HYDROCARBON ACTIVITY ON GHANA'S CONTINENTAL SHELF: REQUIREMENTS UNDER INTERNATIONAL ENVIRONMENTAL LAW

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LIST OF ABBREVIATIONS

ECOWAS..... Economic Community of West African States
EHS..... Environmental Health and Safety
EPA..... Environmental Protection Agency
GNPC..... Ghana National Petroleum Company
FPSO..... Floating Production Storage Object
UNEP..... United Nations Environmental Programme
ICJ ..... International Court of Justice
UNCLOS..... United Nations Convention on the Law of the Sea
UN..... United Nations
EEZ ..... Exclusive Economic Zone
ACHPR..... African Charter for Human and Peoples Right
IEL..... International Environmental Law
MARPOL..... International Convention on Marine Pollution
IMO ..... International Maritime Organization
OPRC..... International Convention on Oil Preparedness Response and Cooperation
AC..... Abidjan Convention
EPA..... Environmental Protection Agency
EIA ..... Environmental Impact Asessment
PER..... Preliminary Environmental Report
ME..... Ministry of Energy
IFC..... International Finance Company
IOC..... International Oil Company
ITLOS ..... International Tribunal for the Law of the Sea
UK..... United Kingdom

NPP..... **New Patriotic Party**

IGP..... **Inspector General of Police**

MOU..... **Memorandum of Understanding**

PSC..... **Port State Control**

GMA..... **Ghana Maritime Authority**

ABSTRACT

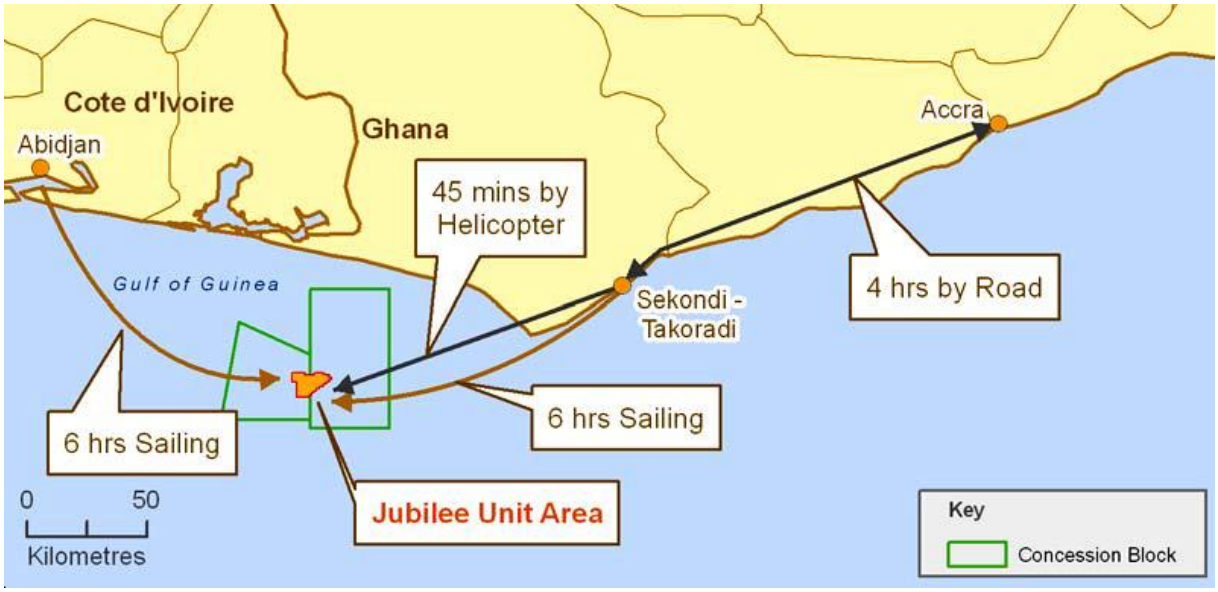
The purpose of this thesis is to identify and discuss the international environmental law requirements imposed on Ghana with respect to offshore hydrocarbon activity and how Ghana has so far responded to these requirements in its national laws and practices. The study further seeks to ascertain the adequacy of these responses in the light of their legal implications. To achieve this, the international requirements are discussed under various themes; likewise Ghana's responses and the relationship between requirements and responses are identified in subsequent chapters. It was generally discovered that Ghana has made modest gains towards fulfilling its international law obligations for offshore hydrocarbon activity. It was however obvious from the findings that much more needs to be done when it comes to implementation to enable Ghana fully meet the requirements of international environmental law. The study ends by making recommendations in this regard.

1. CHAPTER ONE - INTRODUCTION

1.0 Introduction

The Ghana National Petroleum Corporation (GNPC) is a state agency charged with oil exploration, development and production in Ghana.[1] In June 2007, the GNPC announced the discovery of light crude in commercial quantities on Ghana's continental shelf referred to as the Jubilee field. The field is located in deep water (1,100-1,700 m) blocks approximately 60 kilometers from the nearest coast in western Ghana. It is also about 75 kilometers south-southeast of the border between Cote D'Ivoire and Ghana and 132 kilometers southwest of the port city of Takoradi[2]. The project location is presented in the following marked as Fig 1

Fig 1[3] PROJECT LOCATION



[1] See section 2 of P.N.D.C.L.84 , 1984

[2] For details see, "Jubilee Oil field, Summary of Environmental Impact Assessment" at http://www.afdb.org/fileadmin/uploads/afdb/Documents/Environmental-and-Social-Assessments/ghana%20_%20FSPO.pdf.

[3] Ibid

Since Jubilee, there have been seven additional discoveries offshore Ghana, totaling over one billion five hundred thousand (1.5 billion) barrels of oil and three (3) trillion cubic feet of gas[4].

Actual production on the Jubilee field started in November 2010, some forty (40) months after discovery. According to its operators[5], during 2011, production from the field ramped up to around seventy thousand (70,000) barrels of oil per day (bopd). This year, remedial activity is taking place across the field to rebuild the production rate towards expanding facility capacity and ensuring that maximum production is reached by 2013[6]. To achieve this, the operators acquired and installed the Floating Production Storage and Offloading System (FPSO). An FPSO is typically a tanker installed offshore that receives fluids from a sub sea oil well and processes the same on board to produce crude oil which is then exported to a refinery by shuttle tankers[7]. In the Ghanaian context, the crude oil will be processed and stored in the facility's storage tanks in the hull and offloaded to ocean going oil tanker vessels, while produced water is treated to reduce the concentration of oil in the water and then discharged[8]. Some of the gas will be used for enhancing the liquid production through gas lift and for energy production onboard the FPSO vessel[9]. The remainder will be transported to shore through a new pipeline for treatment in a gas processing plant and distribution through an offshore pipeline to power stations in Ghana as well as for export[10]. The Ghanaian FPSO, named after its first president; Kwame Nkrumah, uses the biggest turret ever constructed. It has an oil processing facility capable of processing 120,000 barrels of oil per day and storage capacity of 1.6 million barrels and can process 160 million standard cubic feet of gas per day

Figure two (2) below provides a fair idea of the workings of the Ghanaian FPSO.

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[4] For more information on discoveries, see, http://www.kosmosenergy.com/exploration-legacy.php.

[5] Tullow Ghana limited is the operator of the Jubilee field see infra note 12 for details

[6] See http://www.tullowoil.com.

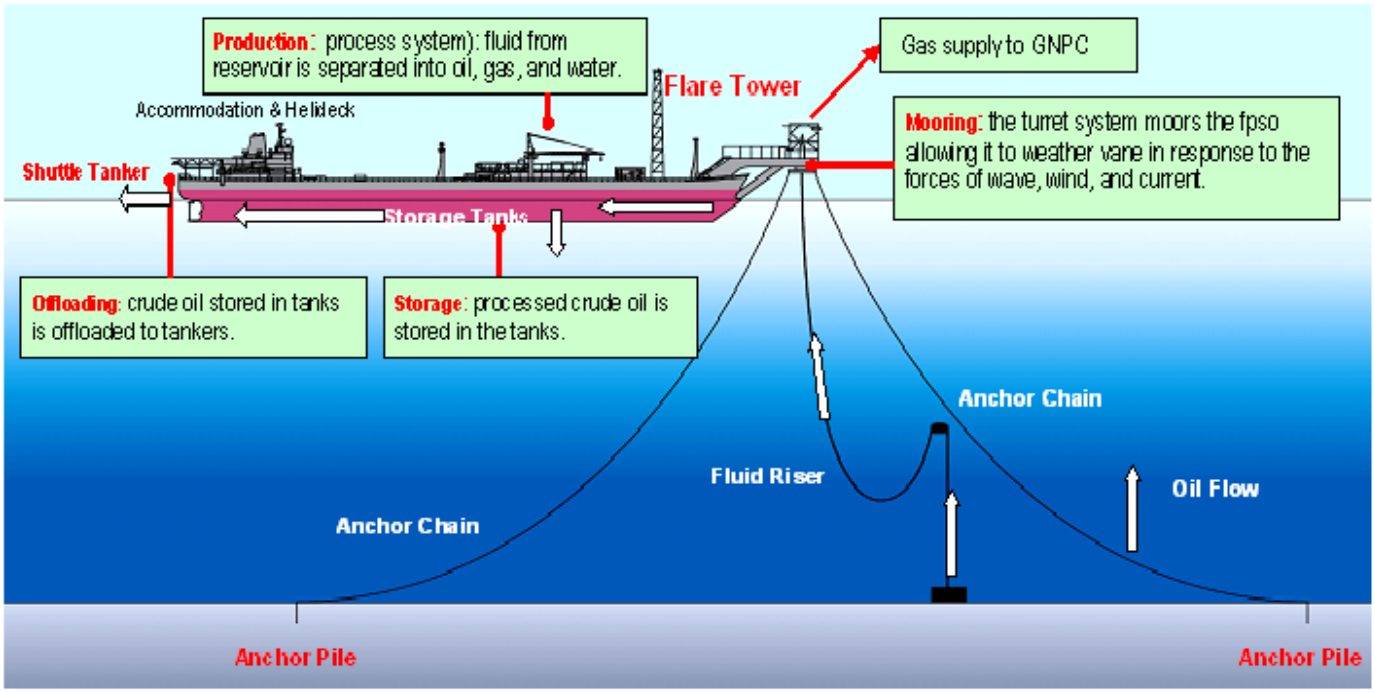
[7] Ibid

[8] Ibid

[9] Ibid

[10] Ibid

Fig2[11] FPSO OPERATIONS



Three main processes stands out from this pictorial view, there is anchorage on the sea bed, there is upward flow of fluid into storage tank, there is processing and there is delivery to shuttle tankers and gas supply to the National Oil Company.[12] Impressive as this may be, it must also be acknowledged that FPSO activities in particular and offshore hydrocarbon activity in general come with significant environmental risk. Thus, it is important to look at some of these environmental consequences within the context of the Ghanaian marine environment.

