STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR OIL AND GAS DEVELOPMENT PLANS

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A REPORT ON THE STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) FOR OIL AND GAS DEVELOPMENT PLANS

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ABBREVIATIONS

ANP - Brazilian National Oil, Natural Gas and Biofuels Agency

APG - Asamblea del Pueblo Guaraní

BLNG - Browse Liquefied Natural Gas

CNPE - National Energy Policy Council

CSIR - Council for Scientific and Industrial Research

DECC - Department of Energy and Climate Change

DSD - Department of State Development

DTI - Department of Trade and Industry

EIA - Environmental Impact Assessment

EITI - Extractive Industries Transparency Initiative

EcoQOs - Environmental Quality Objectives

ECOWAS - Economic Community of West Africa

EPA - Environmental Protection Agency

EPBC - Environment Protection and Biodiversity Conservation

FDP - Field Development Plan

FEPA - Federal Environmental Protection Agency

GNPC - Ghana National Petroleum Corporation

GoM - Government of Mauritania

GSGDA - Ghana Shared Growth and Development Agenda

HoA - Heads of Agreement

HPA - Heritage Protection Agreement

IAIA - International Association of Impact Assessment

ICES - International Council for the Exploration of the Sea

MAREANO - Marine AREAI database for Norwegian coast and sea areas programme

MCA - Maritime and Coastguard Agency

MDGs - Millennium Development Goals

MEDD - Ministry of Environment and Sustainable Development

MHE - Ministerio de Hidrocarburos y Energía

MME - Ministry of Mines and Energy

MoEn - Ministry of Energy

MoU - Memorandum of Understanding

MPEM - Minister of Petroleum, Mines and Energy

NCEA - Netherlands Commission for Environmental Assessment

NDPC - National Development Planning Commission

NDT - Northern Development Taskforce

NEMA - National Environment Management Authority

NFA - National Forestry Authority

NNPC - Nigerian National Petroleum Corporation

NPA - National Planning Authority

NPD - Norwegian Petroleum Directorate

NREG - Natural Resource and Environmental Governance

NYSC - National Youth Service Corp

OfD - Norwegian Oil for Development Programme

OPEC - Organization of Petroleum Exporting Countries

OPEPs - Oil Pollution Emergency Plans

OSPRAG - Oil Spill Prevention and Response Advisory Group

PEPD - Petroleum Exploration and Production Department

PPPs - Policies, Plans and Programmes

PRSP - Poverty Reduction Strategy Paper

PTI - Petroleum Training Institute

SEA - Strategic Environmental Assessment

SEAPOP - SEA bird Populations programme

SERNAP - Servicio Nacional de Áreas Protegidas

SoSA - Statement of the Strategic Assessment

ToR - Terms of Reference

UBE - Universal Basic Education

UKCS - UK Continental Shelf

UNRA - Uganda National Roads Authority

UWA - Uganda Wildlife Authority

WAOFCO - West Africa Oil and Fuel Company

YPFB - Yacimientos Petrolíferos Fiscales Bolivianos

SUMMARY

This report examines the different context applied to the Strategic Environmental Assessment (SEA) of oil and gas development plans from eight different countries, a comparative assessment based on the SEAs for two countries, the progress of the oil and gas sector of one distinctive country and the development of a generic SEA guideline for the oil and gas sector.

Content

The main goal of this report is to examine how SEA process was developed and conducted to yield results inculcated in the policies plans and programmes (PPPs) to enable informed decision making in the oil and gas sector in different countries. This goal was organized as follows:

Chapter 1 gives an introductory overview of the relationship between oil and gas activities and SEA, the role of the Netherlands Commission for Environmental Assessment (NCEA) and the objectives of this report.

Chapter 2 contains a case study that exmines how Ministry of Energy (MoEn), in collaboration with the Environmental Protection Agency (EPA) pioneered an SEA after the discovery of oil and gas in at the jubilee field offshore in Ghana.

Chapter 3 contains a case study that explains how the Government of Mauritania recognized the relevance of improving the legal and regulatory framework and enhances development of the oil and gas sector through an SEA as a result of oil and gas discovery at Chinguetti field in Mauritania.

Chapter 4 contains a case study that describes the SEA for the Aguaragüe national park in Tarija and the protected areas of Madidi/Pilón Lajas in La Paz and Beni in Bolivia initiated by the Ministry of Hydrocarbons and Energy (MHE).

Chapter 5 contains a case study that explains the SEA process of the oil and gas basins located at the Albertine Graben which is an area of national and international significance due to its richness in biodiversity, initiated by the government of Uganda through the National Environment Management Authority (NEMA).

In general, Chapter 2, 3, 4 and 5 examine the process of the SEA, results, the effectiveness of the SEA, influence on PPPs, stakeholders participation and five core capabilities (5CCs) is needed to achieve capacity development. Capabilities, in practice, are ongoing processes that become apparent in a country enabling it to survive and create development value which can help provide more operational and specific ways to approach the broader concept of capacity. The case studies of SEAs for Ghana, Mauritania, Bolivia and Uganda were carried out with the involvement of the NCEA inform of support for quality control (advice and review) and capacity development (training, study tours and workshops). Chapter 6 makes a comparative assessment of the SEAs for the oil and gas sector in Ghana and Mauritania, analysing the SEA objectives, influence on PPPs, effectiveness, consultation and capacity development.

Chapter 7, 8, 9, 10 contains case studies with information on how different countries adapt the use of SEA for their oil and gas sector; these includes the an elaborate SEA development plans of the UK

Continental Shelf, Strategic Assessment of the Precinct Plan in Australia, development plan for the Barents sea in Norway and the SEA for the Bolivia-Brazil gas pipeline projects.
Chapter 11 highlights the case of the oil and gas sector in Nigeria, there has not been any SEA done for the Nigeria's oil and gas sector yet. But lessons can be learnt from the situation of the sector.

Chapter 12 gives a conclusion on the overall findings from the case studies and recommendations made in my opinion.

Overview of methodology

A general methodological framework was developed for all case studies analyzing the individual (i) oil and gas context, (ii) SEA objectives, (iii) SEA process and results (iv) influences on PPPs (v) stakeholders and public participation and (vi)five core capabilities (5CCs) is needed to achieve capacity development. These core capabilities were developed from analysis made on the SEA documents and my own opinion. For the Nigerian case a different approach was applied since there hasn't been any SEA yet in the oil and gas sector. The methodology applied here include the view of oil and gas as a resource benefit and curse, governments efforts, laws and regulatory framework and lessons learnt .
These was done by the use of a selection of SEA documentation for oil and gas which includes the documents on screening, scoping, meetings, workshops, public participation and drafts of final the SEA report provided by the NCEA and also from other relevant website like the Ministries, department and agencies of the environment and energy.

Accomplishment

- I developed case studies of the SEA for the oil and gas sector in Ghana, Mauritania, Bolivia and Uganda. From which four Key sheets were developed and distributed at the International Association for Impact Assessment conference held in Porto, Portugal from the 27th of May to the 1st of June 2012.
- Also at this conference I gave a presentation on the experiences with SEAs for oil and gas in Ghana, Mauritania, Bolivia and Uganda. Copies of the key sheet, presentation outline can be found in the appendices.
- I developed four SEA case studies for the UK, Australia, Norway and Brazil. These was done to gain an understanding of how SEA done in the developed countries.
- I developed a comparative assessment of the SEAs Ghana and Mauritania based on the fact that the SEA was just recently completed and their oil and gas industries are still relatively young.
- I developed a case study to look at the lessons that can be learnt from the Nigerian oil and gas sector.
- I developed generic SEA guideline for the oil and gas sector. It has been tailored made for the sector yet flexible enough to be applicable to any counties oil and gas sector depending on the objective of the SEA. The copy of the SEA guideline can be found in the Appendices.

Overall, the findings show considerable promise and potential for SEA to support PPP assessment and decision making in the oil and gas sector, but also a considerable need for improvements in understanding of what the scope of the SEA is with regards the relevant issues to be addressed, the importance of consultation and participation of in the SEA process and how to integrate the results of SEA in PPP development and the implementation of recommendations. Lastly, the need for capacity development to strengthen the legal ,regulatory and institutional framework.

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CHAPTER 1

INTRODUCTION

The exploration and production of oil and gas reserves globally, have lead to pollution, oil spills, socio-cultural impacts, environmental degradation and loss of biodiversity. Emerging economies, also known as "developing countries", hold the majority of the world's proved oil reserves, and account for the majority of the world's production of crude oil. The exploitation of oil remains a priority for the governments of emerging economies, as the revenue generated from the oil and gas sector is a major source of foreign income.

The achievement of a synergy between environmental protection and the economic benefits afforded by oil and gas activities has posed a challenge in the past and continues to do so now and into the future. These challenges must be addressed by the oil and gas producing nations at a local, regional and global level to ensure that oil and gas activities are carried out with a minimum of adverse impacts on the environment while maximizing benefits to the biophysical, economic and social aspects of environment in which it operates.

Strategic environmental assessment (SEA) has emerged in the last decade as a term for tools which aims at integrating environmental and social considerations into proposed laws, policies, plans and programmes (PPPs).The SEA creates the opportunity to show clear environmental policy objectives and environmental reporting , to create well-structured planning processes where multiple organizations work together from the stage of oil exploration to the stage of oil extraction and refining, to streamline other processes such as Environmental Impact Assessments of individual development projects, review of the implementation and performance and make information available to enable decision making.

Over the years, there has been the growing need to create new ways of effectively supporting progress towards reducing the rising rate of poverty, food crises, and the impact of climate change, social, economic and environmental impact of the oil and gas activities. This involves a shift towards strategic Interventions in development co-operations that provide support at the level of policies, plans and programmes (PPPs) .The Netherlands Commission for Environmental Assessment (NCEA) is one of such organizations with the aim of contributing to sustainable development in form of providing advisory services and capacity development on environmental assessment to certain development countries of which there exist an international co-operation with the Netherland's Ministry of Foreign Affairs.

The objective of this report is to synthesize the results of various case studies focused on the roles and contributions of SEA in the oil and gas development plans of different countries.
The case studies of SEA for the oil and gas sector in four emerging countries which includes Ghana, Mauritania, Bolivia and Uganda, a comparative assessment between the SEA for the oil and gas sector in Ghana and Mauritania , four international case studies of SEA for the oil and gas sector which includes the United Kingdom, Australia, Norway and Brazil, a case study with view of the oil and gas sector in Nigeria and an SEA generic guideline for the oil and gas sector were developed : in terms the history of oil and gas, the SEA objectives, the progress made as a result of the SEA, the changes based on decision

making, the institutional framework in place and the core capabilities to achieve capacity results in SEA for the oil and gas sector. Throughout the next chapters, these topics will be addressed thoroughly.

STRATEGIC ENVIRONMENTAL ASSESSMENT FOR OIL AND GAS IN GHANA

CHAPTER 2

2.1.0 INTRODUCTION

There has been a remarkable increase in the exploration and production of oil and gas in all continents, so too has attention on the impact of its activities. There has also been a growing recognition that the oil and gas sector needs to function within acceptable social, cultural, economic and environmentally sustainable standards.

The exploration of oil and gas in Ghana began in 1896. Since then oil had been mined in a small way, but the discovery of commercial quantities of untapped oil and gas fields off the coast of Ghana in 2007 has brought the country into the realms of becoming a major oil and gas producing nation. The three blocks of crude oil deposits uncovered 60km off the coast of Ghana have been grouped together and named Jubilee field. As a result Ghana's economy could expect high returns in growth and development from oil and gas but without putting adequate polices, plans and programmes in place, there may result risks of misuse of oil revenue, to the extent that it could even lead to a decline in the capital income of the country as compared with before years of oil boom. In view of this the need to minimize social and environmental effect of the oil and gas development is significant.

To prepare for the new oil and gas age and its challenges,efforts are been made by the Ghanaian government to formulate and implement policies and programmes aimed at stimulating growth and development necessary for human and institutional capacity.

In consonance with the commitment to ensure sustainable national development in Ghana, steps are taken to guide the entire oil and gas sector in terms of policy, legal framework and public education. This is why the Ministry of Energy (MoEn), in collaboration with the Environmental Protection Agency (EPA) and the National Development Planning Commission (NDPC) are undertaking the Strategic Environmental Assessment (SEA) of the oil and gas sector. The SEA is supported by the Netherlands Commission for Environmental Assessment (NCEA). The SEA involves all the possible social, environmental and institutional impacts resulting from the exploration and the production of oil and gas in Ghana.

The main goal of this case study is to give an over view of the SEA of the oil and gas sector in Ghana. This is a literature case study which involves an extensive study of all relevant documents with respect to SEA for oil and gas in Ghana.
This case study:

- Summarizes the history of oil and gas development in Ghana.
- Gives a description the SEA process of the oil and gas sector in Ghana.
- Explains the SEA results, its effectiveness, influence on policy and plans.
- Explains the core capabilities that Ghana needs to achieve capacity results for environmental mainstreaming in the oil and gas sector.
- Explains the use of the SEA in public participation and decision making.

2.2.0 HISTORY OF OIL AND GAS IN GHANA

Hydrocarbon exploration in Ghana began in 1896 by the West Africa Oil and Fuel Company (WAOFCO) who drilled in the area of Half-Asini. This was followed by the Société Française de Petrole, who began drilling in 1909. [1]
The first major field, the Saltpond field, was discovered in 1970 by Signal Amoco and between 1978 and 1985 a total of about 3.47 million barrels of oil was produced from the field and 14 billion cubic feet of gas was flared.[1] By the end of 1980, 31 wells had been drilled, resulting in three discoveries- the Saltpond, Cape Three Points, and North and South Tano .[1]

Ghana's first petroleum law, (PNDCL 64) was passed in 1983. From 1984, exploration activities took a new turn with the enactment of PNDCL 64 which provided new statutory and legal framework which accelerated exploration and production efforts.[6] Major and sustained exploration activity started with the formation of the Ghana National Petroleum Corporation (GNPC) in 1985 and has continued till date.

Ghana is one of four West African countries with an oil refinery. The Tema refinery operated by the Tema Oil Refinery Corporation has an operating capacity of 45,000 barrels per day running on crude imported from Nigeria. The state oil company, GNPC is responsible for importing crude and refined petroleum products and also responsible for procurement, storage and bulk distribution of petroleum products to the oil marketing companies.
In late 1998, the Ministry established a seven-member Energy Commission, whose brief it is to regulate and manage the utilization of energy resources in the country and to coordinate policies. It also includes the granting of licenses for the transmission, supply and sale of natural gas.

In June 2007, the GNPC announced a significant discovery of light oil offshore at the Jubilee Field together with partners Tullow Oil and Kosmos Energy from which the Ghana's oil and gas industry had undergone a number of landmark stages prior to the discoveries of huge oil and gas reserves in the Jubilee Field. According to Tullow Oil, it was one of the biggest oil finds in Africa in recent times. [2]
The Jubilee field began producing in December 2010, and is estimated to hold 1.5 billion barrels of oil. In January 2012 Tullow Oil Plc, the lead company in Ghana's oil production, expects production at the Jubilee oil field for 2012 to average between 70,000 and 90,000 barrels per day (bpd) .[2]

2.2.1 SEA OF THE OIL AND GAS SECTOR IN GHANA

Strategic environmental assessment (SEA) has emerged in the last decade as a term for tools which aims at integrating environmental and social considerations into proposed laws, policies, plans and programmes. Applying SEA to a development plan provides the environmental evidence need for

decision making, and to identify new opportunities by encouraging a systematic and thorough examination of development options.[3]
SEA helps to ensure that the prudent management of natural resources and the environment provide the foundations for sustainable economic growth which, in turn, support political stability and contribute to conflict prevention.

Ghana has since the 1990s used SEA as a tool for improving major policies, plans and programmes in agriculture, transport, tourism, industrial zone planning, poverty reduction strategies among others. In recent years the discovery of oil and gas in commercial quantities in Ghana and the need to develop an environmentally sound policy framework to guide the sector has provided an opportunity to extend the frontiers of SEA application in Ghana.[9]

A good SEA is adapted and tailor-made to the context in which it is applied, meaning that an SEA framework on the oil and gas sector of Ghana has been developed with the view to managing offshore and onshore social and environmental effects that may arise as a result of the exploration and production of oil and gas resources. Consequently, the Ministry of Energy (MoEn), in collaboration with the Environmental Protection Agency (EPA) and the National Development Planning Commission (NDPC) are undertaking the SEA of the oil and gas sector. The SEA is supported by the Netherlands Commission for Environmental Assessment (NCEA) with purpose of considering all the possible social, environmental and institutional impacts resulting from the exploration and the production of oil and gas in Ghana to ensure sustainable development.

The objective of the SEA for Ghana's oil and gas is:

- To integrate environmental and social considerations in the development of the oil and gas fields and related industries in order to ensure sustainable development.
- To identify and provide guidance for protection of potential sensitive environmental areas.
- To ensure that environmental and social issues are addressed at the earliest stage of decision making in order to contribute to the quality of the strategic decisions that are foreseen for the near future.

The SEA for oil and gas in Ghana began in 2009 and continued through 2011. The SEA is expected to be finalized in 2012.

2.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas in Ghana which includes the documents on screening, scoping, meetings, workshops, public participation and drafts of final the SEA report provided by the NCEA. Also reports available on the Ghana EPA website database, documents on Ghana's Environmental legislation and other websites relating to Ghana's oil and gas have been used. These documents were used to:

- View the history of oil and gas in Ghana
- Analyze the progress of SEA for oil and gas in Ghana using a content analysis approach.
- Examine the endogenous changes that have occurred in Ghana since the discovery of oil and gas.
- Look at the performance of the government of Ghana with respect to the institutional framework in place.

- Examine the changes made that were shaped by the stakeholders, internal features and resources available and external intervention.
- Examine the core capabilities to achieve capacity results in SEA for Ghana's oil and gas sector: Core capability to act and commit, to deliver on development objective, to relate to external stakeholders, to adapt and self-renew and to achieve coherence.

2.4.0 THE SEA PROCESS

In accordance with the responsibility of the EPA to facilitate the conduction of an SEA for the oil and gas sector under the broad framework of the Natural Resource and Environmental Governance (NREG) sector budget support progamme, the following processes were followed to implement the SEA:

- In March 2009 EPA Ghana prepared a draft ToR for SEA of the oil and gas sector to assess environmental and socio-economic impacts of possible future petroleum activities in Ghana.
- A meeting was held in Accra during the International Association of Impact Assessment conference (IAIA) in May 2009 between the EPA Ghana, NCEA and the Norwegian Oil for Development Programme to discuss on the support that could be given to Ghana in the form of advice and capacity development on Environmental Impact Assessment (EIA) and SEA for the oil and gas sector. As a result a review of an EIA of the Jubilee oil field was carried out as a starting point, jointly by the NCEA and Norway.
- In September 2009, a screening survey was conducted alongside a public hearing organized for the Jubilee field development for 6 coastal districts of the western region namely: Jomoro, Shama, STMA, Ellembelle, Nzema East and Nzema West.100 questionnaires were distributed to each district to get information on the expectations and concerns of the public on oil and gas development. The result from the survey was included in the screening report prepared by EPA in November 2009.
- EPA reviewed the advisory report on the EIA of the Jubilee field based on the inputs from NCEA and Norway in November 2009 and drafted a permit schedule for Jubilee field's EIA in December 2009.
- At the request of the EPA, a proposal of an approach for the oil and gas SEA approach was developed by the NCEA and Norway in January of 2010.Subsequently, in February 2010 a needs assessment workshop was held in Accra to produce a preliminary scoping report for SEA, containing a description of the further process plan towards a final SEA report. A 7 member SEA team was installed, consisting of 3 EPA staff, 2 MoEn staff, 1 person from GNPC and a representative of the National Planning Development Commission. The team is supported by a Ghanaian SEA consultant and a consultant from Norway.
- In March 2010 a preliminary scoping report containing three scenarios for the oil and gas development. Scenario 1, 2 and 3 containing the low case "lost opportunities", the medium case "so far so good" and the high case "full speed ahead" respectively were made, which were used for discussion at the scoping workshops held in Takoradi and Accra. The final draft scoping report was prepared in June 2010 and the final scoping report with NCEA's comments was completed in August 2010.
- In April 2010 there was an extended SEA team meeting held in IAIA Geneva to identify the main issues to deal with in the SEA report and the next steps to take. Subsequently the SEA team carried out a review of the existing information on the oil and gas sector, stakeholder's opinions and interest and analysis and conclusions on key issues from May to July 2010.

- In January 2011 three new SEA members for the Ministry of Energy were appointed after which in February 2011 a planning meeting was held in Accra for the follow up and definition of the scope of work for the finalization of the SEA process 2011.By March 2011 the Final scoping report was approved. An abridged version of the report was also produced.
- A first Steering Committee meeting was held in April 2011 from which the need for SEA and the progress made so far was discussed. In order to ensure that the Policies, Plans and Programmes (PPPs) clearly deal with oil and gas issues that had been identified in the scoping report, the SEA team decided to focus on the Ghana Shared Growth and Development Agenda (GSGDA) 2010-2013.The GSGDA forms the overall framework for Ghana's sector and district PPPs. As a result a sector workshop was held in May 2011 from which matching issues where found when a comparison was made between the issues identified in the SEA scoping report and that of the oil and gas chapter of GSGDA. Also in May 2011 there was a study tour to the Netherlands and Norway to familiarize the SEA team with the Dutch SEA experiences in oil and gas and to initiate direct contact with the Norwegian petroleum sector.
- Public Participation in the form of community consultation was held July 2011 at Half Assini, Esiama, Axim, Shama, Saltpond ,Winneba, Keta and Accra in order to identify their concerns and expectations.
- In September 2011 the SEA team met to make an overview of all activities since May 2009 and decide on the content of the SEA report and the executive summary. The draft SEA process report was prepared by November 2011.

Available Documents

- Draft ToR by EPA for the oil and gas sector(March 2009)
- Advisory report by the NCEA secretariat on jubilee EIA(October 2009)
- SEA screening report prepared by EPA (November 2009)
- Preliminary scoping report (March 2010)
- Final draft scoping report (June 2010)
- Final approved scoping report (March 2011)
- Draft final SEA process report (November 2011)
- Report on all meetings held, workshop and public consultations.

2.4.1 SEA RESULTS SO FAR

SEA has aided in creating awareness of the importance of environmental, socio-cultural, economic and institutional issues in plans, policies, and programmes involving the oil and gas sector. The SEA made it clear that all the PPPs prepared and issued before Ghana's oil and gas discovery in 2007 did not address the issues of oil and gas because of its irrelevance at that period of time. Therefore a need for further refinement of the PPPS to ensure that the key SEA issues were addressed was established which lead to the choice of the Ghana Shared Growth and Development Agenda as the leading Policy to which the SEA was linked.

The SEA has led to the identification of the formal decision making processes of relevance: The Petroleum Policy, The Local content Policy, Revenue Management Policy and The Gas Master Plan. As a result a review was carried out on all the existing information on the oil and gas sector which will set the

platform for future sustainable development decisions on the oil and gas sector. As a result an initial guideline for the minimum requirement for SEA in Ghana was issued in May 2009[13].

The SEA aided in the identification of the key issues relevant for strategic decision making by: making use of an issues-response matrix, guidelines for adequate revenue management, improving institutional capacity of the stakeholders, need to review the policies relevant for oil and gas development and addressing community concerns.

2.4.2 EFFECTIVENESS OF THE SEA

The SEA was effective in laying a foundation for strategic development and decision making for the oil and gas sector. It aided in the review of existing information on oil and gas for policy refinement.
The SEA was carried out in an open, clear, timely and transparent way. The key stakeholders have been fully engaged in the SEA. There was an effective cooperation between the EPA, NCEA and the Norwegian Oil. The SEA documents were detailed but incomplete because the final report has still not been made available. There were no major constraints during the preparation of the SEA.

2.4.3 INFLUENCE ON POLICY/ PLAN

The SEA has lead to the review of the Energy policy, Draft oil and gas policy, draft oil and gas master plan. The recommendations from the SEA will influence the gas master plan and the generated information will be used for future decision making to be taken by the cabinet.

