

CRITICAL ANALYSIS OF THE ENVIRONMENTAL LEGAL REGIME
GOVERNING OIL AND GAS EXPLORATION IN INDIA WITH SPECIAL
EMPHASIS ON CORPORATE SOCIAL RESPONSIBILITY

*This Dissertation is submitted in partial fulfillment of the requirement
for the award of degree of Masters of Laws*

In

School of Legal Studies

(2020-2021)

Submitted by Bhavya Upadhyay

Roll no. 1200990034

Submitted under the guidance of Ms. Sonali Yadav (Assistant Professor)



BBD UNIVERSITY

(2020-2021)

Acknowledgement

This dissertation is a culmination of work done in pursuit of the **LLM degree at Babu Banarasi Das University, Lucknow**. There are so many to whom I am obligated for having helped me reach this terminus. First mention must go to my dissertation advisor, **Ms. Sonali Yadav**, whose mentoring has set a lifelong standard to aspire towards.

Further, I am indebted to *Ms. Sushmita Haldar* under whose guidance I learned the nuances of Petroleum sector during my course of LLB. I would also like to thank my mother, *Mrs. Amita Singh Upadhyay*, my father, *Mr. Suresh Upadhyay* and my dearest brother, *Mr. Adanya Upadhyay*, who have always supported and prayed for my success in everything I have undertaken.

Moreover, I want to thank my childhood friend *Mr. Akashdeep Maheshwari* without whose efforts and guidance the research for this dissertation wouldn't have been complete.

Thanks A lot.

Declaration

I DECLARE THAT THE DISSERTATION ENTITLED “CRITICAL ANALYSIS OF THE ENVIRONMENTAL LEGAL REGIME GOVERNING OIL AND GAS EXPLORATION IN INDIA WITH SPECIAL EMPHASIS ON CORPORATE SOCIAL RESPONSIBILITY“ IS THE OUTCOME OF MY OWN WORK CONDUCTED UNDER THE SUPERVISION OF THE ASSISTANT PROFESSOR **MS. SONALI YADAV** AT THE SCHOOL OF LEGAL STUDIES, BBD UNIVERSITY, LUCKNOW.

I DECLARE THAT THE DISSERTATION COMPRISES ONLY OF MY ORIGINAL WORK AND A DUE ACKNOWLEDGMENT AND REFERENCE HAS BEEN MADE TO ALL OTHER MATERIAL USED.

SIGNATURE:

BHAVYA UPADHYAY

Research Methodology

Analytical method will applicable be adopted, in which the researcher will analysis the existing domestic laws, international conventions and case analyses to prove or disprove the hypothesis.

The sources of data collection shall be as follows:

- a) Primary Data: The policies, procedures and legislations shall be analyzed along with case studies in this area.
- b) Secondary Data: Various articles, books, lectures, case law, case study and research papers shall be analysed and referred from authors all over the world to analyze the environmental impact of the oil and gas operation and the role of law to maintain a balance between economic development and environmental protection.

Table of Contents

ABBREVIATIONS.....	7
❖ CHAPTER I- Introduction (9-14)	
1.1 Statement of the Problem.....	9
1.2 Survey of the Existing Literature.....	9
1.3 Identification of the Issues.....	11
1.4 Scope of the Research.....	11
1.5 Research Methodology.....	12
1.6 Hypothesis.....	12
1.7 Probable Outcome.....	12
1.8 Scheme of Chapters.....	12
❖ CHAPTER II- Oil & Gas: Upstream Sector (15-31)	
2.1 Evolution of the Oil and Gas Sector.....	15
2.2 Exploration Activities.....	22
❖ CHAPTER III- Indian Legal Regime for Offshore and Onshore Oil & Gas Exploration (32-52)	
3.1 Laws and Regulations Governing the Sector.....	33
3.2 Exploration and Licensing Policies in India.....	39
3.3 Government Bodies in the Oil and Gas Sector.....	45
3.4 Multiple Clearances from the Line Ministries.....	49
❖ CHAPTER IV- International and Regional Conventions for Offshore Oil & Gas Exploration (53-66)	
4.1 Position before the UNCLOS III, 1982.....	54
4.2 The Territorial Sea.....	59
4.3 The Contiguous Zone.....	59
4.4 The Exclusive Economic Zone.....	60
4.5 The Continental Shelf.....	62
4.6 The High Seas.....	64
4.7 Protection and Preservation of Marine Environment from Pollution.....	65

❖ CHAPTER V- International Environmental Legal Principles Governing Domestic Oil and Gas Sector (67-74)	
5.1 Introduction.....	67
5.2 General Principles of International Law Governing Resource Exploitation and Protection of the Environment.....	69
❖ CHAPTER VI- Corporate Social Responsibility and the Environment (75-85)	
6.1 Evolution of Sustainable Development and Corporate Sustainability.....	75
6.2 Measures towards CSR Management.....	79
6.3 Corporate Sustainability Reporting.....	81
6.4 Financial Impact of Climate Change Mitigation Policies.....	83
6.5 Oil and Gas Sector and Corporate Social Responsibility.....	84
❖ CHAPTER VII- Way Forward (86-90)	
7.1 Case Study on United Kingdom.....	86
7.2 Analysis.....	90
❖ CHAPTER VIII- Conclusion and Suggestions (91-92)	
BIBLIOGRAPHY.....	93

Abbreviations

AOC	:	Assam Oil Company
ACOP	:	Approved Codes of Practice
AR&T Co. Ltd.	:	Assam Railways and Trading Company Limited
BCM	:	Billion Cubic Metre
BEIS	:	Business Energy and Industrial Strategy
BOC	:	Burma Oil Company
CAG	:	Comptroller and Auditor General
CERA	:	Cambridge Energy Research Associates
CCI	:	Competition Commission of India
CSR	:	Corporate Social Responsibility
DECC	:	Department for Energy and Climate Change
DGH	:	Directorate General of Hydrocarbons
ED	:	Energy Division
EEZ	:	Exclusive Economic Zone
EIA	:	Environmental Impact Assessment
E&P	:	Exploration & Production
HELP	:	Hydrocarbon Exploration Licensing Policy
HPCL	:	Hindustan Petroleum Corporation Limited
HSE	:	Health and Safety Executive
HSWA	:	Health & Safety at Work Act 1974
LNG	:	Liquefied Natural Gas
MARPOL	:	International Convention for the Prevention of Pollution from Ships, 1973
MoDUs	:	Mobile Offshore Drilling Units
MoEF	:	Ministry of Environment and Forests
MOPNG	:	Ministry of Petroleum and Natural Gas
MPSC	:	Model Production Sharing Contract
NADF	:	Non-Aqueous Drilling Fluids

NELP	:	New Exploration Licensing Policy
NIB	:	National Investment Board
OIL	:	Oil India Ltd.
ONGC	:	Oil and Natural Gas Corporation Ltd.
OSDR	:	Offshore Safety Directive Regulator
PNGRB	:	Petroleum and Natural Gas Regulatory Board
PSUs	:	Public Sector Utilities
RIL	:	Reliance Industries Limited
RSNT	:	Revised Single National Text
TERI	:	The Energy and Resources Institute
UNCLOS	:	United Nations Convention on the Law of the Sea
UNEP	:	United Nations Environment Program
USSR	:	Union of Soviet Socialist Republic
WBDF	:	Water-Based Drilling Fluids

CHAPTER I

INTRODUCTION

Corporate social responsibility (CSR) has become a business imperative. According to the Business for Social Responsibility (2000), CSR is operating a business in a manner that meets or exceeds the ethical, legal, commercial, and public expectations that society has of business. Social responsibility is a guiding principle for every decision made and in every area of a business. Today, firms are experiencing great pressure from stakeholders to integrate social and environmental concerns into their business decisions and strategies. Oil and Gas sector has a major impact upon the environment and needs a thorough study.

I. STATEMENT OF THE PROBLEM

The researcher will review and analyses various environmental issues faced in the operation of the oil and gas sector. Further, the shortfall and lacuna in the law will be analysed to understand the change that needs to be brought about to ensure sustainable development of the oil and gas sector along with an emphasis upon the Corporate Sector and its duties towards the environment by way of CSR.

II. SURVEY OF THE EXISTING LITERATURE

1. Satyendra Kr. Sharma, LAW OF SEA AND EXCLUSIVE ECONOMIC ZONE (Taxmann Publication)

This book provides an insight into the development laws related with the high seas and also a detailed analysis of the United Nations Convention on Law of Sea along with the environmental aspect including the protection and preservation of the marine environment.

2. Bhat, NATURAL RESOURCES CONSERVATION LAW (Sage Law Publication)

This book provides for a detailed analyses of Indian Environmental Law along with the International law principles, constitutional law principles and the

common law principles which include the Sustainable Development and resource conservation among others.

3. Pulak Das, *Environmental Management in Oil and Gas Upstream Industry in India*, JOURNAL OF INDUSTRIAL POLLUTION CONTROL (2013), Available at : <http://www.icontrolpollution.com/articles/environmental-management-in-oil-and-gas-upstreamindustry-in-india-.php?aid=45300>

This article provides for the legal framework dealing with the environmental impact of operations in the upstream sector along with providing the impacts of the activities and other environmental issues related with this area.

4. Anmol Soni & Anomitra Chatterjee, *Governance of Petroleum and Natural Gas Sector in India: A Status Note*, The Energy and Resource Institute, Available at: <http://www.teriin.org/projects/nfa/2008-2013/pdf/working-paper-15-Governance-of-the-petroleum-and-natural-gas-sector-in-india-a-status-note.pdf>

In this working paper an overview has been provided of the structure of governance of the Indian Oil and Gas sector along with a diversification of the upstream, midstream and the downstream sector.

5. *IL&FS Ecosmart Ltd., TECHNICAL EIA GUIDANCE MANUAL FOR OFFSHORE AND ONSHORE OIL AND GAS EXPLORATION, DEVELOPMENT AND PRODUCTION FOR THE MINISTRY OF ENVIRONMENT AND FOREST*, August 2010 Available at: http://environmentclearance.nic.in/writereaddata/Form1A/HomeLinks/TGM_Offshore%20Onshore_010910_NK.pdf

This manual provides for the conceptual facets related with Environment in the context of Environmental Impact Assessment along with throwing light upon the various forms of environmental impacts caused along with stating the risk potential and the roles and responsibilities of the stakeholders.

6. Sergei Vinogradov, *Environmental Protection in the Petroleum Industry*, Hydrocarbons: Economics, Policies and Legislation, Volume IV. Available at: http://www.treccani.it/export/sites/default/Portale/sito/altre_aree/Tecnologia_e_Scienze_applicate/enciclopedia/inglese/inglese_vol_4/507-524_x10.3x_ing.pdf

The article provides for the various international legal principles applicable upon the petroleum sector and provides for the different impacts

III. IDENTIFICATION OF THE ISSUES

1. What are the various environmental issues faced by the oil and gas sector, including offshore operation?
2. Are the applicable Indian law governing the upstream oil and gas sector sufficient to ensure environmental protection and sustainable development?
3. Has the Government of India fulfilled its obligations under international law regarding protecting and preserving of the environment, including offshore environment affected by oil and gas operations.
4. Whether there exists a need to revise, amend or enact new law in India to cater to the environmental demand of oil and gas operations?

IV. SCOPE OF THE RESEARCH

In conducting the study, the researcher will analyse the various environmental laws applicable to oil and gas operations, including offshore operation in India. Further, various international conventions and treaties to the extent they are applicable to oil and gas operations will be reviewed and analyzed to understand the global prospective and India's obligation under international law. The researcher will also analyse the laws applicable to developed nationals, such as UK and EU, to understand how India as a country can learn from others mistakes and experiences. The researcher will analyze existing case laws, both national and international to understand the trend and changes that need to be brought about to ensure a balance between environmental protection and oil and gas operation. Further, the researcher will review some of cases of environmental disaster arising from offshore operation and analyse the learning from the same.

In conducting the research special emphasis will be made on the various environmental, social and economic impact arising from such oil and gas operation and the way forward for India.

V. RESEARCH METHODOLOGY

Analytical method will applicable be adopted, in which the researcher will analysis the existing domestic laws, international conventions and case analyses to prove or disprove the hypothesis.

VI. HYPOTHESIS

The existing environmental legal regime governing oil and gas operation, especially offshore oil and gas operation needs to be revised to ensure a sustainable economic development and environmental protection. In proving or disproving the hypothesis, the researcher will analyse the various domestic law, cases, international conventions and case study to bring out the effectiveness of the domestic law applicable to oil and gas operation and whether there is a need to make change.

VII. PROBABLE OUTCOME

- The author shall try to establish a *status quo* regarding the effectiveness of the legal regime in place and its implications.
- The author shall suggest the relevant legislative reforms required to be undertaken for a better protection of the environment from oil and gas operation, including offshore operation.

VIII. SCHEME OF CHAPTERS

1. Introduction to Oil & Gas: Upstream oil and gas sector

This chapter will analyse the oil and gas sector in general, and will focus on the nature of the operation and the environmental impact such operations have on environment. Domestic and internal cases dealing with the issues of environmental impact of oil and gas operation will be reviewed and discussed to understand the impact of such operations on environment.

2. Indian Legal regime for offshore and onshore Oil & Gas exploration

This chapter shall deal laws applicable to the offshore and onshore exploration of oil and gas in India. It shall emphasis upon the domestic legislations such as The Oilfields (Regulation and Development) Act, 1948, The Territorial Waters, Continental Shelf, Exclusive Economic Zones and other maritime Zones Act, 1976 and EIA Notification 2006, Production Sharing contract and Revenue Sharing Contract, among others, which mandate environmental impact assessment along with environmental management. A special emphasis shall be upon the shelf-ecosystem, marine ecosystem and the biological resources and a greater need for environmental protection.

3. International and Regional Conventions for offshore Oil & Gas exploration

This chapter shall require the analysis of various conventions governing the offshore exploration activities with an emphasis on the environmental aspect. It shall also provide a detailed analysis of the International Conventions such as UNCLOS 1982, The London Convention 1972, MARPOL 73/78, OPRC 1990, SOLAS 1974 among others. Further, case study will be undertaken on major environmental disaster that has happened in the last decade arising out of oil and gas operations, to understand the issue and the need for change.

4. International Environmental Legal Principles governing domestic Oil & Gas sector

This chapter shall focus upon analyzing whether the upstream sector of India is functions towards providing a sustainable environment for the future generations. In this regard, the researcher will analyse the existing situation under the domestic law to understand whether India has met its obligation under domestic and international law. The chapter will anslyse whether India has achieved its sustainable development goals (SDGs) efficiently or there exists a requirement for the stakeholders to take further precautionary measures. In this regard, various other principles applicable, such as the polluter pays principle, the precautionary

principle, the principle of prevention, among others will be reviewed and analysed in view of oil and gas operation. It shall also focus upon case studies of impact upon the environment as caused due to exploration activities, including the impact upon the marine ecosystem by SONAR waves among others.

5. Corporate Social Responsibility and the Environment

This chapter shall deal with the various sustainability measures in place and the implementation of achieving the Sustainable Development goals by the corporate sector. A special emphasis shall be made upon the companies in the Oil and Gas sector.

6. Way Forward

In this chapter, the outcome of the analysis of various laws and case study will be put forward. The researcher will put forward its view on the viability and workability of the existing law. Further, discussion will be undertaken on whether the existing law applicable to oil and gas operation needs to be revised or amended to ensure a balance between economic development and environmental protection.

7. Conclusion and Suggestions

This chapter shall provide a comprehensive overview of the environmental issues faced in the oil gas operation and the author's view on how a balance could be maintained between economic development and oil and gas operation.

CHAPTER II

OIL & GAS: UPSTREAM SECTOR

I. Evolution of the Oil and Gas Sector

North East saw the beginning of this sector, in its dense forests, marshes and river valleys Lt. R. Wilcox, Major A. White, Capt. Francis Jenkins, Capt. P. S. Hannay, W. Griffith and W. Licut Bigge saw petroleum seepages from the banks of the river Dihing. Such seepages were witnessed in the areas of upper Assam by members of the Geological Survey of India, Mr. C.A. Bruce in 1828 and Mr. H.B. Medicott in 1865.

The first oil well was drilled in 1859 at Titusville, Pennsylvania, USA and seven years later Mr. Good enough of McKillop, Stewart and Company, Calcutta drilled a hand-dug well at Nahorpung near Jaipur area of Upper Assam which was of 102 feet, but not enough production occurred. In 1867, he made a second attempt in which oil got struck at 118 feet, this was Asia's first mechanically drilled well at Makum near Margherita area of Upper Assam.

In the year, 1867 Assam Railways and Trading Company Limited (AR&T Co. Ltd.) were constructing railway line and a herd of elephants returned to the camp with their feet all drenched with oil at the night time. These lead men to the spot where there were a lot of seepages, the English owner cried out to his men "Dig boy, Dig", hence the name Digboi. This field got registered in London and lead to the first commercial oil production with 200 gallons per day. They also acquired 77.7 sq. km petroleum rights concessions in the Makum area and by 1893 10 wells were drilled at Digboi which produced about 757.08 ltrs/day. Assam Oil Company was established which took over the petroleum interests of AR&T Co. Ltd.. They set up a small refinery at Margharita area of upper assam to refine the oil from Digboi field. Systematic drilling began in 1891 and in 1901 Asia's first Oil refinery was set up at Digboi which is still functional and is the World's oldest operating refinery.

