed particularly to this training.

### 3.5 Monitoring

In order to address accountability and transparency concerns of stakeholders, while serving as a source of information to sector managers on progress towards achieving set targets and goals, a Monitoring Plan was developed. The purpose of the plan is to follow up on the SEA recommendations and to facilitate mid-term corrections during implementation of PPPs. The plan covers the Key Issues of the SEA and presents recommendations for mitigation, monitoring indicators and responsible institutions. The timeframe and budget would be determined by the implementing agency.

Fact Box 4 presents examples of the plan for Key Issues in all four pillars.



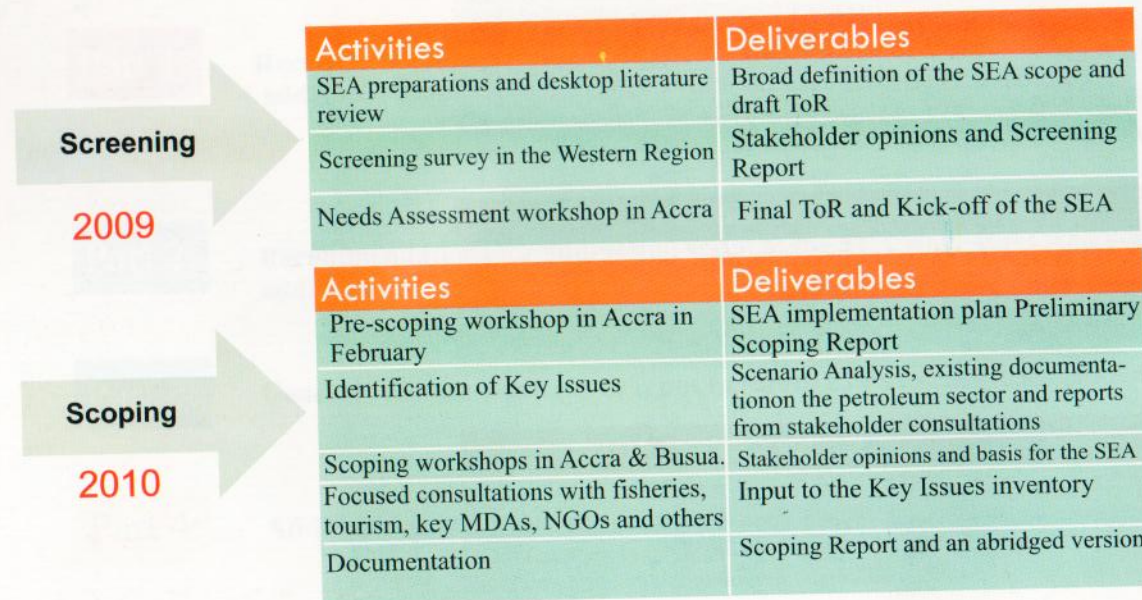
### Fact Box 4: Examples from the Monitoring Plan