2.4.4 CAPACITY DEVELOPMENT

Capabilities, in practice, are ongoing processes that become apparent in a country enabling it to survive and create development value which can help provide more operational and specific ways to approach the broader concept of capacity. Capacity development is indispensable if a country wants to effectively address sustainable development challenges, achievable by having competent people committed to generating development results, build up the country's resources and support that allows the country to survive and grow.
A combination of five core capabilities (5CCs) [10] is needed to achieve capacity results to assured sustainable development in the oil and gas sector. All these capabilities overlap and form elements of the others. And all five are necessary to ensure overall capacity. None is sufficient by itself.

1. Capability to act and commit

This capability involves the presence of an SEA process plan, decision taking and acting on these decisions collectively. This capability was expressed in the establishment of a core Ghanaian SEA team with experts from the Ministry of Energy and EPA under the supervision of a Ghana steering group with the support of NCEA and the Norwegian government.

2. Capability to deliver on development objective

This capability involves financial resources, human resources and access to knowledge resources.
The SEA has aided the Ghanaian government in the show of commitment to develop programmes and legal frameworks to promote transparency in the oil and gas sector, in order to mitigate the risk of corruption which may affect the economic progress that has been made so far. Increasing transparency done through monitoring committees, adequate reporting and easy access of government spending to the general public should also be implemented.

3. Capability to relate

This capability involves engaging internal and external experts in SEA.
Since the discovery of oil and gas in Ghana, there has been commitment to build and maintain networks with external actors. The external stakeholders operating within the SEA system for Ghana's oil and gas sector are the Netherland's Ministry of Foreign Affairs and the NCEA and the Norwegian government.

4. Capability to adapt and self-renew

This capability involves the analysis of main changes as a result of SEA, reconstruction of policy, use of opportunities and incentives and acknowledgment of mistakes that have been made and stimulation of the discipline to learn.
Ghana has expressed this capability in the commitment to analyze current policies and ensuring continuous review of the master plan, amending and consolidating existing legislation and developing strategies to address issues of relevance to the oil and gas sector. As a result of the SEA the institutional capacity of Ghana has been improved through their effort to improve the policies that affect oil and gas.

5. Capability to achieve coherence

This capability involves that leadership is committed to achieving coherence, balancing stability and change.
Capacity of government organisations is a key factor in conditions for economic progress and social cohesion in any developing nation. Since the commencement of the SEA process in 2009 there has been progress in building coherence in the SEA system. Clear laid down planning, monitoring and evaluation of the SEA has been put in place.

2.4.3 STAKEHOLDER PARTICIPATION

Stakeholders were drawn from all levels, the Government Ministries, departments and agency, district Assembles, oil and gas sector operators, NGOs, Traditional Authorities, Private sector and Civil Society Organizations etc. Workshops were organized for the key stakeholders for the further refinement of the three scenarios for the oil and gas development and their associated issues. Meetings were held to create a better understanding of the SEA process and ensure the stakeholders commitment. Public hearings were also organized to inform the general public about the oil and gas development and solicit for their concerns.

2.5.0 CONCLUSION AND RECOMMENDATION

Over the years Ghana has shown success in democracy and peaceful transitions. Ghana has also shown commitment towards a more sustainable society by its involvement in SEA for the oil and gas sector by working on the improvement of its institutional capacity but the institutional building blocks of the country are still at the development stage and in some cases, ineffective. As a result, the institutional and governance risks may lead to fraud and corruption.

The SEA has led to an improvement in institutional capacity of the oil and gas sector as a result of the government's efforts to improve on the policies governing the oil and gas sector. The SEA process created a better understanding of sustainability issues.
One major challenge is the availability of competent SEA professionals, for this reason the SEA has aided in workshops and study tour to improve the capacity but training is still an on- going process. A lot of the learning by the SEA team has been from actual participation in the SEA process. They have had the opportunity to apply the tools of SEA in the course of participating and the incorporation of SEA into the e.g the gas master plan which is of great benefit and will be continued for other future plans. Education is a prerequisite to sustainable natural resources (oil and gas). For this reason the educational systems should be remolded and improved. The increase of international co-operation and knowledge exchange will also be beneficial.

The Dutch disease should be avoided. The agricultural sector should still be given the relevant attention and empowered in terms of knowledge and skills considering the high level of informality in Ghana that has continuously been a barrier to improvements in productivity and issue of poverty.

The SEA was clear and well communicated with adequate stakeholders and public involvement. The lack of effective communication leads to resistance and conflict therefore transparency and accountability should be encouraged for a continuously peaceful nation.

The application of the SEA to policies and regulations in the oil and gas sector is still an ongoing process and should be fully implemented at its earliest, so that emerging issues like the possible negative effect to the fishing industry when offshore drilling operation is on and oil spills damage to fisheries and fishing communities can be appropriately addressed. For example: the government and industry officials acknowledge that they currently, have no compensation fund to support fishing communities in the event of a major spill.

Finally, Ghana has expressed determination to having a more sustainable society by commitment to using oil revenues to push industrialization and poverty reduction and this should be encouraged.

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STRATEGIC ENVIRONMENTAL ASSESSMENT FOR OIL AND GAS IN MAURITANIA

CHAPTER 3

3.1.0 INTRODUCTION

The oil and gas sector plays a significant role in today's world. It supplies the needed energy and resources for global growth and development. In order to meet these needs the environment gets subjected to various activities that may result to environmental and social impacts. The need to address relevant issues relating to the oil and gas activities and in cooperating ways to sustain, improve and manage it, into Plans, Policies and Programmes for decision making is a relevant step towards sustainability.

Mauritania, officially Islamic Republic of Mauritania (RIM) was officially included in the list of Africa's oil producing nations in 2001 after the announcement that oil had been discovered in the offshore Chinguetti field. Until recently it was believed that there were no hydrocarbon resources in Mauritania.

In view of the oil and gas potential of Mauritania, the fragile institutional structures and inadequate local experts to competently manage its oil resources and challenges, the Government of Mauritania recognized the relevance of improving the legal and regulatory framework and enhances environmental governance for the development of the oil and gas sector. Therefore a need for Strategic Environmental and Social Assessment (SESA) was established to ensure that oil and gas development will proceed in a sustainable manner in accordance with best international environmental and social practice and standards.

This is a literature case study which involves an extensive study of all relevant documents with respect to SEA for oil and gas in Mauritania.
This case study:

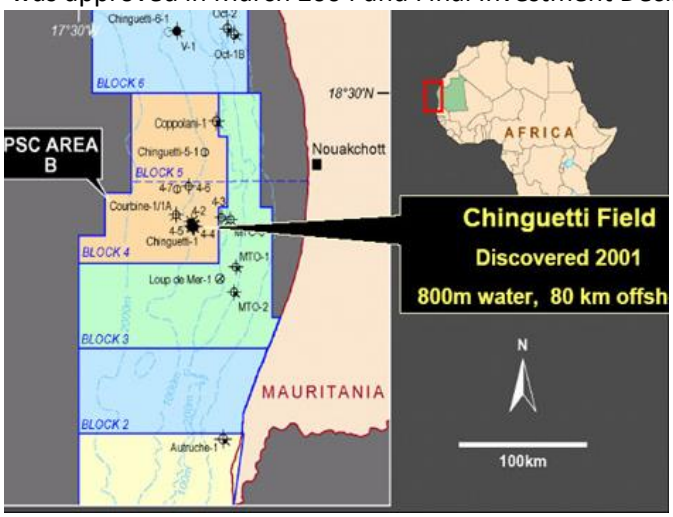
- Gives a brief Summary of the history of oil and gas development in Mauritania.
- Gives an explanation of the SEA of the oil and gas sector in Mauritania and the objectives.
- Gives a description the SEA process of the oil and gas sector in Mauritania.
- Explains the SEA results, its effectiveness, influence on policy and plans.
- Explains the core capabilities that Mauritania needs to achieve capacity results for SEA in the oil and gas sector.
- Explains the use of the SEA in public participation and decision making.

3.2.0 HISTORY OF OIL AND GAS IN MAURITANIA

In 1974, Texaco's Abolag 1 well tested 0.48 Million Cubic Feet per Day (MMcf/d) with condensate and salt water from the Infracambrian limestones. The same year, Agip's Ouasa 1 well was plugged and abandoned. [2]
In Mauritania, the search for profitable oil reservoirs was initiated in 1998, when the government awarded offshore concessions to Dana Petroleum, in partnership with Hardman, Woodside and British Borneo Oil and Gas.

In June 2000, Dana Petroleum announced it had identified a number of significant hydrocarbon leads in both shallow and deepwater blocks offshore Mauritania. Although as of then Mauritania still didn't have any oil production, the country was one of the West Africa's leading oil refining countries. [13]
In 2001 the first offshore oil field was discovered by Woodside Mauritania Pty Ltd. In the years following the first discovery by Woodside, other concessions including; AGIP, Hardman Petroleum, Fusion Oil and Gas and Roc Oil were granted for a number of offshore blocks by the Mauritanian government. Both the offshore concessions and the Production Sharing Contract (PSC) between Woodside and the Government of Mauritania (GoM) were granted i.e. agreed upon without the availability of a formal strategic framework/plan for decision making. [1]

The, Chinguetti field was declared commercial-in-principle in January 2004, the Field Development Plan was approved in March 2004 and Final Investment Decision was made in May 2004. [2]



The Phase 1 drilling and completion of development wells finished in September 2005. Woodside and its Joint Venture Participants started to exploit the off shore Chinguetti field in February 2006. An infill production well, was drilled and completed from December 2006 to March 2007.

In March to April 2007 a high-resolution 4D seismic survey was acquired over the field to assist in planning the Phase 2 infill drilling programme. Phase 2b development is in progress and, to this end; Chinguetti-19 was drilled and completed in July 2008. [14]
Mauritania, with its 2.5 million inhabitants, is struggling with widespread poverty. The country's main economic sectors - mining, fisheries and agriculture - are seen as insufficient to provide the population with wealth, although Mauritania has experienced an impressive economic growth during the last decade. Oil production could therefore have an enormous impact on the country's relatively few inhabitants. [13]

3.2.1 SEA OF THE OIL AND GAS SECTOR IN MAURITANIA

Strategic environmental assessment (SEA) has emerged in the last decade as a term for tools which aims at integrating environmental and social considerations into proposed laws, policies, plans and programmes. Applying SEA to a development plan provides the environmental evidence need for decision making, and to identify new opportunities by encouraging a systematic and thorough examination of development options. [3]

In view of the possible risk of oil and gas development to nature conservation areas, in particular Banc d'Arguin and the National park Diawling, the need to develop an integrated Strategic Environmental and Social Assessment was established by the government of Mauritania. Mauritania has a very rich fauna, particularly amongst bird species. Some mammalian species have reported to be critically endangered.[9]. Another reason for the SEA was the fact that the development in the oil and gas sector may cause tradeoffs with fisheries, at present the main economic activity.

In recognition of the significance of an improved legal and regulatory framework and environmental management in the Mauritanian oil and gas sector by its government, a decision was made to prepare an SEA that will serve as a tool to help ensure that the oil and gas development will proceed in a sustainable manner in accordance with best international environmental and social practice and standards. The SEA was supported by the World Bank, Netherlands Commission for Environmental Assessment and Government of Norway.

The objectives of the SESA for Mauritania's oil and gas are:

- To identify the social and environmental impacts which could be generated by oil and gas development, evaluating the scope and probability of these impacts due to increased activities onshore and offshore.
- To put forward recommendations to avoid, manage and/or attenuate these impacts.
- To facilitate the integration of these measures into a coherent policy and to ensure its application.
- To help in capacity building and training of Government officials in the management oil and gas sector impacts, in particular the Ministries of Environment and Petroleum, Energy and Mines.

3.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas in Mauritania which includes the documents on advisory reports, meetings, workshops, public participation and the final SESA report provided by the NCEA. Also relevant documentation on the internet relating to Mauritania's oil and gas has been used.
These documents were used to:

- View the history of oil and gas in Mauritania.
- Describe the SEA and its objectives.
- Analyze the progress of SEA for oil and gas in using a content analysis approach.
- Examine the endogenous changes that have occurred in Mauritania since the discovery of oil and gas.
- Look at the performance of the government of Mauritania with respect to the institutional framework in place.
- Examine the core capabilities to achieve capacity results in SEA for Mauritania's oil and gas sector: Core capability to act and commit, to deliver on development objective, to relate to external stakeholders, to adapt and self-renew and to achieve coherence.

3.4.0 THE SEA PROCESS

The following processes were followed to implement the SEA:

- In March 2006, the Royal Netherlands Embassy in Mauritania requested the NCEA on behalf of the President of Mauritania to give advice on the Environmental Impact Assessment/Social Impact Assessment report relating to the exploitation of the Chinguetti oil field. The advice was meant to review the quality of information given in the EIA/SIA and its coherence with the conditions set in the Production Sharing Contract that was agreed upon by the Mauritanian

government and Woodside Petroleum Ltd. And recommendations on present and future exploitation were given.

- In April 2006, the NCEA made a field trip to Mauritania in order to assess the existing basis of support and commitment for applying an SEA procedure and gain insight on policy priorities.
- A working group of experts comprising of oil and gas development, hydrodynamic, ecology, social impact, fishery and macro economy was formed by the NCEA. In July 2006 the working group visited Mauritania in order to gain in sight in the policy dilemma, the planning and institutional structure available to enable the SEA contribute to decision making, to check the available base line data and the availability of expertise.
- The Steering Committee was appointed by an Inter-Ministerial Decree (n. 1636 of July 13 2007) The Expanded Steering Committee was established to support the Steering Committee activities and represent stakeholders during public consultation.
- A formal Term of Reference for the SEA project was developed in September 2007 by the Government of Mauritania. This initial TOR formed the basis for project bidding and subsequent consultant selection to complete the SESA project.
- In March 2008, the D'Appolonia-Integrated Environments Ltd. team (D'Appolonia-IEL) was
- awarded a contract to initiate a Strategic Environmental Assessment (SEA) process for the Government of Mauritania based on a draft development policy for oil and gas exploration and production (E&P) operations in both offshore and onshore areas.
- The first Team meeting attended by the core SESA Team consisting of two companies, D'Appolonia SpA of Italy and Integrated Environments (2006) Ltd. of Canada and stakeholders from the Steering Committee and extended Steering Committee was held in March 2008 at Nouakchott in order to have an open dialogue with stakeholders, discuss on the SEA scoping, and brainstorming on oil & gas related issues.
- In May 2008, the team meeting was held to discuss and approve the SEA Final Work Program.
- In July 2008, the first SEA workshop was held in order to define what the SEA entails, the Approach for the SEA, Sustainability and the Strategic framework for SEA.
- In August 2008, there was a change in government that resulted to putting the SEA project on hold.
- In September 2009, The Mauritanian authorities decide to resume work on the SEA project which lead to the drawing of a reactivation plan in December 2009 and which was approved by the Mauritanian authorities and World Bank.
- In February 2010, a new contract to proceed on the SEA was drawn and a meeting was held to discuss the final SEA key findings and recommendations, Action Plan and Budget.
- In April 2010 another team meeting was held to present the SEA Draft Report, the preliminary SEA key findings and recommendations. Also in April 2010, a second SEA workshop was held to analyze the SEA preliminary results and the key decision factors for strategic decision making.
- In April 2011, the comments and recommendation from the Mauritanian counterparts and workshop participants were compiled into the draft final report.
- Most of the stakeholder participants in the Expanded Steering Committee also attended two
- Workshops held in 2008 and 2010 as part of training on the SEA process. The main objective of these workshops was to maximize the SEA benefits by involving institutions in the process.

Available Documents

- Advice on Terms of reference for the SEA of oil and gas development and coastal management by NCEA (September 2006)
- Mauritania Social Impact Assessment final summary report.2006.
- Advisory review of the Environmental Impact Statement and the Social Impact Study for the Chinguetti Offshore Oil Development by the NCEA (February 2007)
- Terms of reference for a Strategic Environmental Assessment of oil and gas activities in Mauritania (September 2007)
- Strategic Environmental and Social Assessment of Oil and Gas Development in Mauritania. by Integrated Environments Ltd. D'Appolonia S.p.A.(May 2011)
- Reports on meetings and workshops.

3.4.1 SEA RESULTS

The SEA addressed some issues which will enable Mauritania Government to make strategic decisions:

Institutional structure

The SEA addressed the need for the Government of Mauritania to take steps to having a clearly defined institutional structure for environmental management whereby Ministry of Environment and Sustainable Development is assigned as the authority responsible for establishing the national environmental policy, while the environmental departments within other ministries should be responsible for the policy's implementation and regulation. In addition, a National Environmental Agency should be established to ensure effective follow-up, monitoring and compliance with established government policy and legal instruments.

Capacity development

The SEA expressed that the Comité de Suivi should be in charge of the identification of training and capacity development requirements and ensuring that records on training, dates and subjects are adequately kept. In addition a training needs assessment should be conducted across the Ministries of Environment and Sustainable Development, Energy and Petroleum, Fisheries and Transport to determine what specific training needs are required, who should be trained, what type of training should be received etc.

Communication

The SEA addressed the need for the government to establish a centralized spatial information system, perhaps with support and contribution on a regional basis outside of Mauritania (e.g. Senegal). This system could be used to store and disclose all regulatory submissions, most suitably through a web based storage and retrieval system.

Policy, Legal frame work and Regulation

The SEA showed the necessity of reviewing the oil development policy and the general existing regulations (e.g. the environmental code, contract code and marine pollution codes) by the implementation of relevant decrees to make the legal framework fully operational. These will aid in addressing issues concerning biodiversity and oil spills.

3.4.2 EFFECTIVENESS OF THE SEA

The SEA was effective in the development of a list of recommendations, along with an Action Plan to facilitate their implementation. Priorities were structured into immediate action (2011-2012), short term action (2012-2013) and medium to Long-term Action (2012-2015).

3.4.3 INFLUENCES ON POLICY/ PLAN

Mauritania has adopted a Poverty Reduction Strategy Paper (PRSP), a key component of its' economic and social development policy and based on a long-term (2015) vision to achieve the Millennium Development Goals (MDGs). The PSRP Action Plan (2006-2010) places a high reliance on revenues from oil and gas development.

One of the main criteria for the PRSP relating to oil and gas development is to implement a transparent and integrated management and reinvestment process for oil and gas revenues. As there are currently no formal policies, plans or programs for oil and gas development in
Mauritania, the SEA focused on two key elements: Review of the proposed new Hydrocarbon Code and Review of the current context for oil and gas exploration and development in Mauritania.

3.4.4 CAPACITY DEVELOPMENT

1. Capability to act and commit

This capability involves the presence of an annual plan, decision taking and acting on these decisions collectively, the effective resource mobilization and monitoring of the SEA process.
The PSRP Action Plan (2006-2010) places a high reliance on revenues from oil and gas development. One of the main criteria for the PRSP relating to oil and gas development is to implement a transparent and integrated management and reinvestment process for oil and gas revenues.
The key environmental and social issues arising from the SEA should be incorporated with the socioeconomic considerations and strategies developed within the PRSP.

2. Capability to deliver on development objective

This capability involves financial resources, human resources and access to knowledge resources.
In pursuance of transparency and accountability in managing oil revenues, Mauritania was admitted as an Extractive Industries Transparency Initiative (EITI) candidate country in September 2007.

3. Capability to relate

This capability involves engaging internal and external experts in SEA.
There was the capability to involve the Ministry of Transportation, Minister of Petroleum, Mines and Energy (MPEM) and Ministry of Environment and Sustainable Development (MEDD). D'Appolonia SpA. Italy, Integrated Environments Ltd. Canada, the Council for Scientific and Industrial Research (CSIR) in South Africa and representatives from organizations, institutions, NGOs and civil society in the SEA.

4. Capability to adapt and self-renew

This capability involves the analysis of main changes as a result of SEA, reconstruction of policy, Use of opportunities and incentives and acknowledgment of mistakes that have been made and stimulation of the discipline to learn. There is an incomplete legal framework in Mauritania with which to set the bases for the environmental management of the oil and gas industry. A sectoral policy, or strategy, governing the oil and gas sector development is in the process of being defined.

5. Capability to achieve coherence

This capability involves the leadership is committed to achieving coherence, balancing stability and change. For this core capability there is a lack of a clear definition of the roles and responsibilities of the Ministry of Environment and Sustainable Development and its inter-institutional coordination with interdepartmental sectoral authorities for environmental and social management of oil development projects. International oil industry presence in the country is not well established at present.

3.4.5 STAKEHOLDER PARTICIPATION

The core SEA Team consisted of two companies, D'Appolonia SpA. of Italy and Integrated Environments Ltd. of Canada. In addition, The Council for Scientific and Industrial Research (CSIR) South Africa also assisted in public consultation. The Steering Committee (Comité de Suivi) was appointed by an inter-ministerial decree consisting of representatives from the Ministry of Transportation, Minister of Petroleum, Mines and Energy (MPEM) and Ministry of Environment and Sustainable Development (MEDD) and was responsible for the overall SEA process, content, work plan, draft report, monitoring, assessment and implementation of the final SESA results.

An expanded Steering Committee (Comité de Suivi Elargi) consisting of people from organizations, institutions, NGOs and civil society and communities representatives was established along with the Steering Committee by joint inter-ministerial decree to support the Steering Committee activities and represent stakeholders during public consultation. Meetings held with the Expanded Steering Committee were not exactly open to public participation. Stakeholder participation to Expanded Steering Committee meetings varied with time; in general, there was a reduced stakeholder participation observed in 2010-2011.

3.5.0 CONCLUSION AND RECOMMENDATION

The oil and gas in Mauritania, if adequately developed and managed can provide the country with significant future revenue need to ensure that people are alleviated from poverty rather than been the recipients of negative impacts.

The implementation of the PRSP and oil and gas related PPPs will enable the Mauritanian institutions to harmonize the existing policies and programs in alleviating poverty and environmental degradation. Mauritania lacks information on the existing biophysical resources in the coastal and marine ecosystems and resultant potential impacts of the oil and gas activities that could constitute threat to biodiversity at the sites where most oil and gas development is scheduled to take place. This lack of information hampers effective decision-making at the policy level, and also limits the capability of technical

personnel and local stakeholders to propose specific guidelines and restrictions on oil and gas development. The establishment of a centralized spatial information system will aid in this respect.

In Mauritania, consultation regarding oil and gas development is a requirement of the environmental assessment law but there are no guidelines or established procedures as to how consultation should take place. The involvement of the public in consultation will create the necessary avenue for the people especially from the communities located around the oil and gas development sites to make their concerns known. These expresses transparency and help to prevent conflict.

A large percentage of Mauritania's national economy is dependent on fishing, therefore the need to prevent oil spill is of major importance. The necessary actions to ensure safe offshore operations should be implemented.

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SEA FOR OIL AND GAS IN BOLIVIA

CHAPTER 4

4.1.0 INTRODUCTION

Oil and gas has been an important element of the economy of Bolivia. It accounts for 7 percent of the GDP in term of production and more than 30 percent of total government income. Bolivia has the second largest natural gas reserves in South America after Venezuela. Petroleum had been known to exist in Bolivia since the colonial period, but serious exploration did not begin until 1916. It was not until 1921 that the first hydrocarbon law was signed in Bolivia. [1]

The state-owned oil company, Yacimientos Petrolíferos Fiscales Bolivianos (YPFB) created in 1936, controls, oversees, and executes all activities in the country's oil and gas sector. Hydrocarbons are an important element of the economy of Bolivia, one of the poorest and least developed countries in Latin America. Though Bolivia exports natural gas to Brazil and Argentina, continued questions about the actual size of its proved natural gas reserves have contributed to skepticism about the country's potential to be a significant fossil fuel producer and regional energy hub. Political risk also has characterized the energy sector and foreign involvement in it. [2]

Ministry of Hydrocarbons and Energy is in charge of Bolivia's energy policy, promotion of integrated development, sustainable and ensuring equitable energy sovereignty. One of the strategic guidelines of the National Development Plan for the oil Sector is the exploration, exploitation and increased hydrocarbon potential in national areas that are considered non-traditional and in many cases overlap to the protected areas and also considered in the Bolivian Hydrocarbons strategy, posed as a priority, the recovery of investments, in order to conduct exploration activities in the total national hydrocarbon potential areas, whether they are traditional or not. Based on this understanding a Strategic Environmental Assessment (SEA) was to be carried out.
This case study:

- Summarizes the history of oil and gas development in Bolivia.
- Gives a description of the progress of SEA process of the oil and gas development in Bolivia.
- Explains the SEA results so far.
- Explains the core capabilities that Bolivia needs to achieve capacity results for environmental mainstreaming in the oil and gas sector.
- States the form of the stakeholder participation in SEA.