1.1 Environmental Impacts

Hydrocarbon activity affects the ecosystem right from the exploration stage to the stage of decommissioning. The ecosystem is a complex set of interrelated units of living organisms where a disturbance of the natural environment of one unit affects the whole. In the Ghanaian case, the introduction of toxic drilling fluids during exploration, the installation of equipments and facilities on the sea bed such as the FPSO and the rigs as well as the production and discharge of waste water arising from hydrocarbon activities are all major disturbances on the

[11] Ibid

[12] http://www.ghana.gov.gh/index.php/news/general-news/2493-fpso-kwame-nkrumah-arrives-in-ghana.

marine environment[13]. The obvious net effect of these is the destruction of habitat, food, and nutrient supplies, as well as breeding areas of living marine resources. Ghanaian waters include important turtle breeding sites as well as the breeding sites of some marine mammals such as the Gulf of Guinea Humpback Whale[14]; hydrocarbon activity could certainly have a major impact on the habitat of these species if careful surveillance and regulatory measures are not adopted and implemented[15]. Beyond these direct impacts, hydrocarbon activity could result in potential emergencies that can have a wider scale and trans-boundary effect on the marine environment. These potential emergencies include spillage of fuel, oil or gas blow out, explosions, and fires[16]. Recognizing the serious potential problems associated with hydrocarbon activity and also aware of the interconnectedness of marine environment, the international community has tried to develop international environmental law instruments to provide a legal and institutional framework to manage some of these concerns raised and to ensure the long term protection of the marine environment.[17] These instruments impose obligations on state parties to adopt laws, procedures, and practices to deal with these environmental concerns. By virtue of being a State party to some of these instruments, Ghana is obliged to give effect to them in its hydrocarbon activities[18]. It is within this context that this work has set for itself the following objectives.

1.2 Objectives of the Study

The general context of this work will be to investigate the applicable international environmental laws that affect hydrocarbon activities in Ghana, to tease out the requirements imposed by these laws on Ghana and to interrogate national laws to find out the extent to which it reflects or

[13] See, E&P Forum/UNEP Environmental Management in Oil and Gas Exploration and Production, 1997. P.6 -13, for a comprehensive discussion on the environmental impacts of drilling and FPSO operations. available online at http://www.ogp.org.uk/pubs/254.pdf

[14] This information is based on information obtained from the Environmental Impact Assessment prepared by the operator see: http: //www.tullowoil.com/files/pdf/Jubilee_Field_EIA_Chapter_4_27Nov09_Part2.pdf. (4 - 44).

[15] supra, note 6

[16] Ibid

[17] For a substantial collection of some of these instruments, see generally: Patricia Birnie, et al. International Law and the Environment (3rd Ed) Oxford University Press, 2009.

[18] At least to the extent that it is incorporated into national Legislation or reflects customary international law see note 34 below.

incorporates the applicable international environmental laws. In this regard, it is important to point out briefly, since this issue will be addressed in more detail in subsequent chapters that, as a general rule, for international law to be applicable under Ghanaian law, it must be incorporated into national legislation or it must reflect customary international law[19].

In light of the above, the following specific questions will be examined by this study:

(1) What are the relevant international environmental law instruments that affect hydrocarbon activities on Ghana's continental shelf?

(2) What requirements do these instruments impose on Ghana?

(3) To what extent is Ghana meeting these requirements in its domestic laws and practices?

1.3 Delimitations

This study was conducted within the following parameters:

a) Hydrocarbon activities as used in this study, refers to sea bed activities; mainly extractive activities and production related activities such as FPSO operations, and does not extend to transport activities .

b) Applicable international environmental law instruments to be discussed would include only ones to which Ghana is a party and which provide requirements for hydrocarbon activity within the meaning assigned to it in (a) above.

c) International environmental law instruments mentioned will not include soft law instruments, this is because the study is interested in requirements that are binding on Ghana

d) National laws to be identified and discussed will specifically touch on the theme of hydrocarbon activity within the meaning assigned to it in (a) above

1.4 Methods and Materials

This work will largely rely on legal sources both within national and international context.

In doing so, the work will largely be guided by article 38 of the International Court of Justice (ICJ) statute which spells out the sources of international law. In order to effectively interpret the relevant international conventions, the Vienna Convention on the Law of Treaties will be a

[19] Article 73(5) of 1992 Constitution of Ghana sets this out in detail

useful guide. In the national context, Article 11 of the 1992 Constitution provides a method for ascertaining the applicable laws of Ghana and presents this in a form of a hierarchy of laws.[20] The 1992 Constitution of Ghana further provides for the role of international law in national law and the relationship between the two.[21] Particularly, it emphasizes the binding nature of international customary law and general principles of international law. The Interpretation Act[22] will be a useful guide for interpreting the relevant parts of the applicable statutes. Case law and judicial precedents are also recognized in Ghana as good law and will therefore be used as an analytical tool[23] Additionally, secondary literature and policy documents will be used in order to substantiate the legal argumentation. Importantly, electronic sources, notably, websites of the operator of the Jubilee field (Tullow Ghana Limited), other relevant international oil companies, the United Nations Environmental Programme, and the Government of Ghana, will be cited.

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[20] Article 11(1) of 1992 Constitution of Ghana states that : (1) The laws of Ghana shall comprise-

(a) this Constitution;

(b) enactments made by or under the authority of the Parliament established by this Constitution;

(c) Any Orders, Rules and Regulations made by any person or authority under a power conferred by this Constitution.

(d) the existing law; and

(e) The common law.

[21] see note 33, below

[22] Interpretation Act, 1960 (CA 4)]

[23] Article 11 of 1992 Constitution of Ghana recognizes common law which includes the corpus of case law largely received from the English legal system and binding on Ghanaian courts.

1.5 Disposition of the Study

The work is organized into five chapters. The first chapter is further broken into four sections. The first, section provides a background to hydrocarbon activities in Ghana and raises the environmental concerns that arise from hydrocarbon activity. Subsequent sections deal with the objectives of the study, delimitations, the methodology employed in arriving at conclusions as well as the structure of the thesis. Chapter two is divided into four sections and is primarily concerned with providing the legal context of the study. The first section presents the legal context of Ghana's maritime zones and introduces the Delimitation of Maritime Zones Act of Ghana[24] which provides Ghana with the legal basis for drilling on the continental shelf.

The second section examines the relationship between Ghanaian law and international law and by consequence international environmental law. The purpose will be to establish the possible effect(s) of the myriad sources of international environmental law on the Ghanaian legal system. The third section provides an overview of international environmental law affecting hydrocarbon exploration that is binding and enforceable in Ghana. The fourth and final section of this chapter affords an overview of the full range of national laws that affect hydrocarbon exploration.

Chapter three will discuss in detail the legal implications of the relevant parts of the applicable international environmental laws and principles for hydrocarbon activity in Ghana.

Chapter four will interrogate the existing Ghanaian Law as well as practices to ascertain the extent to which it incorporates or implements the requirements/obligations contained under international environmental law.

The final chapter, which will serve as a concluding chapter will summarize the findings of the study and in the light of the findings, provide some recommendations.

[24] P.N.D.C.L159,1986

2.0 CHAPTER TWO - LEGAL CONTEXT OF THE STUDY

2.1 Jurisdictional Basis for Hydrocarbon Activity in Ghana

Ghana's hydrocarbon activity is offshore and hence undertaken on its continental shelf. Article 76(1) of the United Nations Convention of the Law of the Sea (UNCLOS), defines the continental shelf to comprise of the sea - bed and submarine areas of a coastal state extending beyond the territorial sea to the outer edge of the continental margin or to a distance of 200 nautical miles (nm) from the baseline where the outer edge of the continental margin does not extend to that distance[25].

Wherever the outer edge of a coastal state's continental margin extends beyond 200 nm from its baselines, the coastal state may establish the outer limit of its continental shelf in accordance with Article 76 of the UN Convention on the Law of the Sea. The portion of a coastal State's continental shelf that lies beyond the 200 nm limit is often called the extended continental shelf[26].

As provided for under UNCLOS[27], Ghana has delineated a continental shelf comprising the seabed and subsoil of the submarine areas that extend beyond the territorial sea throughout the natural prolongation of its land territory to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.[28] Also, Ghana has made submissions for an extended Continental shelf supposedly acting within the meaning of Article 76 of UNCLOS[29]. Furthermore, Ghanaian legislation gives Ghana exclusive sovereign rights for the purpose of exploring the continental shelf and exploiting its natural resources[30] in line with UNCLOS which gives the coastal state exclusive rights to authorize and regulate drilling on the continental shelf for all purposes.[31] Ghana has also established a 200 nautical mile exclusive

[25] Ghana has ratified the UNCLOS

[26] See article 76 United Nations Convention on the Law of the Sea (UNCLOS), Montego Bay, and 10 December 1982.

[27] Ibid

[28] S.6 of Maritime Zones (Delimitation)ACT ,1986

[29] See http://www.un.org/depts/los/clcs_new/submissions_files/gha26_09/gha_2009execsummary.pdf.

[30] supra, note 28

[31] Article 81, United Nations Convention on the law of the Sea.

economic zone (EEZ).[32] By so acting, Ghana is clothed with jurisdiction over the superjacent waters of the continental shelf in accordance with article 57 of the UNCLOS. Also, Ghana is bound by all environmental requirements and obligations relating to the exclusive economic zone as sea bed activities will certainly affect the environment of the superjacent waters and its living resources.