Issues	Recommendation for mitigation	Monitoring Indicators	Responsible institution
<p><b>Natural Resources</b></p> <p>Accidental spillages and incidents at all stages. Tanker collisions.</p>	<ul style="list-style-type: none"> <li>- Emergency response systems</li> <li>- Capacity building for emergency response</li> <li>- Strict and robust oil pollution monitoring regime</li> </ul>	<p>Registered potential sources for discharge</p> <ul style="list-style-type: none"> <li>- Number of oil spill incidents</li> <li>- Number of tanker/ships collisions</li> </ul>	<ul style="list-style-type: none"> <li>- International Oil Companies (IOCs) and the National Oil Company NOC)</li> <li>- EPA</li> <li>- Petroleum Commission</li> <li>- Ghana Maritime Authority</li> </ul>
<p><b>Socio-cultural</b></p> <p>Public and Occupational Health, and Safety</p>	<ul style="list-style-type: none"> <li>- Provide efficient health care and emergency facilities</li> <li>- Capacity should be built in occupational health and safety for oil and gas workers and health care professionals</li> </ul>	<ul style="list-style-type: none"> <li>- Public health and safety incidents related to oil and gas operations</li> <li>- Change in the health status of communities</li> </ul>	<ul style="list-style-type: none"> <li>- International Oil Companies (IOCs) and the National Oil Company (NOC)</li> <li>- NADMO</li> <li>- Ghana Health Service</li> <li>- Ghana National Fire Service</li> <li>- Ghana Maritime Authority</li> </ul>
<p><b>Economic</b></p> <p>Avoidance of overdependence on oil and gas by investing in other key areas such as agriculture and allied sectors</p>	<ul style="list-style-type: none"> <li>- Government should pay equal attention to investments in other sectors of the economy such as agriculture</li> <li>- Government should create the enabling environment for the private sector investment in other sectors of the economy</li> </ul>	<p>National budgetary allocations</p> <ul style="list-style-type: none"> <li>- Percentage of foreign direct investment in other sectors</li> </ul>	<ul style="list-style-type: none"> <li>- Ghana Statistical Service</li> <li>- MOFEP</li> <li>- Ministry of Food and Agriculture</li> <li>- NDPC</li> </ul>
<p><b>Institutional</b></p> <p>Need to ensure transparency and fairness in the operations of the oil and gas industry</p>	<ul style="list-style-type: none"> <li>- The Government should fully implement the EITI</li> <li>- Institute mechanisms to ensure transparency in the oil and gas sector</li> </ul>	<ul style="list-style-type: none"> <li>- Availability of oil and gas information to the public</li> <li>- Laws and regulations established and complied with/enforced</li> </ul>	<ul style="list-style-type: none"> <li>- International Oil Companies (IOCs) and the National Oil Company (NOC)</li> <li>- Petroleum Commission</li> <li>- MoEP - MoFEP (EITI secretariat) - BoG - Parliament</li> <li>- Petroleum companies</li> <li>- Media - CSOs</li> </ul>

### 3.6 Reporting

The final SEA Process Report and the related Content Report as well as this Executive Summary, all dated July 2013, concluded the SEA Process for the oil and gas sector in Ghana.

Figure 5: SEA Process and Deliverables



**ASSESSMENT**

2011

Activities	Deliverables
SEA Team planning meetings	Detailed work plans, methodology and budgets
Inaugural Steering Committee meeting, April	Directions for the further SEA Process
Evaluation of links between Key Issues and relevant PPPs	Issues-response matrixes and change of approach by focusing on the NDPF (GSGDA)
Sector meeting and follow up with administrativestaff	Match between the SEA Key Issues and the GSGDA issues, policy objectives and strategies
Dissemination and feedback meetings with MMDAs	Response to the SEA and concerns

**Monitoring**

2011/12

Activities	Deliverables
Evaluation of links between the Key Issues and mitigation, monitoring and responsible institutions	Monitoring plan

**Reporting**

2012/13

Activities	Deliverables
Development and Implementation of the recommendations from the SEA Process and planning for the follow up phases	Final Process Report Final Content Report Executive Summary

## 4. Recommendations

Key Issues identified in the SEA were matched against the main issues in the GSGDA and their corresponding strategies. Although this met an important objective of the SEA, it was observed that there were still a number of gaps that needs to be further addressed. In view of this, the following specific recommendations are made accordingly.

The recommendations are given in four parts:

### Part 1:

**Recommendations for enhancing strategies related to the SEA Key Issues which have been partly addressed in the current NDPF which is currently the GSGDA 2010 – 2013.**

### Part 2:

**Recommendations for addressing seven of the SEA Key Issues which are not addressed by the NDPF (GSGDA).**

### Part 3:

**General recommendations as input to future PPPs to ensure sustainable development of the oil and gas sector.**

### Part 4:

**Additional general recommendations.**

## Part 1

Recommendations for enhancing strategies related to the SEA Key Issues which have been partly addressed in the current NDPF which is currently the GSGDA 2010–2013.

**SEA Key Issue:** Capacity building, skills training and technology transfer for local businesses to participate in the petroleum industry. Consideration should be given to women and young people.