4.2.0 HISTORY OF OIL AND GAS DEVELOPMENT IN BOLIVIA

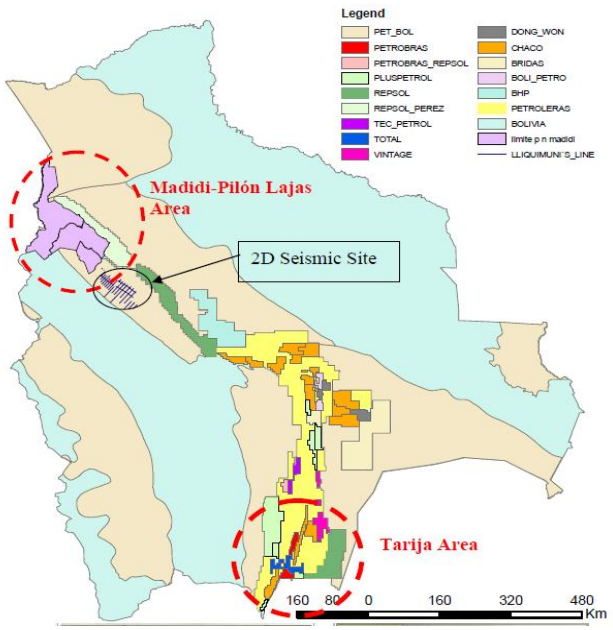
The Bolivian hydrocarbons industry was first nationalised in 1936 when, in the wake of the Chaco War, the assets of Standard Oil of New Jersey were taken over to create YPFB. This move predated the Mexican oil nationalisation by two years. [3]

The Petroleum Code of 1955 - adopted at the time when the revolutionary MNR government came under severe diplomatic and economic pressure from the United States - envisaged a sort of co-existence between YPFB and foreign oil investors. [2]

The 1969 nationalisation of the Bolivian Gulf Oil Company led in 1972 to a new hydrocarbons law that created a virtual state monopoly, with foreign companies limited to exploration and production. As a result of the changes introduced by Sánchez de Lozada in 1996, foreign firms were allowed into all areas of the industry, from exploration to the retailing of gasoline and oil products. The 2006 decrees seek to reverse the changes that came about from the 'capitalisation' of YPFB in 1996. [2]

4.2.1 SEA OF OIL AND GAS IN BOLIVIA

The Strategic Environmental Assessment for the Ministry of Hydrocarbons and Energy is a strategic planning tool for decision making in the sector, that internalizes social and environmental variables in the adoption of the Policies, Plans and Hydrocarbon programs thereby aiding in preventing negative environmental effects, enhance the cultural sphere and enable the local development of economic productive of the areas subject to this assessment and generating reliable results for decision making through structural recommendations, appropriate corrective measures.[9]



The Ministry of Hydrocarbons and Energy (MHE) is the competent authority in Bolivia for the formulation and enforcement of development policies and resulting activities in the hydrocarbon and energy sector. MHE decided to carry out a SEA in two areas. These are the Aguaragüe national park in Tarija (a traditional area) and the protected areas of Madidi/Pilón Lajas in La Paz and Beni (non-traditional area). Traditional areas are those areas where hydrocarbon activities have been active already while non-traditional areas are new areas where hydrocarbon potential is expected with no activity yet. The SEA is supported by the Netherlands Commission for Environmental Assessment (NCEA) and the Royal Netherlands Embassy in Bolivia.

The SEA is meant to:

- Indicate vulnerabilities of the ecosystems; determine the maximum capacity for hydrocarbons exploitation and in which areas and in which modality the execution of hydrocarbon activities could take place.
- Develop a methodology to work with the traditional inhabitants in the so-called Territorios Comunitarios de Origen (TCOs).
- Generate conditions and general guidelines for subsequent individual EIA's.
- Elaborate on a clear methodology applicable the whole hydrocarbons sector.

The SEA will help to address the challenge of finding a balance between the need for hydrocarbon exploitation due to the increasing energy demand and use of goods and services of the forests and other ecosystems (e.g. biodiversity conservation and ecotourism) especially in the future.

4.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas development in Bolivia which includes the documents on Terms of Reference (ToR), meetings, workshops, stakeholders participation and reports provided by the NCEA. Also reports available on the internet, documents on Bolivia's Environmental legislation and other websites relating to Uganda's oil and gas development have been used. These documents were used to:

- View the history of oil and gas development in Bolivia.
- Analyze the progress of SEA for oil and gas development in Bolivia.
- Examine the endogenous changes that have occurred in Bolivia since the discovery of oil and gas.
- Look at the performance of the government of Bolivia with respect to the institutional framework in place.
- Examine the core capabilities to achieve capacity results in SEA for the oil and gas sector in Bolivia: Core capability to act and commit, to deliver on development objective, to relate to internal and external stakeholders, to adapt and self-renew and to achieve coherence.

4.4.0 THE SEA PROCESS

- The Ministry of Hydrocarbons and Energy (MHE) runs this SEA process. At the start of the SEA, numerous meetings were held in 2008, with representatives of the Ministry of Environment and Water, National Service for Protected Areas (SERNAP) and Yacimientos Petrolíferos Fiscales Bolivianos (YPFB). SERNAP expressed that the SEA would offer the possibility for better coordination and dialogue right from the beginning. The NCEA considered these inter institutional meetings as important first steps to good practice SEA.
- The NCEA made a visit to Bolivia in May 2008 during which the Environmental Department of the MHE requested for NCEA assistance in strengthening environmental and social management in the hydrocarbons sector in the area of SEA.
- The NCEA made another visit to Bolivia in March 2009. The purpose of this visit was to meet with governmental agencies, private sector and civil society to elaborate the proposal for the ToR for this SEA for the two areas, with the aim of agreeing on the scope, objective and approach of the SEA, which resulted in the publication of advisory ToR in April 2009, in particular for the protected areas Aguaragüe and Madidi/Pilon Lajas.
- A Bolivian SEA team worked on the SEA report and a first draft was published in December 2011.
- In February 2012, a request was made to the NCEA to review the quality of the SEA that has been prepared for the Aguaragüe area in order to improve the final SEA report, which will then also contain the information on the Madidi/Pilon Lajas area.
- The review of the draft SEA was made and submitted in April 2012.

Available Documents

- Advice on Terms of reference for the SEA of oil and gas in Bolivia by NCEA (April 2009)
- Draft final SEA process report (December 2011)
- Letters, memos and report on all meetings held, workshop and public consultations.

4.4.1 SEA RESULTS SO FAR

The SEA contains a wealth of information on environmental, socio-cultural, economic and productive and political/institutional aspects. A thorough overview of problems and (alternative) solutions to these problems has been provided. The SEA however still lacks to a large extent the link with planning and decision making and is as such not (yet) a 'real' SEA.

The alternative options range from first ideas to very elaborate recommendations and are as such a mix of green and mature issues, which require different forms/instruments of follow-up at different levels of planning and decision making with different urgency of action. This sifting of problems and alternative options and attaching these to the right level still needs attention in the final SEA report. The SEA contains an overview of all relevant policies, plans and programmes at national, departmental, regional and local level.

4.4.2 EFFECTIVENESS OF SEA

The SEA was effective in the taking the Aguaragüe National Park and surrounding areas as a pilot for an SEA for oil and gas exploration and exploitation in areas with protected status and indigenous territory.

4.4.3 INFLUENCES ON THE POLICY/ PLAN

The SEA lacks to a large extent the link with planning and is as such not (yet) an 'actual' SEA.

4.4.4 CAPACITY DEVELOPMENT

1. Capability to act and commit

This capability involves the presence of an annual plan, decision taking and acting on these decisions collectively, the effective resource mobilization and monitoring of the SEA process.
The SEA made reference to a selection of policies, plans and programmes for oil and gas in Bolivia which includes: 3 Municipal development plans (Villamontes, Caraparí and Yacuiba), National Development Plan, Energy Development Plan and Strategic Plan for the integral development of Aguaragüe protected area and ancestral territory of the Guaraní. Currently a large percentage of national laws related to the hydrocarbons sector are being evaluated for its amendment or replacement by other rules, this in order to reconcile the existing legal framework for the principles of the Constitution State.

2. Capability to deliver on development objective

This capability involves financial resources, human resources and access to knowledge resources. The Bolivian Hydrocarbons strategy which is linked to the SEA has the main goal of recovery on investments, in order to conduct exploration activities in the total national hydrocarbon potential areas, whether they are traditional or not. The purpose is to increase the volumes of oil and gas reserves to supply the national market to current export commitments and open new markets abroad.

3. Capability to relate

This capability involves engaging internal and external experts in SEA.

There was the capability to involve the Netherlands Commission for Environmental Assessment (NCEA) to give advice on Terms of Reference for the SEA for oil and gas in Bolivia, in particular for the protected areas Aguaragüe and Madidi/Pilon Lajas and a review on the quality of the SEA that has been prepared for the Aguaragüe area.

4. Capability to adapt and self-renew

This capability involves the analysis of main changes as a result of SEA, reconstruction of policy.The laws governing the oil and gas sector and for the conservation and protection of the environment are in the process of construction.

5. Capability to achieve coherence

This capability involves that leadership is committed to achieving coherence, balancing stability and change.The SEA lacks focus, caused by the fact that the SEA for the hydrocarbons sector has been merged with the SEA for regional development and also because the document is a mix of an SEA report and SEA guidelines.

4.4.5 STAKEHOLDER PARTICIPATION IN THE SEA

The SEA does not elaborate on the tasks and responsibilities of specific stakeholders in the hydrocarbons sector (government, oil and gas companies, affected people etc.).

4.5.0 CONCLUSION AND RECOMMENDATION

The application of SEA for oil and gas exploration and exploitation in areas with protected status and indigenous territory is commendable considering its complexity. The SEA report contained many positive suggestions and options which can be shared with the public as a start for effective consultation: To mention a few:

- The installation of a corps of social environmental inspectors by the government of Tarija to monitor and evaluate impact of activities and allow improvements at the next location.
- Clean-up and proper abandonment leaking oil wells
- The intention to finance a clean-up campaign
- The intention to compensate for use of private land by oil companies
- Desired clarity about ownership of private land
- Commitment by oil companies to protect the environment
- Realisation by oil companies that social acceptance is conditional for the “License to Operate”.

Consultations have been difficult to organize due to conflicts in timing, coordination problems with social organization, and faltering relationships. In general it is better to deal with resistance during a thorough process of public participation instead of ignoring these objections.
Stakeholder participation is essential in a situation of mistrust and one of the three basic principles of good SEA (together with good quality information and transparency).

The SEA would tremendously enhance effective planning and decision making if the numerous recommendations and alternative options could be presented according to urgency, scale and level of decision making and in easy accessible sets or packages of options for relevant decision makers.

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STRATEGIC ENVIRONMENTAL ASSESSMENT FOR OIL AND GAS IN ALBERTINE GARBEN, UGANDA

CHAPTER 5

5.1.0 INTRODUCTION

In recent times, there has been a strong commitment globally to safeguard the environment in order to ensure the availability of resources for the future generation; the need for sustainability. As a result, all relevant environmental, social and economic issues related to proposed Plans, Policies and Programmes should be addressed at the earliest stage possible for decision making.

The exploration and production of oil and gas in Uganda represents an issue that calls for concern based on the possible resultant environmental, social and institutional impact from its activities. These activities may be a potential threat to biodiversity, sound natural resource management and livelihoods of the people of Uganda.

Oil exploration in Uganda dates back to the 1920s but it was not until 2006 that it was officially announced that oil had been discovered in Uganda. The Albertine Garbine was found to show the most prospective sedimentary basin as compared with the Lake Kyoga basin, Hoima basin, Lake Wamala basin and the Moroto-Kadam basin.

The Albertine Graben is an area of national and international significance due to its richness in biodiversity, chains of protected areas and spectacular sites for tourism. As a result the government of Uganda through the National Environment Management Authority (NEMA) made the decision to carry out a Strategic Environmental Assessment (SEA).

The SEA is meant to contribute to informed decision making through taking into consideration the possible environmental and social effects caused by oil and gas development in the Albertine Graben. The main goal of this case study is to give an over view of the SEA of the oil and gas development at the Albertine Graben in Uganda.

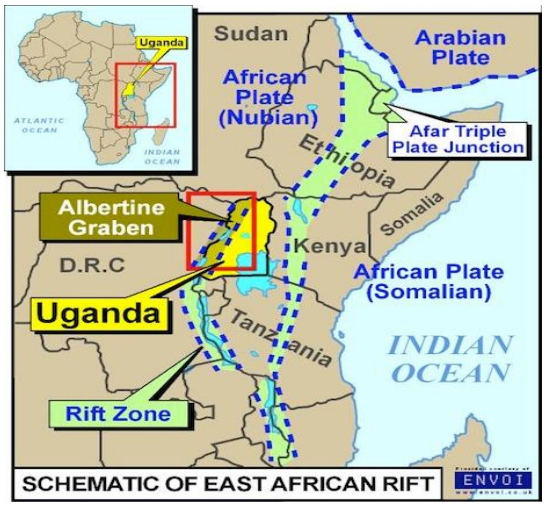
This is a literature case study which involves an extensive study of all relevant documents with respect to SEA for oil and gas in Uganda.
This case study:

- Summarizes the history of oil and gas development in Uganda.
- Gives a description of the progress of SEA process of the oil and gas development of the Albertine Garben in Uganda.
- Explains the SEA results so far.
- Explains the core capabilities that Uganda needs to achieve capacity results for environmental mainstreaming in the oil and gas sector.
- States the form of the stakeholder participation in SEA.

5.2.0 HISTORY OF OIL AND GAS DEVELOPMENT IN UGANDA

Oil exploration in Uganda was first done by E.J.Wayland in the 1920s. Discovery was followed by the Uganda's first deep well was drilled in 1938. The exploration process however came to a halt, mainly due to World War II in 1945 and also as a result of political instability in Uganda [1]

It was not until the 1980s that the commitment towards the exploration of oil in Uganda was renewed. In 1983 geologists resumed exploration activities in the Albertine Graben, revealing reasonable oil presence. This led to the creation of the Petroleum Unit in 1985, in the Geological Survey and Mines Department to spearhead exploration promotion [2]



In 1985 the Petroleum (Exploration and Production) Act was enacted to make provision for the exploration and production of petroleum and related matters. The Petroleum unit was replaced by the Petroleum Exploration and Production Department which commenced aeromagnetic surveys.

In 1993 the Petroleum (Exploration and Production) and (Conduct of Exploration Operations) Regulations 1993 were passed for regulating petroleum activities in Uganda [1]

The aeromagnetic surveys taken during 1983 and 1992 produced a ray of hope. They were able to identify five sedimentary basins in the country. These were; the Albertine Graben, Lake Kyoga basin, Hoima basin, Lake Wamala basin and the Moroto-Kadam basin. These aeromagnetic surveys were to later be followed by ground surveys; these went on to show the most prospective sedimentary basin as the Albertine Graben.

By the early 2000s, Uganda was seeking domestic petroleum reserves in response to rising oil prices. In September 2002, Heritage Oil announced the first exploratory well, in Block 3, located in the Semiliki Valley in western Uganda, in the hopes of confirming seismic studies showing 1.2 billion barrels (190,000,000 m^3) of oil in the basin.[2]

In 2006 it was officially announced that there is Oil in Uganda. By June 2006, Hardman Resources of Australia discovered oil sands at Waranga 1, Waranga 2 and Mputa.[2]http://en.wikipedia.org/wiki/Energy_in_Uganda - cite_note-4#cite_note-4 According to the petroleum geologists, the Albertine Graben is greatly enriched with oil. They assert that the Maputa and Waraga oil fields have approximately 100 to 400 million barrels of oil, whereas the Giraffe 1 is expected to total at least 400 million barrels of oil. [2] It's expected that more discoveries will be made.

5.2.1 SEA OF OIL AND GAS IN UGANDA

The application of Strategic environmental assessment (SEA) to polices, plans and programmes provides the environmental evidence need for decision making, and to identify new opportunities by encouraging a systematic and thorough examination of development options.[8] SEA should take place at an early stage in the decision making process at the level of PPPs. Thus, it is a process that should be initiated and led by government. Only a few SEAs by donor requirements have been done before now in Uganda and there has not been any SEA on oil and gas yet.
A good SEA is adapted and tailor-made to the context in which it is applied, meaning that an SEA should have the focus on providing guidance to future decision making process through taking into

consideration the possible environmental, social and other issues that may result from oil and gas development in the Albertine Graben.

The Albertine Graben which has been known for its high biodiversity is also now known as an oil rich region. Therefore, care has to be taken to ensure that oil exploration and exploitation is done without compromising environmental resources. If not properly protected, the habitat and wildlife corridors, which form a continuous protected area within the Albertine rift, may be disrupted or even destroyed. According to the 2010 "Environmental Sensitivity Atlas," the Albertine Rift harbors more species of vertebrates than any other region on the African continent, and shelters more than half of Africa's bird species as well as nearly 40 percent of its mammal species.

Consequently, the objective of the SEA is to suggest a framework for sustainable use of the oil and gas gotten from the Albertine Graben and at the same time maintain the structure, functioning and productivity of the ecosystems of the area as a foundation for long term value creation by:

- The determination of further exploration and development stages
- Creating ways to deal with conservation of biodiversity and the most valuable and sensitive areas
- Deciding on how to ensure a sustainable coexistence with other sectors for example tourism, agriculture and fisheries.
- Determining how to deal with pollution and waste.
- Developing proposals for improving (institutional) capacity of different stakeholders to enforce law and deal with negative consequences of oil and gas development.
- Developing compensation mechanisms.

5.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas development in Uganda which includes the documents on Terms of Reference (ToR), meetings, workshops, stakeholders participation and reports provided by the NCEA. Also reports available on the internet, documents on Uganda's Environmental legislation and other websites relating to Uganda's oil and gas development have been used. These documents were used to:

- View the history of oil and gas development in Uganda.
- Analyze the progress of SEA for oil and gas development in the Albertine Garben using a content analysis approach.
- Examine the endogenous changes that have occurred in Uganda since the discovery of oil and gas.
- Look at the performance of the government of Uganda with respect to the institutional framework in place.
- Examine the core capabilities to achieve capacity results in SEA for the Albertine Graben: Core capability to act and commit, to deliver on development objective, to relate to internal and external stakeholders, to adapt and self-renew and to achieve coherence.

5.4.0 THE SEA PROCESS

In preparation towards the SEA, the following processes were followed to implement it:

- In 2007 the NCEA reviewed a draft SEA manual that had been prepared by NEMA.
- In 2009, NEMA received ToR for an oil exploration drilling SEA. It had been prepared by private parties (Tullow/Heritage) seeking to undertake the drilling.
- NCEA reviewed the ToR (sec.-memo 2009-4) and concluded that the ToR give excellent generic explanations of SEA, but had not yet applied SEA thinking within the ToR. The more detailed explanation of the proposed activities is at EIA level.
- In October 2009 there was a planning meeting that took place in Hoima from which a recommendation was made on the need to have wider stakeholder consultation before the SEA is carried out.
- A high level workshop and scoping workshop were held in April 2010 at Entebbe that recommended the need to have a steering committee in place. At the workshops, there were presentations on SEA, the next steps and how it is applied to both polices and plans. The workshops also influenced the main government agencies on the need for the SEA and obtain their input. After which a report on the workshops was made.
- In June 2010, a zero draft ToR for the SEA was sent by the National Environmental Management Agency (NEMA) and the Petroleum Exploration and Production Department (PEPD) in Uganda for comments by the NCEA and Norway as input for a ToR for the Steering Committee for further specification of the SEA.
- Early in November 2010, a first steering committee meeting was held with the Norwegian partner.
- The meeting was useful, but there were still a number of issues that needed further discussion. For example, a decision had to be made on who takes the lead in practical implementation of the SEA, ToR for the Steering Committee etc.
- A second meeting was held in November 2010 with the purpose of discussing with the Norwegian and Netherlands' partners on the outcomes of the first Steering Committee meeting on the scope of the SEA and recommendations in the April scoping workshop report. Also to determine a rational timeline for the process of the SEA, and to agree on technical assistance from NCEA and Norway.
- The 2nd annual planning meeting for the environmental pillar under the Norwegian funded Oil for Development (OfD) programme was held towards the end of November 2010 from which the progress of implementation of the SEA was discussed as well as the proposed work plan for 2011. NCEA participated as an observer.
- In January 31, 2011 and April 2011 drafts ToR were sent to the NCEA for comments, resulting in an approved ToR of 28 June 2011. In the development of these drafts, over a time span of almost a year, several comments of NCEA have been fully incorporated, others partly and some have not been included. The reason that NEMA/PEPD gave for not including all NCEA comments was that did not want to limit too much the scope of the proposals to be developed by the consultants in the tender procedure. A more general ToR would allow for more creative proposals by the consultants, so that NEMA/PEPD would have more possibilities for selection of a preferred consultant.
- A suggestion was made to the effect that the SEA should take place in a period of 6 months. A draft report should be ready by October 2011 and subjected to stakeholder review before it is

finally endorsed and owned by the Ministry of Energy and Mineral Development. The information on if this was accomplished is not available.

- The tender procedure and selection of the consultants team took longer than expected. The kick-off workshop for the SEA has taken place in March 2012.

Available Documents

- Guidelines for Strategic Environmental Assessement by NEMA(December 2006)
- ToR for an oil exploration drilling SEA by Tullow/Heritage (2009)
- Review memo by the NCEA (October 2009)
- Report on high level and scoping workshop on SEA for the Albertine Garben by NEMA (April 2010)
- Draft ToR for SEA of the oil and gas activities in the Albertine Garben by NEMA (June 2010)
- Final Approved ToR by NEMA (June 2011)
- Other reports on meetings and workshops.

5.4.1 SEA RESULTS SO FAR

- The SEA is still in an early stage, as a result only a few results have been achieved. In addition there is currently no SEA legislation and no SEA experience in Uganda with relations to oil and gas development.
- There was a review of the draft SEA manual by NCEA in 2007.
- There was a high level meeting and scoping workshop on SEA that was held April 2010 to create an understanding of the SEA and obtain input of stakeholders. A report was generated from the meeting summarizing main conclusions and recommendations.
- Norway and NCEA have provided input for a ToR for the Steering Committee for the SEA.
- It took a while before the Steering Committee was put in place which was created to guide the SEA process.
- Approval of ToR for SEA in Albertine Garben in June 2011.

5.4.2 CAPACITY DEVELOPMENT

In nearly two decades, Uganda has worked to rebuild its economy, and make the difficult transition from a country torn by civil war to one of democracy and free enterprise. The need for capacity development is apparent.

1. Capability to act and commit

This capability involves the presence of an SEA process plan, decision taking and acting on these decisions collectively, the effective resource mobilisation and monitoring of the SEA process.
This capability was expressed in the government show of commitment to SEA through NEMA, developing an SEA manual, ToR and holding high level workshop and scoping workshop on SEA. The Ministry of Energy has referred to SEA in its Oil and Gas Policy[15]. However, there is no solid basis for SEA in the legislation yet.

Apart from these there is a "culture of secrecy" amongst civil servants. Whereby government officials are reluctant to disclose information related to government activities. This is aggravated by the Official Secrets Act which government officials do not want to violate.[10]

2. Capability to deliver on development objective

This capability involves financial resources, Human resources and access to knowledge resources.
The framework to enhance this core capability is yet to be fully in place. In pursuance of transparency and accountability in managing oil revenues, Norway has set up a fund (the Petroleum Fund) into which all petroleum revenues flow. The fund reflects the total financial assets from the oil sector (both revenue stream and return on associated investments).These kind of systems can be adopted for Uganda's oil and gas sector. The Extractive Industries Transparency Initiative (EITI) should also be employed.

3. Capability to relate

This capability involves engaging internal and external experts in SEA.
In order to enhance this capability there has been the involvement of NEMA, Ministries of Energy and Mineral Development, Water and Environment and Tourism, Trade, Wildlife Conservation Society, USAID, Norwegian government and NCEA into the SEA process.

4. Capability to adapt and self-renew

This capability involves the analysis of main changes as a result of SEA, reconstruction of policy, use of opportunities and incentives and acknowledgment of mistakes that have been made and stimulation of the discipline to learn. There has not been much change as regards the SEA results because not much can be observed since the SEA is still very much in the early stage.