2.2 Relationship between Ghana Law and International Law

Ghana is a dualist State and therefore is required to take legislative or executive action to incorporate treaties to which it is a party into its local law[33]. Under Article 75(1) of Ghana's constitution, the president is vested with the power to execute or cause to be executed treaties, agreements or conventions in the name of Ghana, subject to ratification by an act of parliament; or a resolution of parliament supported by the votes of more than one-half of all the members of parliament. The usual practice for incorporating international conventions into national law has been that after ratification, the ministry of foreign affairs sends the treaty to the local ministry, department or agency for implementation.[34]

A holistic approach[35] to interpreting the Ghanaian constitution suggests the possibility of giving effect to international treaties and conventions without formal incorporation into national laws; article 40 of the Constitution imposes a duty on the government to 'promote respect for international law, treaty obligations and the settlement of international disputes by peaceful means' and adhere to the principles enshrined in the treaties of all international organizations of which Ghana is a member. Also, article 73 of the Ghanaian constitution stipulates that the government shall conduct its international affairs in consonance with the accepted principles of public international law and diplomacy in a manner consistent with the national interest of Ghana. One important international principle is that "a party may not invoke the provisions of its internal law as justification for its failure to perform a treaty"[36]. The combined effect of these

[32] Section 5, Delimitation Act, 1986

[33] Article 75(2) of 1992 Constitution of Ghana

[34] Afrimap et al Ghana Justice Sector and the Rule of Law, 2007. Pp. 21-23

[35] This approach is recognized as one of the cardinal principles of Constitutional Interpretation in Ghana. See for instance - Bimpong - Buta (2005), available at http://uir.unisa.ac.za/bitstream/handle/10500/2386/thesis.pdf

[36] Article 27, Vienna Convention on the Law of Treaties, 23 May 1969

provisions in my opinion is to impose a duty on Ghana to abide by its international obligations arising from all ratified treaties and international conventions.

The attitude of the Ghanaian courts appears to be consistent with this opinion. In ***New patriotic Party v. IGP***[37]**,** a matter which concerned the application of the African Charter on Human and Peoples Rights (ACHPR) (a convention that has been ratified by Ghana but not yet incorporated into National legislation), it was held that the fact that Ghana had not passed specific legislation to give effect to ACHPR did not mean that its provision can't be enforced in Ghana. In this light, it is possible to assert that the courts will give effect to ratified treaties which are not yet incorporated into national laws. However, it is important to mention that localizing laws does have its own advantages when it comes to implementation since it makes the law more relevant to the national context.

2.3 Overview of International Environmental Laws Applicable to Ghana's Hydrocarbon Industry

This section looks at the applicable treaties and other international environmental law (IEL) instruments that apply to hydrocarbon activities on Ghana's continental shelf and to which Ghana is a party. The aim will be to analyze the applicable laws and identify the relevant provisions. A more detailed discussion of the implications of these provisions is reserved for chapter three. In doing this, the study is guided by the delimitations of the study already mentioned.

2.31 United Nations Convention on the Law of the Sea (1982): The United Nations Convention on the Law of the Sea (UNCLOS) is a framework convention for the management of the ocean resources. The convention generally imposes a duty on all State parties to take measures for the protection of the marine environment[38]. Considering the objectives of this study, the following UNCLOS provisions are considered most relevant for further discussions in chapter three

i. The general duty of states to protect the marine environment. [39]
ii. The requirement to adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection to seabed activities[40]

[37] [1993 /94] 2 GLR 459 and also note that this is the most recent and relevant Ghanaian case law on the subject that the author could identify.

[38] Article 192 and 194 of the UNCLOS

[39] Ibid

iii. The requirement to cooperate with other states at the regional or global level and through competent international organization to formulate international rules, standards practices and procedures for the protection and preservation of the marine environment[41]

iv. The requirement to conduct environmental impact assessment[42]

v. The need to take all measures necessary to prevent and control pollution damage to other states[43] and

vi. The duty to give effect to or apply generally accepted international rules and standards for the protection of the marine environment[44]

2.32 International Convention for the Prevention of Pollution from Ships and Its Protocol (MARPOL 73/78)[45]

Annex 1 of the MARPOL provides specific regulations for the prevention of pollution of by oil[46].It also further provides specific requirements for the operation of FPSOS making it very relevant to hydrocarbon activity within the Ghanaian context. It is instructive that the regulations define ships to include FPSOs[47] and also makes applicable to FPSOS some operational and construction requirements applicable to oil tankers[48]. In view of this, the key areas of MARPOL considered relevant for our analysis are briefly presented below:

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[40] Article 208 of UNCLOS

[41] Article 197, UNCLOS

[42] Article 204 of UNCLOS

[43] Article 194 (2)

[44] Supra note 38

[45] Officially titled: International Convention for the Prevention of Pollution from Ships as Modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78). and also note that Ghana has ratified the MARPOL convention

[46] Annex 1 is officially titled: Regulations for the Prevention of Pollution by Oil

[47] Article 2(4) of MARPOL 73/78

[48] Revisions to Annex I issued under IMO Resolution MEPC.139 (53)

2.321 Technical Standards

Regulation 38 of Annex A spells out special requirements for fixed or floating platforms which includes FPSOs. These requirements which should be applied in addition to guidelines issued by International Maritime Organization (IMO)[49] include:

(a) The FPSO must be equipped with: Oil fuel tank protection, Oil filtering equipment, standard discharge connection, and tank for oil residues; b) Oil record book to keep records of all operations involving oil or oily mixture discharges in the form approved by the administration. Also, the discharge into the sea by FPSOs of oil or oily mixture is prohibited subject to certain exceptions which generally are: (i) Discharge for the purpose of securing the safety of ship or saving life at sea (ii) discharge resulting from damage of ship or its equipments (iii) discharges approved by the administration for the purpose of combating specific pollution incidents in order to minimize damage from pollution. Contracting parties are also required provide adequate port reception facilities to receive oily mixtures and residues without causing undue delay to ships.

2.322 Port State Control

Even though port state controls as stipulated in the MARPOL convention are not mandatory their execution is necessary for port states to discharge the obligation imposed on them to "cooperate in the detection of violations and the enforcement of the provisions of the present convention, using all appropriate and practicable measures for the detection and environmental monitoring, adequate procedures for reporting and environmental monitoring"[50]

One main tool for exercise of port state control is inspection under article 5 of MARPOL convention. Inspection may be carried out to confirm possession of a valid oil pollution certificate or to determine the state of a ship where there are "clear grounds of believing that the master or crew is not familiar with the essential ship board procedures relating to the prevention of pollution". In the case of Ghana, inspections can be carried out for example when an FPSO voyages to shore to conduct maintenance or to offload waste. Port state inspections can also be conducted by authorized Ghanaian officers once a ship is in the Ghanaian port or offshore terminal, and there are clear grounds for believing that the master or crew of the vessel are not familiar with essential shipboard procedures relating to the prevention of pollution by oil.[51]

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[49] Regulation 39 (3), MARPOL Annex A

[50] Article 6 (MARPOL), also note that the provision uses the word "may" in defining States requirement.

[51] Annex 1, regulation 11

2.33 International Convention on Oil Preparedness and Response (OPRC)[52]

The OPRC Convention commits parties to take all measures appropriate in accordance with the convention and its annex to prepare and respond to oil pollution incidents and emergencies[53]. Of particular interest is the fact that the law applies to offshore units, defined as: any fixed or floating offshore installation or structure engaged in gas or oil exploration, exploitation or production activities, or loading or unloading of oil[54]. This clearly brings the activities of FPSOs within this definition. According to its provisions, Parties should require that operators of offshore units comply with the following[55]:

a) Must have oil emergency plans coordinated with national systems of pollution preparedness and response

b) Must report without delay to the coastal state any event on offshore unit involving a discharge or probable discharge of oil. Parties are also required to establish a national system; capable of responding promptly and effectively to oil pollution incidents[56].

c) Also important, parties are required, subject to their capabilities to co-operate and provide advisory services, technical support and equipment for the purpose of responding to an oil pollution incident, when the severity of such incident so justifies, upon the request of any Party affected or likely to be affected[57]. As a State party to the OPRC Convention, Ghana is bound by these commitments in its offshore hydrocarbon activities. The extent of this obligation will be considered in chapter three.

2.34 Regional Instrument -

The Convention for the Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention (AC), 1985)

[52] The Convention entered into force in 1995

[53] Article1,OPRC

[54] Art 2,OPRC

[55] Art 3, OPRC

[56] Article 6,OPRC

[57] Article 7, OPRC

and its Protocol**:**[58] This convention covers the marine environment, coastal zones and related inland waters falling within the jurisdiction of the states of the West and Central African Region, from Mauritania to Namibia inclusive, which are Contracting Parties to the Convention.[59] In so far as sea bed activity is concerned, article 8 provides that "Contracting Parties shall take all appropriate measures to prevent, reduce, combat and control pollution resulting from or in connection with activities relating to the exploration and exploitation of the sea-bed and its subsoil subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction". This directly brings hydrocarbon activity on Ghana's continental shelf under the regime of the Abidjan Convention. Apart from the requirements imposed on contracting parties to take "all appropriate measures" in relation to sea bed activities, there are specific requirements related to emergency preparedness and response and environmental impact assessment which are considered very relevant to hydrocarbon activity. These include:

- The Contracting Parties shall co-operate in taking all necessary measures to deal with pollution emergencies in the Convention area, whatever the cause of such emergencies, and to reduce or eliminate damage resulting there from[60].
- Contracting Parties must notify the IMO of any pollution emergency as well as notify affected contracting parties[61]
- Each Contracting Party shall endeavor to include an assessment of the potential environmental effects in any planning activity entailing projects within its territory, particularly in the coastal areas that may cause substantial pollution of, or significant and harmful changes to, the Convention area[62].
- The Contracting Parties shall endeavor to maintain and promote, either individually or through bilateral or multilateral co-operation, marine emergency contingency plans and means for combating pollution by oil and other harmful substances. These means shall

[58] The official title of the protocol is: Protocol Concerning Co-operation in Combating Pollution in Cases of Emergency in the Western and Central African Region

[59] see article 1 of Convention

[60] Article 12(1) of Convention

[61] Article 12(2) of AC

[62] Article 13 of AC

include, in particular, equipment, ships, aircraft and manpower prepared for operations in cases of emergency[63].

- The Contracting Parties shall co-operate in developing standing instructions and procedures to be followed by their appropriate national authorities who have responsibility for receiving and transmitting reports of pollution by oil and other harmful substances made pursuant to article 7 of this Protocol[64]

The extensive provisions in the Abidjan Convention and its protocol including issues relating to exploration and exploitation of the seabed, emergency preparedness and response, and specific issue of offshore oil pollution makes it relevant to this study.