GSGDA Issue: Develop the oil and gas industry with optimal local content and participation

GSGDA Strategy: Design a comprehensive framework for the development of the oil and gas industry

### Recommendation 1.1

- The GSGDA objective is to develop an oil and gas industry with optimal local content and participation. However, implementation of the strategy should focus on addressing the local content and participation as envisaged ensuring that it is people centered.
- The strategy as it stands is broad and may not specifically address issues such as skills training, technology transfer and capacity building. It is therefore important that the corresponding program under this strategy encourages industry to address these issues.

GSGDA Issue: The economy's over-reliance on primary products with very little value addition  
GSGDA Strategy: Build the capacity of Ghanaians for participation in all segments of the oil and gas industry

### Recommendation 1.2

- This GSGDA issue was adequately addressed in the GSGDA documents. However, to reinforce this issue, it is important that the local content and participation policy is implemented to achieve its intended objectives including capacity building, job creation and value addition. This could be achieved through the Gas commercialization project and the establishment of Enterprise Development Centers for SMEs among others.

GSGDA Issue: Inadequate local capacity

GSGDA Strategy: Link up with the relevant institutions to build capacity in relevant areas

GSGDA Strategy: Create a human resource data base of Ghanaian capacities in the oil and gas sector

GSGDA Strategy: Assess and build local capacities of Ghanaians both within and outside the country

Recommendation 1.3

- During implementation of the above strategy, emphasis should be on the vulnerable and excluded especially women and the youth.

GSGDA Issue: Lack of petrochemical industry to support the new oil and gas industry

GSGDA Strategy: Develop the petrochemical industry to utilize local oil and imported natural gas and Ghana's salt resources

Recommendation 1.4

- Ghana is now developing its own gas infrastructure which would utilize Ghana's gas resources as the backbone for the petrochemical and allied industry. For this reason, the strategy dealing with the development of the petrochemical industry using "imported" natural gas may no longer be relevant.

GSGDA Issue: Limited capacity of indigenous financial institutions to participate in the oil and gas sector

GSGDA Strategy: Actively support institutions that provide adequate funding for technical training and scientific research and development

Recommendation 1.5

- The skills training should not only be technical. There should be a more holistic approach covering finance, insurance, legal, environment, ICT among others.

**SEA Key Issue: Capacity building, skills training and technology transfer for local businesses to participate in the petroleum industry. Consideration should be given to women and young people**

**SEA Key Issue: Institutionalization of a forum for continuous stakeholder engagement/ consultations and conflict Resolution and Management**

GSGDA Issue: Inadequate local participation in the exploration, development and production of oil and gas resources  
GSGDA Strategy: Maximise the participation of Ghanaians in the exploration, development, production and utilization of oil and gas

Recommendation 1.6

- In maximizing active local participation, consideration should be given to capacity building, partnerships between local and foreign operators as well as strengthening local financial institutions.

**SEA Key Issue: Institutionalization of a forum for continuous stakeholder engagement/ consultations and conflict Resolution and Management**

GSGDA Issue: Inadequate public awareness of the potential and impact of the oil and gas resources on the nation's development prospects  
GSGDA Strategy: Create awareness on the prospects and impact of oil and gas resources on the nation's development

Recommendation 1.7

- The strategy should go beyond awareness creation and include establishment of institutionalised stakeholder engagement

**SEA Key Issue: Drain of skilled workforce from other sectors into the oil and gas sector**  
**SEA Key Issue: Capacity building, skills training and technology transfer for local businesses to participate in the petroleum industry**  
**SEA Key Issue: Job creation and increase in employment leading to improvement in the living standards of the people particularly women and the youth in supporting allied services**

GSGDA Issue: Inadequate local capacity  
GSGDA Strategy: Link up with educational institutions to build capacity in relevant areas  
GSGDA Strategy: Create a human resources data base of Ghanaian capacities in the oil and gas industry  
GSGDA Strategy: Assess and build local capacity of Ghanaians both within and outside the country

Recommendation 1.8

- Capacity building should go beyond education and training to include technology transfer, financial and logistical support.