5. Capability to achieve coherence

This capability involves the leadership is committed to achieving coherence, balancing stability and change. This capability is lacking, even though the government has developed an oil and gas policy to address the magnitude of technical and policy issues arising from the expected change in the country's future income streams. But local politicians had often created unreasonable expectations about the possible benefits of oil exploitation in the Albertine Graben.
Government officials feel that they do not have the status or resources to compete with political statements. As a result it has been difficult for the general public "to distinguish between information and propaganda.[13]For this reason the SEA process should create opportunity for the public involvement in order to ensure the adequate understanding of the oil and gas development PPPs and also be able to make their concerns known.

5.4.3 STAKEHOLDER PARTICIPATION

Based on the available information, the stakeholder participation had been during high level SEA workshop and scoping workshop held in April 2010 which resulted to the following attendance:
The stakeholders for high-level SEA workshop were numbered around 20 representatives of Ministries of Energy and Mineral Development, Water and Environment and Tourism, Trade and Industry. Furthermore: National Environmental Management Authority (NEMA) , Uganda Wildlife Authority (UWA) , National Forestry Authority (NFA), National Planning Authority (NPA) and Uganda National Roads Authority (UNRA) and also directorates of Water Resources Management, Environmental Affairs,

Physical Planning, Department of Petroleum Exploration and Production, Wetlands Management and Fisheries Resources, Wildlife, Water Resources Regulation, Antiquities and Museums and representative from the Norwegian embassy.

The stakeholders for the scoping workshops were numbered around 60 representatives of the Petroleum Exploration and Production Department (PEPD), NEMA, UWA, NFA, NPA, UNRA, Wetlands and Water Resource Management, DFR, Min. of Tourism, Min. of Lands, Housing and Urban Development, Wildlife Conservation Society, Representatives of oil companies (Neptune and Tullow), USAID, Uganda Association of Impact Assessment, and environmental officers of around 10 districts from the Albertine Graben region.

5.5.0 CONCLUSION AND RECOMMENDATION

The discovery of oil in Uganda has earned the country's place among the nations of oil producing countries in Africa. The resources generated if properly managed, could promote development and better the livelyhood of the people of Uganda by improvement to infrastucture, provision of basic social amendities and alleviating poverty. But if used ineffectively it may lead to negative overall social, environmental and institutional impact which could lead to loss of biodiversity, corruption and conflict. That is why SEA is relevant for the development in Albertine Garben.

There is currently no SEA legislation and no SEA experience in Uganda with regards the oil and gas sector. There is an indirect reference to SEA in the National Oil and Gas Policy (late 2008), the policy also promotes transparent decision-making and sound environmental management, but it does not clearly specify how SEA should be applied to achieve these issues. It is clear that NEMA has a bit of delay concerning what SEA should contain and how to apply it effectively, because from the onset of the SEA for the Albertine Garben not much has been accomplished.

There is still some information gap with regards the public been informed about the oil development plans and also avenues for the public to make known their concerns. Therefore a better and broader dissemination of information (i.e. by Government, oil companies and other stakeholders) will help to improve transparency and accountability, and ensure that oil revenues are managed more effectively and efficiently.

Uganda requires an industrial workforce that could participate in the oil industry and therefore needs an appropriate education and training programme in preparation towards the oil development. Also a clear legal framework, to manage oil revenues, needs to be put in place.
It is noted that because the SEA is still an ongoing process there is still a lot yet to be done.

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A COMPARATIVE ASSESSMENT OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT FOR THE OIL AND GAS SECTOR IN GHANA AND MAURITANIA

CHAPTER 6

6.1.0 INTRODUCTION

The increasing dependence on oil and gas has been on the raise over the years. Countries all over the world depend on the production or the trade of oil and gas to improve their economies. As a result there are growing concerns over what impact the activities involving the oil and gas exploration and production may have on the environment and the society at large.

It has been observed that oil and gas activities can cause serious damage to the environment, disrupted the human living conditions or result in conflict in oil-producing regions and affect biodiversity to the point of leading to the extinction of several animals and plants species. These gave rise to the need to address the relevant issues relating to the oil and gas sector for sustainability with a tool known as Strategic Environmental Assessment (SEA). In recent times, SEA has become recognized as a process of environmental assessment that can assist leaders in policy, planning and programmatic decision making for sustainable development. [2]

This report makes a comparative assessment of the SEA for the oil and gas sector in Ghana and Mauritania, in order to investigate the strong and weak points of the SEA processes by:

- Examining if the objectives of the SEA were met.
- Analyzing the influence on policies, plans and programmes.
- Examining if it was effective in providing information for decision making.
- Identifying the extent of consultation and the way it was done
- Analyzing the contribution to capacity development.

Furthermore, this report tries to give advice, lessons learnt and recommendations that could be beneficial to other counties working on SEA in relation to oil and gas.

6.1.1 SEA FOR THE OIL AND GAS SECTOR IN GHANA AND MAURITANIA

A good SEA is adapted and tailor-made to the context in which it is applied, meaning the SEA set-up on the oil and gas sector of Ghana and Mauritania will be dependent on the specific objectives that it is set to achieve, the legal frame work of the individual countries, factors relating to customs of the people, the long term plans and programmes relating to future oil and gas projects.

In June 2007, the Ghana National Petroleum Corporation announced a significant discovery of light oil offshore at the Jubilee Field together with partners Tullow Oil and Kosmos Energy from which Ghana's oil and gas industry had undergone a number of landmark stages prior to the discoveries of huge oil and gas reserves in the Jubilee Field.[5]

Consequently, the Ministry of Energy (MoEn), in collaboration with the Environmental Protection Agency (EPA) and the National Development Planning Commission (NDPC) commenced the Strategic

Environmental Assessment (SEA) of the oil and gas sector. The SEA was supported by the Netherlands Commission for Environmental Assessment (NCEA) and the Government of Norway.

Mauritania, officially Islamic Republic of Mauritania (RIM) was officially included in the list of Africa's oil producing nations in 2001 following the announcement of oil discovery at the offshore Chinguetti field. Not until recently it was believed that there were no hydrocarbon resources in Mauritania. [6]
The Government of Mauritania recognized the relevance of improving the legal and regulatory framework and enhances environmental governance for the development of the oil and gas sector. Therefore a need for Strategic Environmental and Social Assessment (SESA) was established to ensure that oil and gas development will proceed in a sustainable manner in accordance with best international environmental and social practice and standards. The SEA was supported by the World Bank, the Government of Norway and the NCEA.

6.2.0 METHODOLOGY

The methodology consists of a comparative assessment of SEA application for the oil and gas sector for two counties that only made the discovery of oil and gas recently namely Ghana and Mauritania with discoveries officially announced in 2007 and 2001 respectively, Also because the two countries have managed to finalize the SEA reports recently.
The comparison was based upon studying the individual SEA report and related documents to:

- Examining if the objectives of the SEA were met; at the commencement of the SEA for the oil and gas sector each country outlined a set of SEA objectives which will be examined and compared.
- Analyzing the influence on policies plans and programmes (PPPs); a comparison of the use of SEA as regards PPPs.
- Examining if the SEA was effective in providing information for decision making; the effectiveness of SEA documentation and impact identification.
- Identifying the amount of consultation and the way it was designed and executed; the extent of consultation in form of stakeholders' participation and public participation.
- Analyzing the contribution to capacity development; the core capabilities needed to achieve sustainable development.

The information presented as a result of the comparative assessment has been compiled from SEA reports for the oil and gas sectors of Ghana and Mauritania, papers, articles and books identified from computer-based searches which can be found in the list references.

6.3.0 THE COMPARATIVE ASSESSMENT

The comparative assessment between Ghana and Mauritania analyses and discusses the different performance from the perspective of SEA objectives, link with Policies Plans and Programmes, SEA documentation and impact consideration, decision making, consultation and capacity development.

1. ACHIEVEMENTS ON SEA OBJECTIVES

For every SEA there are outlined goals which the SEA is set to achieve, these are the objectives and they differ depending on the issues they are meant to address.

Table 1 and 2: gives a brief overview of the comparison in relations to the countries' individual SEA objectives

	GHANA'S SEA OBJECTIVES FOR THE OIL AND GAS SECTOR	OUTCOME
1.	To integrate environmental and social considerations in the development of the oil and gas fields and related industries in order to ensure sustainable development.	There were 24 key issues identified during the scoping phase of the SEA, that were analyzed in relation to Ghana Shared Growth and Development Agenda, Sector Policies, Plans and Programs They were analyzed based on the four pillars of sustainability i.e. natural resource, socio-cultural, economic and institutional.
2.	To identify and provide guidance for protection of potential sensitive environmental areas. Also to outline mitigation and monitoring requirements and objectives that establish best practice and ensure effective effect management for future oil and gas development.	The development of 3 scenarios provided an initial qualitative estimation of the potential positive and negative consequences of oil and gas exploitation in Ghana. It covered issues in terms of natural resources (pollution, effect on fishery and tourism, etc.), economic (revenue management and distributional analyses) and socio-cultural (conflict management and prevention, and transboundary effects) as well as institutional (legislation, laws, regulations, institutional capacity). These issues were analyzed and prioritized accordingly.
3.	To ensure that environmental issues are addressed at the earliest stage of decision making in order to contribute to the quality of the strategic decisions that are foreseen for the near future and also ensure a wider stakeholder participation in decision making.	A review of various existing and relevant sector documents to identify potential gaps in relation to environmental and other issues which covered the Energy policy, draft oil and gas policy, Draft oil and gas master plan, Jubilee EIS review report and various documentations from GNPC (Gas utilization project concept, oil and gas presentations) was made and a broad stakeholder participation in form of public hearings, workshops and Sectoral meetings took place to identify key issues, concerns and expectations.

	MAURITANIA'S SEA OBJECTIVES FOR THE OIL AND GAS SECTOR	OUTCOME
1.	To identify the social and environmental impacts which could be generated by oil and gas development, evaluating the scope and probability of these impacts due to increased activities onshore and offshore. Also to put forward recommendations to avoid, manage and/or attenuate these impacts.	Environmental impacts, risks and opportunities were assessed for both the onshore and offshore including necessary mitigation and corrective actions.
2.	To facilitate the integration of these measures into a coherent policy and to ensure its application.	Following the identification of key environmental and social issues arising from current and future oil and gas development in Mauritania, a strategic management framework to assess the effectiveness of proposed mitigation measures and establish a mechanism for regulatory compliance was developed. It gave rise to the consideration of the Framework for a National Oil

		Spill Contingency Plan (NOSCP) and the implementation of Environmental information systems.
3.	To help in capacity building and training of Government officials in the management oil and gas sector impacts, in particular the Ministries of Environment and Petroleum, Energy and Mines.	The Steering Committee appointed by an Inter-Ministerial Decree has been effortful in operating in an inter-institutional coordination capacity since the beginning of the SESA project and has benefitted from capacity building with the SESA team, sectoral knowledge and understanding of the organizational structure and function within the Mauritanian institutions; as a result they will be capable of ensuring that the recommendations and implementation of the SEA are fully carried out.

ASSESSMENT

The SEAs for Ghana and Mauritania were structured differently but addressed similar issues in the needs to identify the potential impact, outline of mitigation measures and make recommendations. Also in improving the oil and gas sector to ensure better decision making for sustainability but as regards this aspect Mauritania focused more on the need for capacity development while for Ghana it was more on a wider stakeholder participation.

2. INFLUENCE ON POLICIES, PLANS AND PROGRAMMES

SEA is most effective if applied ***ex-ante*** i.e. at the point where Policies, Plans and Programmes (PPPs) are being developed and different approaches or alternatives can be proposed.

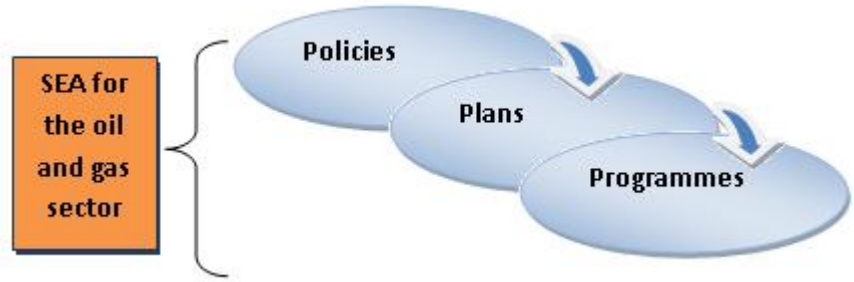

Figure 1: Application of SEA to PPPs

Although policies, plans and programmes (PPPs) are generally all described as strategic actions, they are not the same things, and may require different levels and types of analysis in SEA.

Table 3: Comparison of PPPs in Ghana and Mauritania

COUNTRY	GHANA	MAURITANIA
POLICY	The SEA has lead to the review of the Energy policy, Draft oil and gas policy, draft oil and gas master plan. The recommendations from the SEA were meant to influence the gas master plan and future decisions related to oil and gas planning.	Mauritania has yet to adopt a general policy regarding oil and gas development, and of energy resource use in general. A sectoral policy, or strategy, governing the oil and gas sector development is in the process of being defined.
PLANNING	Three scenarios for the development of the oil and gas sector and their implications for the natural environment, economy, socio-cultural and institutional were established.	An SEA action plan was developed with priorities organized into immediate, short term, medium to long term action to aid in the implementation of the recommendations made. Outside these there are no formal plans for the oil and gas

		development in the country.
PROGRAMME	No programme in place as regards the oil and gas sector of Ghana.	Strategic elements of oil sector development are stated in the Poverty Reduction Strategy Program (PRSP) and a consultative group exist within the MPEM to implement these strategic elements. Effectiveness of these initiatives needs to be verified and integrated with the SEA.

ASSESSMENT

The SEA results for both Ghana and Mauritania is still in process of been implemented into PPPs.

3. SEA DOCUMENTATION AND IMPACT CONSIDERATION

Documentation of SEA results is a crucial step for enhancing accountability through facilitating quality control of the presented information and keeping trace of decision-making criteria. It provides the basis for stakeholder consultation and eventual evaluation of SEA efficiency in influencing strategic decision-making in any country.

ASSESSMENT

The SEA documents for both Ghana and Mauritania on reviews, workshops, meeting and reports have been adequately documented and made available. As regards the impact consideration Ghana has a comparative advantage compared to Mauritania due to the fact that the relevant information on impact consideration and mitigation measures have been made available while Mauritania there was limited available information on the control of the floating production, storage and offloading unit (FPSO) and measures taken to prevent spills. There was a lack of clear understanding regarding impacts of the oil and gas industry on fisheries and no definition of sensitive areas that are off limits to oil and gas development, or “no go” zones outside of the National Parks.

4. EFFECT ON DECISION MAKING

ASSESSMENT

As regards decision making Ghana was observed to have a comparative advantage to Mauritania. The Ghanaian SEA team was involved in workshops on SEA and study tour to introduce a range of Dutch and Norwegian SEA experiences in relation to oil and gas, which included addressing conflicting issues of interest such as gas exploitation, fisheries, tourism, etc. , challenges and co-operation connected to the establishment and operations of the petroleum industry. This lead to the re-consideration of all the SEA 24 key issues and a discussion on what the context of the SEA should be and to which extent these issues were to be integrated into existing PPPs in Ghana.

Mauritania lacks information on the existing biophysical resources in the coastal and marine ecosystems and resultant potential impacts of the oil and gas activities that could constitute threats to biodiversity at the sites where most oil and gas development is scheduled to take place. This lack of information hampers effective decision-making at the policy level, and also limits the capability of technical personnel and local stakeholders to propose specific guidelines and restrictions on oil and gas development. Though SEA has improved the inter-institutional coordination capacity of the government which will aid in future decision making in the implementation of the recommendations made.

5. EXTENT OF CONSULTATION

Consultation is an integral component of most SEA systems. It creates the avenue for concerns to be made known. The specific issues to be addressed in each particular SEA should be identified through consultations with decision-makers and environmental authorities.

ASSESSMENT

For Ghana had a broad range of stakeholders involvement with public participation than Mauritania, that had a decrease in stakeholders consultation minimal public participation as the SEA progressed.

6. CAPACITY DEVELOPMENT

Three factors control the success of Capacity Development. The first factor is that the country's aspiration and strategy must be clear and fully supported by all levels. The second factor is that Capacity Development has to be driven by the leaders and decision makers. The third factor is that Capacity Development has to be implemented as a permanent institution. [15]

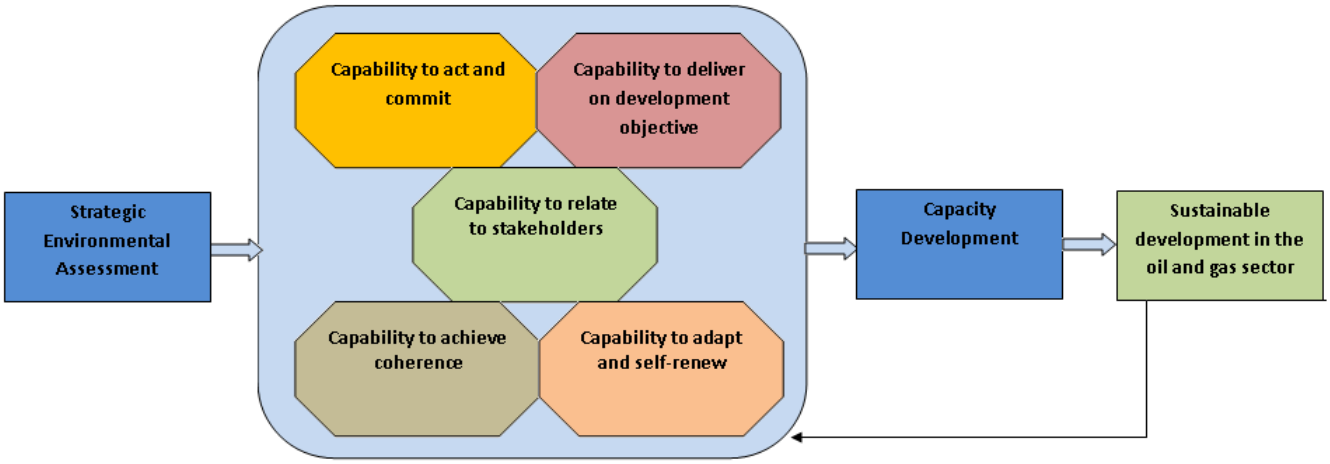

Figure 2: The essential core capabilities to enhance Sustainable development in the oil and gas sector

Capabilities, in practice, are ongoing processes that become apparent in a country enabling it to survive and create development value which can help provide more operational and specific ways to approach the broader concept of capacity. Ghana and Mauritania would be assessed based on the five essential core capabilities (5CCs) [7] to achieve capacity results for sustainable development in the oil and gas sector.

Table 4: Comparison of the core capabilities in Ghana and Mauritania

	CORE CAPABILTIES	GHANA	MAURITANIA
1.	Capability to act and commit.	Currently, there are no specific rules or regulations covering key upstream issue and still no specific legislation on SEA. Three scenarios were created for the development of the oil and gas sector.	Mauritania has yet to adopt a general policy regarding oil and gas development even though the government adopted several pieces of legislation aimed at regulating petroleum industry activities. Despite this initiative, plans or programs are yet to be adopted. An SEA action plan was developed to implement the SEA recommendations.
2.	Capability to deliver on	Ghanaian government has shown commitment to develop programmes and	The Extractive Industries Transparency Initiative (EITI) Board designated Mauritania as an EITI

	development objective involving financial resources, Human resources and access to knowledge resources.	legal frameworks to promote transparency in the oil and gas sector, in order to mitigate the risk of corruption which may affect the economic progress that has been made so far.	Candidate country that is "close to compliant" and was granted six months to achieve compliance (12 June 2011), or made to undergo a new validation process. Currently, funding for environmental protection is mostly provided through the national budget of Mauritania and supplemented by several donor-funded projects. However, the existing level of funding is not sufficient and, in the case of development partners, the 'project-based' model is not sustainable in the long term.
3.	Capability to relate with internal and external experts in SEA.	There was a wide range involvement of stakeholders that were drawn from Government Ministries, Departments and Agencies, District Assemblies, Oil and Gas Sector operators, NGOs, Traditional Authorities, Universities and Research Institutions, Private Sector and Civil Society Organizations, etc Supported by the Netherland's Ministry of Foreign Affairs and the NCEA and the government of Norway.	There was a wide range involvement of stakeholder that included the Ministry of Transportation, Minister of Petroleum, Mines and Energy (MPEM) and Ministry of Environment and Sustainable Development (MEDD). D'Appolonia SpA. Italy, Integrated Environments Ltd. Canada, the Council for Scientific and Industrial Research (CSIR) in South Africa and representatives from organizations, institutions, NGOs and civil society in the SESA. Supported by the World bank, NCEA and the government of Norway.
4.	Capability to adapt and self-renew in form of reconstruction of policy, Use of opportunities and incentives.	As a result of the SEA the institutional capacity of Ghana has been improved through series of workshops, study tours and meetings. The application of the SEA to policies and regulations for the development of strategies to address issues of relevance to the oil and gas sector is still an ongoing process.	There is an incomplete legal framework in Mauritania with which to set the bases for the environmental management of the oil and gas industry. A sectoral policy, or strategy, governing the oil and gas sector development is in the process of being defined.
5.	Capability to achieve coherence, balancing stability and change.	The SEA aided in establishing three scenarios that were analyzed in order to identify significant opportunities and risks related to different future situations in relations to the oil and gas activities. And set a basis for identification of the "key issues". The Ghana's Government ensured a broad participation in the SEA involving stakeholders and the public which in turn creates an avenue of transparency and confidence in the government as stakeholders were given the chance to express their concerns.	An action plan to implement the recommendations made from the SEA was developed. The meetings held with the Steering Committee and Expanded Steering Committee was not exactly open to public participation. There is also a lack of a clear definition of the roles and responsibilities of the Ministry of Environment and Sustainable Development and its inter-institutional coordination with interdepartmental sectoral authorities for environmental and social management of oil development projects. International oil industry presence in the country is not well established at present.

6.3.1 LESSONS LEARNT

- The importance of applying SEA to PPPs to facilitate sustainable development.
- Adequate review of all relevant documents associated with oil and gas development in a country before the commencement of the SEA will enhance the effectiveness.
- Developing a plan to facilitate the implementation of SEA recommendations and advice is essential in order to ensure that SEA is considered as an ongoing long-term process.
- Documentation is essential for decision making. A centralized (spatial) information system will bring about the establishment of ready access to environmental and social information and activities of the oil and gas industry. Also the importance of the improvement and refinement of biophysical information available to enhance decision making.
- Adequate consultation for both stakeholders and the general public in needed both during and after the SEA in order to promote transparency and accountability. These should be accompanied by a capacity building package.

6.4.0 CONCLUSION AND RECOMMENDATION

The SEA has led an improvement in institutional capacity of the oil and gas sector for both Ghana and Mauritania, as a result of the government's efforts to improve on the policies governing the oil and gas sector. The SEA process created a better understanding of sustainability issues.
One major challenge of SEA is the availability of competent SEA professionals, as a result the SEA has aided in highlighting the needed capacity which is still an on- going process. A lot of the learning by the SEA team and stakeholders has been from actual participation in the SEA process.

The coordinated implementation of recommendations and advice into the oil and gas related PPPs will allow both Ghana's and Mauritania's institutions to realize synergy among the existing policies to prevent environmental degradation and conserve biodiversity. For example, there is not enough importance awarded to biodiversity concerns in Mauritania

There is the need to support the growth of indigenous (in-country) technical and professional skills and to develop training institutions for development of programs focused on technical skills development for the oil and gas industry in Mauritania. In addition there should be an assessment conducted across the Ministries of Environment and Sustainable Development, Energy and Petroleum, Fisheries and Transport to determine what specific training needs are required, who should be trained, what type of training should be received etc

Ghana still needs to shift to a position of higher value added production and service delivery through investment in education and technology. Experience has shown that the institutions of countries with low institutional quality are normally further weakened once oil revenues begin to come in, Ghana has shown commitment to avoid this. The discovery of oil in Ghana clearly requires new commitment and support for broader public sector reforms.

Public consultation is still minimal in Mauritania as compared with Ghana which involved the public in its consultation. Therefore, Environmental assessment reports should not be approved without inclusion of the public consultation process and its results. Consultation regarding oil and gas operations in Mauritania should be undertaken in a culturally appropriate manner, taking into account local customs,

ethnic background, approach to business interactions, knowledge of extractive industries and their effects.