2.4 National Laws

In the light of the objectives and delimitations of the study, two main statutes in Ghana are identified as relevant. These are: a) the Environmental Protection Agency Act[65] and its regulations[66] and (b) The Petroleum (Exploration and Production) Law[67]. Two proposed statutes and regulations namely the marine pollution bill and the marine prevention and control

[63] Article 9 of Protocol Concerning Co-operation in Combating Pollution in Cases of Emergency in the Western and Central African Region

[64] Article 7 provides as follows:

1. Each Contracting Party undertakes to require masters of ships flying its flag and pilots of aircraft registered in its territory, and persons in charge of offshore structures operating under its jurisdiction, to report by the most rapid and adequate channels in the circumstances, and in accordance with the annex to this Protocol, to any Contracting Party:
   a. All accidents causing or likely to cause pollution of the sea by oil or other harmful substances;
   b. The presence, characteristics and extent of spillages of oil or other harmful substances observed at sea which are likely to present a serious and imminent threat to the marine environment or to the coast or related interests of one or more of the Contracting Parties.
2. Any Contracting Party receiving a report pursuant to paragraph 1 above shall promptly inform the Organization and, either through the Organization or directly, the appropriate national authority of any Contracting Party likely to be affected by the marine emergency.

[65] Act 490, 1994

[66] LI 1652,1999 as ammended,2002

[67] Act 84,1984

regulations will be considered in outline, since they exist as bills or as draft regulations and have not yet been passed into law. In discussing Ghana's laws and practices however, it is considered important to point out in subsequent chapters, how the future passage of this bill and regulation will help fulfill IEL requirements for hydrocarbon activity.

2.41 The Environmental Protection Agency Act[68]:

The Act establishes the authority, responsibility, structure and funding of the Environmental Protection Agency (EPA). Part I of the Act gives the EPA the mandate to formulate environmental policy in Ghana. The mandate extends to include: issuing environmental permits and pollution abatement notices and prescribing standards and guidelines. The Act defines the requirements and responsibilities of the Environmental Protection Inspectors and empowers the EPA to request that an EIA process be undertaken. In so far as hydrocarbon activities are concerned, the EPA provides the framework enforcing the specific environmental requirements under its respective subordinate legislations to which we now turn.

2.42 Environmental Assessment Regulations[69]

Environmental impact assessment (EIA) is implemented through the Environmental Assessment Regulations. Under the regulations no person shall commence any of the undertakings specified in Schedule 1[70] to the Regulations or any undertaking to which a matter in the Schedule relates, unless prior to the commencement, the undertaking is registered by the Agency and an environmental permit is issued in respect of the undertaking. A prerequisite for registration and permission is the submission and approval of an environmental impact assessment [71](EIA). The EIA process includes: (i) An initial assessment of the submission of an application accompanied by a report on the environmental impact of the undertaking, based on which a screening report is issued by the Agency; the screening report indicates whether application is: approved; objected to; or requires submission of a preliminary environment report (PER) or in the case of a determination that a PER is not adequate, the submission of an environmental impact statement (EIS).

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[68] Supra, note 58

[69] Supra, note 59

[70] Schedule 1 of the EIA regulations include crude oil exploration exploitation and production

[71] Section 3 of EIA regulations

(ii) In the event that the application is approved after initial assessment, an environmental permit is issued; where a preliminary environmental report is required, the report shall contain details other than information submitted with the original application for the environmental permit and shall state specifically the detailed effects of the proposed undertaking on the environment.

(iii) Where a PER is considered inadequate, the applicant is required to submit an Environmental Impact statement which should address the following issues:[72]

(a) Description of the undertaking;

(b) An analysis of the need for the undertaking;

(c) Alternatives to the undertaking including alternative situations where the undertaking is not proceeded with;

(d) Matters on site selection including a statement of the reasons for the choice of the proposed site and whether any other alternative site was considered;

(e) An identification of existing environmental conditions including social, economic and other aspects of major environmental concern;

(f) Information on potential, positive and negative impacts of the proposed undertaking from the environmental, social, economic and cultural aspect in relation to the different phases of development of the undertaking;

(g)The potential impact on the health of people;

(h) Proposals to mitigate any potential negative socio-economic, cultural and public health impacts on the environment;

(i) Proposals to be developed to monitor predictable environmental impact and proposed mitigating measures;

(j) Contingency plans existing or to be evolved to address any unpredicted negative environmental impact and proposed mitigating measures;

(k) Consultation with members of the public likely to be affected by the operations of the undertaking;

(1) Maps, plans, tables, graphs, diagrams and other illustrative material that will assist with comprehension of the contents of the environmental impact statement;

(m) A provisional environmental management plan;

[72] Section 12 of EIA regulations

(n) Proposals for payment of compensation for possible damage to land or property arising from the operation of the undertaking; and

(o) An indication whether any area outside Ghana is likely to be affected by the activities of the undertaking.

On approval of the scoping report, an environmental impact statement based on the scoping report, is submitted, and, if approved an environmental permit granted. In the case of the Jubilee field, the operator submitted an environmental impact statement addressing these issues.[73]

The EIA regulations also include measures to ensure continuous compliance after issuance of an environmental permit. These measures include: filing with the agency an environmental management plan in respect of their operations within 18 months of commencement of operations and thereafter every 3 years, and filing an environmental report twelve months (12 months) after commencement and every 12 months thereafter.

2.43 The Petroleum (Exploration and Production) Law[74]

The law establishes that all petroleum existing in its natural state within the jurisdiction of Ghana is the property of the Republic of Ghana (hereafter referred to as "the Republic") and shall be vested in the Provisional National Defense Council[75] (hereafter referred to as "the Council") on behalf of the people of Ghana. It further establishes that no person other than the Ghana National Petroleum Corporation[76] shall engage in the exploration, development or production of petroleum except in accordance with the terms of a petroleum agreement. In line with the law, petroleum activity in Ghana whether exploration , development or production, commences with a contract between the Ghana National Petroleum Corporation, the State, and another company, typically an international oil company.

[73] For details of EIA statement and other environmental reports submitted by Tullow, see: http://www.tullowoil.com/ghana/index.asp?pageid=14.

[74] Act 64, of 1983

[75] The Provisional National Defense Council is used in place of Government. PNDC is used in the legislation because it was the ruling government (a military government), at the time of enactment

[76] Supra note 67

Where after exploration and appraisal, a commercial field is established, the law requires that a Plan of Development (PoD)[77] for proposed developments be submitted and approved by the Ghana National Petroleum Corporation (GNPC), The Ministry of Energy (ME) and the EPA before development of the field. In addition, an Environmental, Health, and Safety (EHS) manual, containing details on health, safety, and environmental issues, policies and procedures must be submitted to the GNPC for review before commencement of exploration and development activities.

The Act further requires that Environmental Health and Safety (EHS) audits of operations be conducted by the EPA and the GNPC. Also, emergency plans for handling accidents and incidents must be discussed and agreed upon with the GNPC and the EPA before the commencement of operations. Also relevant is a requirement that petroleum operations be conducted in accordance with the best international practices in comparable circumstances relating to exploration and production of petroleum including secondary recovery and the prevention of waste so as to maximize the ultimate recovery of petroleum from a petroleum field. Reference to best international practices certainly includes practices relating to environmental management, and pollution control. It is in this spirit that Tullow Oil for example as part of its environmental management policy employs the International Finance Company (IFC) performance standards.[78].

Aside from the environmental requirements stated in the EIA regulations, petroleum agreements between GNPC and international oil companies (IOCs) have often contained copious provisions on environmental protection. Here is an example:[79]"*Contractor shall exercise its rights and carry out its responsibilities under this Contract in accordance with accepted Petroleum industry*

[77] Section 10(1) of Act 64, and also note that development is defined in the legislation to include: the building and installation of facilities for the production of petroleum and the drilling of development wells; Exploration is defined as the search for petroleum by geological, geophysical and other means, and drilling of exploration wells, including appraisal wells, and activities connected therewith.

[78] See http://www.tullowoil.com/files/pdf/Jubilee_Field_EIA_Chapter_2_22Nov09.pdf. For a presentation of IFC standards adopted by Tullow Ghana limited.

[79] Section 14.4 of Petroleum agreement between *Lushann* Eternit Energy Ltd. and Ghana National Petroleum Corporation and Republic of Ghana. For more details see http://www.saltpondoffshore.com/petroleum_agreement.pdf.

practice, and shall take steps in such manner as to: a) result in minimum ecological damage or destruction b)) control the flow and prevent the escape or the avoidable waste of Petroleum discovered in or produced from the Development and Production Area; c) prevent damage to Petroleum-bearing strata; (d) prevent the entrance of water through boreholes and wells to Petroleum bearing strata, except for the purpose of secondary recovery; (e) prevent damage to onshore lands and to trees, crops, buildings or other structures; and f) avoid any actions, which would endanger the health or safety of persons." These environmental control provisions, seek to provide an additional legal (contractual) basis for the environmental control and regulation of offshore hydrocarbon activities in Ghana.

2.44 Marine Pollution Bill:

The marine pollution bill is currently before the Ghanaian parliament for consideration and may become law if approved by parliament and signed by the president[80]. The Bill aims to provide a legal framework to prevent and control marine source pollution in general by consolidating the major international marine pollution conventions developed by the IMO. The conventions that are incorporated in the bill cover the general requirements imposed under the OPRC, viz., prevention, control, response, preparedness, liability and compensation for pollution incidents, as well as the MARPOL Annex1, relating to Pollution of Sea by Oil. Additionally there are other relevant provisions for the prevention and control of pollution to the environment from marine sources. These provisions include the following: a duty to report discharges of oil, insurance for operators of oil rigs and platforms, provisions regulating the transfer of oil and provision for the Minister of Transport to make Regulations. The Bill is to apply to all Ghanaian ships, foreign ships while in an area within Ghana's maritime jurisdiction and installations located within Ghana's maritime jurisdiction. The Convention further designates the Ghana Maritime Authority in collaboration with the Environmental Protection Agency and other relevant agencies as the regulatory and implementing authority for this Act.

2.45 Draft Marine Pollution Prevention And Control Regulations[81]: The objective of the regulations is to provide rules for offshore installations to prevent pollution of the marine

[80] http://www.ghana.gov.gh/index.php/news/general-news/10830-marine-pollution-bill-undergoes-first-reading.

[81] see official website of Ghana maritime Authority at: http://ghanamaritime.org/

environment by substances used or produced in offshore petroleum exploration and exploitation. The regulations are in pursuant to the Marine pollution bill. Clearly, this draft regulations if eventually passed, will apply to discharges arising from FPSOs and rigs used for offshore drilling and storage.

2.5 Overview of Chapter Two

The preceding chapter examined the overall legislative and regulatory framework for hydrocarbon activity in Ghana. It examined the relationship between Ghanaian law and international law as well as the applicable International and National law. It established that the UNCLOS and MARPOL constitute the key international conventions applicable to hydrocarbon activity in Ghana. It further established that in the national sphere, the Environmental Protection Agency Act and its regulations and the Petroleum (Exploration and Production) Law provides the regulatory basis for hydrocarbon activity in Ghana. It observed that there are two main initiatives namely: the marine pollution bill, and the marine pollution prevention and control regulation which, if passed into law, would make a significant contribution to the regulation of hydrocarbon activity. The chapter also noted that specific provisions within petroleum agreements between Ghana, the National Oil Company (GNPC) and international oil companies may be a basis for hydrocarbon regulation. In the subsequent chapter, I intend to examine the implications of the international environmental law instruments for hydrocarbon activity on Ghana's continental shelf.