**SEA Key Issue:** Job creation and increase in employment leading to improvement in the living standards of the people particularly women and the youth in supporting allied services

GSGDA Issue: High national unemployment levels  
GSGDA Strategy: Ensure utilization of oil revenue in the priority areas of education, health, agriculture, rural development, infrastructure, water and sanitation, for accelerated poverty reduction

Recommendation 1.9

- Adequate budget provision should be made to achieve this strategy

**SEA Key Issue:** Avoidance of over-dependence on oil and gas (Dutch Disease) by investing in agriculture and allied sectors

GSGDA Issue: Integrate oil and gas development into the broad national economy  
GSGDA Issue: Avoid over-dependence on the oil and gas sector to the detriment of other sectors of the economy  
GSGDA Issue: The potential for the oil and gas industry to become a replacement for other sectors of the economy, particularly agriculture  
GSGDA Strategy: Ensure that the oil and gas sector aligns its programmes with all other sectors for collaborative implementation of development plans  
GSGDA Strategy: Use opportunities arising from the oil and gas discoveries as a catalyst for diversifying the economy  
GSGDA Strategy: Ensure value addition to local goods and services and maximize their use in the oil and gas industry



Recommendation 1.10

- This strategy appropriately addresses the issue of avoidance of the over-dependence on the oil and gas sector. However, agriculture is the back bone of the Ghanaian economy which employs about 70 percent of the work force. For that matter, national budgetary allocation for the agricultural sector should be increased to support on-going agricultural sector modernization

**SEA Key Issue:** In-migration and related social and health implications

GSGDA Issue: Challenges of internal and external migration and related consequences  
GSGDA Strategy: Include re-development of existing settlements as part of the “growth poles” of the new urban settlements expected from the oil and gas industry

Recommendation 1.11

- Development of existing settlements alone is not an adequate strategy to prevent in-migration. This must be accompanied by sustainable job creation strategies.

**SEA Key Issue:** Unrealistic or exaggerated expectations in the local population

GSGDA Issue: Very high expectations of benefits from the oil and gas industry  
GSGDA Strategy: Ensure utilization of oil revenue in the priority areas of education, health, agriculture, rural development, infrastructure, water and sanitation, for accelerated poverty reduction

Recommendation 1.12

- There should be a systematic awareness creation and a consultation process should be in place to manage the high expectations of the population in order to avoid potential agitation. This will require commitment from Government and other non-governmental organizations.

**SEA Key Issue:** Institutional capacity building for monitoring and regulation

GSGDA Issue: Inadequate baseline information on the environmental impacts of oil and gas projects  
GSGDA Strategy: Ensure persistent and stringent monitoring and evaluation

GSGDA Strategy: Build capacity of EPA and related institutions to monitor and undertake environmental impact assessments in the oil and gas industry  
GSGDA Strategy: Research into environmental impacts associated with the oil and gas industry

Recommendation 1.13

- EPA should accelerate the completion of updated baseline information. Part of the oil revenues should be used to support this exercise. Capacity building for EPA should cover broader environmental management issues such as waste management, health impact assessment etc.

GSGDA Issue: Challenges of ensuring environmental sustainability in the oil and gas industry  
GSGDA Strategy: Ensure persistent and stringent monitoring and evaluation

Recommendation 1.14

- This strategy is laudable and must be implemented and sustained with accompanying relevant logistical, financial and technical support.

**SEA Key Issue:** Institutional capacity building for monitoring and regulation  
**SEA Key Issue:** Accidental spillages and incidents at all stages  
**SEA Key Issue:** Public occupational health and safety

GSGDA Issue: Lack of capacity to manage environmental impacts  
GSGDA Strategy: Build capacity of EPA and related institutions to monitor and undertake environmental assessment in the oil and gas industry

Recommendation 1.15

- The capacity building must be accompanied by the appropriate legal and regulatory framework with resources to conduct monitoring.

**SEA Key Issue:** Institutional capacity building for monitoring and regulation  
**SEA Key Issue:** Proper management of petroleum revenues and of gas resources  
GSGDA Issue: Limited revenue management capacity

GSGDA Strategy: Develop appropriate guidelines for oil and gas revenue collection  
GSGDA Strategy: Monitor and scrutinize revenue from the industry

Recommendation 1.16

- Full implementation of the Petroleum Revenue Management Act and full disclosure and transparency through EITI.