To enhance the uptake of SEA, there is a strong need to ensure and show that SEA systems add value to the decision-making and the implementation should be an ongoing process. Based on the comparisons made, the SEA for Ghana was more effective.

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STATEGIC ENVIRONMENTAL ASSESSMENT FOR OIL AND GAS DEVELOPMENT IN THE UK

CHAPTER 7

7.1.0 INTRODUCTION

There has been a remarkable increase in the exploration and production of oil and gas in all continents, so has the attention on the impact of its various activities. There has also been a growing awareness and the need for the oil and gas sector to function within acceptable economic, social and environmentally sustainable standards.

In 1965, the first rig ever to find hydrocarbons in the British North Sea sector was the 5600 ton Drilling Barge Sea Gem 42 miles off the mouth of the river Humber by the British petroleum. After which there have been many more discoveries till date. The North Sea is divided into UK, German, Norwegian, Danish, and Dutch sectors. The UK has the largest of these sectors. The largest field discovered in the past 25 years is Buzzard which is located off Scotland, found in June 2001. [5]
Over the past four decades the UK oil and gas industry has become the centre of one of the world's most productive energy industries. Oil and gas remain vital parts of the UK's energy mix which are used as fossil fuels for energy generation.

Strategic Environmental Assessment (SEA) is the process of appraisal through which environmental protection and sustainable development may be considered and factored into national and local decisions regarding Government (and other) plans and programmes such as oil and gas licensing rounds and other offshore energy developments. The process aims to help inform Ministerial decisions through consideration of the environmental implications of the proposed action. In 1999, the UK Department of Trade and Industry (DTI) began a sequence of sectoral SEAs of the implications of further licensing of the UK Continental Shelf (UKCS) for oil and gas exploration and production. [4]

The purpose of the SEA process was to assess the potential impact of the offshore oil and gas licensing rounds, and to promote environmentally sound development of Britain's hydrocarbon resources. Information provided as part of the SEA process will be used to consider the environmental sensitivity of the region, and as a result, blocks may be withdrawn or conditions imposed. [3]

The objective of this case study is to:

- Give an overview of the SEA of the oil and gas sector in the UK.
- Give a description the SEA process of the oil and gas sector in the UK.
- Examine the SEA results.
- Explain the core capabilities available to the UK's oil and gas sector.
- Highlight the form of consultation.

7.2.0 SEA OF THE OIL AND GAS SECTOR OF THE UK

Strategic Environmental Assessment (SEA) can be defined as a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives such as oil and gas licensing rounds and other offshore energy developments in order to ensure they are fully included and

appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations. [6]
In 1999, the Department of Trade and Industry (DTI) now known as Department of Energy and Climate Change (DECC) took a policy decision that SEA will be undertaken prior to future wide-scale licensing of the UK Continental Shelf (UKCS) for oil and gas exploration and production. This decision implements the spirit of the EU Strategic Environmental Assessment Directive. In preparation for the 19th licensing round the DTI conducted a sectoral SEA of an offshore area known as "White Zone", a boundary area between the UK and the Faroer Islands. Based on the "White Zone" SEA experience, the DTI proposes to follow a process for subsequent pre-licensing SEAs.[1]

The DECC, as the principal regulator of the offshore oil and gas industry, has taken a proactive stance on the use of SEA as a means of striking a balance between promoting economic development of the UK's offshore energy resources and effective environmental protection. Although the European Strategic Environmental Assessment Directive (Directive 2001/42/EC) was not incorporated into UK law until 2004, the earlier SEAs were carried out in accordance with its requirements. [3]

The objective of the SEA was to make an assessment of the potential impact of the offshore oil and gas licensing rounds and to promote environmentally sound development of Britain's hydrocarbon resources. [3]

7.2.1 POLICY, LEGAL AND REGULATORY FRAME WORK

DECC is the approving authority for offshore installation Oil Pollution Emergency Plans (OPEPs). The Maritime and Coastguard Agency (MCA) is the competent UK authority in terms of counter pollution measures and response at sea, and the Joint Nature Conservation Committee (JNCC) provides advice on environmental sensitivities which may be impacted as a result of any oil spill. Both MCA and JNCC are consulted as part of the OPEP review and regulatory approval process.

The Petroleum Act 1998; and the Petroleum Production (Landward Areas) Regulations 1995 are operational and for when a license is required for exploration, development, production and abandonment of all hydrocarbon fields. The Strategic Environmental Assessment Directive (Directive 2001/42/EC) and Environmental Protection Act 1990 are also operational.[10]

7.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas in the UK which includes the documents on screening report, scoping report, meetings, workshop, consultation and technical SEA report available on the Strategic Environmental Assessment website data portal, documents on legislation from the Environmental Union website and other websites relating to UK's oil and gas have been used. These documents were used to:

- Analyze the SEA for oil and gas sector in the UK.
- Examine the endogenous changes that have occurred in UK as a result of the SEAs.
- Overview of the institutional framework in place.

• Examine the core capabilities to achieve capacity results in SEA for UK's oil and gas sector: Core capability to act and commit, to deliver on development objective, to relate to external stakeholders, to adapt and self-renew and to achieve coherence.

7.4.0 THE SEA PROCESS

The Department of Trade and Industry (now DECC) began a sequence of sectoral SEAs of the implications of further licensing of the UK Continental Shelf (UKCS) for oil and gas exploration and production in 1999. For this purpose the UKCS was subdivided into 8 areas:

- The SEA 1 was to cover the deepwater area along the UK/Faroese boundary, and conducted in 1999/2000 in preparation for the 19th Licensing Round.
- The SEA 2 includes areas that have the most oil and gas fields in the North Sea and completed in December 2001 in time for the announcement of the 20th Licensing Round in January 2002.
- The SEA 3 was to cover the North Sea areas between SEA 2 and the English coastline, and was conducted in 2002 in anticipation of the 21st Licensing Round.
- The SEA 4, which extends from the north coast of Scotland to the northernmost tip of the "Northern Triangle", was carried out in summer 2002. The assessment and supporting documentation was placed on the website for public consultation in September 2003, and completed by the end of 2003. SEA 4 was prepared to assess the implications of licensing the area for oil and gas exploration through the 22nd offshore licensing round.
- The SEA 5 was to cover North Sea areas to the east of the Scottish coastline out to the SEA 2 area, began with seafloor environmental surveys being conducted in summer 2003. The assessment and supporting documentation were placed on the website for public consultation in September 2004. The 23rd Oil and Gas licensing round was announced in March 2005.
- The SEA 6 covered the UK area of the Irish Sea including waters off Northern Ireland. The assessment document was available on the website for consultation in November 2005 to 31 January 2006. The 24th licensing round was announced in March 2006.
- The SEA 7 covered a large area to the west of Scotland including the Northern Rockall Trough. Environmental surveys were carried out in 2005 and 2006. The SEA 7 assessment and supporting documentation were placed on the website for public consultation in April 2007 with the consultation ending in June 2007. The 25th licensing round followed the SEA 7.
- SEA 8 which covers the English Channel was included in the Offshore Energy SEA which covered all UK waters. The Offshore Energy SEA considered a Draft Plan for further rounds of wind leasing, offshore oil and gas licensing and hydrocarbon gas storage licensing. Consultation on the SEA closed on 29th April 2009 and the Government decision on the draft plan/programme was announced on 24th June 2009.
- A group from the Department of Energy and Climate Change, Department of Environment, Food and Rural Affairs, Centre of Environment, Fisheries& Aquaculture Science, World Wildlife Fund, Organizations, Crown Estate, Communities and Local government was established to steer the SEA process. The diverse members' role was to act as technical peers, guiding the selection of SEA methods and identifying the right information sources.
- As these SEAs have been carried out, the process has evolved and been improved. The information from one serves as an input to another and will be continuous process. Presently an

invitation applications for petroleum licences for unlicensed seaward blocks which will form the 27th round of offshore petroleum licensing is been done.

- A required part of SEA is consultation with the public, environmental authorities and other bodies, together with neighbouring areas that may be potentially affected.

7.4.1 SEA RESULTS

- DECC's draft plan to offer licenses for offshore oil and gas exploration and production through a 26th licensing round was the subject of a Strategic Environmental Assessment (SEA) completed in 2009.
- In deciding to proceed with a 26th offshore licensing round, DECC has had regard to the conclusions and recommendations of the environmental report and consultation feedback. As a result of the SEA process, blocks in the deepest waters of the SW approaches are currently being withheld from licensing because of inadequacy of data.
- Based on recommendations of previous SEAs , some blocks are currently withheld from this round of offshore petroleum licensing at the request of the Crown estate as they overlie the Cleveland potash mine, and some at the request of the Ministry of Defence due to them being used for intense military testing and training.
- Licensing of the blocks excluded from the round may be revisited in the future, as more information on the features of interest becomes available. In addition, a number of blocks may be licensed but with conditions attached restricting or prohibiting certain marine activities.

7.4.2 INFULENCE ON POLICIES, PLANS AND PROGRAMMES

The documentation required for new oil and gas field authorizations is the Field Development Plan (FDP). Part of the development plan is to address the issues relating to oil and gas licensing rounds and other offshore energy developments. The SEA has aided the DECC to proceed with the 26th offshore licensing round. As a result the Department will work with Licensees to ensure that the development option agreed on is that which will ensure that the field is being managed in a manner that will maximize economic recovery of hydrocarbons.

7.4.3 CAPABILITIES

Capabilities, in practice, are ongoing processes that become apparent in a country enabling it to be sustainable and create development value which can help provide more operational and specific ways to approach the broader concept of capacity. It is important to note that the capabilities overlap and form elements of the others. None is sufficient by itself. The five core capabilities (5CCs) [7] expressed as a result of the SEA are as follows:

1. Capability to act and commit

This capability involves the presence of an annual plan, decision taking and acting on these decisions collectively, the effective resource mobilization and monitoring of the SEA process. In the event that the offshore industry's own national and international pollution response and clean up resources were insufficient to respond to a spill, the Maritime and Coastguard Agency (MCA) will implement the UK

National Contingency Plan. Also before any license awards are made, DECC will assess whether the grant of licenses applied for in the 26th Round is likely to have a significant effect on the management of any protected conservation sites.

2. Capability to deliver on development objective

This capability involves financial resources, human resources and access to knowledge resources. DECC has, with industry and statutory environmental advisors, established an offshore oil and gas environmental monitoring committee charged with coordinating the strategic monitoring of potentially significant environmental effects of the industry, including those that could arise from the implementation of the plan to hold a 26th round of offshore licensing.

3. Capability to relate

This capability involves engaging internal and external experts in SEA. In conducting the SEA process, DECC is guided by the SEA Steering Group, composed of departmental representatives, conservation and other agencies, NGOs, industry representatives and independent experts.

4. Capability to adapt and self-renew

This capability involves the analysis of main changes as a result of SEA, reconstruction of policy, use of opportunities and incentives and acknowledgment of mistakes that have been made and stimulation of the discipline to learn. In light of the Gulf of Mexico incident, the industry in the UK has already embarked on a thorough review of its existing practices and procedures and is working alongside the regulators and trade union representatives through the newly created Oil Spill Prevention and Response Advisory Group (OSPRAG) to ensure that its arrangements for pollution prevention and response, and the financial provisions for that response, are and continue to be fit for purpose.

5. Capability to achieve coherence

This capability involves the leadership is committed to achieving coherence, balancing stability and change. The potential implications of the exploration and production activities that could follow if the draft plan was adopted were considered at an expert assessment workshop and a series of stakeholder workshops. The results of these workshops were assessed further and documented in an environmental report that then formed the basis for consultation with consultation bodies and the public. The launch of the new joint industry and Government group called the Oil Spill Prevention and Response Advisory Group – (OSPRAG) meant to provide a focal point for the oil and gas sector's review of the industry's practices in the UK.

7.4.4 CONSULTATION

Key elements of public and stakeholder consultation were in scoping, Stakeholder dialogue meetings, a 3 month public consultation period following publication of the SEA documents on the SEA website. The SEA Environmental Report and supporting documents are available for review and public comment for a period of 90 days from publication. Comments and feedback may be made via the website or by fax or letter.

7.5.0 CONCLUSION

Over the years, the UK oil and gas sectors have continually adapted to the challenges presented by price volatility, evolving regulation and changing perceptions within society and the European Union. Environmental management in the UK is complex, comprising a multiple of activity-based legislation as well as the encompassing provisions of European Union policy.
DECC has the responsibility to ensure that the nation achieves the maximum benefit from its oil and gas reserves. It must balance the economic and social benefits of oil and gas production with good, safe conservation of the country's natural resources and environmental care. As a result there has been commitment to a range of measures and targets through which progress of the SEA is monitored in a transparent way. This is been done by broad consultation with the regulators, Government, non-governmental organizations and the wider stakeholder community.
The SEA was elaborately done with 8 series of SEAs from 1999 to 2009 addressing different areas. The SEA was able to address the issues of relevance in relations to offshore oil and gas licensing rounds and the need to promote environmentally sound development of the oil and gas resources.

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THE STRATEGIC ASSESSMENT OF THE BROWSE BASIN LIQUEFIED NATURAL GAS PRECINCT, AUSTRALIA

CHAPTER 8

8.1.0 INTRODUCTION

The oil and gas industry has been a major contributor to the Australian economy. In 2006 to 2007 the industry accounted for about 3.8 per cent of the total GDP. Australia's biggest export in the industry is LNG. Australia is now the 18th largest producer of natural gas, the seventh largest exporter of LNG in the world and the third-largest LNG exporter in the Asia-Pacific Region. Australia's proven natural gas reserves have doubled in recent years with much more exploration yet to be done. [1]

In Australia, the industry has been active since the 1950s, with no significant environmental impacts because there has been an effective and close working relationship between regulators, the community and the industry. Over the years the Australian industry has continually improved its performance to produce energy in an environmentally responsible way in order to help meet growing energy needs in Australia and Asia and further minimize potential impacts of the oil and gas activities to the range of sensitive environments and to meet the highest health, safety and environmental standards.

The Department of State Development on the behalf of the State of Western Australia, proposes to develop the Browse Liquefied Natural Gas (BLNG) Precinct as a common user facility to process natural gas from the Browse Basin gas fields, near James Price Point, approximately 60 kilometres north of Broome, on the West Kimberley coast of Western Australia.

The establishment of a BLNG Precinct requires a strategic approach to approvals as it would involve more than one proponent over a long period of time. To ensure a consistent and transparent approvals process in recognition of the importance of the environmental and heritage values of the Kimberley, and to provide a level of certainty for future proponents, the State and Commonwealth Governments have agreed to undertake a Strategic Assessment of the Precinct Plan.

The objective of the Strategic assessment the BLNG Precinct is to establish a single, commercially viable gas processing location on the west Kimberley coast, with suitable land tenure, governance principles, and strategic approvals in place, to attract and facilitate a minimum of two LNG projects and to commercialize gas from the Browse Basin.

The objective of this case study is to:

- Give an overview of the Strategic Assessment of the BLNG precinct in Australia.
- Give a description the Strategic Assessment process.
- Examine the Strategic Assessment results.
- Explain the core capabilities that are available to the Australia's oil and gas sector.
- Highlight the form of consultation.

8.2.0 STRATEGIC ASSESSMENT OF THE BLNG PRECINCT

Strategic Environmental Assessment (SEA) can be defined as a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives such as oil and gas licensing rounds and other offshore energy developments in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations. [4]

The Strategic Assessment is being undertaken concurrently under both the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the State of Western Australia's Environmental Protection Act 1986 (EP Act).

Under section 146 of the Environment Protection and Biodiversity Conservation (EPBC)Act, the Australian Government Environment Minister may agree to assess the impacts of actions under a policy, plan or program. The strategic assessment normally applies to similar projects which would otherwise be assessed on a case-by-case basis under Part 8 of the EPBC Act.

The Proponent for the BLNG Precinct strategic proposal is the Minister for State Development. Woodside Energy Limited, on behalf of the Browse LNG Development Joint Venture participants, was appointed as the potential Foundation Proponent for the BLNG Precinct under the Preliminary Development Agreement signed in October 2009.

The State of Western Australia, through the Minister for State Development, seeks to develop the BLNG Precinct to:
• Provide long term economic prosperity for the Kimberley Region and Western Australia;
• Minimize the environmental footprint associated with processing gas from the Browse Basin
• Ensure that the potential socio-economic benefits of such a major development are realized while the potential negative impacts, especially at the local and regional scale, are minimized.

The location of the proposed BLNG Precinct in the vicinity of James Price Point was chosen via an extensive site selection process involving consultation with a broad spectrum of stakeholders and a collaborative review of a comprehensive set of technical, environmental, heritage, economic and social criteria.

8.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas in Australia which includes the documents on screening report, scoping report, meetings, workshop, consultation and technical SEA report available on the Strategic Environmental Assessment website data portal, and other websites relating to Australia's oil and gas have been used. These documents were used to:

- Analyze the SEA for oil and gas sector in Australia.
- Examine the endogenous changes that have occurred in Australia as a result of the SEAs.
- Overview of the institutional framework in place.
- Examine the core capabilities to achieve capacity results in SEA for Australia's oil and gas sector: Core capability to act and commit, to deliver on development objective, to relate to external stakeholders, to adapt and self-renew and to achieve coherence.

8.4.0 STRATEGIC ASSESSMENT PROCESS

- The Northern Development Taskforce (NDT) was established in 2007. The NDT, comprising of representatives from industry, tourism, fishing and environmental non-government organizations was meant to negotiate and coordinate a range of issues associated with the development of the Browse Basin gas fields, balanced against the tourism, fisheries, environmental and heritage values of the Kimberley.
- In recognition of the environmental and heritage values of the west Kimberley region, as well as the significant economic potential of the Browse Basin gas reserves, a Strategic Assessment Agreement was entered into in 2008 by the State and Commonwealth Ministers. The Environmental Protection Agency agreed to undertake an assessment of the strategic proposal and this decision was advertised on 14 April 2008.
- The NDT identified 43 sites as potentially suitable sites for a multi-user LNG precinct for future Browse Basin gas processing in the west Kimberley region in June 2008, which was later narrowed to 11 potential sites.
- The Terms of Reference was drafted to detail what information must be contained in the Strategic Assessment. The draft Terms of Reference were released for public review with the Strategic Assessment Agreement and finalized in July 2008.
- After the Final Site Evaluation Report was published, advising that the vicinity of James Price Point was found to be the most suitable west Kimberley site, the NDT's work was complete and its responsibilities for the BLNG Precinct were passed to the Department of State Development (DSD). The NDT Site Evaluation Reports were released for a 28-day public comment period from 15 October to 11 November 2008.
- The subsequent report, released in December 2008, recommended the James Price Point coastal area as the preferred location for a LNG processing precinct.
- In April 2009, Traditional Owners, the State Government and Woodside Energy Limited signed a Heads of Agreement (HoA) for development of the BLNG Precinct which set out a way forward for each of the signatories for the establishment of a BLNG Precinct in the vicinity of James Price Point.
- Following execution of the Heads of Agreement, the State, Woodside and the Kimberley Land Council (KLC) also entered into a Heritage Protection Agreement (HPA) on 13 November 2009 which is intended to protect areas of significance during site development.
- A detailed Scope of the Strategic Assessment (SoSA) was endorsed by the EPA on 1 December 2009 with reference to the Preface that was provided by DSD to clarify the purpose of the Strategic Assessment and the information expectations at each stage of the approvals process.
- The development of the Precinct Plan was accompanied by an extensive community consultation process that involved Traditional Owners, non-government organizations, the general community and relevant Government agencies.
- The Strategic Assessment Report was released for public review commencing on Monday 13 December 2010 and closed on 28 March 2011.
- The Western Australian Department of State Development will then address the issues raised in submissions in the final strategic assessment report and LNG precinct plan where necessary. These documents were then to be submitted to the federal environment minister to decide whether to endorse the LNG precinct plan. There is no statutory timeframe for the minister to make a decision on whether or not to endorse the LNG precinct plan after receiving the final documentation from the Western Australian Government.

- The overall proposal for the Browse LNG Precinct as a result of the Strategic Assessment is still in the process of obtaining approval from both the State Government and the Federal Government.

8.4.1 CONSULTATION

Extensive stakeholder consultation with advisory agencies, members of the public, Indigenous groups and other stakeholders is an integral part of the Strategic Assessment process. The consultation process aims to ensure clear, transparent communications between the DSD, and future commercial proponents and interested and affected stakeholders through listening, recording and responding to issues relating to the proposal as they arise. A Stakeholder Reference Group (SRG) was established to obtain the perspectives of key non-government stakeholders in relation to the impact assessment and proposed management plans for the proposed BLNG Precinct. The Reference Group seeks to engage individuals who can provide a broad perspective in their area of interest or expertise. State and Commonwealth Departments, Ministers, other Government agencies and local government have been consulted directly via a separate process, principally comprising high level briefings. Stakeholders directly affected by the proposed BLNG Precinct, such as Traditional Owners and pearl leaseholders, continue to be consulted directly.

8.5.0 CONCLUSION

The perceptions of low oil prospectively are discouraging exploration, even though many of Australia's offshore and onshore areas are largely unexplored, therefore LNG is the major source of energy. Under the Precinct Plan, the BLNG Precinct would be the largest facility (50Mtpa if fully developed) of its kind in Australia and would reduce the pressure for individual companies to propose separate smaller developments along the coast. Environmental benefits of a single BLNG Precinct for processing the Browse Basin gas reserves compared with multiple developments would allow a single dredged shipping channel that will aid in reducing the area of seabed potentially affected; a single port, that will minimize changes to coastal processes and reduce the potential adverse effects on cultural and heritage values through consolidation on a single site.

A single facility would allow the State Government (as the Precinct Plan Proponent), future operators within the BLNG Precinct and other regulatory agencies to efficiently audit activities being undertaken in the BLNG Precinct and ensure compliance with conditions of approval and other commitments. There would also be greater potential for integrated and effective carbon dioxide (CO_2) management.

There is a great opportunity to achieve positive outcomes. Education, jobs and economic opportunities are particularly important to the region's Traditional Owners, helping to break a cycle of high unemployment, which has been characteristic of this region for many years (particularly among young men and women) and which leads to other challenges for the local communities.

Although there is no legislative requirement for consultative processes subsequent to a Strategic Approval, the development of the Precinct Plan was accompanied by an extensive community consultation.

There are no formal EPA administrative procedures currently published to outline the process to be followed under the EP Act for the assessment of strategic proposals. This should be looked into. Though the Strategic Assessment was extensive and all relevant issues were addressed.

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DEVELOPMENT PLAN FOR THE BARENTS SEA, NORWAY

CHAPTER 9

9.1.0 INTRODUCTION

The first well that was drilled in Norway was in the summer of 1966, in the parts of the North Sea that is on Norwegian territory, but it was dry. It wasn't until 1969 that a discovery was made at the Ekofisk field; from then on the Norwegian oil adventure really began. Production from the field started on 15 June 1971, and in the following years a number of major oil discoveries were made. [1]

The oil and gas activities in Norway have contributed significantly to its economic growth and the revenue generated used for financing of the Norwegian welfare. Norway is the fifth largest oil exporter in the world. In 2009, the petroleum sector accounted for 21 percent of value creation in the country. This is expected to increase in years to come due to the increase in gas production. The oil and gas activities have also caused discharge of produced water to sea and CO2 and NOx to air. [1]

The Norwegian Government aims to ensure a sustainable ocean and coastal environment while at the same time ensuring economic growth in the oil and gas sector, improving maritime safety and reducing the risk of accidents at sea and possible environmental damage. In commitment to this in April 2006, the Norwegian government launched a White Paper on an integrated management plan for the Norwegian part of the Barents Sea. The plan provides a framework for managing all human activities (oil and gas industry, fishing, and shipping) in the area to ensure the continued health, production, and function of the Barents Sea ecosystem. [2]

Strategic Environmental Assessment (SEA) can be defined as a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives such as oil and gas licensing rounds and other offshore energy developments in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations. [4]

The objective of this case study is to:

- Give an overview of the integrated management plan that lead to SEA of the Barents Sea in Norway.
- Give a brief description the regulatory framework for oil and gas in Norway.
- Explain the process of the management plan of the Barents Sea.
- Examine the results obtained.
- Give a highlight of stakeholders' participation.