AOC became technically and financially impotent due to various managerial reasons and Burma Oil Company, a UK based company took over AOC after acquiring Oil interests from Budarpore Oil Co. Ltd.

India adopted the technique of Torsion balance for geophysical surveys of oil which was used a lot in Assam. Also, Tata Engineering co. drilled various wells in Jagatia, Gujarat which led to production of small quantities of Gas in 1930s. In 1937, A new form of grant was issued by the Assam govt. known as the geophysical license after BOC along with British Petroleum (then Anglo Iranian Oil Co.) and Shell proposed to carry out geophysical surveys in important plain areas of India. Seismic Surveys became successful hence geophysical method got popular in oil exploration 1937 onwards.

After Independence, while framing Industrial Policy 1948, development of petroleum industry in the country was given top priority.

By 1948, geophysical surveys started in Cambay basin and first oil discovery after independence was made in 1953 and then in 1956 by AOC. Burma Oil company remained the largest co. in oil industry after independence until the end of its operation.

During 1955-56, Mr. K.D. Malviya, Minister of Natural resources made various expeditions for studying the Oil Industry in European countries for the training of Indian Professionals, various foreign experts came to India and along with the help of USSR a detail plan for geological and geophysical survey and drilling plan was introduced in the 2nd five year plan (1956-57 & 1960-61).

With an objective "to plan ,promote, organize and implement programs for development of Petroleum Resources and the production and sale of petroleum and petroleum products produced by it, and to perform such other function as the central government may, from time to time, assign to it", Oil and Natural Gas Directorate was set up in 1955, which was given the status of a commission in early 1956 and made a statutory body namely Oil and Natural Gas Corporation Ltd. in October 1959, still remaining under the Ministry of Natural Resources and Scientific Research. ONGC started its surveys and made various successful discoveries in Cambay, Gujarat, Kalol, Lakwa, Geleki during 1960-68 and also Gas discoveries in Rajasthan in 1969.

During all this, on 18th February 1959 Oil India Pvt. Ltd. was incorporated as a rupee company for handling affairs of Burma Oil Co. in Assam, it was owned 2/3rd by BOC/AOC and 1/3rd by the Government of India, but in 1961 they became equal partners.

Started as an experimental seismic survey in 1962 in Gulf of Cambay and later on Western Offshore, in 1972-73 drilling lead to biggest commercial discovery, The Bombay High . This encouraged explorations in western as well as eastern off-shores, and by the end of 1980s ONGC along with OIL had drilled about 4.9 million metres which included 3100 wells. ONGC started with surveys in UP, Bihar, Tamil Nadu, Rajasthan, J&K, Kutch and Andhra. Along with the Cauvery and KG basin, ONGC discovered one of India's biggest gas find in the Bassein fields off Bombay Shore of 283.17 BCM, also mid-Tapti, south-Tapti and B-55.

In 1978, OIL ventured out of Assam into Orissa offshore and onshore, Andamans offshore and Rajasthan onshore.

Until the end of 1970s the Indian oil industry was dominated by the two National Oil Companies, ONGC and OIL, also the areas were limited to land and shallow offshore, hence government made a strategic move to attract foreign investment and technology by offering 32 exploration blocks (17 offshore and 15 onshore) through a systematic bidding process. These rounds known as Pre- NELP rounds were not very successful during the first three times (1980-1986).

OIL and ONGC kept exploring and made various Gas discoveries till 1989.

In 1990, Government conducted 4th round of bidding and Indian companies were also allowed to participate along with foreign companies, however it lead to no major discoveries. In 1991, GoI adopted liberalized economic policy that led to de-licensing of core group including petroleum sector and partial dis-investment of government share including other measures. And ONGC was re-organised as a Limited Co. under the Company's Act, 1956. By, 1996 five rounds of bidding had been conducted offering 126 blocks, and besides National Oil Companies and Indian Pvt. Companies, various other

companies like Shell, Enron, Amoco and Occidental participated and contracts were awarded to them.

Governmental efforts during 1991-1996 paved way for setting up Oil and Gas sector in India which further became more streamlined, various private players like Hindustan Oil Exploration Company also joined.

To oversee and review the development programs related to the oilfield, an upstream regulatory body was formed, namely Directorate General of Hydrocarbons vide Governmental resolution dated 8th of April, 1993.

After the Nomination Era till late 1970s, Pre-NELP exploration era(1980-95) and Pre-NELP Field rounds (1993-94), a policy called New Exploration Licensing Policy was approved in 1997 and got effective from February 1999.

The Oil and Gas industry can broadly be divided into three parts: Upstream, Midstream and Downstream.

The Upstream segment includes the exploration and production of oil and gas, the Midstream deals with the transportation of Crude Oil petroleum products, transportation of Natural Gas and Liquefied Natural Gas receiving terminals and the downstream deals with the refining, gas processing and marketing of Oil & Gas to the ultimate consumers.

Hydrocarbons are organic compounds made up entirely of Hydrogen and Carbon, and majority of them occur as a mixture on earth naturally in the form of Crude Oil. When the carbon-hydrogen and carbon-carbon bonds are broken and recombined into carbon-oxygen and Hydrogen-oxygen bonds, energy is produced.

Natural Gas is a mixture of Hydrocarbon gases, primarily methane but includes varying amounts of other higher alkanes, and sometimes also a small percentage of Carbon dioxide, nitrogen, hydrogen sulfide or helium.

Petroleum and Natural Gas are a major source of energy all over the world, and in India it accounts for nearly 40% of the total energy demand it is the second largest consumed source of energy after Coal and there is a lot of manpower as well as machinery involved in various companies all over the world for the process of exploration, development,

production as well as decommissioning. This process involves huge number of legislations for onshore as well as offshore mechanisms to be initiated and they are to be complied with until the decommissioning is complete and the area is brought to its original state.

Even though both petroleum and natural gas are completely different products, the process to extract them is carried out in a similar manner as detailed below:- ¹

Phase I- Exploration Phase

This phase is the first step in the process and this basically is the period when search is made for prospective oil or gas fields. It is a high risk activity and various international oil and gas companies have huge portfolios for the same including their own geologists and various probabilities of finding oil or gas. Political conditions, fiscal conditions, geological Conditions and also legislations are to be considered while starting an exploration project in a particular country. Generally, companies work on a prospective area for a long duration before an exploration well is drilled and investments for this phase starts many years in advance based upon a few scenarios which justify the possibility of eventual production.

Phase II- Appraisal Phase

This is the step which includes assessing the potential of the field which has encountered hydrocarbons after exploration, keeping in mind two possible options:-

- Development can be started and income be generated in a shorter duration but it risks the possibility of the field turning out to be smaller or larger than expected which may lead to the facilities getting over or being left unutilized.
- Appraisal program can be initiated to estimate the producible volumes and even though it may increase the initial investment and also add to the time period before first production is made, it shall reduce the uncertainty as to the overall profitability of the project.

¹ Frank Jahn et al., HYDROCARBON EXPLORATION AND PRODUCTION 5-9 (Elsevier 1998).

Phase III- *Planning for Development*

After it has been assessed that at least one of the options are economically feasible, a plan for making field development can now be formed and executed. This planning includes discussing the various ways of making a new field development and starting the production.

Requirements of a field development plan include Objectives, Petroleum Engineering Data, Principles of Operations and Maintenance, Engineering facilities, estimation of cost and manpower, project planning and budgeting.

After the development plan is finalized the other requirements are the designing of facilities, gathering the materials required for construction, constructing and installing the facilities and finally bringing it into state of functionality.

Phase IV- *Phase of Producing Petroleum or Gas*

This is the time when the production has actually begun and the cash flow has started, the product is generating cash and all the previous debts can now be paid. One of the major goals of such a venture is to minimize the time period between Phase I and the current phase, as this shall lead to lesser amount of investment.

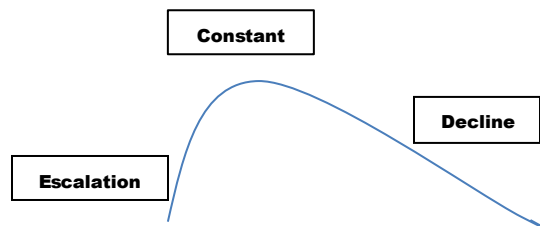


Figure 1.0- Phases of Production

This phase basically consists of three different periods which are depicted in Fig. 1.0

1. Escalation Period- This period marks the increase in production as this is the first period after the 'first oil' is taken out, during this period the production is gearing up as the wells are newly drilled.

2. Constant Period- This period begins when the production reaches its peak and is made to remain persistent, because now new wells are being drilled up but the old ones gradually begin to dry.
3. Decline Period- This period begins when the production can no longer be kept at a constant rate, this is usually the longest period and is the final stage of the production phase.

Phase V- Decommissioning of the field

Once it is witnessed that the production can no longer be carried on without loss and it can only be carried forward by paying more for producing than what shall be financially profited then the field is finally planned to be decommissioned. Companies try two methods before finally leading to decommissioning, they can either lessen the operating costs by reducing the labour or the transport costs etc. or they may find ways of increasing the amount of hydrocarbon being processed by enhancing recovery by using various chemical methods also including various recent advances in the field.² After all the methods of postponing the process related to finally stopping the production have been tried and applied, the company has no option but to decommission the field and deplete the economically recoverable resources.

There are policies and regulations governing the upstream, midstream as well as the downstream industry and also various policies having a future vision, policies related to the licensing and also development of pipelines and further setting up the distribution networks, all these laws shall be analyzed in the paper and also the regulatory bodies in these sectors shall be discussed.

Also, the environment is affected a lot when an exploration activity is started, drilling is conducted then production is made and up till the decommissioning of the setup and also its after effects if proper precautions are not taken up and for the same Environmental Impact Assessment is conducted which has proved being really beneficial and from being used only as a defense mechanism or meeting up the requirements of legislations in

² A. Gurgel et. al., *A Review on Chemical Flooding methods applied in Enhanced Oil Recovery*, BRAZ. J. PETROL. GAS, 2008, at 83, 83

various countries, now it is also being used for restoring the field and for increasing the business as it is increasingly becoming scrutinized by the public due to the awareness and availability of information on public domains. This paper shall provide an in depth knowledge of the process and also the concerns still faced by the environment and suggest solutions for the same.

Various legislations prevail in India and abroad which govern this process and look towards its fulfillment, they shall be critically analyzed and it shall also be accessed that how beneficial they have been for the environment and various case studies shall be discussed.

The primary products of the Oil and Gas sector are crude oil, natural gas liquids, and the natural gas, the present chapter elaborates upon the upstream oil and gas sector, i.e. exploration and production process.

II. Exploration Activities

i. Exploration Surveying

The first stage involves the search for hydrocarbon bearing rock formations, and the geological maps are reviewed in the desk studies for the purpose of identifying major sedimentary basins. Another manner for identifying basins which give promising landscape formations such as faults or anticlines whereby Oil and Gas can possibly exist.

Moreover, better detailed information is assembled by way of using a field geological assessment, followed by one of the three main survey methods: magnetic, gravimetric and seismic.

The magnetic method depends upon measuring the variations in intensity of the magnetic field which then reflects the magnetic character of the various rocks which are present, the gravimetric method on the other hand involves measuring the small variations in the gravitational field present at the surface of the earth.

Measurements are made, on land and at sea, using an aircraft or a survey ship respectively. And the most common manner of assessment are the seismic methods, they exactly pin point upon the potential hydrocarbon reserves in geological formations. It uses the reflection of sound waves for identifying sub surface

geological structures. These surveys are conducted by way of generation of seismic waves through a variety of sources such as explosives which are detonated in shot holes below the surface, vibroseis machinery which is a vibrating pad which is lowered from the water surface up to the ground by way of a vibroseis truck among others. A series of sensors are used for the purpose of measuring the reflected seismic waves, these sensors are known as the geophones which are laid out in series on the surface.

The modern marine seismic surveys now include as many as sixteen streamers, which are cables containing the hydrophones used to detect the sound reflected from the subsurface, these are towed behind the seismic vessel at a depth of 5m to 10m, each of these cables being as long as 8km to 10km. In addition to the hydrophone array, the vessel tows the seismic sources comprising of a huge number of air guns which discharge sound bursts of between 200 decibels to 250 decibels downward. These sound bursts when repeated on an average of every 6 to 10 seconds, are reflected off deep geological formations and recorded by the hydrophone arrays.

ii. Exploration Drilling

Exploratory drilling activities onshore and offshore follow the observation of seismic data to verify and quantify the quantity and extent of oil and gas resources from the potential formations which provide a prospect for production. The exploratory boreholes are mostly drilled to confirm the presence of hydrocarbons and assess the thickness of a prospective reservoir. However, some are also made for gaining knowledge regarding the geological formations below the ground. All wells that are made to discover hydrocarbons are called 'exploration' wells. The characteristics of the underlying geological formation are responsible for the location of a drill site. For onshore operations, a well-pad is dug at the chosen location to accommodate a drilling rig, attached equipment and supporting related services. A pad for every exploration well required about four thousand to fifteen thousand square meter (m²). The type of construction of the pad depends on soil conditions, terrain, and seasonal constraints. The drilling rig with the other support related services are transported to site, in the form of modules and assemble. Typical drilling rig modules, include a drilling mud, derrick, power

generators, handling equipment, cementing equipment and container for fuel and water.

A variety of self-sufficient Mobile Offshore Drilling units (MODUs) are used for operations over water, which is dependent upon the depth of the water, prevailing meteorological conditions, - particularly wave height, wind speed and current speed along with the seabed conditions.

The various types of offshore drilling rigs which are mobile and are used in the industry are:

- a) Jack-up rigs: They are apt for shallow water upto hundred metre in depth and made to reach the location by the propulsion of their own, or towed by tugs. Once they reach the location, hydraulic or electric jacks lower the legs to the seafloor, three or four in number, to support the drilling platform which is present above the water.
- b) Semi-submersible rigs: They are apt for deep waters and are made to get transported to the location by their own propulsion, or by way of towing by tugs. The hull is semi-submerged and rig which is made is to be held at a proper place by anchors in a series.
- c) Submersible rigs: These are limited to shallow waters and are made to reach the location by towing. Two hulls make one submersible rig: an upper hull, which is a platform, and lower hull which is filled by water and is made to submerge to the seafloor.
- d) Floating platform as drilling barges: These are suitable for shallow waters, areas where tide and the river current meet like an estuary, lakes, swamps, marshes and rivers. But are not suitable for deep water or open waters. These are also made to reach the location by towing.
- e) Drill ships: They are made for drilling in locations of deep waters. Drilling platform is used for drilling and derrick is also used which is positioned in the deck's middle part, from which drill stems are lowered through a hole in the hull , also called the moonhole.

Once reached the location, a series of sections of wells of decreasing diameter shall be drilled from the rig. And then a drill bit, along with it being attached to the drill string

suspended through the rig's derrick, is rotated while in the well. Drill collars are also attached to add weight and the drilling fluids are circulated through the drill string for cleaning and pumped through the drill bit. The time that is required to drill a bore hole usually depends upon the depth of the formation which is bearing it and also the geological conditions, but it is mostly one or two months of drilling operations to reach a fixed conclusion regarding presence of hydrocarbons. When a hydrocarbon formation is found, then initial well tests begin which possibly last another one month, they are conducted for establishing the rate of flow and for knowing the formation pressure to check that whether it is sufficient for investing into production or not. These tests require disposing off of the oil, gas and formation water.

After initial testing conducted after drilling, the rig is generally dismantled and is then moved to the next site. The exploratory drilling which has discovered hydrocarbons in a commercial quantity, upon it a wellhead valve assembly is made to be installed. And if the well is not containing hydrocarbons enough for commercialization, the site is decommissioned and is made to remain safe and in a stable condition and if agreed is restored to its original state or for after use. The Open rock formations are sealed by way of cement plugs for preventing upward migration of the wellbore fluids. The top joint of the casings and the casing of the well head are cut below the ground level and capped with a cement plug.

iii. Drilling Fluids

The drilling fluids which are used in the drill rig have a number of functions. It works towards imparting hydraulic force which assists the drill bit in having a cutting action and it also cools down the bit, it also removes cutting rock from the wellbore along with protecting the well against the formation of pressures which may arise. After each of the well section has been drilled, a steel casing is made to run into the hole and it is cemented into place for preventing well from collapsing. When the drilling leads to reaching upto the reservoir, the well may be completed and tested by way of running an equipment and production liner to flow the hydrocarbons up to the surface for establishing reservoir properties at a test

separator. There are a number of drilling fluids which are available, but they can be categorized into the following fluid systems:

- a) Water-Based Drilling Fluids (WBDF): Fluids where seawater or a water miscible fluid is the continuous phase and suspending medium for solids. These have various variations such as salt-polymer, gel, salt-glycol and salt-silicate fluids;
- b) Non-Aqueous Drilling Fluids (NADF): An oil based, synthetic based or enhanced mineral oil based fluid is used for the purpose as immiscible fluid when the continuous phase and suspending medium for solids is a water. Fluids which are diesel based are also used, but use of systems which contain diesel as the main component of the liquid phase are not considered a practically good practice at present for the purpose of offshore drilling programs and should considerably be avoided. Drilling fluids also have a number of chemicals which are added in it depending up on the formation conditions down the hole which is digged. Drilling fluids are made to reach down hole either by circulation which causes direct loss to the seabed due to the displaced cuttings, in particular while drilling well sections nearest to the surface of the seabed are re-circulated to the offshore facility where they are filtered by way of being routed to a control system. In this control system, the cuttings and the drilling fluids are separated, so that they may be sent down hole by way of recirculation leaving the cuttings separated, for disposal. These cuttings also contain a portion of residual drilling fluid with them. The depth of the well along with the diameter of the hole affects the volume of cuttings produced.