**SEA Key Issue:** Institutional capacity building for monitoring and regulation  
**SEA Key Issue:** Proper management of petroleum revenues and of gas resource  
**SEA Key Issue:** Need to ensure transparency and fairness in the operations of the oil and gas industry

GSGDA Issue: Corruption  
GSGDA Strategy: Strengthen monitoring, evaluation and reporting systems in the industry

Recommendation 1.17

- There should be full disclosure according to e.g. Extractive Industries Transparency Initiative (EITI) and capacity building for judges, parliamentarians and investigative bodies

**SEA Key Issue:** Price distortions arising from income disparities in oil producing areas  
**SEA Key Issue:** Proper management of petroleum revenues and of gas resource  
**SEA Key Issue:** Need to ensure transparency and fairness in the operations of the oil and gas industry

GSGDA Issue: Potential distortions in the economy  
GSGDA Strategy: Strengthen monitoring, evaluation and reporting systems in the industry

Recommendation 1.18

- In addition to strengthening monitoring, evaluation and reporting, there should be pragmatic measures such as fiscal and monetary policies to address the distortions in the economy

**SEA Key Issue: Land use planning and control**

GSGDA Issue: Major land use challenges especially in the Western Region  
GSGDA Strategy: Develop and enforce the use of spatial plans especially in the Western Region

Recommendation 1.19

- Spatial planning framework for the Western Region should include SEA findings and recommendations and should be backed by relevant implementation plans. This exercise should be expanded to cover other regions as well.

**SEA Key Issue: Waste management at all stages**  
GSGDA Issue: Inconsistency of waste management regulations with international standards  
GSGDA Strategy: Ensure persistent and stringent monitoring and evaluation

Recommendation 1.20

- Waste management infrastructure should meet international standards and should be backed by the relevant legal and regulatory framework

**SEA Key Issue: Land use planning and control**

GSGDA Issue: Major land use challenges especially in the Western Region  
GSGDA Strategy: Develop and enforce the use of spatial plans especially in the Western Region

Recommendation 1.19

- Spatial planning framework for the Western Region should include SEA findings and recommendations and should be backed by relevant implementation plans. This exercise should be expanded to cover other regions as well.

**SEA Key Issue: Waste management at all stages**

GSGDA Issue: Inconsistency of waste management regulations with international standards  
GSGDA Strategy: Ensure persistent and stringent monitoring and evaluation

Recommendation 1.20

- Waste management infrastructure should meet international standards and should be backed by the relevant legal and regulatory framework

## PART 2

Recommendations for addressing seven of the SEA Key Issues which are not addressed by the NDPF (GSGDA).

### **SEA Key Issue: Invasive species associated with the disposal of Ballast Water and its effects on the marine environment (Natural Resources)**

Comment: The issue of concern has to do with the invasive species which under certain circumstances can consume or displace economic marine resources such as fisheries, coral reefs, etc.

#### Recommendation 2.1

- Strict monitoring regimes are required to identify any invasive species that may be associated with ballast water and dealt with promptly to avoid spreading to other areas including inland water resources.

### **SEA Key Issue: Climate Change (Natural Resources)**

Comment: While the GSGDA devoted a section for discussing climate change issues, it failed to consider the contribution of the oil and gas industry to this phenomenon.

#### Recommendation 2.2

- It is therefore essential that the oil and gas industry adopts a low carbon growth approach. This must be taken into consideration when preparing medium term development plans.

### **SEA Key Issue: In-migration and related social and health implications (Socio-cultural)**

Comment: The oil and gas industry can trigger the migration of people from all over the world to the oil producing areas in search of anticipated job opportunities which may be non-existent. This movement is accompanied by social vices such as burglary, homosexuality, prostitution, etc.

Recommendation 2.3

- Law enforcement and security facilities will have to be strengthened to minimize if not eliminate social vices.

**SEA Key Issue: Oil spill and its effects on the livelihood of the coastal communities, especially women and children (Socio-cultural)**

Comment: Compensation for affected persons in the form of monetary payments alone have proven to be unsustainable.