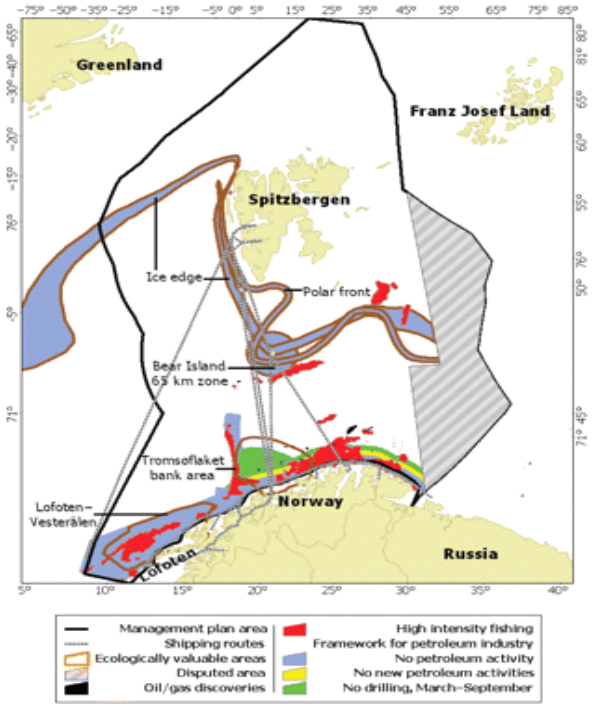
9.2.0 THE INTEGRATED MANAGEMENT PLAN OF THE BARENTS SEA

The Barents Sea is a unique Arctic marine ecosystem, characterized by distinct bathymetry and bottom topography, a large oceanic shelf, an extensive polar front, high productivity, and a high abundance and diversity of flora and fauna. The Norwegian government began developing integrated management plans for its coastal and marine areas, starting in 2002 with the Barents Sea. The Ministry of Environment was the lead agency. [2]

The map below shows the area covered by the ecosystem-based management plan for the Barents Sea, showing the main fishing areas, shipping lanes, and the area-based framework for hydrocarbon extraction (2006–2010), together with the particularly valuable and vulnerable areas. [2]

The plan aims at sustainable use of the ecosystem, within acceptable levels of pollution, with reduced risk of accidental spills, with sufficient capacity and readiness to deal with accidents, and seafood that is safe for consumption, while safeguarding biodiversity. [7] More specifically, the plan calls for:

- The hydrocarbon industry to operate under a zero emission policy;
- Shipping lanes outside territorial waters to reduce the risk of collision and to allow increased time for remedial action;
- Further preventative measures against pollution; Ecosystem-based fisheries management;
- Closer cooperation with the EU, Russia, and others to enhance surveillance, and including the prosecution of fishers violating existing rules (e.g. discarding catching undersized fish, unacceptable modifications to gear);
- Prevention of the introduction of alien species;
- The protection of valuable and threatened habitats.



9.2.1 REGULATORY FRAME WORK FOR OIL AND GAS IN NORWAY

The Norwegian Petroleum Directorate (NPD) is a governmental specialist directorate. This administrative body was established in 1972. NPD reports to the Ministry of Petroleum and Energy (MPE).
The main objective of the Norwegian Petroleum Directorate is to contribute to creating the greatest possible values for society from the oil and gas activities by means of prudent resource management based on safety, emergency preparedness and safeguarding of the external environment. [3]

9.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas in Norway which includes the documents on the integrated management plan for the Barents Sea–Lofoten area, reports, articles and documents available on the Strategic Environmental Assessment for the oil and gas sector of Norway, the website of the Norwegian Petroleum Directorate and the Ministry of Petroleum and Energy Norway. Also other websites relating to Norway's oil and gas have been used. These documents were used to:

- Analyze the management plan for the Barents Sea.
- Overview of the regulatory framework in place.

- Examine the results of the development from a three-phase process carried out for the integrated management plan for the Barents Sea.
- Highlight the results and decisions made from the outcome of the SEA (Four extensive government-funded Environmental Impact Assessments (EIAs), covering the impact of fisheries, shipping, hydrocarbon extraction, and external pressures)
- Highlight forms participation and consultation.

9.4.0 THE PLANNING PROCESS

The work was led by a government-appointed steering group chaired by the Ministry of the Environment, with representatives from other relevant ministries. Cooperation across management sectors was a basic challenge faced throughout the process because, traditionally, the responsibility for the marine environment has been split between several ministries. [5]

DEVELOPMENT FOLLOWED A THREE-PHASE PROCESS SHOWN IN THE FIGURE BELOW.

<table>
<tr><td colspan="2">2002</td><td></td><td>2006</td></tr>
<tr><td>Phase 1</td><td>Phase 2</td><td>Phase 3</td><td rowspan="3">Management plan ratified by parliament</td></tr>
<tr><td>Status reports
• Environment and resources
• Valuable areas
• Socio-economic aspects
• Economic activities

Scoping
• Area covered by the plan
• Overall aims</td><td>Assessment of impacts of
• Oil and gas
• Shipping
• Fisheries
• External influences

Public consultation on mandate and final reports</td><td>Aggregated analyses
• Total human impact
• Management goals
• Gaps in knowledge
• Vulnerable areas and conflicts of interest</td></tr>
<tr><td colspan="2">Development of EcoQOs
(with participation of Russian scientists)</td></tr>
</table>

In Phase 1, status reports were prepared by governmental management and research institutions or by consultants, covering the state of the marine environment, the coastal zone, fisheries, aquaculture, especially valuable areas, and shipping. Determining the geographical boundaries was another important issue, which included considerations of the ecosystem, economics, and politics, and examining discussions within the International Council for the Exploration of the Sea (ICES) and other organizations. However, the process was not finished in time for the status reports to be produced as planned. [2]

Phase 2 represented an analytical phase based on Phase 1. Four extensive government-funded Environmental Impact Assessments (EIAs) were carried out, covering the impact of fisheries, shipping, hydrocarbon extraction, and external pressures (e.g. pollution) on the environment, resources, and local communities. To ensure compatibility among the EIAs, a set of common variables was used to compare impacts among sectors, largely an *ad hoc* approach compared with the hierarchical process used by Canada [6]. Impacts were assessed in relation to the starting situation (i.e. 2003) and in relation to expected future impacts up to 2020, with uncertainty obviously increasing over time. [2]
In Phase 3, the EIA results were brought together and analyzed in more detail, focusing on: (i) the total impact of all human activities combined, both for the current situation and up to 2020; (ii) area conflicts among human activities, and between human use and ecologically valuable areas; (iii) the definition of

high-level management goals required for implementation; and (iv) identification of gaps in current knowledge. [2]

9.4.1 THE RESULTS

The analysis of total impact proved difficult, because knowledge of the cumulative ecological impact of several interacting human effects is limited. Parallel with Phases 2 and 3, a set of operational environmental quality objectives (EcoQOs) was developed, based on high-level management goals. These covered climate, ice edge, phytoplankton, zooplankton, commercial fish species, non-commercial fish species, benthic organisms, marine mammals, seabirds, alien species, threatened and vulnerable species, and pollutants. Possible operational objectives were also clarified. The EcoQOs will be monitored annually. [8]

The Government reviewed the framework for petroleum activities in the Barents Sea–Lofoten area as at 2011 and the following framework now applies [5]:
There will be no petroleum activities in the open parts of Nordland VI during the current parliamentary period. Nor will any new blocks be announced during this period. The need to update the knowledge base for the opened areas will be considered in connection with the development of knowledge about the unopened areas.

No impact assessment will be carried out under the Petroleum Act for Nordland VII and Troms II or the unopened parts of Nordland IV, V and VI during the current parliamentary period.
The MAREANO programme (Marine AREAI database for Norwegian coast and sea areas) is to complete the survey of the Nordland VI seabed in 2011, and then continue with the other areas that have not yet been mapped.

The SEAPOP (SEA bird Populations) programme will complete its survey of seabird populations and intensify monitoring in this area, and improve knowledge of how these populations are affected by human activity.
More knowledge will be generated of the north-eastern part of the Norwegian Sea, carry out an environmental impact assessment for the southern part of the Barents Sea, and pave the way for petroleum production in the areas that have been opened.

9.4.2 PARTICIPATION AND CONSULTATION

The work was led by a steering group with representatives of four ministries which include: The Ministry of Trade and Industry, the Ministry of Fisheries and Coastal Affairs, the Ministry of Local Government and Regional Development and the Ministry of the Environment .The analyses and assessments were carried out by government directorates and research institutes [5].
To achieve transparency, all reports and other documents were made available through the Internet, and stakeholders were invited to comment at several steps in the process. Their comments frequently resulted in modifications to the documents. The process attracted much interest because decisions based on this plan would affect future EA developments.

9.5.0 CONCLUSION

One of the major issues in the Barents Sea was the potential expansion of oil and gas activities into areas of the Barents Sea used by fisheries and living marine resources. Maritime Spatial planning (MSP) is at the core of the plan, identifying particularly valuable and vulnerable areas, either from ecological and/or human perspectives. Within the plan access to specific areas for human activities is carefully managed, for example, by moving shipping lanes outside Norwegian territorial waters (12 nautical miles), limiting trawling in sensitive areas, not opening most particularly valuable and vulnerable areas to petroleum activities, including the ice edge, and extending marine protected areas and fishery closure areas to protect spawning aggregations, fish eggs and larvae, and juvenile fish and shellfish.

A central concept of the plan is that it is based on the best available scientific information and takes a precautionary approach, implying a need for revision as new knowledge becomes available. The plan represents a synergy of previously separate management regimes: management of fisheries, shipping, and the hydrocarbon industry are brought together under one umbrella to coordinate efforts and to achieve a healthy ecosystem.
In the 2006 management plan, the Government of Norway stated that it considered the state of the environment in the Barents Sea–Lofoten area to be generally good, and this is still the case today but what will still need to be addressed is the possible problem that may arise with in this period up to 2020 regarding long-range transboundary pollution, climate change and ocean acidification and seabird populations are declining.

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SEA FOR THE BOLIVIA-BRAZIL GAS PIPELINE PROJECT (GASBOL)

CHAPTER 10

10.1.0 INTRODUCTION

Brazil is the 9th largest energy consumer in the world and the largest in South America. At the same time, it is the world's 15th largest oil producer and the world's second largest ethanol fuel producer. Brazil has one of the greenest energy matrices in the world: Renewable sources of energy account for 46.8% of Brazilian energy production, including hydraulic resources, biomass, and ethanol, besides wind and solar energy. Still, Oil and Gas account for the biggest part of the primary energy production in the country, with oil accounting for 49.1% of the production and natural gas 8.7% [1]

The history of Brazilian oil exploration and production can be traced back to as early as 1858 when the first research and mining concessions were granted in what is today called the Camamu-Almada basin, near Ilhéus, Bahia. The Brazilian activities regarding the oil and gas sector were by monopoly of the Federal Union and were carried out basically by Petróleo Brasileiro SA (Petrobras), a state-owned company. At the end of the 1990s and the beginning of the 2000s, Brazil's energy sector underwent market liberalization. In 1997, the Petroleum Investment Law was adopted, establishing a legal and regulatory framework, and liberalizing oil production.[3] State-owned companies Petrobras and Eletrobrás are the major players in Brazil's energy sector, as well as Latin America's.

The Bolivia-Brazil gas pipeline (GASBOL), is one of its kind in South America due to the projects complexity and possible impact to the ecosystem.

The objective of this case study is to:

- Give an overview of the history of the oil and gas in the Brazil.
- Highlight the regulatory agencies in charge of regulating oil and gas in Brazil.
- Give a brief description what lead to the SEA of the Bolivia-Brazil gas pipeline.
- Examine the SEA results.
- Highlight the form of consultation.

10.1.1 HISTORY OF OIL AND GAS IN BRAZIL

The first explorations of oil in Brazil began in the 1930s, with the first discoveries of onshore oil fields in the state of Bahia. Despite of the small scale of the early discoveries, the Brazilian government took series of measures to manage the industry's development, such as determining that the oil deposits belonged to the Union (thus being under the scope of the Federal government) and the creation of the National Petroleum Council, which gave directives to the oil-related activities. In 1953 the State established a monopoly over oil-related activities and the Brazilian Petroleum S.A, commonly known as Petrobras, was created. [1]

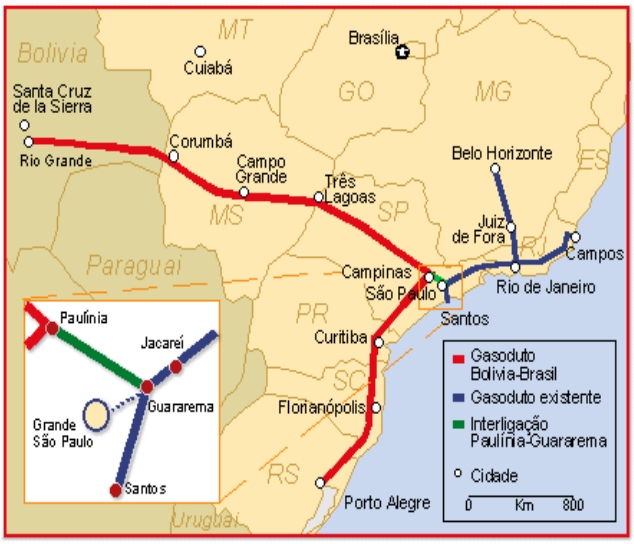
During the 1960's, the state company began its offshore activities, off the coast of the state of Sergipe. In 1974, the Campos Basin, from which one of the largest deposits in Brazil was discovered. Over the years, Petrobras became one of a few companies in the world to master deepwater drilling technology. Its monopoly of the oil-related activities continued until 1997, when, as part of a privatization

programme, other companies were allowed in the market. In recent times, most international oil companies are active in Brazil, although Petrobras still holds a major market share. In 2006, the early pre-salt oil fields were discovered off the coast of Rio de Janeiro. In 2007, the country reached self-sufficiency, becoming an oil net exporter. [2]

10.2.0 SEA OF THE BOLIVIA-BRAZIL GAS PIPELINE

In Brazil, despite SEA is not mandatory, there were some institutional and legal initiatives for its regulation. However, Brazilians SEAs are made in different contexts and without a guideline, contributing to an inadequate use of the tool. Hence, little is known about procedural steps and effectiveness of Brazilian SEA practice, including the SEAs applied to energy sector. [3]

Strategic Environmental Assessment (SEA) can be defined as a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives such as oil and gas licensing rounds and other offshore energy developments in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations. [5]



Brazil needed more sources of energy to keep its economy booming, huge reserves of gas and oil can be found in the Amazon jungle. Which lead to the decision to construct a pipeline. The $2 billion Bolivia-Brazil gas pipeline is the single largest private sector investment in Latin America. This 3000-km pipeline stretches from Santa Cruz, Bolivia to Porto Alegere and Brazil.[4]

The SEA was meant to identify the significant social and environmental impacts associated with the proposed pipeline, with particular focus on the impacts on the sensitive ecosystems which include the Gran Chaco Forest, the Pantanal, portions of Mata Atlantica and the Aparados da Serra.

10.2.1 POLICY, LEGAL AND REGULATORY FRAME WORK

The regulatory agencies in charge of regulating oil and gas in Brazil activities are the following:
The National Energy Policy Council (CNPE) with the main purpose of fostering rational use of the nation's energy resources, ensuring proper functioning of the national fuels inventories system, reviewing energy matrixes for different regions of Brazil and establishing guidelines; and

The Brazilian National Oil, Natural Gas and Biofuels Agency (ANP) is the national regulator of the oil, gas and biofuels industry. ANP is generally in charge of regulating, contracting and supervising economical activities related to the oil, natural gas and biofuels industry, establishing technical standards for various connected activities.[6]

Brazil's Ministry of Mines and Energy (MME) published an Ordinance No. 94/2012, which establishes the rules for the submission, by interested parties, of projects for construction and expansion of natural gas transportation pipelines.[6]

10.3.0 METHODOLOGY

The methodology adopted in this case study involved the use of a selection of SEA documentation for oil and gas in the Brazil which includes the documents on meetings, workshop, consultation and SEA report available on the Strategic Environmental Assessment .websites with data documents on policies, institutional and legal framework and other websites relating to Brazil's oil and gas have been used. These documents were used to:

- Analyze the SEA for oil and gas sector in the Brazil.
- Overview of the institutional framework in place.
- Examine SEA for Bolivia-Brazil gas pipeline.
- Analyze the SEA results and the effect on decision making.
- Study the extent of consultation that took place.

4.0 THE BOLIVIA-BRAZIL GAS PIPELINE PROJECT

In December 1997, the Inter-American Development Bank (IDB) and World Bank (WB) approved loans to finance a significant portion of the $2 billion Bolivia- Brazil gas pipeline. The loans went to finance Petrobras, the Brazilian state-owned energy company, the principal investor and operator of the pipeline in Brazil. The owner of the pipeline in Brazil is TGB, whose investors include Petrobras, Transredes, Enron, Shell and BTB. Gas Transboliviano, a consortia comprised of Transredes, Enron, Shell, Petrobras and others, owns the Bolivia side of the pipeline. Petrobras was responsible for pipeline construction in both Bolivia and Brazil. The Andean Development Corporation financed $84 million on the Bolivian side.[7]

The natural gas pipeline, which is the longest in South America, runs from Santa Cruz, Bolivia to Puerto Alegre, Brazil for a total length of 3,056 kms. The pipeline crosses several fragile and important ecosystems: the Gran Chaco, a recently designated protected area of primary tropical forest in Bolivia; the Pantanal, the world's largest wetland; and the Mata Atlantica Rainforest of Southeastern Brazil. The project has significant impacts on indigenous peoples in Bolivia and Brazil.

The World Bank and the Inter-American Development Bank assigned this project a category A designation, which requires the development of a comprehensive EIA. However both Banks considered the initial EIA, completed in October 1996, to be inadequate since it neither considered the secondary impacts associated with the pipeline nor provided sufficient detail about the compensation and mitigation measures. It also lacked an Indigenous People's Development Plan (IPDP), which is required by the World Bank in cases where the EIA highlights significant impacts on indigenous peoples.[7]

Therefore a Strategic Environmental Assessment to look at indirect cumulative impacts of the project and a detailed Environmental Management Plan (EMP) was then required.

The Banks also hired an independent environmental expert to review and make recommendations on the EMPs. This project set a new benchmark for closer project level coordination among the Banks by establishing an ad hoc Environmental Committee among all the financing agencies. Public pressure directed towards the Banks and sponsors ultimately led to improvements in the project's monitoring system, stronger Bank oversight and better communication between stakeholders and project sponsors.

10.4.1 SEA RESULTS

The Strategic Assessment identified many upstream and negative social and environmental impacts associated with the pipeline. Most importantly, it pointed out significant impacts from new gas and oil exploration on indigenous communal lands and protected areas in Bolivia's fragile Amazon Basin. The study also highlighted the weak institutional capacity of the Bolivian government to address these impacts and recommended the development of an environmental action plan to address oil and gas development in sensitive areas.

10.4.2 INFLUENCE ON DECISION MAKING

The findings of Strategic Environmental Assessment, which should have been given equal weight to the EIA, did not effectively influence project design. The influence over project design was undermined by two principal factors:
Firstly, it was published too late in the preparation process to seriously influence the project's design. The pipeline was already under construction by the time the SEA was ready. Secondly, the World Banks' senior management lacked a commitment to use all of their available lending instruments to induce the Bolivian government to address the indirect and cumulative social and environmental impacts of the pipeline.

10.4.3 CONSULTATION

The World Bank's Environmental Assessment (EA) Policy requires disclosure and accessibility of information regarding EA documents to project affected groups throughout the process. It specifically requires the borrower to make available information regarding project objectives and potential impacts to affected groups prior to initiating the EA study. A summary of the EA was expected to be provided in a timely manner to groups once the EIA draft is completed and this wasn't done. Documents and information describing the impacts and mitigation plans for the project were not easily accessible by stakeholders and affected communities.
Consultations were held too late to enable groups to have significant impact on the design of the environmental management plan. Petrobras had already started construction in Bolivia, As Petrobras moved forward in violation of the environmental management plan, the content of which was supposed to have been under discussion at the consultation meetings, it became apparent to local groups that these meetings were more a formality exercise designed to ease the criticism rather than a real attempt to solicit quality input from stakeholder groups.

Nevertheless, the consultations provided an important starting point to address some of the issues raised by local groups.

10.5.0 CONCLUSION

Brazil has excellent opportunities for oil and gas exploration and production, presenting growing expectations for both reserves and production.
The complexity of the Bolivia-Brazil gas pipeline project has generated lessons for all the principal actors involved: civil society organizations, international financial institutions, private sector companies and governments. It has shown that:
SEA is needed at the earliest stage of planning to ensure that it has effect on decision making.
There should be access to information at the local level to ensure that a good percentage of those that will be affected by the proposed project will be duly carried along throughout the process of the project execution.
Consultation and participation in the EIA and SEA process should be adequately established.

Despite years of experience with project EIA in Brazil, SEA has ranked low in the government priorities. SEA is not mandatory but voluntary. The SEA needs to be part of the decision on overall execution of projects, rather than a last-minute hurdle that can only result in adding measures to minimize the impacts when a project that is already decided upon is implemented.

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THE NIGERIA OIL AND GAS SECTOR IN PERSPECTIVE

CHAPTER 11

11.1.0 INTRODUCTION

The development of oil and gas has increased over time and its diverse uses have also broadened and become an integral part of the world's economy. The exploration and production of oil and gas have resulted to several environmental and socio-economic impacts. Irrespective, countries all over the world still encourage the exploration of oil and gas within their territories because the availability of such natural resources is seen as a way for economic growth and progress. Nigeria is no exception of such countries.

Historically, the Nigerian petroleum scene opened as far back as 1908, when a German company, the Nigerian Bitumen Corporation, was attracted to what is now known as the south-western Nigerian Tar Sand deposit. After World War 1, Shell-D'Arcy, a consortium of Shell and Royal Dutch, resumed oil exploration in 1937, this time in Owerri, on the northern frame of the Niger Delta. On June 5, 1956, after drilling 28 wells and 25 core holes, all dry, the new operator, Shell-BP, struck oil at Oloibiri in what is now Bayelsa State. After which the oil production began in 1958. Series of events evolved in the

Nigerian Oil and Gas, Petroleum production and export began to play a dominant role in Nigeria's economy and accounts for about 90% of her gross earnings. This dominant role has pushed agriculture, the traditional mainstay of the economy, from the early fifties and sixties, to the background. [1]
Nigeria is located within the western coast of Africa, slightly north of the Equator. Nigeria is the most populous country in Africa and accounts for approximately one-sixth of Africa's people. Nigeria is the predominant power in West Africa. It was instrumental in the creation of the Economic Community of West Africa (ECOWAS) IN 1975. [21]

While the benefits of oil and gas exploration and production in Nigeria are not in doubt, the consequent socio-economic and environmental impact of oil and gas activities cannot be over looked.
This report gives an overview of the following:

- The impact of oil and gas in Nigeria with focus on oil and gas as resource benefits and resource curse.
- The lessons learnt from the issues relating to oil and gas in Nigeria.
- The efforts of the Nigerian government in improving and address the issues with relations to oil and gas.
- In addition, this report suggests recommendations.

11.2.0 THE IMPACT OF OIL AND GAS IN NIGERIA

Oil and gas exploration and production activities can have a wide range of socio-cultural, economic and environmental impacts which could be both positive and negative.

1. RESOURCE BENEFITS

The term 'resource benefit' describes a situation whereby a country that is richly endowed with natural resources (oil and gas) reaps the proceeds of having such resources in revenues and development.
The oil and gas sector in Nigeria is a pillar of the Nigerian economy and a major contributing factor in its world standing and recognition. Nigeria is among the world's top ten oil producers and a member of Organization of Petroleum Exporting Countries (OPEC).