The drilling fluid is replaced either when its density can no longer be maintained or at the end of the drilling program. These fluids are then either reused or disposed.

iv. Casing

After the hole is drilled, casing is placed in the well for the purpose of stabilizing the hole and preventing caving.³ Three or four separate ‘casing strings’ may be used in intermediate depth wells. The string is often placed well before the drilling begins; it is done by way of pile driver.⁴

The next string is the ‘surface’ casing and as the name suggests it begins at the surface and may penetrate up to three thousand feet deep in the ground. The ‘primary string’ which is the intermediate string begins at the surface and ends within a couple thousand feet below at the bottom of the wellbore. This helps in the movement of the equipment which is used for drilling in the hole, such as the drill strings and logging tools.

The final string which is the ‘production’ string extends till the end of the well, i.e. the full length and thereby encases the equipment being used down hole for production. Wells which are shallow may require just two strings for the operation.

After every casing string is made to be installed, cement is made to force out upwards through the bottom of the casing for holding it in place, thereafter the surface casing is cemented to the surface. This is done for preventing the fluids behind the casing and for preventing communication of higher pressure productive formations with non-productive formations which are low pressured. The completion stage witnesses further addition of equipment and installations.

Perforations lead to the reservoir fluid entering the wellbore, tubing strings then carry the fluid to the surface and removable plugs or packers may be installed for isolating producing zones.

Casing is required to be designed properly and is important for both drilling and production phases of operation. It is essential for preventing natural oil, natural gas and associated brine from leaking out and mixing with the water in the surrounding aquifer which shall lead to contamination of it, it also limits sediments from entering

³ Berger and Anderson, 1992

⁴ USEPA - “Sector Handbook on Oil & Gas Extraction”, October, 2000.

the well bore along with facilitating the upward and downward movement of the equipment in the hole. The planning of casing involves various considerations:-

- a) The accommodation of any pumping equipment is feasible and the bottom of the wellbore is large enough to accommodate the same now and during later years of production.
- b) Thicker casings are provided in the areas which are unusually pressurized, such string must be smaller but must still accommodate down-hole equipment.
- c) The hole should have the minimum size as when the size increases, so does the cost and the waste.

v. Appraisal

After the drilling at the exploratory stage is successful, more wells are dig for assessing the size and the extent of the field. These wells which are made to quantify the hydrocarbon reserves are called the appraisal wells. This stage aims at evaluating the size and nature of the reservoir, for determining the number of appraisal wells which shall be required and whether any further seismic work will be necessary. The technical procedures which are used for exploratory drilling and for appraisal drilling are the same, mostly a number of wells are drilled at a single site and directional drilling at different angels considering the original bore hole are made in order to reduce the land used or the footprint.

vi. Field Development and Production

During this phase of development and production the installation of infrastructure takes place for the purpose of extracting the hydrocarbon resource over the lifetime of the resource and the estimated reserve. It also includes drilling of additional wells called the production wells, the central production facilities are made to operate for treating the hydrocarbons produced, flow lines are installed and pipelines are laid for transporting hydrocarbons to the export facilities.

The quantity of wells which are required at a site depends upon the size of the reserve and the geology. Large oilfields can require a hundred or more wells to be made, whereas if the well is small it shall require just about ten wells. The well sites also

require the construction of workforce accommodation, setup for waste management operations, water supply equipment among others. Each well which is drilled is to be prepared for production before the drilling rig is made to depart. After the well drilling and development is done a 'Christmas tree' is placed above the well on each well head for controlling the flow of the formation fluids up to the surface. If the underground formation pressures are adequate hydrocarbons may flow freely from the well, otherwise additional pressure by way of surface pumps or injecting gas or water into the well would be required for maintaining reservoir pressure. Depending upon the conditions of the reservoir, various substances such as nitrogen, carbon-dioxide, steam and surfactants are made to be injected into the reservoir for removing more oil from the pore spaces, increasing production and extending the life of the well.

The predictable pattern as has been depicted in Fig. 1 shows the decline curve where the production increases and reaches a peak and thereafter declines. Well work overs are periodically performed by operators for the oil and gas to move to the surface easily. Thereby, the formation fluids are separated into oil, gas and water at the central production facility which is designed and constructed in accordance with the size and location of the reservoir.

The hydrocarbon fluids are processed at the processing units, which receive it from the onshore or outside, sometimes offshore and store it after processing until ready to be exported. There are various kinds of hydrocarbon terminals, including offshore production terminals or the coastal marine receiving terminals and the onshore terminals, inland pipeline terminal, barge shipping or receiving terminals.

The production developments at the offshore require permanent structures which are self-sufficient for supporting the required facilities, the drilling and production platform is constructed which should be self-sufficient in terms of water and energy needs for the drilling wells and the workforce.

The offshore platforms which are used in the Industry are of various types:

- a) Fixed Platforms- These are used in water depths which are up to 500 metre. These consist of concrete or steel made jackets which are directly attached with the seabed by way of steel pipes which support the steel deck.
- b) Compliant towers- These are used in water depths ranging from five hundred metre to one thousand metre. These towers further consist of a narrow, flexible tower on a piled foundation which is supporting a conventional deck.
- c) Tension leg platform- These are used in water depths of up to two thousand metre and also consist of a floating facility moored to the seabed and fixed in place by anchors. Leg platforms which are the mini tension leg platforms also called as seastars are used in water depths between two hundred metres and one thousand metres.
- d) Jack-up platforms- These are used in shallower waters which are up to hundred metres and are transported to locations where legs can be lowered by way of hydraulic jacks into position for supporting the deck.

Generally, a steel platform is made to be installed for serving as the gathering and a processing center and about forty and more wells are drilled directionally from this platform. Sometimes, concrete platforms are constructed if the field area is large and requires the same. Sometimes, additional satellite platforms are also needed which are linked by subsea flow lines to the central facility.

Recently developed technological advancements further aim at optimizing operations, include subsea systems which are remotely operated and which remove the requirement for satellite platforms. For deep waters where platforms are not a suitable choice, these platforms are a great substitute and also for the marginal fields where platforms would be uneconomic.

The Oil and Gas which is produced by way of this procedure may be exported by pipelines, trucks, rail tank cars or tankers. Gas is often exported after liquefaction, in the form of Liquefied Natural Gas (LNG) by the use of specially constructed tankers.

In India's commercial energy mix, Petroleum and Natural Gas stand second only to coal, contributing more than 40 per cent of the country's conventional energy supply. It is a major source for meeting country's energy demand. As the demand of oil and gas is expected to rise same is with the imports which would also rise. This dependence on the sector and the link of energy with economic development, it becomes essential to identify the major developments in the sector. This paper provides a proper understanding of the key governance related issues in the sector. It lays down the key laws and regulations that have shaped the development of the sector in the country along with discussing the key organizations which have paved the way for proper development of the Upstream sector of Oil and Gas.

Offshore oil extraction currently accounts for 37% of global production, for several years offshore natural gas and oil production was restricted to shallow waters such as the coastal areas. However, as the older deposits become exhausted companies have increasingly moved into deeper waters. The depth can be categorized as, shallow water production at water depths of less than 400 meters, deep water production at depths up to 1500 meters and ultra-deep waters production at depths greater than 1500 meters. With the latest high resolution geophysical exploration technology, oil and gas deposits can now be detected in the sea bed and other geological strata to a depth of 12 kms.

CHAPTER III

INDIAN LEGAL REGIME FOR OFFSHORE AND ONSHORE OIL & GAS EXPLORATION

The sector plays a critical role in determining India's energy security. Since India does not have sufficient domestic crude reserves to meet the growing demand for petroleum products, it has to import 80 per cent of its total crude consumption. The level of import dependence coupled with the heavy reliance on oil and gas in India makes governance of this sector crucial for ensuring energy security. Moreover, since energy supply and access are crucial drivers of economic development, good governance practices in this sector are all the more important. However, even a cursory glance at the current scenario shows a number of lacunae which are impeding development of this sector. A closer look reveals the multiplicity of interconnected issues that would need to be addressed in detail to improve performance of the oil and gas sector in the country.

The Upstream Sector is regulated by the Ministry of Petroleum and Natural Gas (MOPNG) and the various technical advisory functions are performed by the Directorate General of Hydrocarbons.

In accordance with the law of the land and the supreme law, The Constitution of India, all rights over minerals on any land, surface or subsurface are absolutely with the Central Government.

Entry 53 of List I of the Constitution of India provides that the jurisdiction for regulating oilfields is with the Central government. Also, Entry 23 of List II provides that regulation and development of oilfields and mineral oil resources and petroleum and petroleum products is under the control of the central government.

Further, Article 297 explicitly mentions that, Petroleum in its natural state in the territorial waters and the continental shelf of India is vested in the Union of India.

Exercising these constitutional powers, the government has passed the Oilfields (Regulation and Development) Act 1948 and the Petroleum and Natural Gas Rules 1959.

Supreme Court of India has held that natural resources (including oil and gas) are vested in the government as a matter of trust in the name of the people of India and must always be used in the interest of the country, and not for private interests.⁵

I. Laws and Regulations Governing the Sector

i. The Territorial Waters, Continental shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976

The Indian Parliament passed the Territorial Waters, Continental shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976 on 25th August 1976. This was the time when the Revised Single National Text(RSNT) was issued at the end of the fourth session of the third UN conference on the law of the sea at New York.⁶ During this time it was also commonly felt that the law of the sea had changed. Thereby various great powers like the United States of America, the former Soviet Union and many other European countries enacted national legislations on either 200 nautical miles EEZ or 200 nautical miles fishery zone. This trend proved that the concept of EEZ was accepted by the international community, thereby giving effect to the changing trends in the international law. After amending its constitution, India went on to enact the above mentioned Act in 1976.

The constitution of India refers to the territorial waters, continental shelf and the EEZ in Article 297 and entry 57 in the list 1 of the seventh schedule. Article 297 provides, *inter alia* that all lands and other things of value underlying the ocean within the territorial waters, or the continental shelf or the EEZ of India shall vest in the Union. The article further provides that all the resources of the EEZ of India shall also vest in the Union and be held for the purpose of the Union.

⁵ *Reliance Natural Resources Ltd v Reliance Industries Ltd, (2010) 7 SCC 1.*

⁶ The New York session was held from 15th March to 7th May 1976

Article 297 as amended by the constitutional 40th Amendment Act 1976 stands as follows' all lands, minerals and other things of value underlying the ocean within the territorial waters or the continental shelf or the Exclusive Economic Zone of India shall vest in the Union and be held for the purposes of the Union

All other resources of the Exclusive Economic Zone of India shall also vest in the Union and be held for the purposes of the Union

The limits of the territorial waters, the continental shelf, the Exclusive Economic Zone , and other Maritime Zones of India shall be such as maybe specified from time to time by or under any law made by the parliament.'

This definition has been elaborately by this amendment which has vested in the Union Government the resources available within the EEZ.

Vesting of these rights is fully in accordance with article 56(1)(A) of the UN Convention of the law of the sea which reads as follows:

1. "In the Exclusive Economic Zone, the coastal state has :
 - a. Sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living of the waters superjacent to the seabed, and of the seabed and its sub-soil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water currents and winds.

ii. Exclusive Economic Zone and other Maritime Zones Act, 1976

This Act was enacted for providing a general legal framework required for the territorial waters, continental shelf, EEZ and other maritime zones in India. This Act specifies the nature, scope and limits up to which the jurisdiction and rights and control of India will extend in relation to various maritime zones and historic waters of India. Section 15 of the said Act empowers the Central Government to make rules for carrying out the purposes of this Act.

The Exclusive Economic Zone as defined by this Act is an area beyond and adjacent to the territorial waters and extends up to 200 nautical miles from the baseline⁷

The rights and jurisdiction of the Union Government within India's EEZ is elaborated under Section 7 (4) as follows:

- a) Sovereign rights for the purpose of exploration, exploitation, conservation and management of the natural resources both living and non-living, as well as producing energy from tides, winds and currents;
- b) Exclusive rights and jurisdiction for the construction, maintenance or operation of artificial islands, offshore terminals, installations and other structures and devices necessary for the exploration and exploitation of the resources of the zone or for the convenience of shipping or for any other purposes;
- c) Exclusive jurisdiction to authorize, regulate and control scientific research;
- d) Exclusive jurisdiction to preserve and protect the marine environment and to prevent and control marine pollution; and such other rights as are recognized by international law

This provision is well within the guidance of UN convention on the law of sea, 1982 with certain notification.

India has in its EEZ all other rights as are recognized by international law by virtue of section 7(4)(e). This provision brings India's rights at par with the rights recognized in the international law, whether or not they are expressly provided for in India's Maritime Zone's Act,1976.

Restricting the rights to vest with the Central Government, Section 7(5) provides that 'no person (including a foreign government) shall except under and in accordance with, the terms of any agreement with the Central Government, explore , exploit any resources of the EEZ or carry out any search or excavation for conduct any research within the Exclusive Economic Zone or drill therein or construct, maintain or operate

⁷ Subsection 2 of section 3 provides that the limit of the territorial waters is the line every point of which is at a distance of 12 nautical miles from the nearest point of appropriate baseline.

any artificial island, offshore terminal, installation or other structures or device therein for any purpose whatsoever.’

Even though section 7(7) provides that the Central Government may by notification in the official Gazette extend with such restrictions and modifications any enactment to the EEZ or any part thereof and make such provisions as necessary for facilitating the same, but the essence lies in the fact that not all enactments can be extended to the EEZ as this is not the part of state territory and only such laws which are relevant to the EEZ can be made applicable.

iii. The Petroleum Act, 1934

In 1934 this act was passed for the purpose of addressing the operational issues covering the entire value chain of Oil production. Production, Import, Transport, Storage, Refining and Blending of Petroleum is governed through this act. Earlier rules regarding them were separately existing, this statute combined the same making it easier for the concerned parties who are governed by them.

The main objective of the act was to consolidate laws relating to the import, transport, storage, production, refining and blending of petroleum with powers for regulating these aspects being vested primarily with the Central Government.

iv. The Oilfields (Regulation and Development) Act of 1948

This statute governs the licensing and leasing of petroleum and gas blocks by the Government concerned.

Section 3(c) provides that mineral oils would include natural gas as well as petroleum.

Section 3(d) defines mining lease to include all forms of exploring and exploiting mineral oils and all purposes in relation with the same.

Also, Section 5 of the Act empowers the central government to make rules regarding mining leases and Section 6 empowers to make rules for development of mineral oils.

Within this Act, the Central Government was granted the power to make rules for regulating the authorization of mining leases for offshore blocks along with

empowering the central government to determine rates of royalty payable by the holder of the mining lease for onshore as well as offshore blocks.⁸

v. The Petroleum and Natural Gas Rules 1959

These rules have been made in accordance with the above mentioned act and they provide a framework for grant of exploration licenses and mining leases.

Rule 4 puts a prohibition upon prospecting and mining without a license or lease granted under these rules.

Rule 5(i) provides that the power to grant leases and licenses regarding lands with the central government or minerals underlying the ocean in the territorial waters or the continental shelf rests solely with the central government.

However, State Government shall have the right to grant licenses or leases over lands which are vested with itself, according to Section 5 (ii).

Also, territorial waters, continental shelf, Exclusive Economic Zones and Other Maritime Zones come under the jurisdiction of the Central Government and no exploration in such areas can be conducted without its permission.

The legislation further goes on to re-affirm that Central Government is the one responsible for the development of this sector and the powers for the same are awarded to it by these rules which were last amended in 2009. Within these rules, a prior approval from the Central Government is required by the respective states who own the blocks found within their territory for awarding the licenses for onshore blocks which is within their responsibility.

On taking into consideration the Oilfields Act of 1948 and the Petroleum and Natural Gas Rules of 1959, it is clear that the powers enjoyed by the state governments are

⁸ In addition to royalty, the holder of a mining lease for onshore blocks has to pay surface rent to the concerned state government. The rates of surface rents are determined by the central government

restricted by the central government in the sense that for grant of onshore mining licenses and deciding upon the royalty and surface rent rates permission is required.⁹

vi. The Oil Industry (Development) Act, 1974

This Act set up the Oil Industry Development Board (OIDB) in 1974 when there was a need to promote self-reliance in the Oil and Gas sector. The board has its objective to facilitate the development of the Oil and Gas Sector in India. It is the responsibility of the board to collect the Cess tax from the companies who have been awarded the block for upstream operations on a nomination basis. It is also responsible for financial assistance to the companies in the sector in the form of loans.

vii. The Petroleum and Natural Gas Regulatory Board (PNGRB) Act, 2006

This act has established Petroleum and Natural Gas Regulatory Board for the purpose of protecting the interests of consumers and entities engaged in activities related to petroleum, petroleum products and natural gas. Also, it promotes competitive market and related matters.

The board has powers to adjudicate upon the complaints and resolve issues in relation with activities pertaining to petroleum and related products, it has investigating powers and can also impose civil penalty.

An appeal against the order of the board lies to the appellate tribunal instituted under the Electricity Act, 2003; the limitation period is 30 days from the date on which a copy of the order is received. Further, an appeal can be made to the Supreme Court of India, which is the Apex Court.