Recommendation 2.4

- The need to develop and implement sustainable alternative livelihood schemes in collaboration with affected persons. These schemes should be monitored continuously to ensure that beneficiaries are adequately taken care of.

SEA Key Issue: Lack of institutional mandate and arrangement for offshore petroleum safety and emergency training. (Institutional)

Comment: The offshore oil and gas industry operates in a high risks environment

Recommendation 2.5

- The industry requires that adequate training to the highest international standard is provided for all personnel. It is necessary that regulatory mechanisms and standards such as those of the Offshore Petroleum Industry Training Organization (OPITO) are adopted and implemented by the Petroleum Commission. This should be accompanied by strict monitoring and compliance guidelines.

**SEA Key Issue: Need for a dedicated port to support oil operations (Institutional)**

Comment: Ghana's two commercial sea ports are both highly congested.

Recommendation 2.6

- Therefore in order to facilitate offshore operations of the oil and gas activities, it is required that a purpose built port for oil and gas activities with adequate offices, warehousing and storage capacities is provided at a suitable location. Ideally, this should be a private sector venture by local banks, insurance companies and other financial institutions as part of local content initiative.

**SEA Key Issue: Inadequate Health and other Emergency Response Facilities (Institutional)**

Comment: Accident and incidents associated with oil and gas activities can result in major injuries that could be fatal, thus requiring prompt response.

Recommendation 2.7

- This calls for adequate logistics such as helicopters, ambulances, speed boats as well as suitably equipped hospitals and clinics. The Ghanaian health sector and the health systems can be a key partner that can facilitate better response to emergencies and unforeseen events (e.g. explosions and burns, outbreaks). There is a need to focus on health systems, both from the point of view of anticipating potential effects on health services delivery and from the point of view of including the health system as a key partner and support/service sector for the oil and gas development activities. Strategic Health Impact Assessment (SHIA) of the Oil and Gas sector should also be undertaken in this regard.



### Part 3

General recommendations as input to future PPPs to ensure sustainable development of the oil and gas sector.

#### **Issue: Invasive species associated with the disposal of Ballast Water and its effects on the marine environment**

##### Recommendation 3.1

- Strict monitoring regimes are required to identify any invasive species that may be associated with ballast water and dealt with promptly to avoid spreading to other areas including inland water resources. In addition, institutions with the mandate for dealing with invasive aquatic weeds should be identified, roles and responsibilities clearly defined and adequately resourced.

#### **Issue : Accidental spillages and incidents at all stages Tanker collisions**

##### Recommendation 3.2

- There exists a National Oil Spill Contingency Plan. However, there is the need to provide adequate resources for its full implementation. In addition, institutional and regulatory framework to enhance the operationalization of the plan should be put in place. It is imperative that periodic exercises to test the robustness of the plan as well as operational readiness should be conducted. A Strict and robust oil pollution monitoring regime should be established. Capacity building in oil spill response, including the participation of local communities particularly, fishermen and women.

#### **Issue: Waste Management**

##### Recommendation 3.3

- A comprehensive oil-specific waste management plan should be developed and implemented. The plan should include the following:
- Guidelines for waste management
- Construction of engineered landfill sites/waste disposal infrastructure with adequate capacity for waste disposal
- Construction of hazardous and non - hazardous waste treatment facilities
- Standards for the transportation of waste (petroleum waste and other waste from the ship operations)
- Promotion of Reduction, Reuse, Recycling and Recovery Principles.

**Issue: Climate Change**

Recommendation 3.4

- The oil and gas industry should adopt a low carbon growth approach. Climate change should be mainstreamed into the oil and gas development planning system. For example, vigorous reforestation to serve as a carbon sink and development of sustainable adaptation strategies.

**Issue: Increase in social vices**

Recommendation 3.5

- Studies on social and health impact assessments should be conducted to identify and address potential social vices and health problems. Adequate provision should be made for the prevention of crime such as social protection programmes, public education and job creation. Law enforcement and security facilities will have to be strengthened to minimize if not eliminate social vices.