Oil and gas have aided in the funding of the education sector; the government continues to pursue its Universal Basic Education (UBE) policy. Education is to be free and compulsory for all children at the primary and junior secondary school levels.
This has improved the health sector too; enabled house-to-house visits by medical staff to immunise children against six major childhood diseases to continue. Also enhanced surveillance by the National Agency for Food, Drug Administration and Control assisted in curtailing the influx of fake, expired and sub-standard drugs and other products. [7]

It's important to note that before the discovery of oil in Nigeria, the country survived mainly on its agricultural production. The rich deposits of oil and petroleum have since then served as the major revenue of income for the country which in attracted foreigners and traders from different parts of the world in Nigeria. Due to the establishment of bilateral ties with other countries, the trade scenario of Nigeria has received a great impetus over the last few decades with the major trading partners from China, United States, United Kingdom, Netherlands, France, Germany and Italy. [8]

As a result of all these ties a lot of companies were established in Nigeria, mainly the oil companies like Shell, Chevron, Mobil, Elf, Total, Agip, Texaco etc. Local companies like Nigerian National Petroleum Corporation (NNPC), Niger Delta Petroleum Resources, Nigerian Petroleum Development Company (NPDC), Conoil, Orient Petroleum Resources Limited etc. were also established. These brought forth a lot of technological advancement in the country. As a result Nigeria experienced improvement in its social infrastructures such as transportation, roads, housing, hospitals and schools in the country. These have created job opportunities and opening for capacity development. For example the youth empowerment and job creation institution which is the National Youth Service Corp (NYSC) which was introduced in Nigeria by the then military government.

2. RESOURCE CURSE

The term 'resource curse' refers to the observation that nations with rich endowments of natural resources (oil, metals, timber) often dramatically underperform economically relative to what one would expect. Common sense and simple economics suggest that countries blessed with an abundance of natural resources should live long and prosper. Yet over many years, it has been observed that nations rich in oil, gas, or mineral resources have been disadvantaged in the drive for economic progress. [2]
It has often been asserted that oil and gas, in particular, brings trouble— waste, corruption, consumption, debt overhang, environmental deterioration, falling apart of public services, wars, and other forms of conflicts, among others.
Historical experience suggests that countries experiencing oil booms have often ignored agriculture leading to decimation of vibrant agricultural export sectors, escalating food imports, and growing

inequality. Nigeria‘s once vibrant cocoa sector never recovered from the effects of the oil booms of the 1970s and 1980s. [3]

Oil production in Nigeria over the years has resulted to several environmental and human consequences for the indigenous peoples who inhabit the areas surrounding oil extraction. Nigeria's export of 12 million barrels of oil a day comes from 12% of the country's land, and indigenous minority communities in these areas receive no economic benefits. [4]

Indigenous groups are actually further impoverished due to environmental degradation from oil production and the lack of adequate regulations on multinational companies, as they become more vulnerable to food shortages, health hazards, loss of land and fertile soil, air and water pollution. Pollution is caused by gas flaring, above ground pipeline leakage; oil waste dumping and oil spills.

Approximately 75% of gas produced is flared annually causing considerable ecological and physical damage to other resources such as land/soil, water and vegetation. It has also lead to forced migration and unemployment. The Nigerian Federal Government, on the other hand, has been charged with failing to enact and enforce environmental protections against oil damage by Shell and other oil companies. [5]

PHOTO BY KAZMI FROM "WHAT MATTERS" BY DAVID ELLIOT COHEN, STERLING PUBLISHING, 2009

Gas pipelines have also caused irreparable damage to lands once used for agricultural purposes. These pipes should be buried to reduce risk of fracture and spillage. However, they are often laid above ground and run directly through villages, where oil leaks have rendered the land economically useless.
The Nigerian oil and gas industry has also suffered from the crisis in the Niger Delta (Nigeria’s main oil producing zone), sabotage of oil facilities, environmental hazards and poor management practices.

2.1 GOVERNMENT EFFORTS

Oil has been an important part of the Nigerian economy since vast reserves of petroleum were discovered in Nigeria in the 1950s. Until 1960, government participation in the oil industry was limited to the regulation and administration of fiscal policies. In 1971, Nigeria joined OPEC and in line with OPEC resolutions, the Nigerian National Oil Corporation (NNOC) was established, later becoming Nigerian National Petroleum Corporation (NNPC) in 1977. NNPC with all its subsidiary companies controls and dominates all sectors of the oil industry, both upstream and downstream. [1]

Nigeria continues to pursue reforms, deregulation and reorganisation to remove the persistent structural bottlenecks that hamper economic recovery and growth. The government made what is considered by many as its most significant reform by deregulating the oil products prices in November 2003. [1]

The Government on 14th August 2000 set up a 34 member Special Committee on the review of Petroleum Products Supply and Distribution (SCRPPSD) drawn from various stakeholders and other interest groups to look into the problems of the downstream petroleum sector. For example to determine the pricing policy of petroleum products, regulate the supply and distribution of petroleum products and to create an information database through liaison with all relevant agencies. [9]

The establishment of The Petroleum Training Institute (PTI) to enhance the quality education and improve the technological ''know how" to strengthen the workforce in the oil and gas industry.
An amnesty deal by the Nigerian government for militants in the Niger Delta aimed at reducing unrest in the oil-rich region was developed and came into effect on 6th August 2009. [11] The security situation has improved in the Niger Delta due to a governmental amnesty.

The Nordic-Nigerian Forum held in October 2010 on Energy was initiated by the Federal Ministries of Power, Environment and Water Resources on behalf of the Federal Government of Nigeria in collaboration with the Embassies of Sweden, Finland and Norway and other stakeholders. This was to provide a platform for the interchange of information among stakeholders and the Nordic team on energy issues, with a view to establishing partnerships, investment and technical advice which lead to the formulation of a Memorandum of Understanding (MoU).[10]

The EITI Board designated Nigeria as EITI Compliant on 1 March 2011. The Extractive Industries Transparency Initiative (EITI) aims to strengthen governance by improving transparency and accountability. Nigeria must be revalidated by 29 February 2016. Nigeria was accepted as an EITI Candidate country on 27 September 2007. Nigeria submitted its final Validation report to the EITI Board on 29 June 2010. [6]

As part of government's anticorruption agenda, contracts were awarded to two audit firms (Haruna, Yahaya & Co. and Sada, Idris & Co) to conduct a thorough audit of the accounts and activities of all government institutions and entities in the oil and gas industry from 2009 to 2011 with nine months completion period.[12]

The development of Vision 2020 to place Nigeria as one of the 20 largest economies in the world, in order to able to consolidate its leadership role in Africa and establish itself as a significant player in the global economic and political arena. [22] and the 7 point agenda to effect reforms in power and energy, food security and agriculture wealth creation and employment, transportation, land, security, qualitative and functional education.[23]

11.2.2 LAWS AND REGULATORY FRAMEWORK

There were several sectoral regulations aimed at controlling environmental degradation which were unsuccessful due to the absence of effective sanctions. Economic considerations and fundamental lack of knowledge of interdependent linkages among development processes and environmental factors, as well as human and natural resources, resulted in an unmitigated assault on the environment.
An institutional framework was set up to deal with the problems of the environment. The Federal Environmental Protection Agency (FEPA), established by Decree 58 of 1988 of the same name and amended by Decree 59 of 1992, was given responsibility for control over our environment and for the development of processes and policies to achieve this. [13]
States and Local Government Councils (LG) which comprise the second and third tiers of government were encouraged under Decree 59 of 1992 to set up their own environmental protection agencies. Separate EIA legislation, the EIA Decree 86 of 1992, was promulgated establishing FEPA as the apex regulator, making EIA mandatory for all developmental purposes (although with some exceptions). Under it FEPA has published various sectoral EIA procedures together with EIA procedural guidelines in 1995. [14]

With the coming of the civilian administration in May, 1999, the Federal Ministry of Environment was established and FEPA was absorbed into it. The decision to create a full –fledged ministry of environment was informed by the need to bring together all activities within the government machinery that are related to environmental and sustainable development and also to give environmental matters top priority attention in the development.
In 2004 an Environmental Impact Assessment (EIA) acts. CAP E12, LFN 2004 was established to assess the potential impacts whether positive or negative, of a proposed project on the natural environment. [19]

Administered by the Ministry of Environment, the National Environment Standards and Regulation Enforcement Agency (NESREA) Act of 2007 replaced the Federal Environmental Protection Agency (FEPA) Act. It is the embodiment of laws and regulations focused on the protection and sustainable development of the environment and its natural resources. [19]

11.3.0 LESSONS LEARNT

Nigeria has experienced some of the negative consequences of managing oil wealth poorly, but has begun to make changes from some of the lessons learned through these mistakes. Some of the failures were due to corruption, various problems of governance including, lack of transparency and accountability, and generalized struggle for control of resources which has led to continuing conflicts, as a result of unequal resource distribution and environmental degradation. These are some of the lessons learnt:

- The need to adequately address community issues with respect to development and infrastructures in order to avoid conflict.

- The need to improved public financial management to enhance transparency and accountability. For example the Federal Government passed the Fiscal Responsibility Act at the Federal level, though it has been a struggle since then to extend this commitment to the states, partly because of the perception of hypocrisy of the Federal Government.

- The need for strong political will and support in reforms by engaging a broad spectrum of stakeholders. For example politicians, civil servants, development partners, academics, civil society organizations and the broader public.

- The need for the government to firmly enforce laws and regulations. For example, using effective non-compliance penalty to create a deterrent to violators of environmental regulations and making it obligatory on operators to post environmental performance and reclamation bonds large enough to cover the cost of the envisaged environmental damages.

- The need for continuous capacity development by training of the oil and gas operational staff in hazard and incident investigation in order to minimize environmental degradation.

- The need for the government to restore confidence in the general public. For example Nigeria signed up for EITI which shows effort to establish transparency and accountability in the country.

- The need to establish a financial law enforcement agency to tackle the issue of corruption and financial crime. For example the establishment of Economic and Financial Crimes Commission (EFCC) which has aided in has moving the anti-corruption agenda forward in Nigeria.

11.4.0 CONCLUSION AND RECOMMENDATION

Over the years the Nigeria has been in the process of retracing its step in terms of the mistakes made within the oil and gas sector. Failures with respect to corruption, environmental degradation and lack of socio-cultural impact consideration are now been addressed to ensure stability, economic growth, alleviation of poverty and sustainable development.

In spite of the Nigerian government commendable efforts to reform the oil and gas sector, not subjecting such reform programme to Strategic Environmental Assessment (SEA) might not achieve desired objective. Consequently, the need to commission an SEA for the integrated economic reform programme of the government is essential to address the environmental issues and impacts associated with the various policies, plans, and programmes especially for the 7-Point Agenda and the Vision 2020 Initiatives.

Also the implementation of an SEA of oil & gas exploration activities in the Niger delta which is where the most oil and gas exploration and production activities take place, will aid in addressing the relevant issues relating to the oil and gas sector and aid in developing a better approach to managing the impact of exploration and production and propose alternatives.

All existing environmental laws should be reviewed to further ensure sustainable development in the oil and gas sector. The Petroleum Industry Bill, which was submitted to the National Assembly in 2008 has not been passed into law, this should also be addressed. The government's capacity to enforce environmental laws and oversee the implementation of environmental programmes need to be addressed in order to curb the lapses which the oil producing companies have taken advantage of and reducing environmental crisis associated with oil and gas activity.

The government should invest more funds in capacity building, by providing the necessary training of staff government environmental parastatals and also making available necessary facilities and legally empowered to do their duties effectively. The government in this regard should make funds available to the Federal government secretariat. The Petroleum Technology Development Fund (PTDF) should be used to upgrade the Petroleum Training Institutes, universities of technology and polytechnics.
Other revenue sources like Agriculture and tourism should be reinvested in. The situation of security in the country must be adequately addressed if the tourism is expected to strive again.

A broad base consultation should be a continuous activity to ensure that the perspectives of stakeholders are put into consideration, for transparency, accountability and to gain the trust of the general public.
A lot of efforts have been made to turn around the oil and gas sector in Nigeria but a lot more is still needed to be done.

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CHAPTER 12

CONCLUSION

Over the years there has been an exponential growth in the globally energy demand resulting to an increasing concerns over the impacts of oil and gas development activities.
These reports have been able to show different objectives, methods, approaches, SEA management and report structures of SEA.

The SEA has been more effective in some countries than others. For example from the comparative assessment it was observed how the Ghana's SEA had a comparative advantage to the SEA in Mauritania in terms of public participation and in the effectiveness of the SEA process.

There is a significant need and opportunity to advance the application of SEA to oil and gas future development and the sector's planning; however, SEA in the oil and gas sector based on the case studies is still considered to be at its infancy.

The oil and gas sector is obviously an "ideal choice" for SEA although SEA has been slow to evolve in the oil and gas sector, mainly because the nature of SEA remains unclear to many.
The role of SEA in the oil and gas sector PPPs is neither well developed nor fully understood yet which has resulted in its limited influence to decision making as was observed in the case studies . The SEAs with the involvement of the NCEA have just been recently completed as in the case of Ghana and Mauritania and in the process of completion as in the case of Bolivia and it just started as in the case of Uganda, therefore to be able to fully assess the effectiveness of the SEA to decision making, there will be a need to check back the progress in the next three to four year.

The lessons learnt from the resource benefit and resource curse in the Nigerian oil and gas sector are factor that should be looked into when considering the exploration and production of oil and gas the benefits can be enhanced and curses avoided.

To strengthen the goals of SEA in the oil and gas sector, there is the need for continues improvement of the SEA guidelines and development of programmes for training and Capacity development to enhance the legal and institutional framework of individual countries. Adequate stakeholders consultation and public participation is important to it enhanced the progress of the SEA and shows transparency as can be seen in the case study of the SEA for UK and Australia. The Importance of linking the SEA planning as was observed in the integrated management plan of the Barents sea in Norway. The need to facilitate transboundary co-operation as observed in the SEA for the Bolivia-Brazil gas pipeline project.

Lastly, due to the lack of clarity of the SEA for the oil and gas sector mainly due to the relatively fragmented nature of the oil and gas industry the important of an SEA guideline cannot be over emphasized. The developed SEA guideline for the oil and gas sector contained in this report has been tailored made for the oil and gas sector yet flexible enough for changes to address the issues of oil and gas activities with regards to different countries, objectives, legal, regulatory and institutional framework, SEA management and scope.

APPENDICES

APPENDIX 1:

GUIDELINES FOR STRATEGIC ENVIRONMENTAL ASSESSMENT OF THE OIL AND GAS SECTOR

1.0 INTRODUCTION

The oil and gas industry operates in the context of a multitude of social, economic, institutional and environmental factors, according to the principles of Sustainable Development and the Precautionary Approach, as articulated in Agenda 21 and the Rio Declaration on Environment and Development. The balance between these varies from country to country.

A strategic environmental assessment (SEA) of a policy, plan or program proposal is to be conducted when the implementation of the proposal may result in important environmental effects, either positive or negative. The decision to carry out an SEA depends on whether the Environmental Assessment regulation of the country under consideration requires it or when a country considers it important.

SEA according to Sadler and Verheem (1996) can be defined as a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations.

Applying SEA to a development plan in the oil and gas sector provides the environmental evidence needed for decision making, and can identify new opportunities by encouraging a systematic and thorough examination of development options ranging from the stage of exploration to production. In this document whenever environmental effects are been considered it usually includes social impacts too.

1.1 PURPOSE OF THIS DOCUMENT

This document has been prepared to provide guidelines for the competent Authority, which may be from the Ministries, departments and agencies of energy and the environment on implementing the Strategic Environmental Assessment of a Policy, Plan and Program for the oil and gas sector.

This document will assist:

- Policy and program officers in the energy and environmental Ministries, departments and agencies responsible for the development and analysis of policies, plans and programs, and for the implementation of sustainable development strategies for the oil and gas sector.
- Environmental assessment practitioners within the Ministries, departments and agencies of energy and the environment who may be asked to contribute to, or review, the environmental implications of the oil and gas activities.
- All those who may be affected by or have an interest in plans or programmes related to oil and gas, including members of the public and non-government organisations.

The document describes the following key steps in the SEA-process:

1. Setting the framework for the SEA (Chapter 2)
2. The scoping stage of the SEA (Chapter 3)
3. The assessment stage (Chapter 4)
4. Participation and consultation (Chapter 5)
5. Documentation and reporting (Chapter 6)

1.2 PLANNING AND THE SEA PROCESS

Good practice in SEA emphasizes the value of integrating the assessment results with the policy, plan or programme (PPP) making process. For example the results from the SEA for the oil and gas sector should be incorporated in the National oil and gas policy. Many benefits of SEA may be lost if it is carried out as a completely separate work-stream.
Alternative, include this figure (blue arrow indicates any PPP):

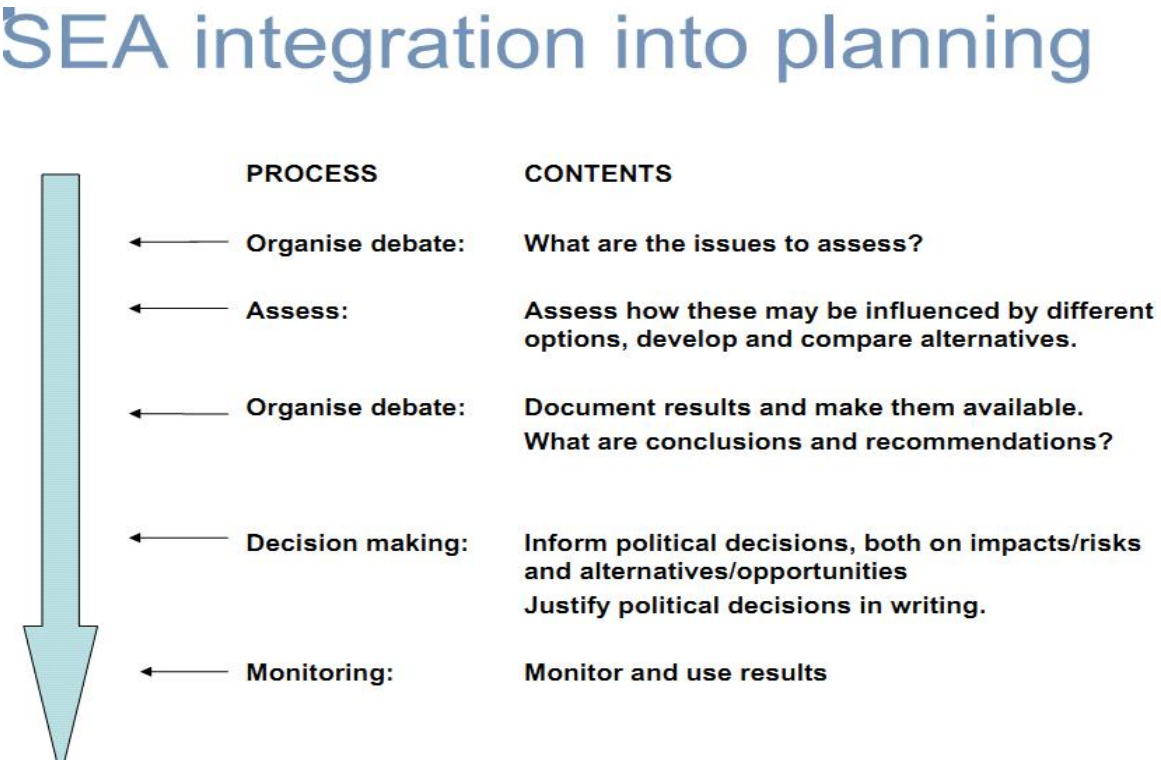

TABLE 1: LINKS BETWEEN PLANNING AND SEA PROCESS

PLANNING PROCESS	SEA PROCESS	CONSULTATION
Baseline document	Setting the framework for the SEA Identify framework for the SEA Baseline and trends	Consultation on information
Scoping document	Scoping stage plan objectives assessment framework alternatives	Consultation on scoping (issues and options to be covered in SEA)
	Assessment stage effects mitigation	Consultation on assessment criteria and mitigation measures
Draft plan	Draft SEA report	Review and consultation on draft SEA and draft plan
Final plan	Final SEA report	
Implementation plan	Monitoring	

2.0 SETTING THE FRAMEWORK FOR THE SEA

The purpose of the SEA is to aid policy and decision making by identifying and assessing social and environmental issues regarding the oil and gas sector.
The SEA for the oil and gas sector should therefore be planned and conducted so as to avoid:

- Adverse effects on air and water quality that exceed national or applicable international standards or regulations.
- Changes in the atmospheric, terrestrial and aquatic environments that exceed national or applicable international standards or regulations.
- Detrimental changes in the distribution, abundance or productivity of species or populations of species.
- Further jeopardy to endangered or threatened species or populations of such species.
- Degradation of, or substantial risk to, areas of biological, cultural, scientific, historic, aesthetic or wilderness significance.
- Adverse effects on livelihoods, societies, cultures and traditional lifestyles of indigenous peoples; and adverse effects to subsistence fishing and farming.

Key issues for the plan and SEA are objectives (what goals should be achieved with the plan) and alternatives (what are the possible solutions for achieving the objectives). The objectives and alternatives for the plan depend on the context of that plan:

- The legal and political 'conditions' for the plan;
- Understanding the current and future situation, this will show the problems that the specific plan has to deal with.
- The context of the plan determines the scope of the SEA: which issues are important, which objectives are realistic, which possible solutions the plan could provide and what information is needed to make the necessary choices.

2.1 IDENTIFING THE FRAMEWORK FOR THE SEA

The plan may be influenced in various ways by other plans or programmes, or by external environmental protection objectives such as those laid down in policies or legislation. Knowing these relationships makes it possible to take advantage of potential synergies and to deal with any inconsistencies and constraints.
At this stage of the SEA it is necessary to:
Identify all policies, legislation and other plans and programmes which may influence the oil and gas sector. Other policies may be dictating certain objectives or limiting the possible solutions.
If the context is complex, it can be helpful to develop a table, matrix or scheme that represents relationships between policies, plans etc.

2.2 LEGAL AND INSTTUTIONAL ANALYSIS

Regulations for the oil and gas sector will guide monitoring and provide compliance monitoring benchmarks.

Often policy reviews are done which lead to policy changes that are then incorporated into law. These may include authorizing new institutions capable of enforcing environmental laws, clarifying their functions and powers, authorizing charges for oil and gas related offences, mandating stakeholder involvement, and detailing environmental protection through establishment of oil and gas policies, regulations and standards.

2.3 GUIDING PRINCIPLES FOR SEA

The SEA for the oil and gas sector should be guided by the following principles:

Early integration - The analysis of environmental considerations should be fully integrated into the development of a policy, plan or program to support sound decision making that is consistent with the principles of sustainable development. The consideration of environmental effects should begin early in the conceptual planning stages of the oil and gas activities, before irreversible decisions are made. In this way, strategic environmental assessment can support the analysis of options and identify issues that may require further consideration.

Examination of alternatives – A critical aspect of any strategic environmental assessment is the opportunity to evaluate and compare the environmental effects of alternatives in the development of a new policy, plan or program. This comparison will help identify how modifications or changes to the policy, plan or program can reduce environmental risk.

Flexibility – Ministries, departments and agencies of different countries, have discretion in determining how they conduct strategic environmental assessments for the oil and gas sector. They are encouraged to adapt and refine analytical methodologies and tools to address their particular circumstances.

Appropriate level of analysis - The scope of the analysis should be commensurate with the level of anticipated environmental effects.

Accountability - Strategic environmental assessment should be part of an open and accountable decision-making process. Accountability should be promoted through the involvement of affected individuals and organizations, when appropriate, and through documentation and reporting mechanisms.

Use of existing mechanisms - In conducting a strategic environmental assessment, environmental departments and agencies should use existing mechanisms to conduct any analysis of environmental effects, involve the public, evaluate performance and report the results.

Practicality - The information and outputs provided by the assessment process are readily usable in decision making and planning.

2.4 SEA AND SUSTAINABLE DEVELOPMENT

The Government of any country considering carrying out an SEA on its oil and gas sector should be committed to the goal of sustainable development. The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations. Decision makers at all levels must be able to take economic, social and environmental considerations into account in order to make informed decisions in support of sustainable development.

By addressing potential environmental considerations when developing policy, plan and program proposals regarding the oil and gas sector, departments and agencies will be better able to, for example:

Specific SEA objectives can be:

- Advice on how to pace the further exploration and development stages - a step wise approach of activities starting from the least vulnerable areas and gradually entering the more vulnerable areas with the experience acquired;
- Propose options of how to deal with conservation of biodiversity and the most valuable and sensitive areas, including the possibility of no activity, activity only in part of the year and best exploration/production technologies from an environmental and social point of view;
- Give options to ensure a sustainable coexistence with other sectors (e.g. tourism, agriculture, fisheries), including cost benefit analysis for certain locations compared with alternative uses and
- Propose options on dealing with potential pollution and waste and suggest mitigations;
- Proposals for improving (institutional) capacity of different stakeholders to enforce laws (using the ongoing needs assessment study) and deal with negative consequences of petroleum development;
- Propose different forms for compensation mechanisms;
- Propose mechanisms for biodiversity offsetting;
- Assess impacts of ongoing and potential future activities and suggest mitigations. In addition review scenarios and inform on further exploration and give recommendations;
- Identify cumulative impacts of the oil and gas developments to national & regional socio-economic & political developments.