The main objective of its establishment is “regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas *excluding production of crude oil and natural gas so as to protect the interests of consumers and entities* engaged in specified activities relating to petroleum, petroleum products and natural gas and to ensure uninterrupted and adequate supply of petroleum, petroleum products and natural gas in all parts of the

⁹ Noronha L and N Srivastava (2012). ‘India’, In G Anderson, Oil and Gas in Federal Systems (p. 416). Ontario: Oxford University Press

country and to promote competitive markets and for matters connected therewith or incidental thereto.”

This Act is thereby irrelevant from the perspective of upstream operation as the same are specifically excluded within the definition.

II. Exploration and Licensing Policies in India

i. New Exploration Licensing Policy

After the policy of granting licenses to National Oil Companies like ONGC and OIL through Nomination Basis, during 1991 to 1993 which was the Pre- NELP era, Petroleum Mining Lease was granted according to small/ medium size discovered field Production Sharing Contracts, operators of such blocks used to be private companies but ONGC/OIL had participating interest.

Further, prior to NELP since 1990 about 28 blocks were awarded to private companies, ONGC and OIL had rights to participate after hydrocarbons were discovered.

Then in 1999, NELP got implemented and exploration blocks were now awarded to Indian Private and Foreign companies through International Competitive bidding process and National Oil Companies like ONGC and OIL also had to compete on equal footing.

OBJECTIVES

- To attract significant risk capital from Indian and Foreign companies.
- To attract new technology and geological concepts.
- To attract required management practices for exploring oil and gas resources to meet the increasing demands.

FEATURES

- Foreign Direct Investment was allowed up to 100% under this policy.
- Interest of the government as well as the National Oil Companies was no longer mandatory.

- Open International Competitive Bidding was adopted for awarding blocks, and National Oil Companies also had to compete on an equal footing and entered into same fiscal and contract terms.
- Marketing of Crude Oil and Gas in the domestic market was allowed to the contracting parties.
- Royalty was decided to be 12.5 for onshore fields and 10% for offshore fields, and it was decided to charge royalty at half the rate for areas beyond 400m, i.e. the deep waters for seven years since commencement of commercial production.
- Contractors were exempted from paying Cess to the Government and also import duty on goods imported for petroleum operations.
- Agreements under this policy were to be governed by Production Sharing Contract, its model was created and reviewed for every NELP round.
- Various Indian laws applicable governed the contracts.

PROBLEMS WITH NELP

After the nine NELP rounds which were conducted, the no. of companies in the exploration and Production sector increased from 35 to 117, which included 11 PSUs, 58 Private Indian companies and 48 foreign companies.

However, there were various issues faced by the government as well as the contracting companies:-

- It provided different policies, fiscal terms and licenses for different hydrocarbons, i.e. separate policy regimes for Coal-Bed Methane, Shale oil and gas, conventional oil and gas and gas hydrates. It led to inefficient exploitation of natural resources, as in practice while exploring for one type of hydrocarbon if another is found, it needed different licensing with added costs.
- The agreement between the contractor and the Government was based upon a profit-sharing basis and hence until the company made profits no share was given to the government, apart from royalties and Cess. Also, since profit was required to be measured, cost was to be accounted at checked by the government at various levels, which led to the activities not getting initiated until all was approved.

- The contracting companies were allowed to explore only the blocks allotted and no other areas where they may have interest.
- The production price was gas used to be fixed administratively by the government leading to loss of revenue and hence various disputes, arbitration and cases.
- The Oil production had stagnated and Gas production declined leading to the announcement of a new policy in March, 2016, Hydrocarbon Exploration and Licensing Policy.

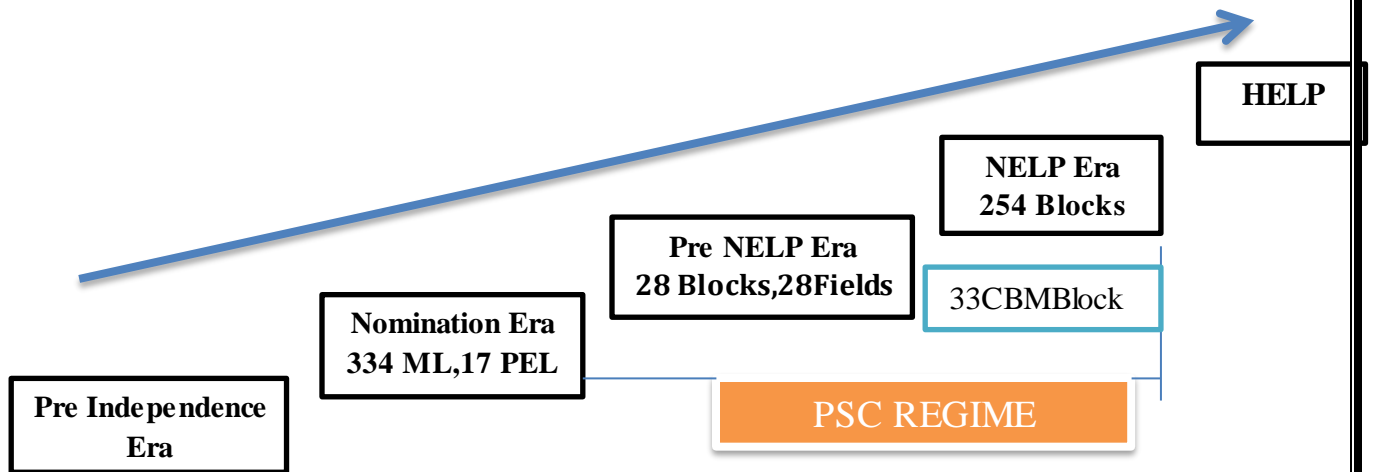


Fig 2.0- Evolution of Licensing Policy in India

ii. Hydrocarbon Exploration Licensing Policy

On 10th of March, 2016, The Union Cabinet chaired by Shri. Narendra Modi approved HELP, the decision was taken as there was an instant need of enhancing Oil and Gas

production and also to increase employment and attract substantial investment in the sector.

FEATURES

- Uniform License for Exploration and Production of all forms of hydrocarbons.
- An Open Acreage Policy
- Introduction of a Revenue Sharing Model and
- Marketing and Pricing shall no longer be set administratively by the Government

The introduction of an *uniform license* would enable the contracting companies to explore conventional as well as unconventional oil and gas resources, including Coal-Bed Methane, Shale oil and gas, tight gas and gas hydrates all under one single license, this shall reduce the issues such as applying for a different license and being governed by different policies if a different form of hydrocarbons is found while exploring.

Further, the *Open Acreage Policy* provides the company which is involved in exploring hydrocarbons to select the blocks to explore, on its own without a formal bidding process for those blocks by the government.

The new model of *Revenue Sharing* between the government and the contracting companies would benefit the government by receiving a share of the gross revenue from the sale of Oil and Gas, and it would no further require keeping a check and scrutinizing the cost details of private companies, hence reducing a lot of delays and disputes. This policy is in consonance with the government's policy of 'Ease of Doing Business'.

Further, working under the Government's policy of 'Minimum Government–Maximum Governance', HELP provides for a *freedom of marketing* for crude oil and natural gas. Also keeping in view the risks and costs involved in Exploration and Production as the advancement is made towards the deep waters from the onshore; a graded system of *Royalty Rates* has been introduced, decreasing from shallow water to deep water and ultra-deep water. The Royalty rate for on land areas have been kept the same so as revenues to the state government is not affected. However, Cess Tax and Import duty is no longer required to be paid for the blocks which are awarded under the new policy.

CERA Week 2017

This is an energy conference organized annually by the HIS Markit company in Houston, Texas, and is chaired by the co-founder of Cambridge Energy Research Associates (CERA).

The 36th CERA Week was held from 6th March 2017 to 10th March 2017, India launched its Hydrocarbon Exploration Licensing Policy through the head of The Ministry of Petroleum and Natural Gas, Mr. Dharmendra Pradhan.

It was acknowledged as a Historic Development due to the reforms and changes which it aims on bringing, and which could not have been thought of being possible 3-4 years ago.

And the chair praised the initiative of Honorable PM, Mr. Narendra Modi of Oil & Gas to be Made In India, he also acknowledged that the 'Discovered Small Fields Policy' which was launched in CERA week 2016 by India proved being successful and said that the new policy which is being launched this year shall have a huge impact on India through increase in Partnerships, Technology and various other know-how from the Global Industry.

India has been ranked third in the Top Prospective Host Economies for 2016-2018 in the World Investment Report 2016 by United Nations Conference on Trade and Development, with a 7% growth rate it is the fastest growing large economy, 6th largest manufacturing country and the 3rd largest Global Consumer of Crude Oil and Petroleum Products.

In his speech, Mr. Dharmendra Pradhan, Minister of Petroleum and Natural Gas, explained the four pillars of energy being focused through HELP,

- Energy Access,
- Energy Efficiency,
- Energy Sustainability, and
- Energy Security

Currently India has 3.14 million sq. km of base low area of Oil and Gas, and the Open Acreage Policy aims to achieve India's short term gains and not meeting long term economic and social prospects. He said that the objective of this policy is to increase the production in the next 4-5 years by twice the current rate.

The Discovered Small Field Bid round launched in 2016 on a similar revenue sharing model proved being accepted by the investors as 34 companies applied for 34 contract areas and 31 such areas were allocated to 22 companies.

Introducing to the features of HELP, he told about the mechanism of Network Data Mechanism which shall allow the contracting companies transparency, seamless data access, submission and dissemination. Currently 60 Tera Byte of data has been loaded for the same.

Quoting Mr. Narendra Modi "HELP is a call for enhancing production to reduce energy Import by at least 10% by 2022".

A Comparison of both the Policies¹⁰

Parameter	NELP	HELP
Fiscal Model	Profit Sharing	Revenue Sharing
Cost Recovery	Yes	Not Applicable
Cost Efficiency	Neutral	Encouraged
Royalty	Standard Rates	Lower Rates for Offshore
Exploration Time Limit	Onland and Shallow Waters- 7 years, Deep Water & Ultra-deep Water- 8 years	Onland and Shallow Water- 8 years Deepwater- 10 years

¹⁰ Directorate General of Hydrocarbons, Available at- <http://www.dghindia.org/admin/Document/Topstory/13.pdf>

Management Committee	Technical & financials examination	More focus on reservoir monitoring; no micro-management
Revenue to Government	After Cost Recovery, i.e. from Profit	On production
Exploration in Mining Lease Areas	Not Allowed	Allowed
E & P activity for all hydrocarbons	Not Allowed	Allowed

III. Government Bodies in the Oil and Gas Sector

In India within Article 246, Seventh Schedule (The Union List), falls the regulation and development of oilfields and mineral oil resources, petroleum and petroleum products, and various other liquids and substances declared under law by the parliament as dangerously inflammable. The principle government body which governs this sector is the Ministry of Petroleum and Natural Gas. And, at the state level there are departments and directorates that regulate and control activities related to petroleum and natural gas in onshore fields.

- **Ministry of Petroleum and Natural Gas**

The ministry is empowered to take the responsibility of exploration and production of Oil and Natural Gas as well as their refining, distribution, import and export, marketing along with conservation of petroleum products and Liquefied Natural Gas (LNG). Apart from the MoPNG, which is an overarching central policy-making body, other bodies such as Centre for High Technology, Petroleum Conservation and Research Association, and Oil Industry Safety Directorate and other central ministries such as Ministry of Environment and Forests [MoEF], Ministry of Finance, Ministry of Power, etc. are also involved in various aspects of the oil and gas sector.

- **Ministry of Environment and Forests**

Ministry of Petroleum and Natural Gas works with Ministry of Environment and Forest for the purpose of obtaining environment related clearances.

Since exploration of oil and gas as well as their generation affects the environment, the concerned contractor is mandated to undertake Environmental Impact Assessment studies. Under Article 14 of the Model Production Sharing Contract (MPSC) the effect of the said activity on the environment of the affected area is assessed in detail. These studies are conducted in detail and involve various phases, before the commencement of operations on the field. Article 14 of the Model Production Sharing Contract stipulates the contractor to carry out two such studies. The first study is to determine the prevailing situation relating to the environment, human beings, flora and fauna in the contract area and its adjoining regions.

This stage is further divided into two parts, the preliminary part which must be concluded before commencement of any exploration related field work relating to a seismographic or other survey, and a final part which is in relation with the drilling in the Exploration Period.

The second part of the study requires approval from the state government before commencement of any drilling operations. The second Environmental Impact Assessment (EIA) study needs to be completed before the commencement of Development Operations with approval from the state government. The state government, on its part, will grant environmental clearances in accordance with the relevant notifications, rules, regulations, and orders concerning EIA issued by the Ministry of Environment and Forest (MoEF) from time to time. However, wherever forest land is involved, the Contractor shall have to obtain approval of the central government through the state government concerned under the Forest (Conservation) Act, 1980, and Rules as made thereunder.

Under the Environment Protection Act, 1986 and the rules made thereunder, it is required that environmental clearance is taken from the Ministry of Environment and Forests before any work is started regarding Oil related activity.

The Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008, which have been framed under the Oilfields (Regulation and Development) Act, 1948 provide for the Safety Standards and Measures in the Offshore Operations, also Standards published by the Oil Industry Safety Directorate are applicable for all Oil related facility operations.

Contracts mostly provide that in cases of contractors failing to fulfill environmental obligations and duties, they shall be liable if any damages occur to the environment after the effective date of the contract, when such damage occurs due to an act or omission of the contractor.

The Environment Protection Rules, 1986 and Oil Mines Regulations 1984 regulates Flaring and Venting in the Oil and Gas Industry. Also Oil Mines Regulations provide that unless the gas produced meets certain standards it cannot be discharged into the atmosphere.

The Environment Protection Rules provide that all gaseous emissions must be flared, even though it is now recognized as a major environmental issue, contributing an amount of about 150 billion m³ of natural gas flared around the world, contaminating the environment with about 400 Million Ton CO₂ per year.¹¹

Waste

Waste produced from E&P industry is governed by various rules and regulations:-

- Air (Prevention and Control of Pollution) Act 1981.
- Water (Prevention and Control of Pollution) Act 1974.
- Environment Protection Act 1986.
- Environment Protection Rules 1989.

¹¹ Eman A. Eman, *Gas Flaring In Industry: An Overview*, Department of Chemical Eng. And Pet. Refinery, Suez University, Egypt (3rd Dec. 2015)

- Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules 2016.
- Oil Mines Regulations 1981.
- Oil Field (Regulation and Development) Act 1948.
- Petroleum and Natural Gas Rules 1959.
- Coastal Regulation Zone Notification 2011.

Various guidelines are provided by the Government to be followed before a disposal is made:-

- Guidelines for Discharge for Gaseous Emissions by Oil Drilling and Gas Extraction Industry 1996.
- Standards for Liquid Discharge by Oil Drilling and Gas Extraction Industry 1996.
- Guidelines for Disposal of Solid Waste by Oil Drilling and Gas Extraction 1996.

Decommissioning

The Petroleum and Natural Gas (Safety in Offshore Operations) Rules, 2008 provides for a detailed decommissioning plan to be submitted for approval either by the licensee, the lessee or the operator.

Rule 142(6) and Rule 148(1) mentions that when a well is to be left abandoned, barriers should be made to provide for its integrity and secure any form of leakages which might occur until the well is to be left abandoned.

Further, provisions of the Contract issued by the Ministry of Petroleum and Natural Gas relating to abandonment shall apply to particular cases of abandonment or decommissioning.

For the purpose of minimizing environmental costs and also incurring lessor costs during decommissioning, following ways may be adopted:-

Offshore

- Steel Platforms should be cut off from an agreed level below the sea level and toppled over into the sea water.
- Concrete structures may be refloated, towed away or sunk in the deep ocean.
- Pipelines may be flushed and then left in place.
- Decommissioned platforms could be used as artificial reefs in a designated offshore area.

On Land

- Wells can be plugged.
- Processing facilities can be dismantled.

- **Ministry of Defence**

The existing procedure requires that all foreign vessels, drilling rigs, barges, platforms and supply vessels which are engaged in the activity of Exploration activities in India obtain a prior security clearance from the Ministry of Defence. Although, originally the Oil and Gas sector had been predominated by the Public Sector Utilities (PSUs), post New Exploration and Licensing Policy i.e., in the last decade or so, various private players have also entered the market with most of them operating throughout the petroleum and natural gas value chain.

IV. Multiple clearances from line ministries

In the upstream oil and gas sector, there are substantial roadblocks to the development of oilfields, particularly due to inordinate delays in getting approvals from the respective line ministries. Detailed Box 2: Overlap in jurisdiction of CCI and PNGRB India's competition regulator, the CCI was stopped by the Delhi High Court from investigating alleged anti-competitive practices in aviation fuel supply. Earlier, Reliance Industries Limited (RIL) had filed a complaint with the CCI alleging that Indian Oil Corporation Limited (IOC), Bharat Petroleum Corporation Limited (BPCL), and Hindustan Petroleum Corporation Limited (HPCL) had formed a cartel to supply aviation turbine fuel to Air India. RIL approached the CCI after the

company lost the concerned tender. In response to the complaint filed by RIL, the aforementioned OMCs approached the Delhi High Court challenging CCI's jurisdiction, stating that the case fell under the purview of PNGRB. The court in its interim order dated 8 December 2010 stayed CCI's probe and did not allow the commission to be a party to the proceedings. In April 2011, it was decided that the aforementioned interim order would stay with CCI's name being deleted from the list of respondents to the proceedings. As of 4 October 2012, the Union Cabinet had approved a set of amendments to the Competition Act which included a provision requiring other regulators to mandatorily refer matters impinging on 'Competition' to the Competition Commission of India, and vice-versa to concerned regulators by CCI, on matters relating to those regulators.