3.0 CHAPTER THREE - IMPLICATIONS OF IEL INSTRUMENTS FOR HYDROCARBON ACTIVITY ON GHANA'S CONTINENTAL SHELF

3.1 Introduction

This section will present in detail the international environmental law requirements outlined in chapter two and more importantly, attempt to discuss their implications for hydrocarbon activity in Ghana. The discussion will be framed by the themes that capture the core points of the conventions identified as follows:

1. General duty to protect the marine Environment
2. Duty to cooperate
3. Duty to conduct Environmental Impact Assessment and Monitoring
4. Duty to prevent and Control Transboundary harm
5. Duty to adopt laws and take measures
6. Marine Pollution Requirements
7. Emergency response and preparedness
8. Regional Requirements

3.2 General Duty to Protect the Marine Environment

The scope and extent of this duty is captured perfectly in article 193 of UNCLOS, which acknowledges the sovereign right of states to exploit their natural resources but at the same time limits this right with the expression "In accordance with their duty to protect and preserve the marine environment"[82]. The environment for this purpose includes "rare and fragile ecosystems as well as the habitat of depleted, threatened, or endangered species and other forms of marine life[83]. In this regard, Ghana's right to explore and exploit the natural resources of its continental shelf is not an absolute right but is constrained by the responsibility to protect the marine environment which will include the entire marine ecosystem. The duty to protect the marine environment is not open-ended and entirely discretionary [84] but requires states to use the best

[82] parts of Article 193 of UNCLOS quoted

[83] Article 194(5)

[84] Article 194(1)

practicable means at their disposal and in accordance with their capabilities. Thus the Convention appears to acknowledge developing countries like Ghana may lack technological expertise and regulatory capacity.[85]

3.3 Duty to Cooperate

The duty to cooperate is expressed clearly in article 197 of UNCLOS. It provides that States shall cooperate on a global basis and, as appropriate on a regional basis, directly or through competent international organizations in formulating and elaborating international rules, standards and recommended practices for the protection and prevention of the marine environment taking into account characteristic regional features. The International Tribunal of the Law of the Sea (ITLOS) considered this duty in the MOX plant case[86]. The facts of the case in so far as material are as follows:

Ireland objected to the UK's plans to commission a plant to manufacture mixed oxide (MOX) fuel as an addition to the Sellafield nuclear complex, for fear that related activities would harm the Irish Sea. In seeking provisional measures under Article 290 of UNCLOS, Ireland claimed *inter alia* that the UK has breached its obligations under Articles 123 and 197 of UNCLOS in relation to authorization of the MOX plant, and has failed to cooperate with Ireland in the protection of marine environment of the Irish sea by refusing to share information with Ireland and / or refusing to carry out proper environment assessments on the impact of the Plant. The ITLOS observed in paragraph 82:

"The duty to cooperate is a fundamental principle in the prevention of pollution of the marine environment under Part XII of the convention and general international law and rights arise there-from which the tribunal may consider appropriate to preserve under article 290 of the Convention".[87] In addition, ITLOS prescribed a provisional measure requiring Ireland and the United Kingdom to cooperate and to enter into consultations to exchange information with regard to possible consequences for the Irish Sea arising out of the commissioning of the MOX plant, to monitor risks or the effects of the operation of the MOX plant for the Irish Sea and to devise, as appropriate, measures to prevent pollution of the marine environment which might

[85] See Birnie, et al (2009) at page 149 for further insight on this issue.

[86] See note 87, below

[87] MOX Plant Case (Provisional Measures) (2001) ITLOS NO. 10 Para 82; Land Reclamation Case (Provisional Measures) (2003) ITLOS No. 12 Para 92.

result from the operation of the MOX plant. It recommended that the UK review with Ireland the whole system of intergovernmental notification and co-operation in respect of Ireland's concerns about the Sellafield nuclear re-processing plant and imposed reporting requirements. In the Ghanaian context, the Installation of FPSO Kwame Nkrumah, as well as oil rigs within an area bordered by the Ivory Coast, imposes a duty to sufficiently fulfill the requirements to cooperate to preserve the marine environment as spelt out in the relevant articles in the UNCLOS already mentioned and as further elucidated in the MOX plant case. The provision begins with the mandatory term "shall" and therefore compliance is not a matter of choice. Also, the provision requires cooperation at all levels and requires parties to take account of "characteristic regional features". Since characteristic regional features can best be taken into account through regional cooperation, this provision in essence underscores the central place of regional cooperation as part of the duty to cooperate.

Furthermore, article123 of UNCLOS requires states bordering an enclosed or semi enclosed sea to cooperate in assuming their rights and performing their duties under the convention. Article 122 of UNCLOS defines *"enclosed or semi-enclosed sea" as a gulf, basin or sea surrounded by two or more States and connected to another sea or the ocean*. The Jubilee field operation is situated within the Gulf of Guinea[88], thus Ghana, in exercising its continental shelf rights of exploration and exploitation may have to cooperate with surrounding states.

In the same vein, on the specific issue of pollution from sea bed activities subject to national jurisdiction,[89] states are required to endeavor to harmonize their policies in this connection at the regional level[90].

[88] For the purpose of this article, the Gulf of Guinea is defined as the 11 coastal countries along the West and Central African countries that lie between Ghana and Angola. This approach is used by Raymond Gaplin (2007) in his discussion on Maritime Piracy in the Gulf of Guinea for full text see: http//www.africaenter.org/. And also note that article 122 is about definition. It is not precise enough about the distinction between enclosed and semi-enclosed seas. It makes it however clear that a gulf "consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more States should be considered as an enclosed or semi-enclosed sea. This appears to be the case in the Gulf of Guinea

[89] See title of article 208 , UNCLOS

[90] Art 208 (4) and also note that nowhere does UNCLOS specify what is meant by "regional" although the term is something less than global. In this context regional is used to refer to oceanic coastal areas where the only factor

Since Ghana's hydrocarbon is offshore and therefore constitutes sea bed activity, Ghana is obliged to cooperate at all levels to protect and preserve the marine environment.

3.4 Duty to Conduct Environmental Impact Assessment and Monitoring

Environmental impact assessment is a procedure for evaluating the likely impact of a proposed activity on the environment[91]. Monitoring on the other hand is undertaken after the EIA is undertaken and the project commences. Its main purpose is to determine whether further measures are needed in order to abate or avoid pollution or environmental harm and also to see if the project performs as predicted by the EIA. It is necessarily an ongoing process which has to continue throughout the life of the project and in some cases beyond[92]. Under the UNCLOS, States are required to endeavor as far as practicable directly or indirectly through the competent international organizations to observe, measure, evaluate and analyze by recognized scientific methods, the risk or effects of pollution of the marine environment[93]. In particular, states shall keep under surveillance the effects of any activities which they permit or which they engage, in order to determine whether these activities are likely to pollute the marine environment[94]. Under these provisions, Ghana is bound to ensure the conduct of EIA prior to the conduct of hydrocarbon activities within its jurisdiction. Given the liberal approach adopted by the provision in its use of words such as "endeavor" and "as far as practicable" it is reasonable to conclude that the provision does not impose a strict obligation to conform to a particular standard of EIA. Also, article 206, which seems to prescribe when an EIA is required, refers only to "reasonable grounds for believing that planned activities may cause substantial pollution of or significant harmful changes to the environment". In other words, States have discretion in choosing and picking which project in their view requires an EIA and the content of an EIA.[95] This being the case, any judgment of Ghana's compliance with UNCLOS environmental impact

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connecting participants is a common coastline. In the context of this study this refers to the West African part of the south Atlantic.

[91] Convention on EIA , 1991, Articles 2(6), 3(8)

[92] Supra note 11 at p. 165

[93] Article 204, UNCLOS

[94] See article 204(2), UNCLOS

[95] Note that neither article 206 of UNCLOS, nor article 204 spells out the content of an EIA.

assessment requirements should be based largely on Ghana's own assessment of the need for an EIA and the extent of its capacity and ability to comply taking into account its resources and expertise.

3.5 Duty to Prevent and Control Transboundary Pollution

It is beyond serious argument that international law requires States to regulate and control activities within their territory or subject to their jurisdiction or control that pose a significant risk of global or trans-boundary pollution or environmental harm[96]. Indeed, the conclusion of the Arbitral panel in the Trail Smelter Arbitration is consistent with this reasoning: "No state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties of persons therein when the case is of serious consequence and the injury is established by clear and convincing evidence"[97]. Article 194(2) of UNCLOS provides the need for States to take all measures necessary to ensure that activities under States jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment. It further requires that states ensure that pollution incidents or activities under their jurisdiction or control do not spread beyond the areas where they exercise sovereign rights. In relation to offshore installations such as FPSO used in the Ghanaian marine environment, the measures taken must include inter alia, those designed to minimize to the fullest possible extent pollution affecting other states.[98] . This duty is not moderated or watered down by any limitation as in the case of the general duty to take measures to protect the marine environment as a whole. By implication, Ghana's limited capacity whether logistical, resource, or technological cannot be a basis to justify the harm caused to other states though sea bed activities within its jurisdiction.

3.6 Duty to Adopt Laws and Take Measures

Article 208 (1) of UNCLOS requires coastal States to adopt laws and regulations for the prevention and control of pollution arising from, or in connection to sea bed activities. This provision covers the full range of offshore hydrocarbon activity from exploration to production.

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[96] See Birnie et al (2009, 3rd Ed. p. 143, for a full discussion on this widely accepted principle. On the meaning of jurisdiction and control, see ILC Report (2001) GAOR A/56/10,383 -5, it includes ships.

[97] Trail Smelter Case: 33 AJIL (1939) 226, para 29.

[98] Read article 194 of UNCLOS as a whole.