**Issue: Public and Occupational Health and Safety**

Recommendation 3.6

- Conduct an assessment of health and emergency response facilities / services in areas in close proximity to oil producing areas. This will provide the basis for providing well equipped health care and emergency facilities and upgrading existing ones to undertake emergency care. Capacity should also be built in occupational health and safety for oil and gas workers and health care professionals.]

**Issue: In-migration and related social and health implications**

Recommendation 3.7

- Migration Policy should be developed and fully implemented. Adequate social and health amenities should be developed to respond to the needs of population increase. "Growth Poles" should be created to re-distribute the population and also serve as an alternative reception point for migrants.

**Issue: Unrealistic or exaggerated expectations in the local population**

Recommendation 3.8

- Government should put in place mechanisms to manage expectations through; education and awareness creation, re-injecting part of the revenue from the oil and gas industry into the local economy to create jobs for the people and alternative livelihood support programmes to take care of those who may be displaced by the oil and gas industry.

**Issue: Oil spill and its effects on the livelihood of the coastal communities, especially women and children**

Recommendation 3.9

- The need to develop and implement sustainable alternative livelihood schemes in collaboration with affected persons. These schemes should be monitored continuously to ensure that affected persons or communities are adequately compensated. A baseline livelihood study of coastal communities should be undertaken to form the basis for future compensation as well as alternative livelihood schemes or social intervention programmes.

**Issue: Job creation and increase in employment leading to improvement in the living standards of the people particularly the youth**

Recommendation 3.10

- The local content and participation policy must be implemented and monitored to achieve its intended objectives and targets including capacity building, job creation and value addition as earlier stated. This could be achieved through the Gas Commercialization Project and the establishment of Enterprise Development centres for SMEs among others.

**Issue: Avoidance of over-dependence on oil and gas (Dutch Disease) by investing in agriculture and allied sectors**

Recommendation 3.11

- Agriculture is the back bone of the Ghanaian economy which employs about 70 percent of the workforce. For that matter, national budgetary allocation for the agricultural sector should be increased to support on-going agricultural sector modernization. Government should also create the enabling environment for the private sector to invest in other sectors of the economy

**Issue: Sustainable Alternative livelihood schemes for persons directly affected by the oil and gas development particularly women, children and the vulnerable**

Recommendation 3.12

- The need to develop and implement sustainable alternative livelihood schemes in collaboration with affected persons. Corporate Social Responsibility programmes must be encouraged and monitored through well defined guidelines. There is also the need for education and awareness on alternative livelihood schemes.

**Issue: Proper management of petroleum revenues and gas resources**

Recommendation 3.13

- Full implementation of the Petroleum Revenue Management Act and full disclosure and transparency through EITI.

**Issue: Price distortions arising from income disparities in oil producing areas**

Recommendation 3.14

- Provision of adequate social service infrastructure and commodities to avoid shortages that might result in price distortions

**Issue: Drain of skilled workforce from other sectors into the oil and gas sector**

Recommendation 3.15

- The economy must be expanded through investments in other sectors to bridge the income disparities. There should be massive investment in human resource development.

**Issue: Lack of institutional mandate and arrangement for offshore petroleum safety and emergency training**

Recommendation 3.16

- The capacity of the Petroleum Commission should be strengthened to deliver on its mandate.

**Issue: Need for a dedicated port to support oil operations**

Recommendation 3.17

- In order to facilitate offshore operations of the oil and gas activities, it is required that a purpose built port for oil and gas activities with adequate offices, warehousing and storage capacities is provided at a suitable location. The development of this facility should take into consideration the local content and participation policy framework as well as the public-private partnership policy.

**Issue: Institutionalization of a forum for continuous stakeholder engagement/consultations and conflict Resolution & Management**

Recommendation 3.18

- An appropriate platform should be created to continuously engage stakeholders such as civil society organizations, public, oil and gas companies, traditional authorities and identifiable occupational groupings. In addition, government should promote the use of Alternative Dispute Resolution (ADR) Mechanism to deal with misunderstandings that may arise
- The capacity of relevant institutions particularly legal practitioners and the security authorities on ADR must be built.