12 ecological assessment of the blocks are carried out for blocks allocated under the New Exploration Licensing Policy (NELP), only after bidding is completed and the block has been awarded. Further, delays on account of obtaining clearances from the Department of Space and the Ministry of Defence have also been reported for many blocks (The Hindu, 2012). Such clearances also need to be obtained from the concerned ministries, only after a particular block has been awarded to a company or consortium. A total of around 70 clearances (Petrofed cited in TERI, 2007) may have to be obtained by the operator(s) before undertaking E&P operations in a particular acreage. This lengthy process and high level of uncertainty dampens investor spirit, leads to delays in the actual development activities, and discourages participation of major players in the sector. There have been instances where acreages have been carved out, auctioned, and awarded to E&P companies only to be later blocked off as 'No Go' areas by the Ministry of Defence after the petroleum exploration license had been granted (Standing Committee on Petroleum and Natural Gas, 2013). This sort of inordinate delay in grant of clearances exists not only in the upstream segment but also in the creation of other infrastructure — transportation and processing. In late 2012, the government announced plans to constitute a National Investment Board (NIB), which will seek to expedite clearances for infrastructure projects costing more than Rs 1,000 crore. The proposal initially faced opposition in the Parliament from the MoEF as well as from opposition parties. Thereafter, it was changed considerably and after assurances from the finance

minister that the NIB would not take away the right of line ministries to grant/refuse clearances to specific projects, the body has been formulated and will be housed within the cabinet secretariat as the Cabinet Committee on investment. Its powers have however been ‘_toned down’. For instance, it will not be an appellate body where investors can appeal against any decision by the line ministries (Sikarwar, 2012). However, there has been criticism against the idea of an NIB from civil society and the MoEF. The major criticism is that the NIB would undermine/overlook valid concerns raised by the MoEF regarding the potential environmental impact of large projects.¹²

- **Allocation of resources**

Several issues related to allocation of petroleum and natural gas reflects the uncertainty in the sector affecting the level of competition and investments in the development of these resources in the country. Allocation of petroleum and natural gas in India can be analyzed from two aspects – allocation of acreages for exploration and the allocation of discovered resources.¹³ Regarding the former, upstream exploration and production policies in the country have evolved from those based solely on PSU participation to the current NELP regime that encourages private and foreign participation. However, even with the existing Production Sharing Contract (PSC)-based mechanism in the NELP, several issues have been identified regarding the management and monitoring required in the system. The Comptroller and Auditor General (CAG) in its report had also expressed concerns relating to the use of the Investment Multiple Mechanism in the exploration process.¹⁴ Following the concerns expressed, the government had appointed an expert group under the chairmanship of

¹² Business Today (2012). ‘Cabinet defers decision on National Investment Board’, 12 December. Retrieved 15 January 2013, from Business Today: <http://businesstoday.intoday.in/story/cabinetdefers-decision-on-national-investment-board/1/190468.html>

¹³ Cabinet Secretariat (2011). Report of the Committee on Allocation of Natural Resources. Government of India.

¹⁴ CAG (2011). Performance Audit of Hydrocarbon Production Sharing Contracts (Ministry of Petroleum and Natural Gas) . Comptroller and Auditor General.

Dr C Rangarajan to study the PSC mechanism and to suggest alternatives to the existing regime.

The committee has recommended doing away with the cost recovery mechanism and suggested sharing of oil revenue between the government and the operator. The prevailing uncertainty and government's indecisiveness have also affected the participation in the E&P sector in the country. The second dimension of resource allocation, i.e., allocation of the extracted resources has also been an area of significant discussion and debate in the hydrocarbons sector. This is particularly true of natural gas where the government has defined an allocation policy wherein natural gas is allocated to the identified sectors. The allocation of gas has however been fraught with issues where the government's policy on allocation of natural gas has changed over the years. The NELP–MPSC initially allowed producers the freedom to market the gas. However, the amendment in 2007 — when the gas utilization policy was introduced — contained a clause which was introduced in to the model contract stating that the government could frame the utilization policy from time to time'.¹⁵ These clauses effectively take away the freedom of the producers to market gas. While this may be essential, such an allocation policy does not necessarily take into account the economic value of gas and also affects the development of the sector adversely.

¹⁵ The said clauses can be found in Article 21 of the Model Production Sharing Contract.

CHAPTER IV

INTERNATIONAL AND REGIONAL CONVENTIONS FOR OFFSHORE OIL & GAS EXPLORATION

The modern law of the sea has developed by way of applying European mind and European beliefs as consolidated over the past four centuries in accordance with the European practices. The maritime law in essence can be very well summed up under the doctrine of the 'freedom of the seas'. The Dutch jurist, Grotius in his book *Mare Liberum*, which is supposedly the first book regarding the law of the sea revived the concept of the 'freedom of the seas', he is also known as the father of International Law.

He wrote this book with the object of defending the right of his country to navigate in the Indian Ocean and other Eastern Seas and indulge in trade practices with East Indies which during that time was being claimed an area of commercial monopoly and political superiority by Spain and Portugal.

It may also be noted that in 1498 when the Portuguese arrived in India, there already existed a well-established state system having developed rules of inter-state relations based upon customs which were more ancient than the European traditions.

Until the fifteenth century, the general practice was of freedom of navigation and trade towards the Indian Ocean and the East Indies while it was the reverse in Europe. After the downfall of the Roman Empire large areas of the sea were started being claimed by various states which resulted in huge number of disputes about navigation, trade and fisheries.

In 1625, contrary to this theory as propounded by Grotius came the theory of *Mare Clausum* by John Selden who was a British Scholar of high stature, he pleaded the English claim to sovereignty over the English sea, and asserted the right of the state to exercise its sovereignty over the sea adjacent to its territory. Thereby, towards the end of the seventeenth century emerged two principles of International Law of the Sea, them being the concepts of 'high seas' and the 'territorial sea' or waters subject to the territorial sovereignty of the coastal state.

In the Hague Conference of 1930 this distinction was further classified as International waters, territorial waters, adjacent waters and the high seas.¹⁶ The conference accepted it as the basis for its deliberations for the purpose of codification of International law.

This distinction is relevant for the purpose of Offshore Oil and Gas exploration considering the scope of availability of Oil and Gas below the seabed. Exploration is conducted for the purpose of assessing the availability of these minerals in a particular area and whether or not starting production shall be fruitful. Hence, exploration is carried out in the territorial waters, continental shelf and the high seas and various domestic and international laws are applicable accordingly.

In this chapter we shall be dealing with the laws applicable in the form of conventions and treaties, regional and international upon the exploration activities as carried out on the high seas or the deep waters which attract International Conventions *per se*.

I. Position before the UNCLOS III, 1982

i. Nature of the Territorial Sea

Before we look into the area of the sea beyond the jurisdiction of the state it is required to understand the limits which fall within the State's jurisdiction.

There have been strong disagreements over the limits of the territorial sea but as regards the juridical nature the concept of exclusiveness in the favour of the coastal state is universally accepted.

- a) *The Hague Conference, 1930*- It was observed by the second committee of the conference that the belt of the territorial sea shall form to be within the territory of the state and the sovereignty applicable shall be same as upon the land area of the state.¹⁷ But as there was no agreement regarding the limits of the territorial Sea, no codification took place.

¹⁶ League of Nations, Acts of the Conference for the codification of International Law, Vol. III, Minutes of the Second Committee, Territorial Waters, Off. No. C381 (b), 1930. pp. 12 and 32

¹⁷ See Report of Second Committee, *Publication of League of Nations V Legal Questions*, 1930

b) *The Geneva Conference, 1958*- It was adopted by all the nations that the principle of sovereignty shall be the accepted norm. The Convention on the Territorial Sea and Contiguous Zone was adopted and the sovereignty of the state was extended beyond its land territory and its internal waters to a belt of sea adjacent to the land,¹⁸ which was to be termed as its territorial sea.

ii. Nature of the Continental Shelf

According to the United Nations, the continental shelf is the borderline area already submerged and exposed to true extension of the neighbouring continents.¹⁹ This area is a rich source of minerals such as oil, natural gas, sulphur along with nodules containing manganese, iron, copper, cobalt, nickel and lead being found all over the seabed.

First national claims, to the sea bed resources, which is known as the continental shelf were made centuries ago.²⁰ In the beginning these claims confined to pearl and sedentary fisheries. The first formulations of the doctrine were scientific and economic in character. In 1918 the Spanish oceanographer, Oden de Buen maintained that while the ocean should belong to all, the continental shelf should belong to the coastal state due to the natural continuation of it from the land surface which had a greater influence on it than the sea. Following the United States and other Latin American and Middle East countries, in 1950 and onwards there came a series of decrees and declarations by various States asserting their right on this submarine area which soon came to be recognized as an international customary rule.

The Geneva Convention on the Continental Shelf, 1958 states that the term ‘Continental Shelf’ is used as referring the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea upto a depth of 200 metres or beyond that limit, to where the depth of the super adjacent waters admits of the exploitation of the natural resources of the said area and the seabed and subsoil of the similar submarine area

¹⁸ Article 1, The Convention on the Territorial Sea and Contiguous Zone, 1958

¹⁹ UN Doc. A/CONF. 13/2

²⁰ Cecil Hurst put the date as early as the 19th Century. See Cecil Hurst ‘Whose is the Bed of the Seas’, *British Yearbook of the International Law* (London) Vol. 4 (1923), p. 37.

adjacent to the coasts of islands.²¹ This definition provides for a double criteria, i.e. the depth criterion and the exploitability criterion. The International Law Commission prescribed this criteria as it felt that fixing an isobaths as an outer limit shall would be a safer option legally and practically. This compromise was made to satisfy the proponents of the virtues of uniformity, fixity and certitude as well as advocates of the need of flexibility.²² The coastal state exercises over the continental shelf sovereign rights for the purpose of exploring and exploiting its natural resources.²³ Further, to make it clear that this right does not violate the doctrine of freedom of the seas it was provided that the rights of the coastal state over the continental shelf do not affect the legal status of the super adjacent waters as high seas, or that of the airspace above those waters.²⁴ This Article ensures a complete protection of the Freedom of Seas.

Moreover, there are three rules which exist for the purpose of delimitation of the continental shelf- the agreement rule, the equidistance rule and the special circumstance rule. The convention within its Article 6 provides for a combination of these three rules along with distinguishing between adjacent states and the states whose coasts are opposite to each other. It suggested that the states should try to settle their boundary disputes either through an agreement, otherwise it is to be demarcated via the principle of equidistance unless a special circumstance made it necessary to look for other means of solutions.

iii. The Convention on the Law of Sea, 1982

The UN Convention on the Law of the Sea was opened for signature on 10th October, 1982 at Montego Bay. Over 14 years of hard work of more than 15 countries resulted in the making of this convention, representing almost all political and legal system along with the socio-economic ideologies. Apart from this, countries with various kinds of minerals which could be found in the sea bed, coastal states which were geographically

²¹ Article 1, The Geneva Convention on the Continental Shelf, 1958

²² Grumawalt as quoted in Arvid Pardo, whose is the Bed of the Sea 'Proceedings of American Society of International Law', Washington D.C. Vol. 2, 1968, p. 219

²³ Article 2, The Geneva Convention on the Continental Shelf, 1958

²⁴ Article 3, The Geneva Convention on the Continental Shelf, 1958

disadvantaged with regard to ocean space, archipelagic states and land locked states were party to this treaty. This was a comprehensive regime dealing with all matters relating to the Law of Sea.

The Convention is multifaceted and expresses collective will to cooperate the efforts to achieve just and equitable International and Economic order governing the ocean space. It includes Seventeen Parts comprising 320 Articles and 9 Annexures governing all aspects of the Ocean space from delimitation to environmental control, economic and commercial activities, scientific research, technology and dispute settlement with regard to the ocean matters.

The first six parts of the convention deal with the national jurisdictional related questions, it is an established principle that the common heritage of mankind comprises the area of sea bed and ocean floor beyond the limits of the national jurisdiction the precise limits of which were yet to be determined and which were settled by the Convention.²⁵

The Convention established a territorial sea of up to 12 nautical miles in breadth providing various methods for determining base lines and for distinguishing between territorial waters and internal waters. Activities which shall contravene innocent passage are specifically mentioned. It also mentions the concept of transit passage for the waters of states bordering straits. Also, the concept of archipelagic waters is introduced for Archipelagoes where by sovereignty would be recognized over waters within an island group and the conditions and modalities for the establishment of baselines which in such cases are specified.

Beyond the territorial waters, the Convention allows the creation of an Exclusive Economic Zone of up to 200 nautical miles. The concept of EEZ was introduced for the purpose of conveniently compromising and emerging out from the negotiations. The coastal states are allowed in the EEZ certain advantages for economic development such as 'right to fish' and 'right to exploit non-living resources'. At the same time the neighboring states which are land locked or geographically disadvantaged are allowed to access those resources which the coastal state does not exploit. The traditional right to

²⁵ The General Assembly Declaration of Principles [Resolution 2749 (XXV)]

freedom of the sea is kept intact in this zone, however, without prejudice to the rights of the coastal states.

Beyond the EEZ the activities on the surface and in the water column are governed by the provisions on the high seas. These generally follow the customary international law allowing the freedom of the high seas but augmenting the law in regard with certain important aspects like legal provisions in regard with environmental pollution and safety regulation, scientific research, conservation and preservation of illicit traffic in drugs and psychotropic substance are also contained within the convention.

Further, the activities on the seabed of the continental shelf may fall within the national jurisdiction of the coastal state if pre-defined criteria are met.

The Convention also sets out the principles and regulations which govern the seabed and ocean floor beyond the national jurisdiction the common heritage of mankind. This involved the process of development of the International law of the Sea and hence was a difficult task. An independent body was thus created by the name of Seabed authority to which the parties to the convention are *Ipsa Facto* members.²⁶

The Seabed authority is entrusted with the Seabed mining in its own right through its commercial arm which is the Enterprise. This is the essence of the 'parallel system' a concept which has been arrived at after long negotiations. The unique factor which plays the most important role is that its technological equipment has been made an important part of the whole package. The convention further goes on to provide guidelines for the authority to select the applicants.

Along with the above mentioned specific areas the convention also deals with subjects such as ecological and environmental matters. The general policies and principles governing prevention, reduction and control of pollution throughout marine environment are also established within the convention.

The convention goes on to promote development and facilitate the transfer of all kinds of marine technology and to encourage the conduct of marine scientific research.

²⁶ Article 156, The Convention on the Law of the Sea, 1982

II. The Territorial Sea

It has been settled by the 1982 convention that the territorial sea shall comprise of as provided:

- a) The sovereignty of a coastal state extends beyond its land territory and internal waters and in case of archipelagic state, its archipelagic waters, to an adjacent belt of the sea, described as the territorial sea.
- b) The sovereignty extends to the air space over the territorial sea as well as its bed and subsoil.
- c) The sovereignty over the territorial sea is exercised subject to this convention and to other rules of international law.

The convention further provides that “every state has a right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this Convention.” Regarding the outer limit it provides that “The outer limit of the territorial sea is the line every point of which is at a distance from the nearest point of baseline equal to the breadth of the territorial sea.”

Provisions with regard to the delimitation remained the same as were provided within the Convention of 1958.

III. The Contiguous Zone

This concept was justified when the breadth of territorial sea was just three nautical miles and hence a special form of state competence was considered necessary.

In UNCLOS III the breadth of territorial sea was sought to extend up to twelve miles and a new concept of EEZ up to two hundred miles was also accepted. This made the concept of the contiguous zone as void and superfluous.

Article 33 of the Convention of 1982 provides that:

- a) In a zone contiguous to its territorial sea, described as the contiguous zone the coastal state may exercise the control necessary to prevent infringement of its customs fiscal, immigration or sanitary laws and regulations within its territory or

territorial sea; And punish infringement of the above laws and regulations committed within its territory or territorial sea.

- b) The contiguous zone may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

There are two notable differences between the Conventions of 1958 and 1982. The limit of this zone is now extended up to 24 nautical miles and there is no reference that the contiguous zone is a part of the high seas.

IV. The Exclusive Economic Zone

The International Legal Concept of the EEZ has been formalized by way of the Convention of 1982 itself. Though, the concept can be traced back in the Truman Declarations of 1945.²⁷ Certain Latin American countries which possess none or limited continental shelves sought to make up this deficiency by claiming protection and control on the sea adjacent to their coasts up to a distance of 200 nautical miles. In the 1952 declaration these states went on to claim exclusive sovereignty and jurisdiction over the sea to a minimum distance of 200 nautical miles, but recognized innocent and inoffensive passage through the zone for the vessels of all nations.

In 1971, the Asian-African Legal Consultative Committee meeting was held where the blue print of the legal concept of EEZ first emerged, it took place in Colombo. This concept further developed in Lagos in another meeting held in January 1972. It originated from Francis Xavier Njenga of Kenya and was confirmed at the African States Regional seminar on the Law of the Sea at Yaounde, Cameroon in June 1972. The proposal was submitted to the Seabed Committees by Kenya in 1972 and was strongly supported by most of the developing states of Asia and Africa. By the time the first session of

²⁷ On September 28, 1945, President Truman of USA issued two proclamations. The former provided for the exercise of jurisdiction and control over the resources of the Continental Shelf, the later established conservation zones for the conservation and protection of the fishery resources in areas of the high sea contiguous to the coast of USA.