Article 208 (1) makes specific reference to article 60 and 80 of UNCLOS, which requires the coastal state to remove abandoned or disused installations having due regard to the protection of the marine environment and rights and duties of other states. In addition to adopting laws, States are required to take measures as to reduce and prevent pollution arising from sea bed activities[99]. This formulation suggests that beyond adopting laws and regulations, states are required to adopt a wide range of non - legal options. The laws, regulations and measures taken shall be no less effective than international rules, standards and international practices and procedures[100]. Similarly, states acting through competent international organizations or diplomatic conference are required to establish global and regional rules, standards, and recommended practices and procedures to prevent, reduce and control pollution of the marine environment[101]. The essential point here is that this provision has the effect of incorporating into the primary obligation to prevent pollution, the evolving standards set by relevant international environmental law instruments such as the MARPOL convention annexes, IMO codes and other soft law instruments agreed and adopted by the preponderance of maritime states particularly through the international maritime organization[102].

3.7 Marine Pollution Requirements

As presented in chapter two, MARPOL sets out a range of technical standard to which ships must conform to prevent oil pollution from ships. When it comes to compliance and enforcement, MARPOL imposes requirements on the flag state, coastal state and port state. The flag state must inspect the vessel at periodic intervals and it must issue an international oil pollution prevention certificate[103]. In the case of Ghana, FPSO Kwame Nkrumah is a Bahamas flag vessel and therefore the Bahamas must fulfill these obligations. But this is not an exclusive jurisdiction. MARPOL at least gives some prescriptive jurisdiction to the coastal state and port state. For instance, article 4 (2) of MARPOL provides that "Any violation of the requirements of the present convention within the jurisdiction of any party to the convention shall be prohibited

[99] Article 208 (2)

[100] Article 208(3) of UNCLOS

[101] Article 208 (5), UNCLOS

[102] supra note 17 at 389 and also note that IMO codes and soft law provisions are not a subject for this study

[103] Annex 1, regulations 4,5,

and sanctions shall be established therefore under the law of that party[104]". As Ghana is a party to the UNCLOS, it is reasonable to construe jurisdiction to include prescriptive and enforcement jurisdictions within the exclusive economic zone permitted under the UNCLOS[105]. On this basis, Ghana could enforce MARPOL provisions against FPSO violations within its EEZ[106].

This duty is further strengthened by Article 6 of MARPOL which requires all state parties to cooperate for detection and enforcement of discharge violations.

These provisions ask(s) questions as to whether Ghana's legislative and institutional framework makes it able to enforce MARPOL violations. Ghana's ability will depend inter- alia on the extent to which MARPOL is incorporated into local laws with clear sanctions stated for non - compliance. It will also depend on its ability to implement the wide port state control powers it has been given under MARPOL. Of importance is also the requirement that Ghana provides adequate port reception facilities. On this point, the issue is whether Ghana being a developing country could provide such facilities; and if it does, whether it can provide adequately to meet the needs of ships calling at ports. These issues will be evaluated in the next chapter.

3.8 Emergency Preparedness and Response

Ghana's ratification of the International Convention on Oil pollution Preparedness, Response and Cooperation, imports an obligation to comply with the requirements of the convention. As observed in chapter two, under OPRC, state parties undertake, individually or jointly to prepare for and respond to an oil pollution incident. A critical element of this requirement is to ensure that vessels within Ghana's ports are subject to inspection to ensure they carry an oil pollution emergency plan; this may apply to FPSOs whilst within Ghanaian ports or offshore terminals[107].

[104] In the view of the learned authors Patricia Birnie e al (2009) at p. 408, the provision "arguably goes further to turn a power to regulate into a duty to do so" i lean towards the view that the use of the mandatory word shall imposes a duty.

[105] See article 220 of UNCLOS for detailed provisions on port states enforcement jurisdiction within the EEZ, as well as article 218 of same for provisions on port state enforcement jurisdiction to include EEZ violations. See article 211 (5) of UNCLOS for account of coastal state prescriptive jurisdiction within the EEZ.

[106] Note that Ghana's FPSO floats within its EEZ and constitutes a vessel within the meaning of article 2(4) of MARPOL

[107] under Article 6(2) of MARPOL, a ship in any port or offshore terminal of a party may be subjected to inspection by officers appointed or authorized by that party for purpose of verifying whether any harmful substance have been discharged in violation of the provisions of the regulations.

Also Ghana must ensure that national institutions are created for emergency preparedness and response and are well equipped. This clearly is a challenge for developing countries like Ghana where the creation of a national institution for emergency response may not necessarily be complemented by existence of the necessary equipments and trained staff. Article 6(2a) of the OPRC which provides that state parties should provide a minimum level of pre-positioned oil spill combating equipment and telecommunication data moderates this requirement with the phrase "each party within its capabilities either individually or through bilateral and multilateral cooperation". This qualifies the obligation and shares responsibility among state parties. It however does not take away the fact that state parties within their national and regional context must be able to demonstrate a firm commitment towards oil pollution prevention and emergency response. In this light, a key standard for measuring Ghana's performance will be how it has been able to achieve regional and international cooperation within the thematic areas specified under the convention for state parties to seek cooperation in order to combat pollution. A key provision for example is that: "State parties must cooperate through the organization or relevant regional organizations or arrangements in the promotion and exchange of results of research and development programmes relating to the enhancement of the state of the art of oil pollution preparedness and response including technologies and techniques for surveillance, containment, recovery, dispersion, clean -up and otherwise minimizing or mitigating the effects of oil pollution and for restoration".[108] This requirement is not in any way subjected to the capabilities of developing countries. Furthermore, an important implication of being a member of the OPRC so far as hydrocarbon activity is concerned is ensuring that Ghana be involved in regional, bilateral and multilateral initiatives specifically tailored to address pollution related to sea bed

3.9 Regional Requirements

Most of the requirements stated in the Abidjan convention are variously captured by the UNCLOS, MARPOL and OPRC[109] as can be observed from chapter two, and will therefore not be considered comprehensively in this chapter. What will be considered is the provision related

[108] see Article 8 of OPRC

[109] For example the duty to conduct environmental impact assessment, and requirements for emergency preparedness and response are in substance clear repetition of provisions under the UNCLOS and the OPRC

to sea bed activity. The AC as observed in chapter two requires parties to take appropriate measures[110] to prevent, reduce, combat and control pollution resulting from or in connection with activities relating to the exploration and exploitation of the sea-bed and its subsoil subject to their jurisdiction from artificial islands, installations and structures under their jurisdiction. Appropriate measures as noted, is synonymous with due diligence. The due diligence rule requires "reasonable efforts by a State to inform itself of factual and legal components that relate foreseeably to a contemplated procedure and to take appropriate measures in timely fashion, to address them".[111] It is against this standard that Ghana's performance will be measured in chapter four.

3.10 Overview of Chapter Three

What this chapter did was to discuss the key implications of applicable International environmental law instruments on hydrocarbon activity. It considered this under seven main thematic areas. Under each of these areas, the extent of Ghana's obligations, were discussed

Importantly, the chapter established that Ghana has an unqualified duty to protect the marine environment from pollution arising from sea bed activities. Also, the general duty to protect the marine environment is limited by the unique capabilities of especially developing countries like Ghana. It further established that there is a duty under MARPOL to prohibit violations

and to prevent transboundary effects of sea bed activities. It also established that Ghana has a duty to cooperate at bilateral, multilateral and in particular regional levels to prevent pollution of the marine environment. The chapter further observed that Ghana has a duty to prohibit activities of vessels within its jurisdiction that will harm the environment. Finally, the extent of obligations imposed on Ghana for emergency preparedness and response were discussed.

In the subsequent chapter I seek to evaluate the extent to which Ghanaian laws and practices implement these requirements.

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[110] ILC Report (2000) GAOR A/55/10 para 718: the special rapporteur was of the opinion that all appropriate measures was synonymous with due diligence.

[111] ILC, "Commentaries to Draft Articles on Transboundary Harm", Art 3. Commentary 10.

4.0 CHAPTER FOUR - EVALUATION OF GHANAS RESPONSES TO REQUIREMENTS UNDER INTERNATIONAL ENVIRONMENTAL LAW

4.1 Introduction

The main task of this section is to determine the extent to which the national legal arrangements considered in chapter two and existing practices under these national legal arrangements, respond to the requirements imposed on Ghana under international environmental law. This section aims to answer whether what has been done so far is sufficient to meet the requirements outlined in chapter two and discussed in chapter three. If so why is it sufficient? If not, why is it not sufficient? These questions will be answered using the thematic approach adopted in chapter three. As could be observed from chapter three, these themes like all other environmental issues are very much related and therefore it is possible to subsume a particular issue under more than one theme. For purposes of achieving a precise structure and avoiding unnecessary repetitions I discuss under each theme the issues which seem most relevant.

4.2 General Duty to Protect the Marine Environment

Viewing this duty within the context of hydrocarbon activity, it must be acknowledged that Ghana has made some commendable efforts especially in terms of creating institutions to fulfill this obligation. The creation of the Environmental Protection Agency, with the mandate to ensure compliance with environmental policy and standards is one such example. Also, the EPA environmental impact assessment requirement for hydrocarbon activity which requires detailed environmental impact assessment before the commencement of hydrocarbon operations is an indication of Ghana's commitment to fulfilling its duty. The approach of petroleum agreements between Ghana and the international oil companies which requires compliance with Ghanaian

environmental laws as well as accepted international petroleum industry practice constitutes a key step in fulfilling this duty.[112]

Ghana's ratification of UNCLOS, which to some extent regulates pollution arising from sea bed activities and vessel source pollution and its ratification of Annex 1 of MARPOL which regulates oil pollution by vessels are also key indications of Ghana's commitment to this duty.

All these fact notwithstanding, it is important to mention that much more needs to be done if the general duty to protect and preserve the marine environment can be fully achieved. Lacking for example, is a regulation to protect the "rare and fragile ecosystem" particularly sedentary species from offshore hydrocarbon activity .This deficiency may weaken the claim that Ghana is fulfilling its duty to protect the marine environment. Furthermore, Ghana is still plagued by the conflicting roles of key institutions and lack of goal clarity. For example in terms of environmental regulation and enforcement, even though the Environmental Protection Agency has the overall responsibility for ensuring compliance, the National Oil Company (GNPC) is supposed to assume an enforcement role under the petroleum agreement.[113]. Similarly, even though the Ministry of Science and Environment is responsible for the formulation of environmental policy in Ghana, the Ministry of Energy has the responsibility for developing and implementing energy sector policy in Ghana[114] and could also be mandated to make environmental policy for the hydrocarbon sector[115]. The need for clarity in terms of who makes policy and who implements the policy is therefore crucial if Ghana is to effectively meet its obligation to protect and preserve the marine environment. Also, the use of the phrase "best

[112] Article 17 of petroleum agreement between Government of Ghana, GNPC and Amerada HESS: "the Contractor shall take all necessary steps, in accordance with accepted international petroleum industry practice to perform activities pursuant to the agreement in a safe manner and shall comply with all requirements of the Governing Law (Ghana Law in this case) including labour, health, safety and environmental protection agency of Ghana". By implication therefore there is a duty on HESS to take into account Ghanaian legislation relating to all these specified areas in its management practices.