**Issue: Capacity building, skills training and technology transfer for local businesses to participate in the oil industry (consideration should be given to women and young people)**

Recommendation 3.19

- Promote the development of appropriate curricula in oil and gas sector for students in tertiary institutions and build capacity of local businessmen. Support training institutions to expand their oil and gas training programmes to accommodate more students. Full implementation of the local content and participation Act

**Issue: Institutional capacity building for monitoring and regulation**

Recommendation 3.20

- Development of a comprehensive programme for a continuous capacity building for monitoring and effective compliance enforcement with adequate financial support. Appropriate sanctions regime should be developed and implemented for non-compliance. This should be done within the framework of the inter-agency collaboration and cooperation.

**Issue: Need to ensure transparency and fairness in the operations of the oil and gas industry**

Recommendation 3.21

- The government should intensify implementation of the EITI to ensure transparency in the oil and gas sector. The role of CSOs should be promoted in this regard.

**Issue: Management of expectations including issues relating to naming of fields and wells, etc**

Recommendation 3.22

- Development of guidelines for determining the names of fields taking into consideration the social and cultural sensitivities of the people in the community. In addition, public awareness programme in the oil and gas industry targeted at managing expectations should be developed. A conscious effort should be made to ensure that benefits from the oil and gas industry are shared equitably to address agitations.

**Issue: Land use Planning and Control**

Recommendation 3.23

- Spatial planning framework for Western Region should include SEA findings and recommendations and backed by relevant implementation plan. This exercise should be expanded to cover other regions.

**Issue: Inadequate Health and other Emergency Response Facilities**

Recommendation 3.24

- The Ghanaian health sector and the health systems can be a key partner that can facilitate better response to emergencies and unforeseen events (e.g. explosions and burns, outbreaks). There is a need to focus on health systems, both from the point of view of anticipating potential effects on health services delivery, including the health services as a key partner and support/service sector for the oil and gas development activities. Strategic Health Impact Assessment (SHIA) of the Oil and Gas sector should also be undertaken to assess health and emergency response facilities / services in areas in close proximity to oil producing areas. This will provide the basis for developing well equipped health care and emergency facilities and upgrading existing ones to undertake emergency care.

## Part 4

### Additional General Recommendations.

- Research and development should be an integral part of oil and gas development in Ghana. In this regard, particular attention should be paid to tackle potential disruptors that may arise as a result of rapid technological innovations that are characteristic of the oil and gas industry.
- Review existing legislation and also enact new legislation to guide the development of the oil and gas sector including provisions for fines, penalties and compensation.
- Appropriate measures should be put in place to screen oil companies that apply for license to ensure that they are able to manage oil spill incidents. Their track record for preventing and managing oil spills should be one of the key criteria for awarding of license.
- Oil and gas exploration should be phased over a specified number of years to ensure sustainable development in the oil and gas sector.
- Investment in modernizing the local fishing industry. Considering the potential conflicts between the oil and gas operations and the fishing industry, it is imperative that the local fishing industry is assisted to modernize through the provision of fibre boats, bigger vessels, well equipped landing sites, training and awareness. This will ensure peaceful co-existence between the two industries.
- The findings of the SEA should be mainstreamed into the National Development Planning and Budgeting System.



## 5. Concluding Remarks and Way Forward

The SEA process has been a very useful exercise in bringing the various expertise to bear on the conduct of the SEA. There has been a transfer of knowledge from the international consultants to the local experts and vice versa. Study tours and international seminars such as the IAIA have also added to the knowledge base of the SEA team.

Nevertheless, the process has been very challenging in terms of institutional commitment and adequate financing. These challenges stalled the process at some stages and led to the delay in early conclusion of the SEA process.

Several issues were raised by the key stakeholders consulted during the process. These issues were further consolidated into twenty-four (24) Key issues under the four pillars of sustainability – Institutional, Natural Resources, Socio-cultural and Economic. Recommendations on these issues were made for appropriate institutional consideration and implementation.

The MoEP, the lead institution for the SEA process, acting on behalf of the Government of Ghana would coordinate the consideration and implementation of the recommendations of the SEA. It is also expected that Government would issue a white paper on the findings of the SEA process to give further direction on the implementation process of the SEA recommendations.