UNCLOS III opened in Caracas in June 1974 the concept of 200 miles EEZ had gained substantial support.²⁸

Article 55 of the Convention of 1982 defines EEZ as an area beyond and adjacent to the territorial sea, subject to the specific legal regime as established by Part V, which includes relevant provisions to deal with the rights and jurisdiction of the coastal states and the rights and freedom of other states.

The coastal state has the sovereign rights for the purpose of exploring and exploiting, managing and conserving the natural resources both living and non living i.e. fishing and minerals, of the waters superjacent to the sea bed and of the sea bed and its subsoil along with other activities for the economic exploitation and exploration of the zone such as using the water current and winds for the production of energy.

The establishment and use of artificial islands for installation of structures, marine scientific research and protection and preservation of the marine environment also comes within the jurisdiction of the state subject to the provisions of this convention the freedom of navigation, over flight and of laying of submarine cables and pipelines and other internationally recognized lawful uses of the sea such as those related to operation of ship, aircraft, submarine , cables and pipelines comes within the rights and duties of other states whether coastal or landlocked.

The EEZ shall not extend beyond 200 nautical miles from the baseline from which the territorial sea is measured.

The juridical status of the EEZ is such that it is neither the national zone as demanded by the developing countries nor is it a part of high seas as contended by the developed countries. It is not considered to be a part of high seas as the high seas means ‘all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal water of the state, or in the archipelagic waters of an archipelagic state’. To ensure that this zone is not regarded as a national zone, the Convention of 1982 provides

²⁸ Alexander and Hodgson, “The impact of the 200 miles Economic Zone on the law of the Sea”, 12 S.D.L.R. 1975 point out that at Caracas about 104 countries supported this concept

that the countries would enjoy in this zone the freedom of navigation, over flight and laying of pipelines and cables.

This leads to the conclusion that this zone is a zone 'sui generis'. Also, the exclusive economic zone is subject to the specific legal regime as established by Part V.²⁹

V. The Continental Shelf

To regulate the offshore oil drilling operations, particularly in the Gulf of Mexico the Truman Proclamation was made. It can very well be marked as the origin of the concept of continental shelf. It is a submarine area over which the coastal state exercises sovereign rights for the purpose of exploration and exploitation of the natural resources of the seabed and subsoil.

The Continental Shelf in the legal sense means and includes the following three things:

- a) In geomorphological sense the continental shelf is described as a shallow, life crammed margin between land and sea and as a sea ward submarine continuation of the coastal landmass formed by rivers and surf together skirting most of the earth's coasts and gently sloping away from the seashore to the shelf edge underneath the sea at an average gradient of about 10 per cent, the water depths above the shelf being relatively shallow up to 200 meters or even more.
- b) The continental slope which falls away from the shelf much more steeply at a gradient of about 30 to 60 to water depths of about 1500 meters to even 4000 meters
- c) Continental rise which further slopes downwards at about 10/10 to 10 to meet the abyssal plane after ocean at water depths in the region of 1500 to 4000 meters³⁰

²⁹ Legal regulation of navigation, overflight, laying of underwater cables and pipeline, exploitation of living and non-living resources marine scientific research, marine environment protection and creation of artificial structure and islands are discussed further.

³⁰ R.P.Dhokalia, "The concept of continental shelf", 'The problems and recent developments' new horizons of international law and developing countries', SK Agarwal TS Ramarao JN Saxena (1983), P.293

Though the continental margin is the geological and geomorphological expression to encompass the concept of the shelf, the slope and the rise, it is not the expression generally used in the legal scenario.

The article 1 of Geneva Convention was criticized on the ground that it was ambiguous and uncertain. It did not clarify the limit beyond which the coastal state will not exercise its rights. Further the exploitability criterion was very vague and could be interpreted according to the convenience of the coastal state.

After the Geneva conference of 1958 certain important developments took place in the international scenario. One of these has been the rise of the number of independent states in Asia and Africa which neither participated in the formation of the principles of customary law nor had any opportunity in the deliberations leading to the Geneva Convention of the continental shelf. Overtime as technological development took place it became possible to exploit the sea bed to any limit which meant that the developed countries could alone benefit from the existing system of law. Therefore, it was felt that a limit of the national jurisdiction on the extent of the continental shelf should be defined.³¹

Coastal states, particularly developing countries demanded an extended national jurisdiction to the high seas for the exploiting the sea resource. Hence, the theory of the extension of fishing limits and of maritime belt and the concept of EEZ, contiguous zone and continental shelf was used as the indicative of the movement to extend the national jurisdiction of the coastal state into the high seas.

The north sea continental shelf cases of 1969 under the international court of justice involved the question of boundaries for the continental shelf between the adjacent states which proved being another important development. It led to the conclusion that the coastal state, in order to exploit its natural resources regarding the continental shelf shall rest upon the fact of a relationship between the main land of the state and the resources of the submerged area which can be regarded as the natural prolongation of the land territory of the mainland of the coastal state.

³¹ Article 1, The Convention on the Law of the Sea, 1958

According to article 76 of the UN convention of the law of the sea, 1982 the continental shelf of a coastal state comprises of the seabed and subsoil thereof extending beyond its territorial sea throughout the natural prolongation of land territory up to the outer edge of the continental margin or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to such distance, this also solved the problem of outer limit of the continental shelf in areas of underwater maintain ridges. This convention of 1982 increases the right of the coastal state to the continental shelf and enhances its role in regulating various activities undertaken by foreign states on its continental shelf. Thus, the exercise of the freedom to lay underwater cables and pipelines, a basic freedom of high seas within the limits of the continental shelf shall be ascertained in accordance with the degree dependent on the activities of the coastal state on the continental shelf contiguous to its territory. This has its origin in the fact that recognizing the coastal states right to take reasonable measures for exploring and exploiting the natural resources of its continental shelf and preventing pollution from pipeline is respected. The coastal state may refuse to allow the laying of underwater pipelines or cables. Now, the foreign states are to obtain permission for scientific research on the continental shelf and the coastal state may or may not provide the consent of conduct such research if it is of direct significance for exploring and exploiting the natural resources of the shelf.

VI. The High Seas

Part VII of the convention on the law of the sea 1982 deals with the high seas. Article 86 provides an implied definition of the term which includes ‘all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a state, or in the archipelagic waters of and archipelagic state’. The principal guiding this area is *freedom of high seas*. The high seas are open to all states, whether coastal or landlocked³². Freedom of the high seas is exercised under the conditions as prescribed by article 87 and by other rules of international law sub-article (C) of Article 87 provides that the freedom to lay submarine cables and pipelines subject to part vi dealing with

³² Article 87. , The Convention on the Law of the Sea, 1982

continental shelf shall rest with all the states whether coastal or landlocked, though it is not an absolute right and is exercised with due regard of the interests of other states.

As the convention provides for the freedom to lay underwater cables and pipelines within article 87, it is subject to part vi relating to continental shelf which means that in exercise of this freedom states are supposed to reasonably combine these activities with the exploration and exploitation of the natural resources of the continental shelf by the coastal states. The freedom is subject to the coastal states right to take reasonable measures for the exploration and exploitation of the continental shelf and prevention, reduction and control of pollution from pipelines.

The 1982 convention included a new freedom i.e. the freedom to construct artificial island and installations. But subject to non-interference of other freedoms of the high seas by any other state such as use of recognized sea lanes essential for international navigation or fishing activities.

The sea bed beyond the limits of national jurisdiction has been declared by the UN general assembly as the “common heritage of mankind”, it meant that the deep sea bed must be explored for the benefit of mankind as a whole, and taking into particular consideration the interests and needs of developing countries³³ the seabed authority shall provide for the equitable sharing of financial and other economic benefits derived from activities in this area through any appropriate mechanism, on a non-discriminatory basis.³⁴

VII. Protection and preservation of Marine Environment from Pollution

The Convention of 1982 divides the pollution affecting the world of ocean mainly into five sources.

- a) Pollution from land based sources (Article 207)
- b) Pollution from sea bed activities including activities in the area (Articles 208 and 209)

³³ See declaration of Principles, General Assembly resolution 2749(XXV)

³⁴ Article 140(2) of 1982 convention

- c) Pollution from dumping (Article 210)
- d) Pollution from vessels (Article 211)
- e) Pollution from or through the atmosphere (Article 212)

The Stockholm conference of the human environment held in 1972 adopted the definition of pollution and then incorporated several regional convention on marine environment protection and ultimately the UN convention on the Law of the Sea, 1982.

The modern international law prohibits marine pollution which causes damage to the other lawful uses of the sea. As the states have the obligation to protect and preserve the marine environment.

The exploration and exploitation of seabed resources as conducted within the limits of national jurisdiction and is regulated by the coastal state. However pollution resulting from such activities can definitely affect the interest of other states and so a minimal of international standards are necessary to prevent pollution from these sources which are to be made and adopted by the seabed authority.

As regards pollution from vessels, sea going ships are the objects of intensive international legal regulation to prevent pollution and in the case of oil, a typical marine pollutant, the responsibility is for less than 50% of the damage. Though oil can be a great danger for the marine environment of the whole area and it is necessary to take effective measures to prevent pollution while exploring, producing or carrying oil via sea.³⁵ The 1982 convention enhances the responsibility of the coastal state and introduces the concept of universal jurisdiction of the port state which empowers the coastal states in regulating the dumping of wastes, thus they are entitled to regulate and control such dumping not only in the territorial sea but also in the EEZ and on the continental shelf.

³⁵ For eg. In 1967, Torrey Canyon disaster and in 1976 Amoco Cadiz disaster on the high seas.

CHAPTER V

INTERNATIONAL ENVIRONMENTAL LEGAL PRINCIPLES GOVERNING DOMESTIC OIL & GAS SECTOR

I. Introduction

The high seas are the world's largest expanse of common space, freely used for navigation, exploitation of their living resources, extraction of mineral wealth, and as a disposal area for the waste products of industry, domestic life, and war. The serious environmental problems emerged in the early 1926 when a draft convention on pollution from ships was drawn up at a conference in Washington which was never opened for signature. The pressure of international competition for living resources led to the conclusion of the first multilateral treaty on seals, fisheries and whaling in the early 20th century³⁶. Though, only after the Second World War the problems of over-exploitation of resources, and the steady increase in effects of pollution from land and sea borne sources reached an intensity which needed a concerted international action. The regulation of marine pollution developed slowly, reflecting the more limited interests of states in this problem, and the scientific limitations regarding understanding of oceanic processes. However, by the late 1960s the awareness of the impact of pollution took a wide spread pace. The 1967 disaster of the *Torrey Canyon* which involved the contamination of large areas of coastline by oil exemplified the risk through large quantities of toxic and hazardous substances at the sea. Various scientific studies conducted in the 1970s and 1980s by JESAMP showed significant pollution of the sea by oil, persistent organic compound, chemicals, nuclear waste and the effluent of urban, industrial society.³⁷ By the 1990s, the impact had become more apparent due to further degradation of marine ecosystems and loss of marine biological diversity.³⁸ All these reasons made the

³⁶ Convention for the preservation and protection of fur seals, 1911; Convention establishing an international Pacific Salmon fisheries commission, 1930; Convention for the regulation of Whaling, 1931

³⁷ Group of Experts on the Scientific Aspects of Marine Pollution, *The state of marine environment, UNEP, 1990*

³⁸ GESAMP, *Reports and studies: Impact of Oil and related chemicals and wastes on the marine environment*, IMO, 1993

protection of marine environment and sustainable use of its resources more significant and issue in the modernization of environmental law at the sea.

Initially, *ad hoc* attempts to regulate specific problems such as pollution from ships or dumping was given substantial impetus by the 1972 Stockholm Conference on the human environment and the 1992 Rio Conference on environment and development. Later, these recommendations led to the adoption of the 1972 London and Oslo dumping convention, and the 1973 MARPOL Convention for the prevention of the pollution from ships. The general principles for the assessment and control of Marine pollution from all sources, including land based and air borne, were also endorsed, and these formed the basis for articles later incorporated in UNEP's regional Seas agreements and in Part XII of the 1982 UNCLOS³⁹.

The UNCLOS 1982 Thus for the first time attempted to provide a global framework for the exploitation and conservation of the seas resources and the protection of the environment. In many respects it has been a model for evolution of international environmental law.⁴⁰ It is thereby understandable that the 1982 UNCLOS is referred to in Agenda 21 of the 1992 capital Rio Conference report as providing ' The international basis upon which to pursue protection and sustainable development of the marine and coastal environment and its resources'. Although Chapter 17 of Agenda 21 introduces several new elements which are not found in UNCLOS, including an emphasis on the precautionary and integrated approaches to protection of the marine and coastal environment.⁴¹ The focus has now shifted towards prevention of environmental degradation and the protection of ecosystems, which was earlier on the control of sources of marine pollution. This report for the first time linked the Exclusive Economic Zone with the sustainable development of the coastal areas and sustainable use of marine living resources. Agenda 21 is not binding of states and cannot amend the 1982 UNCLOS, yet it

³⁹ UN DOC. A/CONF.48/14/REV.1, Action plan, recommendations 86-94, *see also* Intergovernmental working group on marine pollution, UN DOC. A/ CONF.48/8, Para 197

⁴⁰ Report of the UN secretary General on the protection and preservation of the Marine Environment, UNDOC. A/44/461 (1989)

⁴¹ YANKOV ET.AL., *International law and sustainable development*(Oxford, 1999)

can be taken into account when interpreting or implementing the convention. This has encouraged legal developments based on new perspectives. It is hard to conceive of the development of modern law of the sea and the emerging international law of the environment in ocean related matters outside the close association and interplay between Agenda 21 and UNCLOS.

The juridical status of natural resources found in the territorial sea has been established by a report on the Territorial Waters submitted to the League of Nations committee of experts by Dr. Schucking. It provided for the progressive codification of International Law and stated that “In virtue of its right of dominion over the whole area or its territorial waters, the riparian state possesses for itself and for its nationals the sole right of ownership over the riches of the sea”, this includes the fauna found in the waters and also all that may be found above or below the sea bed or sub-soil of the territorial sea⁴². This concept has logically developed due to the idea of exclusiveness which dominates this area over the other parts of the sea, the Coastal State thus has a right over all the resources present and which are to be found in its territorial sea.

II. General Principles of International Law Governing Resource Exploitation and Protection of the Environment

i. Reasonable Use

The principle that common spaces such as the high seas are open for use by all nations entails an obligation not to abuse this option given as a right or to interfere with the freedom of others in an unreasonable manner. The High Seas Convention 1958 within article 2 necessitates states to act with reasonable regard for interests of the other states and the UNCLOS, 1982 reiterates the same principles, The latter convention further provides for the state to fulfill in good faith the obligations assumed under this convention and shall exercise the rights, jurisdictions and the freedoms recognized in this convention in a manner which shall not constitute an abuse of rights.⁴³ In the case of

⁴² League of Nations, Committee of Experts for the Progressive Codification of International Law, Off., No. C. 196, M.70, 1927, V., p. 53

⁴³ Australia and New Zealand vs. Japan (1999), ITLOS Nos. 3 and 4; Chile vs. EC (2001) ITLOS No. 07

Icelandic Fisheries Case, the international court of justice gave a judgment in favour of the United Kingdom whereby it referred to the parties obligation to undertake negotiating procedures in good faith to reach an impartial solution of their differences, and to give a proper and due regard to the interests of other states in the conservation and equitable exploitation of high seas. There is no authority given in a judicial manner for the application of a reasonableness test in judging the permissibility of other forms of pollution but the Quito Protocol to UNEP's Lema Convention for the protection of marine Environment of the South East Pacific, by Article 4(6) of the 1986 Noumea Convention for the protection of the natural resources and environment of the South Pacific Region it can be inferred that pollution from any source which interferes with the uses of the oceans may be illegal. ⁴⁴

Reasonableness is used as an essential base for resolving competing claims where such activities come in conflict which are otherwise of a lawful nature, as such it is not a principle of substantive environmental protection, while as a last resort it may enable that such interests of other states which lead to excessive exploitation of natural resources and pollution are illegal. It is not a substitute for other more concrete rules limiting the right of states to pollute or require sustainable use of resources.

ii. Abuse of Rights

Considering abuse of rights in the form of a general principle of international law shall not be considered unreasonable, but that it is a doctrine which must be used with 'studied restraint'⁴⁵. This concept limits the exercise of rights in bad faith, maliciously, or arbitrarily⁴⁶ It is already an element as examined with regard to the duty to negotiate and consult in good faith as referred to in the *LAC LANOUX* arbitration as well as the *ICELANDIC Fisheries Cases*. This essentially elaborates upon the method of interpreting legal rights and duties⁴⁷.