2.5 THE SEA DESIGN AND THE OIL AND GAS SECTOR

Strategic environmental assessment is not an add-on process, but one linked with the ongoing economic and social analyses progress. An effective strategic environmental assessment cannot be done in isolation or after the fact. The analysis of the environmental considerations should be undertaken on an iterative basis throughout the PPP development process and be fully integrated into the analysis of each of the options developed so that the consequences of alternative proposals can be compared. The final recommendation should be informed by the results of the strategic environmental assessment.

Critical questions for good SEA design

- What is the stage of planning: is the planning process just starting, half way or is a draft already available?
- What are the problems that need to be solved through the Policy, Plan or Programme (PPP) or in other words: what are the objectives (social, economic, environmental, technical, and institutional) of this PPP?
- Who is/are the responsible agency(ies) ('the owner/developer of the planning process')?
- Which are the decisions to be taken in the planning process and when will these be made?
- Spatial and time horizon; is the PPP geographically defined (if yes, how?) and how long will implementation take (10, 20, 30 years or more?)
- Which information (data) is available?
- What is the budget and time-line of the plan process? And how much time and money is available for the SEA? Who will undertake the SEA and who will pay for it? This includes planning and budgeting for public participation.
- What should the SEA do? What is the purpose and scope of the SEA?

2.6 ROLES AND RESPONSIBILITIES OF THE SEA ACTORS

The following summarize the roles and responsibilities of the major actors in the strategic environmental assessment process. The organization of the SEA management structure is generally dependent some factor like: the demands of the competent authorities, the scope of the relevant issues to be addressed, the characteristics of the PPP under consideration and the available budget. Also the structuring and selection of the SEA actors will differ from one SEA case to another which is usually done at the onset of the SEA.

RESPONSIBLE AUTHORITY:

It is the responsibility of the competent ministry or agency to ensure that the environmental implications of the oil and gas sector are fully reflected or, when negative, minimized to the extent possible or when positive, optimized as much as possible in the Policies, Plans and Programmes.

SEA STEERING GROUP:

The steering group will guide the SEA process and review progress. It usually provides political support/backing of the SEA. The steering group will be advised by the SEA coordinator, international consultant and local consultant.

SEA COORDINATOR:

The duties of the SEA coordinator will include managing the SEA team and secretarial support, arranging contacts with involved stakeholders and overseeing the links with e.g. local authorities, overseeing interim/progress/final report production.

INTERNATIONAL CONSULTANT/FACILITATOR:

The international consultant/facilitator will be responsible for overseeing the technical content of the SEA and ensuring that it is delivered to time and budget, in close coordination with the SEA coordinator.

Specific tasks will include advising on management issues to ensure delivery of all elements of the SEA process, developing and reviewing the SEA program, designing the SEA methodology, appraising the technical content of responses to the SEA process made by stakeholders, editing the SEA report etc.

LOCAL CONSULTANT:

A local consultant will provide support to the SEA core team by providing advice and support throughout the SEA process and helping to guide day-to-day working activities. The local consultant will also act on the advice given by the international consultant and act as their representative, when there is no member of that organization present in the country.

TECHNICAL AND SCIENTIFIC GROUP:

The Technical and Scientific Group advises the Steering Committee on technical issues. They are responsible for the synoptic compilation of background information.

STAKEHOLDERS:

Individuals, groups or organizations with an interest in the evaluated intervention or in the evaluation itself, particularly: authorities who decided on and financed the intervention, managers, operators, and spokespersons of the public concerned.

The fundamental questions to ask to address the issues of responsibilities are as follows:
• Who is the SEA for? • Who checks the quality of the SEA? • Who is responsible for ensuring that the institutional framework is in place??? For the development and implementation of the policy, plan or programme relating to the oil and gas sector? • Who are the key stakeholders in the decision-making process?

2.7 BASELINE INFORMATION

The baseline information which should be sufficient, relevant and focused on the key significant effect of oil and gas activities is needed to:

- Identify the environmental issues and trends that characterise the areas affected by the oil and gas activities.
- Identify the problems that are likely to develop as a result of future development in the oil and gas sector.
- Establish the reference situation which will be used to compare alternatives on the level of achievement of objectives and environmental impact.

1. Sources of information

Information should be collected from all relevant sources that can contribute to the SEA on international, national, regional and local level. Sources of information range from:

- Existing data on the oil and gas sector such as regulations, laws, polices, programmes, oil and gas management systems, country's master plan, related strategic and development plans etc.

- Service providers (e.g. Consultation Bodies, primary care trusts etc.), who may be able to provide environmental data as well as technical advice and information based on their expertises.
- Local indigenous people of the areas been affected by the oil and gas activities. They usually have good historic knowledge and understanding of the environment.

At this stage it is important to determine the required information for the SEA, the sources from which these information can best be derived and link to the SEA objectives and indicators.

2. Information gap

For oil and gas development especially in a country where oil and gas discovery has just been made, there is usually the situation of information gaps because not all information that is needed is available immediately. Much information can be collected during the planning process but the choice of objectives and alternatives determines whether more information is needed, what kind of information and at what level of detail. This information gap leads to uncertainties which should be discussed with stakeholders including agreement on the way uncertainties should be dealt with. For example collect more information from other sources or accept the limitations of the current information.

3. Trends

Often available environmental information will record the state of the environment at that point in time, providing a historic record or a snapshot. It is necessary to examine the likely future trends under a 'no plan' or 'business as usual' scenario. This is the current situation, including autonomous development of activities within the area. "Autonomous development" means: the future development of the environment without implementing the plan (or any of the alternatives). Only current activities or activities on which a formal decision has been made should be taken into account. In case of uncertainties in future developments, it is advisable to use scenarios or ranges of developments. Scenarios with priorities organized into immediate, short term, medium to long term action.

The development of scenarios provides a first qualitative estimation of the potential positive and negative consequences of oil and gas exploitation. It covers issues in terms of natural resources (pollution, effect on fishery and tourism, etc), economic (revenue management and distributional analyses) and socio-cultural (conflict management and prevention, and transboundary effects) as well as institutional (legislation, laws, regulations, institutional capacity).
Scenarios are for example: Scenario 1: The low case "Lost opportunities", Scenario 2: The medium case "So far so good" and Scenario 3: The high case "Full speed ahead"

3.0 THE SCOPING STAGE

3.1 OBJECTIVES AND INDICATORS

An objective is a statement of what is intended, specifying a desired direction of change. There can be two types of objectives: The objectives of the plan in question. These are devised to test the effects of the plan and to compare the effects of alternatives. And external objectives: other objectives to which Responsible Authorities need to regard independently from the SEA process. They may include

environmental protection objectives, but they can also be economic or social. The achievement of objectives is normally assessed by using indicators.

The development of SEA objectives and indicators and the collection of baseline information inform each other. As the objectives become clearer, they will help to focus the collection of baseline information, whilst the baseline information helps to identify which SEA objectives are of most concern for a particular plan or programme.

For the oil and gas sector, the objectives are linked to the following sectors Agriculture, Forestry, Fisheries, Energy, Industry, Transport, Waste management, Water management, Health, Telecommunications, Tourism, Town and Country Planning or Land use.

3.2 DEFINING THE ASSESSMENT FRAMEWORK

Comparing plan or programme alternatives by assessing their effects is central to an SEA. For this an "assessment framework" is needed: which (environmental) issues and criteria are relevant and which indicators can be used to assess the effects against those criteria. To understand the results of the assessment it is necessary to explain in the SEA-report the issues that were considered and the criteria and indicators that have been used to "score" alternatives on those issues.

Scoping should ensure that only significant environmental impacts will be extensively investigated in the SEA report. Those responsible for scoping often find difficulties in defining what is "significant". A useful simple check is to ask whether the effect is one that can be considered to have an influence on the plan.

The following list of questions may be helpful.

- Will there be a large change in environmental conditions?
- Will new features be out-of-scale with the existing environment?
- Will the effect be unusual in the area or particularly complex?
- Will the effect extend over a large area?
- Will there be any potential for transboundary impact?
- Will many people be affected?
- Will many receptors of different types (fauna and flora, businesses, facilities) be affected?
- Will valuable or scarce features or resources be affected?
- Is there a risk that environmental standards will be breached?
- Is there a risk that protected sites, areas and features will be affected?
- Is there a high probability of the effect occurring?
- Will the effect continue for a long time?
- Will the effect be permanent rather than temporary?
- Will the impact be continuous rather than intermittent?
- If it is intermittent will it be frequent rather than rare?
- Will the impact be irreversible?
- Will it be difficult to avoid, or reduce or repair or compensate for the effect?

3.3 MEASURES AND ALTERNATIVES

Alternatives create different ways of achieving the objectives. The alternative suggested should be realistic and applicable in accordance with the requirements of the national policies and environmental standards.
After determining the objectives and problems, the next step will be to develop solutions. It is essential to describe in the SEA report the process which has lead to the selection of possible solutions and to explain the choices that have been made along the way:

- Which options/measures were left out of the list and why?
- Who has formulated the measures and who else has been involved in this process?
- What considerations were used in choosing the measure itself, the scope or size of the measure etc.?
- Are all existing policies, programmes and measures that are already planned, on international, national, regional and local scale, included in the process of defining solutions?

Examples of strategic alternatives and proposals for the oil and gas sector:

1. Pace of oil and gas development in tune with market conditions. SEA can allow for a step wise approach of activities starting from the least vulnerable areas and gradually entering the more vulnerable areas with the experience acquired; e.g. Alt 1: rapid development versus Alt. 2 slow development.

2. The selection or regulation of the best exploration and exploitation technology from an environmental and social point of view and the choice of appropriate locations for exploration and exploitation in order to minimize potential risks to natural and social values and vulnerabilities including routing of pipelines Alt. 1 conventional technology versus Alt. 2 most environmentally friendly technology, Alt. 1 and 2 in combination with several routing alternatives.

3. Options for sustainable co-existence with fisheries, tourism, agriculture, nature conservation, leading (a combination of) conditions for e.g.:
    i. Specific areas or certain types of areas cannot be opened to oil and gas exploration or only if certain prerequisites are met,
    ii. Banning or reduction of activities during certain periods of year in order to protect vital biodiversity functions (e.g. to avoid disturbance during breeding).
    iii. Drilling operations, depending on the presence of spawning ground for fish, birds, mammals etc in a specific area
    iv. Contingency planning and emergency preparedness
    v. Related to existing users of the area Alt. 1 is e.g. a combination of the strictest conditions, Alt. 2 a less strict combination of conditions

4. Alternatives for pollution and waste (solid, liquid, hazardous and domestic) management, e.g. Centralized/decentralized management options, disposal options and transportation options

5. Proposals for improving (institutional) capacity of different stakeholders

6. Proposals for compensation mechanisms (both for people and for e.g. nature/biodiversity) and different forms of conflict resolution (e.g. building a constituency among communities within the project area)

The SEA should summarize what alternatives were considered, why other alternatives were rejected or not considered, and what led to the choice of the preferred alternative.

4.0 ASSESSMENT STAGE

In previous stages the key environmental impacts for an SEA have already been identified. At the assessment stage the environmental effects of the plan/alternatives are further analysed and evaluated. Where adverse effects seem likely, possibilities for mitigation have to be considered. Prediction of effects involves:

- Identifying the changes to the environmental baseline (reference situation) which are predicted to arise from the plan, and from the plan alternatives.
- Describing these changes in terms of their magnitude, their geographical scale, the time period over which they will occur, whether they are permanent or temporary, positive or negative, probable or improbable, frequent or rare, and whether or not there are cumulative.

4.1 THE KEY ISSUES TO BE ASSESSED IN SEA FOR THE OIL AND GAS SECTOR

The strategic environmental assessment should address the following considerations and questions:

1. SCOPE AND NATURE OF POTENTIAL EFFECTS:

The analysis should build on a preliminary scan to describe, in appropriate detail, the scope and nature of environmental effects that could arise from oil and gas related activities.
Environmental effects, including cumulative effects, could result from the use of or changes in, atmospheric, terrestrial or aquatic resources, physical features or conditions. The analysis should identify positive as well as adverse environmental effects.

- What are the potential direct and indirect outcomes of the oil and gas activities?
- How do these outcomes interact with the environment?
- What is the scope and nature of these environmental interactions?

Several types of significant potential effects to be addressed in the Strategic Environmental Assessment of the oil and gas sector are: Human, socio-economic and cultural impacts; and atmospheric, climate, aquatic, terrestrial and biosphere impacts.

HUMAN, SOCIO-ECONOMIC AND CULTURAL IMPACTS:

The extent of changes that may occur as a result of the oil and gas activities is most especially important to local groups, particularly indigenous people who may have their traditional lifestyle affected. These impacts may include changes in:

- Land-use patterns, such as agriculture and fishing which may be a result from the drilling operation, transportation of oil and gas through an oil tanker or pipeline from a floating production, storage and offloading vessel (FPSO)
- Local population levels, as a result of immigration (labour force)
- Socio-cultural systems such as social structure and cultural heritage, practices and beliefs. These must be addressed in order to avoid conflicts.

ATMOSPHERIC IMPACTS:

Atmospheric issues are attracting increasing interest from both industry and government authorities worldwide. Issues resulting from:

- Airborne particulates from soil disturbance during construction and from vehicle traffic; and particulates from other burning sources, such as well testing.
- Air pollution from combustion processes such as diesel engines and gas turbines; fugitive gases from loading operations and tankage and losses from process equipment; flaring and venting.

IMPACT ON CLIMATE:

Understanding the sources and nature of the emissions and their relative contribution to atmospheric impacts, both local and those related to global issues such as the stratospheric ozone depletion and climate change. The primary sources of atmospheric emissions from oil and gas operations arise from: flaring, venting and combustion processes which are a major source of green house gases that result into climate change.

AQUATIC IMPACTS:

The principal aqueous waste streams resulting from exploration and production operations are: drilling fluids, well treatment chemicals; wash and drainage water; sewerage, sanitary and domestic wastes; spills and leakage; and cooling water. These may result in pollution of ground and surface waters and may in turn affect the aquatic life forms.

TERRESTRIAL IMPACTS:

Potential impacts to soil arise from these basic sources: physical disturbance as a result of construction; contamination resulting from spillage and leakage or solid waste disposal which may affect farm lands. Other potential impacts that may result from poor design and construction include soil erosion due to soil structure.

ECOSYSTEM IMPACTS:

Plant and animal communities may also be directly affected by changes contributed by the oil and gas activities through disturbance by noise, extraneous light and changes in vegetation cover. Such changes may directly affect the ecology: for example, habitat, food and nutrient supplies, breeding areas, migration routes, vulnerability to predators or changes in herbivore grazing patterns.

Soil disturbance and removal of vegetation which may result to a potential long-term effect is loss of habitat which affects both fauna and flora, and may induce changes in species composition and primary production cycles.

Examples of key issues to consider in the SEA for the oil and gas sector.

Key Issues – Natural Environment

- Site selection process for petroleum and associated facilities
- Operations and waste management in protected and/or sensitive areas
- Habitat fragmentation and loss of ecological value
- Offset mechanisms for ecological losses and devaluation
- Contribution of petroleum development to climate change
- Lack of baseline data and knowledge on relevant topics
- Oil spill contingency planning and its implementation

Key Issues – Socio-Economic Environment

- Land rights, traditional land use and compensation issues
- Sustainable investment of oil and gas revenues for long-term benefits of the population
- Decommissioning, reinstatement of sites and sustained local livelihoods at the end of petroleum production
- Lack of rural/local/regional planning and associated sprawling problems (waste, sanitary, water supply, etc.)
- Illegal settlement and encroachment in protected/sensitive areas
- Changes of distribution of fish populations due to petroleum developments in the lake

Key Issues – Institutional Matters

- Lack of adequate regulations, safeguards & guidelines for the entire petroleum sector, incl. waste
- Lack of waste management companies, facilities and adequate regulations for licensing, supervision, etc.
- Low capacity of EIA practioners and the regulator on petroleum industry issues, esp. on district level
- Laboratory capacity for monitoring air, soil and water, contaminants
- Too strong focus on self-regulation of industry while regulator capacity and enforcement is weak
- Lack of enforcement of the ”Polluter Pays Principle”
- Roles and responsibilities for oil spill contingency
- Legal framework for land tenure, acquisition, compensation, etc.
- Land demarcation unclear
- Harmonisation of physical planning and economic planning

2. THE NEED FOR MITIGATION OR OPPORTUNITIES FOR ENHANCEMENT:

Mitigation measures should be developed as part of the SEA that could reduce or eliminate potential adverse environmental consequences of the oil and gas activities. Similarly, opportunities to enhance potential environmental benefits should be considered.

- Can the adverse environmental effects be mitigated?
- Can positive environmental effects be enhanced?

Plans should incorporate measures to deal with potential emergencies that threaten people, the environment or property, Such as:

- Oil spill contingency plan.
- Chemicals and hazardous materials disposal measures.
- Oil or gas well blowout prevention systems.
- Explosions and fires preventive and control measures.
- Emergency shutdown Plan.

Possible benefits of the oil and gas development which may include:

- Amount of oil and gas reserves in order to have an idea of the amount of revenue that can be generated.
- Job creation.
- Granting of compensations.
- Infrastructural development.

3. INSTITUTIONAL STRENGTHENING:

Sensible oil and gas regulations will vary to some degree based upon local circumstances of the country been considered .Therefore Individual governments should determine the extent to which SEA Guidelines apply when evaluating oil and gas activities. Management of oil and gas activities and their effects requires participation of governments, the public, non-governmental organizations and operators. In order to have an effective SEA for the oil and gas sector, institutional mechanisms or capabilities that are required at the local, national and regional levels needs to be identified to:

- Encourage the open, transparent and consistent application of regulatory regimes;
- Facilitate strict enforcement of regulatory regimes;
- Enable government agencies, local communities and non-governmental organizations to participate as appropriate in environmental management of the oil and gas activities;
- Make sure that scientific, technical and indigenous traditional knowledge are available to the processes and are effectively used;

Promote communication between operators, government bodies and communities that is conducted in culturally appropriate ways and in local languages.

4.2 SECONDARY, CUMULATIVE AND SYNERISTIC EFFECTS

Many environmental problems result from the accumulation of multiple small and often indirect effects, rather than a few large and obvious ones. Examples include conflict, changes in the landscape and climate change. It is at the SEA level that those effects are most effectively identified and addressed. Secondary or indirect effects are effects that are not a direct result of the plan, but occur away from the original effect or as a result of a complex pathway.

Cumulative effects arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the plan have a combined effect. Synergistic effects interact to produce a total effect greater than the sum of the individual effects. Synergistic effects often happen as habitats, resources or human communities get close to capacity.

4.3 MITIGATION OF ADVERSE EFFECTS

The SEA Report should include a description of measures to prevent, reduce and eliminate as fully as possible any significant adverse effects that implement the plan is expected to have on the environment and e.g. livelihoods. Exploration of such mitigation measures is ongoing throughout the SEA process. Often mitigation options are integral to the development of plan alternatives. These measures can include proactive avoidance of adverse effects as well as actions taken after effects are noticed

4.4 COMPARING ALTERNATIVES

In the SEA report the predicted effects are not merely described, they are also evaluated. It is important for consultation and also for decision-making on the plan, that the report shows which effects will be most serious, and how the effects differ across the alternatives. Each alternative can be weighed against the objectives to see whether it does, or does not, contribute to the realisation of the objectives.

In SEA, matrices and tables are commonly used to aid comparisons. As an input to a decision about preferred alternatives, it may be useful to summarise the assessment results for the different alternatives in one table. This can help to identify the most appropriate alternative overall. The reference situation should be included in this comparison.

Table 2: STAGES IN THE STRATEGIC ENVIRONMENTAL ASSESSMENT PROCESS

SEA STAGES AND TASKS	PURPOSE
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	
Identifying other relevant plans,	To establish how the plan or programme is affected by outside factors and other PPPs, to suggest ideas for how any constraints can be addressed, and to help identify SEA objectives.
Collecting baseline information.	To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives
Identifying environmental problems.	To help focus the SEA and streamline the subsequent stages, including baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring.
Developing SEA objectives.	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed.
Consulting on the scope of SEA	To ensure that the SEA covers the likely significant environmental effects of the plan or programme.
Stage B: Developing and refining alternatives and assessing effects	
Testing the plan or programme objectives against the SEA objectives.	To identify potential synergies or inconsistencies between the objectives of the plan or programme and the SEA objectives and help in developing alternatives.
Developing strategic alternatives.	To develop and refine strategic alternatives.

Predicting the effects of the plan or programme, including alternatives.	To predict the significant environmental effects of the plan or programme and alternatives.
Evaluating the effects of the plan or programme, including alternatives.	To evaluate the predicted effects of the plan or programme and its alternatives and assist in the refinement of the plan or programme.
Mitigating adverse effects.	To ensure that adverse effects are identified and potential mitigation measures are considered.
Proposing measures to monitor the environmental effects of plan or programme implementation.	To detail the means by which the environmental performance of the plan or programme can be assessed.
Stage C: Preparing the Environmental Report	
Preparing the Environmental report.	To present the predicted environmental effects of the plan or programme,including alternatives, in a form suitable for public consultation and use by decision-makers.
Stage D: Consulting on the draft plan or programme and the Environmental Report	
Consulting the public and Consultation Bodies on the draft plan or programme and the report.	To give the public and the Consultation Bodies an opportunity to express their opinions on the findings of the Environmental Report and to use it as a reference point in commenting on the plan or programme. To gather more information through the opinions and concerns of the public.
Assessing significant changes.	To ensure that the environmental implications of any significant changes to the draft plan or programme at this stage are assessed and taken into account.
Making decisions and providing information.	To provide information on how the SEA report and consultees'opinions were taken into account in deciding the final form of the plan or programme to be adopted.
Stage E: Monitoring the significant effects of implementing the plan or programme on the environment	
Developing aims and methods for monitoring.	To track the environmental effects of the plan or programme to show whether they are as predicted; to help identify adverse effects.
Responding to adverse effects.	To prepare for appropriate responses where adverse effects are identified.

5.0 SEA AND CONSULTATION

Authorities which, because of their environmental responsibilities, are likely to be concerned by the effects of implementing the plan or programme, must be consulted on the scope and level of detail of the information to be included in the Environmental Report.

The public and the Consultation Bodies must be consulted on the draft plan or programme and the Environmental Report, and must be given an early and effective opportunity within appropriate time

frames to express their opinions. The analysis of potential environmental effects should indicate, where appropriate, concerns about the effects among those likely to be most affected, as well as among other stakeholders (that is, those with an interest in the PPP) and the public. E.g the NGOs.

Consultation with the public at earlier stages (e.g. when considering the scope of the Environmental Report) can provide useful information and public and stakeholder opinions on issues relevant to the plan or programme and the SEA. This can also help to avoid issues arising later which might delay the preparation of the plan or programme.

The involvement of the public in the strategic environmental assessment process should be commensurate with public involvement on the overall development of the oil and gas sector. If public documents are prepared for use in a consultation exercise, for example questionnaires, it is advisable to incorporate them into the results of the strategic environmental assessment to address potential environmental concerns.

6.0 DOCUMENTATION AND REPORTING

Reporting is important to ensure that the process is open and accountable. For a policy, plan or program that is approved or announced, environmental departments and agencies shall prepare a public statement of environmental effects, including impacts on Sustainable Development Strategy's goals and targets, when a strategic environmental assessment has been conducted. The purpose of the statement is to demonstrate that environmental factors have been integrated into the decision-making process. When a strategic environmental assessment has been completed for a policy, plan or program proposal, departments and agencies will report on the results.

The Report is a key output of SEA, presenting information on the effects of the oil and gas sector.
In deciding the length and the level of detail to be provided in SEA Report, the Responsible Authority needs to bear in mind its purpose as a public consultation document. It is likely to be of interest to a wide variety of readers, including decision-makers, other plan/programme-making authorities, statutory consultees, non-government organisations, and members of the public, and needs to be prepared with this range of users in mind. It must include a non-technical summary. A Quality Assurance checklist is provided in this guidance to help Responsible Authorities ensure that the quality of the SEA Report is sufficient for decision making.

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