[113] see for Example article 17, Petroleum agreement for Deep Water Tano (Tullow/Sabre/Kosmos) -March 2006

[114] see the objectives of the Ministry of Environment Science and Technology at: http://www.ghana.gov.gh/index.php/governance/ministries/329-ministry-of-environment-science-a-technology

[115] see objective 6 of the National goal of the Ministry of Energy at http://www.energymin.gov.gh/

practicable means at their disposal and in accordance with their ability[116]" means that Ghana, being a developing country, may be excused from practical measures that can significantly reduce and preserve the marine environment if those measures involves huge financial cost over and above Ghana's ability[117]. Ghana will however not be excused from meeting its obligation if it's non -performance is due to administrative and policy errors such as conflicting goals among its institutions.

4.3 Duty to Cooperate

The duty to cooperate with other states through bilateral and multilateral agreements at regional and global levels is captured comprehensively in the various conventions considered in previous chapters. Ghana has some impressive achievements in this regard. At the global level, Ghana is part of the establishment of the UNCLOS legal framework, which is a major legal instrument for regulating sea bed activities based on multilateral cooperation among States. Also, Ghana's ratification of MARPOL and its Annex 1; a convention which is an outcome of multilateral cooperation through the International Maritime Organization represents an achievement in this regard.

At the regional level, the Abidjan Convention initiative concluded between states of West and Central Africa for the protection of marine and coastal areas is relevant. The convention contains extensive provisions for regional cooperation to combat marine pollution incidents and for prevention of pollution and this in my view constitutes one very significant outcome of cooperation among states at the regional level. These achievements however does not mean that more does not need to be done, particularly at regional and bilateral levels, since there is no regional initiative to comprehensively implement the provisions of MARPOL and its annexes. Also, while Abidjan convention is the major regional initiative it provides no enforcement powers to the contracting parties in their capacities as port states, coastal states or flag states. Furthermore, there is no regional instrument to protect the marine environment within the Gulf of Guinea area where Ghana is drilling even though as observed, the Gulf of Guinea will qualify as an enclosed or semi enclosed area within the meaning of article 123 of

[116] Article 194(1), UNCLOS

[117] According to Patricia Birnie et al (2009) p. 389, this provision was inserted mainly taking account of the peculiar financial technological and logistical constraints of developing countries.

UNCLOS. All these inadequacies emphasizes the need for a regional instrument with an enforcement component that addresses the specific issue of hydrocarbon activity since the coastal countries in West Africa region in particular and the Gulf of Guinea in general are becoming a hub for offshore petroleum activity[118].

Also, Ghana's operating area being about 75 kilometers south-southeast of the border between Cote D'Ivoire/Ivory Coast as observed in chapter one, requires extensive bilateral cooperation towards reducing transboundary effects. Cooperation should take the form of consultations, exchange of information as regards possible consequences of such installations and joint impact assessment and monitoring. It is rather disturbing that no bilateral framework exists between Ghana and the Ivory Coast to address the issue of the possible environmental effects of offshore hydrocarbon activity. Such a framework should be within the reach of both countries since they enjoy good political and economic relations[119]. The absence of such cooperative arrangements in my view suggests that Ghana needs to do more to fulfill its obligations[120] under article 194(1) of the UNCLOS.

4.4 Duty to Conduct Environmental Impact Assessment (EIA)

As observed, Ghana has an obligation to monitor the risk or effects of pollution[121]. Ghana's EIA processes are detailed and take into account the basic principles that guide the design of an EIA[122]. The problem lies in implementation. Ghana, in the first place, has inadequate environmental data[123] and in the case of hydrocarbon activity little human and technical

[118] For example read the article: The rush for petroleum in West Africa: The new wild West at: http://www.ipsnews.net/2011/11/the-rush-for-oil-in-west-africa-ndash-the-new-wild-west/

[119] Both countries are members of the Economic Community of West African States

[120] Article 194(1), UNCLOS

[121] See the heading for article 204 of UNCLOS

[122] According to Robert V. Ballet (1997) Integrated Impact Assessment: The New Zealand Experiment in Environmental policy: transnational issues and national trends (1997) p.157,166, the key principles for the design of an effective impact assessment are (1) An integrated approach; (2) Clear and automatic application of all requirements to all significant undertakings; (3) Critical examination of purposes and comparison of alternatives; (4) Legal, mandatory, and enforceable requirements; (5) Open and participatory process; (6) Consideration of implementation issues, including monitoring and compliance enforcement; (7) Practical and efficient execution; and (8) Links to broad policy concerns, such as the economy, agriculture, transportation, and urban development

[123] See observation by Okley B. (2004) at p.62 available at http//:www.digitalcommons@GeorgiaLaw/

capacity to access environmental data.[124] One wonders how it can effectively observe, measure, evaluate and analyze by recognized scientific means the risk or effects of pollution with limited environmental data. Consequently, Ghana's EIA information is to a significant extent based on the operator's EIA which could be substantially biased and may not necessarily respond to Ghana's duty to protect the marine environment.

The suggestion that these operators can't be trusted when it comes to relying on them for disinterested and accurate environmental data is not farfetched. Critics of the mining industry, an analogous industry in Ghana, that has operated for over fifty years and similarly requires an EIA for new projects argue that *"the mining towns of Obuasi, Tarkwa, Prestea, Konongo, Bibiani among others [these are mining towns in Ghana], provide a classic picture of the typical mining towns in Ghana. These towns are far from affluent, an aberration of what communities endowed with mineral resources, are or should look like. The towns are very much unlike other gold mining towns such as Johannesburg in South Africa, Noranda City in Ontario, Canada, Reno in the USA or Perth in Australia, where the scars of mining are sealed by the beauty and riches of these cities, built out of mining*[125]". The metaphor "scars of mining" used above, and taken in the context of the entire publication refers to the complete package of problems including environmental problems that mining bequeaths.

It is rather ironical that despite this observation, all the mining companies in Ghana were subjected to the environmental impact assessment processes detailed under the Environmental impact assessment regulations. It may seem that Ghana's effort so far is enough given the requirement for Ghana to "endeavor as far as practicable[126]", which can be interpreted to mean - Ghana's best means and abilities. This might suggest that since, as observed, Ghana is a developing Country; one could expect a modest effort in the conduct of EIA. I differ from this opinion, since, notwithstanding Ghana's circumstances, Ghana has options in this regard and may be able to practically fulfill this obligations by seeking technical assistance from the IMO

[124] Article 21, supra note 112 requires the Operator to train staff of the National oil company who are supposed to be regulators, this is clear indication of limited human and technical capacity.

[125] See the work of Akabzaa T. M.; Seyire J. S. and Afriyie K. (2008)

[126] Art 204(1), UNCLOS

and through bilateral assistance from developed countries. In my view, the current state of affairs does not demonstrate that these options have been fully explored.

4.5 Duty to Prevent Transboundary Pollution

The duty to prevent transboundary pollution as observed in article 194(2) requires States to take all measures necessary to ensure that activities under their jurisdiction and control does not damage the environment of other states. The use of jurisdiction and control puts into perspective Ghana's jurisdiction over hydrocarbon activities on its continental shelf under article 81 of UNCLOS and Ghana's control over the operator through the petroleum agreements it has executed. How has Ghana ensured that its activities do not damage the environment of other States? The practical effect of article 194(2) as observed in chapter three is that any decision in respect of the authorization of offshore hydrocarbon activity which affects neighboring states, in particular, must be based on an assessment of the possible transboundary harm caused by that activity, including any environmental impact assessment. Ghana's environmental impact assessment regulations require an assessment of transboundary impacts, but not much has been done in this regard. The operator of the Jubilee field; Tullow Ghana limited was very imprecise in its EIA report and gave room for a lot of doubt; it observed ""No significant transboundary impacts are expected to occur as a result of the project. The project is however located near the border with Cote d'Ivoire and ecological systems (e.g. fisheries, marine waters) are connected so some limited interaction may occur"[127]. This statement in my view is imprecise and further interrogation of its validity is required. There is therefore a need in my view, for Ghana, to undertake an independent assessment of transboundary effects in order to fulfill its international obligations of minimizing transboundary impacts.

So far there is no basis to conclude that the measures taken by Ghana to prevent reduce and control the marine environment, are such as to transfer, directly or indirectly, damage or hazards from one area to another or to transform one type of pollution to another. This possibility however is not totally ruled out: The operator in its EIA has spelt out various scientific and

[127] See African Development Bank, Jubilee Project, Summary of Environmental Impact Assessment, October 2009. Available at: http://www.afdb.org/fileadmin/uploads/afdb/Documents/Environmental-and-Social-Assessments/ghana%20_%20FSPO.pdf

technical measures for controlling pollution arising from its activities.[128] It is up to Ghana to conduct extensive research to ensure that these methods will not have wider implications for the marine environment.

4.6 Duty to Adopt Laws

Article 208(1) of UNCLOS requires Ghana in its capacity as a coastal state to adopt laws and regulations to reduce and control pollution of the marine environment arising from or in connection with sea bed activities subject to its jurisdiction. As observed in previous sections, Ghana has ratified the UNCLOS and MARPOL conventions which regulate sea bed activities. MARPOL is yet to be enacted into law even though Ghana is required to do so under the UNCLOS.[129] As Ghana is a dualist state, these ratification in themselves don't constitute "adoption of laws" if they are not part of or expressed within Ghana's legal system. As observed in chapter two, customary international law[130] is directly applicable to the Ghanaian context without incorporation and therefore MARPOL could apply as customary international law but that does not constitute an adoption of laws and regulations[131]. In any case, the case that MARPOL constitutes customary international law even though widely believed is not conclusive.[132] Also there is a paucity of judicial decisions on the legal effect of ratified international environmental law instruments that are yet to be incorporated into Ghanaian Law. The most relevant and recent decision discussed in chapter two (the case of NPP vs. IGP) concerned a human rights instrument and not IEL instrument and therefore can't be conclusive on this matter. In sum, Ghana has not been responsive in its obligation to enact legislation implementing the MARPOL agreement for the protection of the marine environment. The

[128] Ibid

[129] See article 211 (2) and (5) and note the particular reference to the phrase "Generally accepted international rules and standards established through the competent international organization or general diplomatic conference." It is widely believed that MARPOL implements the relevant provisions of the UNCLOS (article 211 and 220) see Birnie and Boyle (2009), 402

[130] There are grounds for treating MARPOL as a customary standard enforceable against vessels of all States see generally M'Gonigle and Zacher, Pollution, Politics and International Law,107ff

[131] Article 9 of Vienna Convention on the Law of Treaties "Adoption" is the formal act by which the form and content of a proposed treaty text are established. As a general rule, the adoption of the text of a treaty takes place through the expression of the consent of the states participating in the treaty-making process.