⁴⁴ The Functions of Law in the International Community (London, 1933), pg. 295 - 306

⁴⁵ Brownlie, *Principles of Public International Law*, (5th Edition, Oxford, 1999) pg. 446-448

⁴⁶ Cheng, *General Principles of Law*, (London, 1953) pg. 121-136

⁴⁷ Friedman, 57 AJIL (1963) pg. 288

The question to be pondered upon is that whether interpreting in such a manner adds anything useful towards the elaboration of rights and obligations which are substantive concerning trans boundary relations , preventing the pollution caused, or the conservation of resources, or not.⁴⁸ It has been observed that in the relative absence of concrete rules and prohibitions of International law, abuse of rights offered a general principle from which judicial organs might construct an international tort law in accordance with the needs of interdependent states.⁴⁹ Though the generality of nascent rules of law which afterwards developed much greater particularity by way of codification and elaboration, primarily in treaty form, play a larger role. It can very well be concluded that international illegality is constituted by a failure of fulfilling an international obligation, and that ‘abuse of rights would be nothing else but failure to comply with a positive rule of international law thereby enunciated’.⁵⁰ Abuse of rights is thus not an independent principle and it simply goes on to represent an expression of the limits intrinsic in the formulation of certain rights as well as the obligations which now form part of international law.

iii. Equity and Equitable Utilization

Equitable solutions are seen by most writers to be required while finding solutions for environmental problems in which more actual rules of law are interpreted or displaced in the favour of an *Ad hoc* balancing of interests. Within this interpretation equity is a little different from concepts of reasonableness or abuse of rights and suffers the same objections of encouraging instability and relativity in the legal system. Though there is nothing that stops states from settling the disputes in a manner which is equitable, but determining international law should never be confused along with the political aspect of statesmanship. However, in certain situations, rules of law may require resorting to equity for resolving disputes. “Equitable utilization” is usually regarded as being the primary rule of customary law which governs the use and allocation of international water courses.

⁴⁸ Cheng, *General Principles of Law*, (Cambridge, 1987)

⁴⁹ THE FUNCTION OF LAW IN INTERNATIONAL COMMUNITY (London, 1933), pg. 295-306

⁵⁰ Greenwood, *Control over Compliance with International Law*, 1991 pg. 195

The equitable utilization of resources necessitates a balance of interests and consideration regarding all of the relevant factors. The manner in which such factors are to be balance depends completely upon the background of each case, and the discretion of the judges or other decision makers. The international practice and explicit recognition of relevant criterion in treaties or other instruments also helps in structuring an opinion.⁵¹ Though, this principle is not highly suitable for accommodating interests which are common in nature, or the protection of common areas as it requires a wider depiction in any process for shaping the balance of interests and equitable utilization is sometimes deficient in addressing environmental problems only from the perspective of those states sharing sovereignty over the resource or being engaged in its definite exploitation.⁵²

iv. Non discrimination

The convention on the Trans boundary effects of industrial accidents among “principles of international law and customs” provides for non-discrimination in its preamble. It is accepted to be such a general principle which is still emerging in nature, and is also widely acceptable in Europe and North America and Albeit with preservation, in relations with developing states.⁵³ This principle provides for giving and equivalent treatment to the domestic and Trans boundary effect of pollutant or environmentally harmful activities. It requires states with higher domestic standards to apply the same legal standards regarding activities with external effects. For e.g. The Nordic Convention on protection of the environment, 1974 within Article 2 obliges parties to equate domestic and Trans boundary nuisances when considering the permissibility of environmentally harmful activities. Potentially, chances are that it could have consequences leading towards such problems as trade in endangered species, exporting of genetically modified organisms, or sustainable use of natural resources.

v. Sustainable Development

⁵¹ UN Convention on Non Navigational uses of International Watercourses, United Nations

⁵² Boyle, 14 *Marine Policy* (1990), pg. 151

⁵³ Schachter, *Sharing the World's Resources*, pg. 70

Principle 4 from the Rio declaration provides that environmental protection shall constitute an essential part of the development process, it cannot be considered in isolation from it. Integration permeates the Rio Instruments,⁵⁴ as well as Agenda 21,⁵⁵ and it is reflected in subsequent agreements and declarations including the 1994 Convention to Combat Desertification and the 1995 Washington Declaration on Protection of the Marine Environment from land based activities. Integration had also been endorsed, although not in obligatory terms, in the 1972 Stockholm Declaration;⁵⁶ it has since been incorporated in certain regional agreements such as Pacific Protocol of 1983, Kuwait Protocol, 1990, Caribbean Protocol, 1999 and has become a concern of much national environmental law and policy such as the Mediterranean Protocol, 1996 and Kuwait Protocol 1998.

As we have seen, the need to integrate environmental pollution and economic development was regarded by the ICJ as one of the decisive elements of the *Gabcikovo-Nagymaros Case*.⁵⁷

Principle 3 of the Rio Declaration is the first occasion on which the community has fully endorsed the previously controversial concept of a 'Right to Development'.⁵⁸ Though it is not considered as being a right at all, and the point to its uncertain character on the 'Declaration of Right to Development' adopted by the general assembly in 1986 and reiterated in the 1993 Vienna Declaration on the Human Rights.⁵⁹ Composed of an amalgam of Inter-state obligations, collective rights, and individual rights, the Right to Development is sometimes referred to as the 'third generation' human right; others see it

⁵⁴ UNGA, 51st Session, REPT of the 6th Committee working Group, GAOR, A/51/869 (1997), Para. 8.

⁵⁵ 1997 UN Watercourses Convention, Article 6 (3); REPT. Of the ILC (1994), 235; ILA 1966 Helsinki Rules, Commentary 489

⁵⁶ Scovazzi, *Marine Especially Protected Areas: The General Aspects and the Mediterranean Regional System (The Hague, 1999 Chapter 2)*

⁵⁷ Hass, 9 Ocean YB (1991), ad 211

⁵⁸ Soons, *Implementation of the Law of Sea Convention through International Institutions*, Honolulu (1990)

⁵⁹ Lammers, *Pollution of International Watercourses (The Hague, 1984)*, 110-13

as unnecessary and unhelpful to the promotion either of development or of human rights.⁶⁰

The 1992 Rio Declaration comprises no specific provision in regard with the Natural Resources, principle 8 of the Rio Declaration provides provisions only of the need to “reduce and eliminate unsustainable patterns of production and consumption”. Though, the idea that sustainable development evolves certain limits upon the consumption of the resources such as land, water and other natural resources can be observed in the climate change, biological diversity, and desertification agreements, and the terms ‘sustainable utilization’ or ‘sustainable use’ are expressly engaged in many of the important Rio or post Rio agreements.

It stands to be an open question now that how far can the International Law impose on states a general obligation of conservation and use of natural resources and the natural environment in a sustainable manner.

The evidence of treaty commitments, coupled with indications of supporting state practice, might be sufficient to crystalize sustainable use along with conserving the Natural Resources into an independent normative standard with relation to the International Law.⁶¹

However, the discretion is upon the states for giving effect to a particular principle, unless specific international action has been agreed. Thus, only where specific International regimes are already developed, as in the management of water resources and fisheries can it be said that the concept of sustainable use has developed some potential material and can thereby be used for judging the extent of Natural Resource exploitation.

⁶⁰Boundary Waters Treaty, 1909, *Supra*, N. 15.

⁶¹ See Article 3(3), *And agreeen statements of Understanding in UNGA, 51st Session Rept. Of 6th committee Working Group, GAOR A/51/869 (1997) para. 8, in 36 ILM (1997) 719.*

CHAPTER VI

CORPORATE SOCIAL RESPONSIBILITY AND THE ENVIRONMENT

Diverse factors have a role to play behind the CSR programs undertaken by a company. Neither logically nor practically is it possible for various different corporate setups to opt for similar activities or programs. Factors such as the societal environment in which the company functions, the industry and the business operations, the factors which motivate the people who govern and run a particular company are few of them.

The kernel of theories and policies is development studies and economics which have wellbeing and sustainability as its center. Understanding such complex phenomena as Corporate Social Responsibility requires taking into account the economic dimension, the business sphere and its overall impact upon the society. The most important in the present scenario is to undertake development, sustainability and business objectives all in view while formulating theories, policies as well as understanding the impact of a business.

New measurements are now prevalent in the Public as well as the Private sector sustainability, these are based upon the most recent scientific interpretations, the theories of human, sustainable and local development along with the corporate sustainability theories.⁶² Even within the international community a consensus is being tried to be achieved between the theories and the measurements.⁶³ Various theories have been discussed in relation with the measurements which can be adopted by the companies in the form of an apt Corporate Social Responsibility.

I. Evolution of Sustainable Development and Corporate Sustainability

Sustainable development is a people driven approach and it highly depends more upon the people involved apart from being tailored on environmental purposes.⁶⁴ The quality of dealing with various fields of study is the primary characteristic of sustainable

⁶² Andrea Gatto, *A pluralistic approach to economic and business sustainability: A critical meta-synthesis of foundations, metrics, and evidence of human and local development*, (Wiley 1525) (wileyonlinelibrary.com/journal/csr)

⁶³ UN, General Assembly (2015), *Transforming our world: The 2030 Agenda for Sustainable Development*, Draft Resolution

⁶⁴ Griggs et. al., *Policy: Sustainable development goals for people and planet*, Nature 495(7441), 305-307

development and, ⁶⁵ more generally, it provides a holistic approach towards development.⁶⁶

The roots of Sustainable Development go back to the lessons of the Club of Rome and Aurelio Peccei, a forerunner of sustainable development. The report termed as *Limits to Growth*, commissioned by the MIT to the Club of Rome in 1972, gives a clear reflection of the prevalent environmental issue and the need for sustainability of economic systems. Various factors were included like environmental degradation, future of the resources, and climate change which led to a long-term thinking and predictive analysis.⁶⁷ In the same year the UN Conference on Human Environment took place in Stockholm, it was the very first International Environmental Summit. In an attempt to gain consensus and popularity for Sustainable Development various international actions were taken, the last one being a part of United Nations Environment Program, even though the objective of gardening awareness was achieved it also led to a social unrest.⁶⁸ In 1987, the United Nations Common World Environment and Development report was published titled *Our Common Future*, it laid the foundation for sustainable development at an international level in a consolidated manner.⁶⁹ Among the most notable events which took place thereafter have been the Earth Summit, the 1992 UN Conference in Rio de Janeiro which led to the Rio Declaration and Agenda 21, and the controversial 1997 Kyoto Protocol which aimed at reducing greenhouse gas emissions by signatory countries. In 2010 the European Commission underlined to achieve “measurable” objectives by 2020. The 2012 United Nations Conference on Sustainable Development, Rio +20, delivered the document *The Future we want*. And finally, the intergovernmental path on sustainable development and the implementation of the post-2015 sustainable development goals

⁶⁵ UN (2019), *The Sustainable Development Goals Report*, New York, 2019

⁶⁶ Gupta & Vegelin (2016), *Sustainable Development Goals and inclusive development*, International Environmental Agreements: Politics, Law and Economics, 16(3), 433-448

⁶⁷ Meadows et. al., *The Limits to Growth*, A Report to the Club of Rome, 1972

⁶⁸ Gaffney O, *Quiet Green revolution starts to make some noise*, Nature News, 505(7485), 587

⁶⁹ Andrea Gatto, *A pluralistic approach to economic and business sustainability: A critical meta-synthesis of foundations, metrics, and evidence of human and local development*, Corporate Social Responsibility and Environmental Management (2020) 27:1525-1539 (wileyonlinelibrary.com/journal/csr)

(SDGs) which have been drafted as transparent intergovernmental processes open to all stakeholders”⁷⁰.

The best examples of Real-world application of sustainable development can be found among the business and institutional domains. Among the most notable, The Latin American constitutionalism and corporate sustainability pioneering projects. Several Latin American constitutions include sustainability as a paramount concept along with various ecological principles which allow a novel interpretation for the role of nature and above all—the concept of common-pool resource governance.⁷¹ In terms of industrial ideas a decision can be made upon designing and fostering long-term thinking and sustainable production and consumption styles, as well as corporate and community wellbeing. In this framework, value co-creation within ethical consumption can only be achieved via awareness and engagement of authorities towards this cause.⁷²

Industry comes as no exception towards sustainability.⁷³ Theoretically, various formulations and metrics are put in place in an attempt to quantify sustainability and wellbeing. The Bruntland Report and Grand Development agreements marking the milestones for a firm’s sustainability progress and responsibility. Now, the economy oriented aggregates have been taken over by management theories that have been increasingly attentive to an approach oriented towards economic and corporate sustainability, thus yielding various concepts.⁷⁴ The earlier theories presented the limit of being as explicitly addressed to the satisfaction of a single category of stakeholders—i.e. property (or shareholders). The issue with the sole satisfaction of this category was the need to maximize a single type of resources, which fell within the classical material

⁷⁰ UN, General Assembly (2015), *Transforming our world: The 2030 Agenda for Sustainable Development*, Draft Resolution

⁷¹ Melo & Gatto, *Água como bem comum no quadro da governança democrática: algumas reflexões críticas a partir das bases da economia ecológica e sobre a necessidade de um novo direito public*, *Novos Estudos Jurídicos*, 19(1), 95–121 (2014)

⁷² Tregua et. al., *Being Social for Social: A co-creation perspective*. *Journal of Service Theory and Practice* (2015), 25(2) 198

⁷³ Moon, J. (2007), *The contribution of corporate social responsibility to sustainable development*, *Sustainable Development*, 15(5), 296–306

⁷⁴ Dobers, *Corporate social responsibility: Management and methods*. *Corporate Social Responsibility and Environmental Management*, 16(4), 185–191 (2009)

resources, thus, a single imperative was elected as the guiding criteria of management and governance.⁷⁵ Over the years, it was a gradual shift towards implementation of a multi-stakeholder approach after dissatisfaction emerged from the main business theories, which led to the rethinking of such consolidated assumptions and requirements.

Towards the early 1980s began the implementation of management studies in a manner where human being was kept at the center of the operating result. A few theories had already been tried as a directive strategy, one being during the 1940s at Toyota's plants. It characterized on the one hand by a production system aimed at finding quality for the entire supply chain with the ultimate goal of satisfying the customer, and on the other hand it focused upon making the processes more efficient via management innovations through lean production and involvement of employees and suppliers. The involvement of stakeholders led to the ethical footprint reflecting on the quality of work and the role of the worker in the production chain, no longer just a gear, but a trained, self-realized technician, engineer or worker. The main contribution to the stakeholder theory is the turning point of the stakeholder role according to the company objectives.⁷⁶

This point onwards, management priorities started being reviewed in accordance with the needs of all the stakeholders and not exclusively those within the company. The executive board now takes into account the needs of suppliers, customers and interest groups and lobbies having an active part in the decision making process together with shareholders, managers and employees. In this process, ethics became fundamental to direct decision making in business management activity, thereby, contributing towards an overall decisions of corporation and the governance approach.⁷⁷ In this manner the intangible resources are thus contemplated with the material ones. Also, the locally produced goods within the territory play an important role in bringing together the different spheres and needs of the groups involved along with contributing to the wellbeing and sustainability of the complex organization. Even though CSR did not reach

⁷⁵ Sciarelli, *Etica e responsabilità sociale nell'impresa*, Giuffrè Editore (2007)

⁷⁶ Freeman, *Strategic management: A stakeholder approach*, New York: Cambridge University Press (2010)

⁷⁷ Carroll, *The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders*, *Business Horizons*, 34(4), 39–48 (1991)

an univocal academic definition nor an unambiguous practical business interpretation, CSR is widely considered to be vital for a corporation's success.⁷⁸ And such assumptions have led the main lines of managerial research turn to the interest of corporate sustainability, rooted in the territory, within networks, in consideration of the person and their interactions, and in the environmental context and the community dimension in which we live.

II. Measures towards CSR management

Over the years, an increasing amount of attention has been gained by CSR measurements.⁷⁹ The Corporate sustainability metrics have often focused upon diverse stakeholders perspectives.⁸⁰ The corporate Social performance and the sustainability balanced scorecard are among the best proofs which can be provided regarding this matter. The most important initiatives in this field are the *vademecum advanced* by the Global Reporting Initiative (GRI) which is an international independent standards organization that helps businesses, governments and other organizations understand as well as communicate their impact upon issues like climate change, human rights and corruption and the *ISO 26000* as developed by the International Organization for Standardization; these have gained an international prominence.

In 2000, the GRI launched its first guidelines for the sustainability report, addressing any type of public or private organization, of any size. Even though the basic aim was to provide these organizations with a tool for reporting economic, social and environmental impact of its own management performance while enhancing managerial transparency, in 2013 GRI ended up presenting its fourth version —2013—(G4), which presented 91 indicators and

⁷⁸ Danilovic et. al., *Exploring diffusion and dynamics of corporate social responsibility*, Corporate Social Responsibility and Environmental Management, 22(3),129–141 (2015)

⁷⁹ Dobers, Corporate social responsibility: Management and methods. Corporate Social Responsibility and Environmental Management, 16(4), 185–191 (2009)

⁸⁰ Antolín-López et. al., *Deconstructing corporate sustainability: A comparison of different stakeholder metrics*, Journal of Cleaner Production, 136, 5–17 (2016)

58 standard information for measuring the impact of an organization's sustainability.⁸¹

Another important document in this regard is *The Guide to Corporate Sustainability* given by the UN Global Compact. It recommends five cardinal principles for the firms to observe as a step towards sustainability:-⁸²

- i. Principled Business;
- ii. Strengthening Society;
- iii. Leadership Commitment;
- iv. Reporting Progress; and
- v. Local Action

These methods have given the firms a base on which they can build their measurements for the purpose of operating responsibly by way of following the universal principles, taking actions for the local society and committing through periodic reports. Among all the standards, ISO 26000: 2010 recalls the most standards of sustainability. It is so, because it entails the guiding principles for CSR being based upon the application of ethical principles and management transparency in concrete management solutions, which aims at improving the health and well being of the community along with promoting good practices.

Both ISO and GRI take into account the stakeholder analysis as carried out by the stakeholder theory which has been discussed earlier in the chapter. They both together propose solutions which contribute to sustainability of long-term development.