[132] See page 404, of supra note 124

initiation of the marine pollution bill and its proposed regulations is a step in the right direction but in any case is long overdue and does not save Ghana from its longstanding failure to fulfill its obligation under UNCLOS.

4.7 Marine Pollution Requirements

Even though MARPOL has not been formally implemented in Ghana through legislation, Ghana's practices reflect some MARPOL provisions. For example Ghana has created a Maritime Authority with a mandate to conduct port state inspections, prevent pollution and respond to pollution emergencies.[133] Port state inspections started in 2008, in response to Ghana's obligation under MARPOL. This is reflected in the Ghana Maritime Authority, 2011 report which stated "As part of further efforts to curb the issue of sub-standard vessels calling at our Ports, Ghana became a party to the Abuja Memorandum of Understanding (MOU)[134] on Port State Control for West and Central Africa which aims at eliminating the operations of sub-standard vessels within the sub-region" The Authority is mandated under the Abuja MOU to target 15% of foreign vessels that call at Ghanaian ports for PSC Inspections. In 2011, the Authority's marine surveyors conducted port state control inspections on 397 ships at the ports of Tema and Takoradi. These activities indicate some commitment to implementation of MARPOL provisions on port State Control. It is also commendable that Ghana is among the few West African states with port reception facilities in compliance with regulation 38 of MARPOL annex A[135]. All these achievement notwithstanding, the non -existence of an implementing national law creates serious doubts as to whether Ghana can fully implement its

[133] Act 630 of 2002

[134] The Abuja MOU is supposed to be an implementing agreement for IMO instruments in West Africa, section 2 of the MOU identifies the MARPOL as one of the relevant IMO instruments to which the MOU will give effect (see section 1 of MOU titled Commitments). Also note that the Abuja MOU was not considered as an Instrument in this study because of the unclear legal status of the MOU. According to Peter Ehlers (2008), the majority view is that an MOU is an international instrument but not as formal as a convention: There are several basis for this assertion: a) MOU does not create or establish new material requirements rather it set out cooperation regarding technical matters (b) Non conventional language is used in MOUs (c) Signatories may not be formal authorities of States (d) Lack of registration of MOUS by United Nations. The Abuja MOU are signed by Martime Authorities : see page 21 of MOU document. Also the entire section on "commitments": see section one, uses the word "will" widely known in legal drafting to denote futuristic intention.

[135] http://www.thestatesmanonline.com/pages/news_detail.php?newsid=4877&section=2

commitment under MARPOL. As observed, MARPOL requires that: "Any violation of the requirements of the convention within the jurisdiction of any party to the convention shall be prohibited and sanctions shall be established therefore under the law of that party"[136]. It is not clear how Ghana can implement this requirement when there are no national regulations that prescribe sanctions.

4.8 Emergency Preparedness and Response

Ghana has designated an institution to deal with oil emergency as required under article 6 of the OPRC. The Environmental Protection Agency as part of the Ministry of Science and Environment is the agency charged with oil spills in Ghana. It liaises with the Ghana Maritime Authority and Ghana Navy is required to provide a commander to coordinate the military in spills and clean up.[137] Ghana has a contingency plan[138] in accordance with article 6(b) of OPRC. Also the FPSO *Kwame Nkrumah* is required to have on board an oil pollution emergency plan in accordance with article 3 of the OPRC. Article 7 of the OPRC requires state to cooperate and provide advisory services, technical support and equipment for the purpose of responding to oil pollution emergency. The Abidjan Convention provides some indication of Ghana's commitment to this requirement.

There are however some indications of ineffectiveness in the implementation of OPRC. In the first place, the OPRC convention has not been enacted into national law; it is therefore difficult to apply specific sanctions for violations under Ghanaian law. Second, there are clear logistical inadequacies for emergency response. For example, Ghana's contingency plan has very little equipment and facilities to respond to oil spills. Also, the implementation of OPRC in Ghana will suffer from lack of institutional goal clarity. Under the Ghana Maritime Authority Law (GMA), the GMA is responsible for prevention of marine pollution but the EPA, as observed earlier, is the institution responsible for oil emergencies. The possibilities of role conflict and turf wars which may affect implementation can't be disputed.

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[136] Article 4, MARPOL

[137] see Ghana's Environmental profile at:

http://ec.europa.eu/development/icenter/repository/Ghana%20_CEP_2006.pdf

[138] Ibid

4.9 Regional Requirements

As observed in chapter three, the Abidjan Convention (AC) reflects in large measure obligations under the UNCLOS and IMO instruments. It is a key indication of Ghana's commitment to fulfill its duty under UNCLOS and MARPOL through regional cooperation. Ghana's compliance with the sea bed related provisions of the AC[139] need to be viewed within the context of the due diligence principle which requires Ghana to make reasonable efforts to inform itself of factual and legal components that relate foresee ably to hydrocarbon activity, and to take appropriate measures in timely fashion, to address them. In the context of sea bed activities, one wonders whether Ghana meets this due diligence obligation. With very limited baseline information on hydrocarbon activity, limited data on transboundary impacts, and failure to enact key legislation affecting hydrocarbon activity, it is hard to conclude that Ghana is responding to the very weighty due diligence duty.

4.10 Overview of Chapter Four

This chapter ascertained the extent to which Ghana's National laws and practices respond to the requirements for hydrocarbon activity under International Environmental Law. In general, Ghana has made some efforts with respect to all of these requirements. However, there is still significant shortfall particularly when it comes to implementation of these requirements.

[139] See article 8 of AC which provides that " Contracting Parties shall take all appropriate measures to prevent, reduce, combat and control pollution resulting from or in connection with activities relating to the exploration and exploitation of the sea-bed and its subsoil subject to their jurisdiction and from artificial islands, installations and structures under their jurisdiction"

5.0 CHAPTER 5 - RECCOMENDATIONS AND CONCLUSIONS

5.1 Recommendations

As observed, Ghana is doing well when it comes to performing its general duty of protecting and preserving the marine environment. A clear challenge is the lack of goal clarity amongst the various institutions tasked with this function which may possibly breed institutional conflict. As much as I support an inter- sectoral approach to pollution control, I advise that the roles of each institution and especially the policy making roles and the roles of implementing bodies, should be clearly defined and marked out to avoid conflict.

Ghana has a duty to cooperate with other states at all levels to protect and preserve the marine environment. Clearly, as demonstrated, Ghana falls short when it comes to regional initiatives to protect the marine environment against hydrocarbon activity. The Abidjan Convention as observed lacks teeth in terms of sanctions and adopts a rather general tone like the UNCLOS.

In any case, the legal force of the Abuja Memorandum of Understanding is doubtful as earlier observed. I advise that Ghana as a leading member of the Economic Community of West African States (ECOWAS) and through the assistance of the International Maritime Organization should initiate regional instruments that specifically tackle the issue of offshore hydrocarbon pollution., this will in large measure enable it to fulfill its general duty to protect the marine environment and to cooperate with other States to minimize the effects of hydrocarbon activity.

Also, since the Gulf of Guinea as demonstrated, falls within the definition of enclosed/semi enclosed area, I advise that such initiative should also widely target the Gulf of Guinea states to enable Ghana fulfill its obligation under article 123 of UNCLOS.

Ghana has a duty to prevent transboundary pollution.

To meet this duty effectively, I advise that Ghana initiate extensive consultations with neighboring countries on the effects of its hydrocarbon activity. More importantly, I recommend a joint impact assessment by Ghana and Ivory Coast (the closest Country) to ascertain the possible transboundary impacts of offshore oil and gas activities and mutually work out

measures with technical assistance from the IMO and other states on how to minimize transboundary impacts.

The duty to conduct environmental impact assessment and monitoring is so far being performed. What is needed is action to ensure that operators comply with the standards and methods set forth in the EIA for the protection of the marine environment. As observed, Ghana has limited capacity in this regard. I advise that Ghana seeks technical assistance from other States to improve collection, storage and evaluation of environmental data so as to obtain adequate baseline data against which activities of operators could be measured.
Also, international bodies with expertise should support Ghana and other African countries to create databases to enhance networking and collaboration between Ghana and other African states. This will allow countries within the region to exchange and share experiences on implementation.

Ghana has a duty to adopt laws. However as observed, the MARPOL and OPRC, both important environmental treaties affecting the offshore hydrocarbon industry, are yet to be enacted into law. I advise that Ghana should speed up its implementation of MARPOL and OPRC in domestic laws. This will enable Ghana to implement the sanctions provided for by MARPOL under article 4 and also meet the requirements to take appropriate measures to prevent pollution from sea bed activities as required under the Abidjan Convention.

Finally, I strongly recommend that Ghana should emulate South Africa, whose constitution confers on every citizen the right to an environment that is not harmful to health or well-being[140]. The right to have the environment protected for the benefit of the present and future generations through reasonable legislative and other measures that: a) prevent pollution and ecological degradation b) promote conservation, c) secure ecological sustainable development and use of natural resources whilst promoting justifiable economic and social development. Such a provision will to a large extent compel government to enact laws that will protect the marine

[140] See Constitution of South Africa. art 86-87

environment form pollution and strengthen the hand of the Court in enforcing environmental legislation.[141]

5.2 Conclusion

The advent of hydrocarbon exploration and exploitation on Ghana's continental shelf comes with serious environmental impact and by consequence imposes environmental legal obligations on Ghana. Ghana has so far made some efforts to meet these obligations. This is expressed through a) a comprehensive environmental impact assessment regime b) ratification of some relevant International Conventions such as the MARPOL, OPRC and the UNCLOS (c) creation of Institutions with mandate to prepare and respond to pollution emergency, and generally including environmental requirements in petroleum agreement. What are lacking are : a) an adequate national regulatory environment to give teeth to these ratified instruments b) a coherent institutional framework for implementation borne out of goal clarity among implementing Institutions c) Logistical and technological capacity and to some extent initiative to vigorously pursue regional cooperation.

The work has suggested some recommendations to help fix these challenges. If effected, it is my view, that Ghana can significantly control the environmental impacts of its young hydrocarbon industry.

[141] Article 1 of 1992 Constitution of Ghana makes that the Ghanaian Constitution the highest law of the land

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