Another notable report is "*Beyond the financial data: businesses and collective wellbeing*" by ISTAT together with the CSR Manager Network Italy in March 2013, it proposed 10 indicators. The major aim was reorganizing and unifying the methods available for calculation used by the companies for evaluating their performance.⁸³ This

⁸¹ Global Reporting Initiative, G4 Sustainability Reporting Guidelines(2015)

⁸² UN, Global Compact, GUIDE TO CORPORATE SUSTAINABILITY, SHAPING A SUSTAINABLE FUTURE (2014)

⁸³ CSR Manager-ISTAT , Oltre il dato finanziario: Imprese e benessere collettivo. L'importanza dell'armonizzazione tra bilanci sociali delle grandi imprese e statistiche ufficiali (2015); The following parameters are examined: (a) Direct economic value generated and distributed (corresponding to the EC1 indicator of the GRI); (b) direct energy consumption (EN3); (c) expenses and investments to protect the environment (EN30); (d) total direct and indirect greenhouse gas emissions (EN16); (e) composition of

tool integrated sustainability reports along with national macroeconomic records which was immediately-usable. It provided a bridge between the managerial and economic sustainability along with being able to sketch the private sector contribution towards national wellbeing.

Another relevant instrument is the SDG Compass, it is created by the GRI⁸⁴ The document, as presented in parallel to the agreements for the approval of the Agenda 2030, provides for a *vademecum* to facilitate the Sustainable Development Goals (SDGs) in a company. The SDG Compass needs a company to follow the essential steps of implementation of a strategic framework of sustainability within a company and of company activities, further followed by communication and reporting of the real and impact possible futures concerning operations and objectives achieved, in social, economic and environmental terms.⁸⁵

III. Corporate Sustainability Reporting

The evolution of the concept of Sustainability has influenced the Corporate Sustainability Reporting. Infact, their evolution seems being of a parallel nature. CSR can be viewed as a social contract which the firms sign along with the members of the society.⁸⁶ The multi-dimensional orientation of corporate reports for sustainability issues might lead to a further improvement in dialogue between the stakeholders and firms.⁸⁷

After the Brundtland report, the content of corporate reporting shifted more towards environmental issues along with the social issues. In the 80s various scholars put an emphasis upon environmental disclosures of corporate

employees (LA1); (f) Staff turnover (LA2); (g) average annual training hours per employee (LA10); (h) ratio of basic salary of men and women (LA14); (i) postmaternity return rate (LA15); and (j) number of violations for discrimination (HR4)

⁸⁴ Global Reporting Initiative, which is the World Business Council for Sustainable Development and United Nations Global Compact.

⁸⁵ UN Global Compact, SDG COMPASS, THE GUIDE FOR BUSINESS ACTION ON THE SDGs (2015)

⁸⁶ Bowen, *Social responsibility of the businessman*, New York, NY: Harper and Row (1953)

⁸⁷ Nikolaou & Evangelinos, *Classifying current social responsibility accounting methods for assisting a dialogue between business and society*. *Social Responsibility Journal*, 6(4), 562–580 (2010) (<https://doi.org/10.1108/17471111011083446>)

reporting, which were mainly examined via content analysis and scoring techniques.⁸⁸ The environmental reports of firms were analyzed and environmental issues like air pollution and water management were emphasized upon along with analyzing the amount of information for each category and the financial and non-financial character of information. Towards the 90s, many scholars put an emphasis upon the triple-bottom-line orientation of corporate reporting,⁸⁹ this approach led towards identifying the quality of disclosures in corporate sustainability reports for issues regarding economic, environmental and social sustainability,⁹⁰ using either the content analysis or scoring systems.⁹¹ The United Nations Conference on “Environment and Development in 1992 revealed the considerable role of social actors in meeting the basic goals of Sustainable Development.⁹² The world of firms and businesses introduced these changes in the form of “eco-efficiency” and “clean-production” approaches.⁹³ The aim is basically to contribute towards environmental protection with reduced costs and make products using less natural resources.⁹⁴

⁸⁸ Ingram & Frazier, *Environmental performance and corporate disclosure*, Journal of Accounting Research, 18(2), 614–622. (1980) (<https://doi.org/10.2307/2490597>); Wiseman, An evaluation of environmental disclosures made in corporate annual reports. Accounting, Organizations and Society, 7(1) 53–63 (1982)([https://doi.org/10.1016/0361-3682\(82\)90025-3](https://doi.org/10.1016/0361-3682(82)90025-3))

⁸⁹ Milne & Gray, *W(h)ither ecology? The triple bottom line, the global reporting initiative, and corporate sustainability reporting*. Journal of Business Ethics, 118(1), 13–29 (2013) (<https://doi.org/10.1007/s10551-012-1543-8>)

⁹⁰ Jennifer Ho & Taylor, *An empirical analysis of triple bottom-line reporting and its determinants: Evidence from the United States and Japan*, Journal of International Financial Management & Accounting, 18(2), 123–150 (2007) (<https://doi.org/10.1111/j.1467-646X.2007.01010.x>)

⁹¹ Mio, *Corporate social reporting in Italian multi-utility companies: An empirical analysis*, Corporate Social Responsibility and Environmental Management, 17(5), 247–271 (2010) (<https://doi.org/10.1002/csr.213>)

⁹² Mebratu, Sustainability and sustainable development: Historical and conceptual review, Environmental Impact Assessment Review, 18(6), 493–520 (1998) ([https://doi.org/10.1016/S0195-9255\(98\)00019-5](https://doi.org/10.1016/S0195-9255(98)00019-5))

⁹³ World Business Council for Sustainable Development (WBCSD), *Eco-efficiency. Creating more value with less impact*, World Business Council for Sustainable Development, Geneva, 32 (2000)

⁹⁴ Alves & Dumke de Medeiros, *Eco-efficiency in microenterprises and small firms: A case study in the automotive services sector*, Journal of Cleaner Production, 108, 595–602 (2015) (<https://doi.org/10.1016/j.jclepro.2015.07.063>)

In 2002, the United Nations World Summit on Sustainable Development was held in Johannesburg, it gave a major milestone to the concept of sustainability, emphasizing upon the three dimensions, i.e. economy, environment and society.⁹⁵ This is known as the *triple bottom line concept* which implies that businesses simultaneously work upon a better financial performance, environmental protection goals and equity for societies.⁹⁶

IV. Financial Impact of Climate Change Mitigation Policies

The implementations of environmental practices have a significant effect on a company's financial performance, based upon the production costs related with environmental innovations the profitability is determined—Lower production costs and increased profitability or vice-versa. Various studies demonstrate that environmental disclosure has a visible effect upon the financial performance of the firm.⁹⁷ Accounting and Climate Change have a proactive role and not a passive role to play, thereby, reveals the cognitive effects in the methodological constructs.⁹⁸

According to the evaluations of the sustainability reports, disclosures of environmental impact affect financial performance of large firms and companies, considering the natural-resource based view and the stakeholder theory it can be very well concluded that adoption of environmental practices for core operations allows a firm to reduce environmental risks which further leads to reduction of production costs.⁹⁹ This further enhances the relationship

⁹⁵ Moldan et. al., *How to understand and measure environmental sustainability: Indicators and targets*, Ecological Indicators, 17, 4–13 (2012) (<https://doi.org/10.1016/j.ecolind.2011.04.033>)

⁹⁶ Elkington, *Cannibals with forks: The triple bottom line of 21st century business*, Gabriola Island. British Columbia: New Society Publishers (1998)

⁹⁷ Giannarakis et. al., *Determinants of corporate climate change disclosure for European firms*, Corporate Social Responsibility and Environmental Management, 25(3), 281–294 (2018)(<https://doi.org/10.1002/csr.1461>)

⁹⁸ Dixon-Fowler et. al., *Beyond “does it pay to be green?” a meta-analysis of moderators of the CEP–CFP relationship*, Journal of Business Ethics, 112(2), 353–366, (2013)(<https://doi.org/10.1007/s10551-012-1268-8>)

⁹⁹ Secinaro et. al., *Impact of climate change mitigation policies on corporate financial performance: Evidence-based on European Publicly listed firms*, Corporate Social Responsibility and Environmental Management, 27, 2491–2501 (2020)([wileyonlinelibrary.com/journal/csr](https://www.wileyonlinelibrary.com/journal/csr))

between the business and its stakeholders, thereby, contributing towards strengthening the competitive advantage of firms and improving its overall corporate financial performance in the long-run.

V. Oil and Gas Sector and Corporate Social Responsibility

The companies which have a direct impact upon the environment should work towards establishing long-term measures like adopting efficient green technologies and acquiring environmentally compatible systems for mitigating the impacts of climate change on their financial performance. The companies must be resilient in identifying strategic risks and opportunities which arise from climate change.¹⁰⁰

A carbon tracker report notes that major publicly listed oil and gas companies must slash their combined production by over a third in next two decades to meet the world climate commitments.¹⁰¹

The currently achieved targets of fossil fuel firms do not align with the 2015 Paris Agreement; this clearly shows that the companies require to adjust their accounts for mitigating their climate change impact. Every company's carbon budget relies upon its low-cost and low-carbon projects in its portfolio. Analyzing the budget portfolios of major oil companies in Europe for determining which projects shall be economically viable if the global temperature rises by 2°C brought forward the view that the companies are required to achieve a balance between their financial portfolios and carbon budgets.¹⁰²

The most aligned with the Paris Agreement is The Royal Dutch Shell Company in Europe, it only requires to cut 10% of its output since it has the most low-cost and low-carbon projects that would still remain economically

¹⁰⁰ Amran et.al., *Business strategy for climate change: An ASEAN perspective*, Corporate Social Responsibility and Environmental Management, 23, 213–227 (2016) (<https://doi.org/10.1002/csr.1371>)

¹⁰¹ Bach, *Is the oil and gas industry serious about climate action?*, Environment, Science and Policy for Sustainable Development, 59(2), 4–15 (2017) (<https://doi.org/10.1080/00139157.2017.1274579>)

¹⁰² Piven, *Paris targets: Oil majors must cut output 35 percent through 2040*, Al Jazeera News,(2019) (<https://www.aljazeera.com/ajimpact/paris-targets-oil-majors-cut-output-35-percent-2040-191031150056357.html>)

viable in a scenario where there is a global temperature rise of 2°C.¹⁰³ Glencore Xstrata, in its accounting, seeks to sustainably grow its total shareholder' returns by meeting the changing needs of crucial maturing economies, the need is to align with climate change goals. In its financial statements from 2013 to 2017, Glencore Xstrata maintained a robust and flexible balance sheet that focused on operational efficiencies, cost controls, and full integration of sustainability throughout its business.

Forty-Seven percent of publicly listed companies in Europe follow the procedure of reward as an incentive to its senior management for meeting the climate change targets. Besides, 80% of the companies perceive that certain business risks exist when adapting to climate change policies. French companies have the best sustainability trend in Europe since seven out of every ten companies appear in carbon disclosure project (CDP) A list. Overall by 2020, 72% of total European companies use different climate scenarios as a basis to inform their business strategies. The correlation between climate change and financial performance comes from legislation as well as investors.¹⁰⁴ In Europe, most companies which conform to scientifically tested targets to lower Green House Gas Emission, in line with the Paris Agreement, have grown by 65% in one year time period, reflecting the correlation between climate change and firm performance. In conclusion, what is need of the hour is a low-carbon economy and all measures to be taken at the governmental level as well as at a corporate level to keep the emissions from increasing the temperature above 2°C should be implemented and executed to the best of practices.¹⁰⁵

¹⁰³ *Id*

¹⁰⁴ Ganda & Milondzo, The impact of carbon emissions on corporate financial performance: Evidence from the South African firms. *Sustainability*, 10(7), 2398 (2018)(<https://doi.org/10.3390/su10072398>)

¹⁰⁵ IPCC (2020). IPCC, 2018: Summary for policymakers. An IPCC Special Report on the impacts of global warming above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty, Geneva, Switzerland: World Meteorological Organization. (Retrieved from <https://www.ipcc.ch/sr15/>)

CHAPTER VII

WAY FORWARD

A case study upon the Oil and Gas Industry of countries which have a brilliant experience in the sector and where the regulatory regime has over time developed to prove being an efficient system provides a way towards which India can move forward upon.

I. Case Study on United Kingdom

The Department for Business Energy and Industrial Strategy or the BEIS is responsible for setting up the climate change and energy related mitigating policies and for establishing a framework related with policy matters in UK. And, 1st April 2015 onwards, the Oil and Gas Authority replaced the Department for Energy and Climate Change (DECC) as the responsible entity for the petroleum licensing and regulation of the oil and gas sector in the upstream including the decommissioning and the enforcement of environmental legislation which are applicable to upstream oil and gas sector.

Though, the Secretary of State is given the overall responsibility related with the business of BEIS and its policies and is responsible to execute various powers given by the Petroleum Act 1998 and legislations related therewith, the Energy Act 2016 transferred many of these powers to the Oil and Gas Authority after coming in force in May 2016.

The Department for Business Energy and Industrial Strategy has its Office of Unconventional Gas and Oil which promotes the safe and sound recovery of oil and gas along with proper environmental protection.

The United Kingdom also has the office of The Health and Safety Executive which is responsible for enforcing health and safety legislation. The Energy division in particular regulates the risks involved due to the activities in the offshore Oil and Gas industry.

Moreover, a regulator is assigned for the Offshore Oil and Gas operations in particular. The Offshore Safety Directive Regulator (OSDR) is the authority competent for overseeing industry compliance particularly in the offshore. This provides for a focused

regulation, thereby a better implementation and execution of laws and policies governing the sector which leads to the compliance being overseen in the best possible manner.

i. Licensing

The Oil and Gas authority is the whole and sole regulatory body for providing licenses and there is no national oil company in the United Kingdom which is directly involved in Oil and Gas exploration and production activities unlike in India where the entire sector is dominated by Public Sector Undertakings. The licenses can be held by multiple companies or a single company, but, the liability shall be upon all the companies which are named on the license, liability being jointly or severally. They are made to be liable for all the operations conducted under the license. The directives make it essential for the licensees to prevent any environmental damage and also remediate any environmental damage which is caused by the offshore oil and gas activities which are carried out.¹⁰⁶

ii. Health and Safety

The legislation which deals with the Health and Safety in United Kingdom, which also includes the offshore is a one covering a wide ambit and having a far reaching implication. It is a complex legislation, the primary one being the Health & Safety at Work Act 1974 (HSWA), this imposes a criminal liability upon the individuals in breach and the company, whosoever breaches the law.

The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 and the Control of Major Accident Hazards Regulations, 2015, which came in force on 1 June 2015, revoking the Regulation of 1999 are the extensive legislations applying to the oil and gas industry which imposes civil liability and can also trigger strict liability.

The Health and Safety Executive (HSE) provides for Approved Codes of Practice (ACOP) which gives a practical advice regarding compliance with the law, these have a special legal status. The international health and safety standards are also considered. The HSE has an Energy Division (ED) which is responsible for all the activities in the offshore oil and gas industry on the Continental Shelf of United Kingdom.

¹⁰⁶ Offshore Safety Directive, Directive 2013/30/EU

The Piper Alpha Disaster, 1988

This accident is considered being the worst offshore oil disaster in terms of lives lost and the industry impact caused.¹⁰⁷ Piper Alpha was an Oil producing platform in the North Sea, approximately 190 kms north of the city of Aberdeen, Scotland. It was operated by Occidental Petroleum (Caledonia) Limited and began its production in 1976. An explosion followed by oil and gas catching fire resulted in 167 killings and thirty bodies were never found. At that time, this platform accounted for ten percent of North Sea Oil and Gas production.¹⁰⁸

Following this disaster of 1988, a public inquiry was conducted and the Report of Lord Cullen led to some major changes to the regulatory regime.

The license holders who are the 'duty holders' are required to:

- a) Need to have the ability and means to control major accident risks and prepare a safety case for the same;
- b) While the preparation, review and revision of the safety case is in progress they need to consult the installation's safety representative;
- c) Look towards the implementation of effective measures for preventing uncontrolled release of flammable or explosive substances;
- d) Look towards the operation of the installation in compliance with the arrangements described in the current safety case;
- e) Look after maintaining the integrity of the installation's structure, process plant, temporary refuge and all the other equipment;
- f) Look after the maintenance of the pipelines and the wells throughout its lifecycle;
- g) Prepare an emergency plan for any such situation which may occur;

The Lord Cullen's report gave the establishment of a safety case regime as a central recommendation after the Piper Alpha case, according to this, every owner or operator needs to prepare a safety plan and submit the safe to the regulator before commencement of operations on the installation.

¹⁰⁷ Steven Duff, *Remembering Piper Alpha Disaster*, BBC News (6th June 2008)

¹⁰⁸ Peter Ross, *The Night the sea caught Fire: Remembering Piper Alpha*, The Scotsman (13th June 2008)

The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (SCR) came into force on 19th July, 2015 and replaced the Offshore Installations (Safety Case) Regulations 2005. Now, the new regulation governs the oil and gas operations in the external waters, i.e. the territorial sea or the designated areas within the United Nations Continental Shelf only.

iii. Environmental Permits

The Offshore Combustion Installations (Prevention and Control of Pollution) Regulations 2013 requires the operating companies to acquire a permit regarding any combustion equipment which are to be used on offshore platforms and other installations in the offshore.

The Offshore Chemicals Regulations 2002 provide for the requirement of operators to apply for permits if there is going to be the use or/and discharge of chemicals during the Oil and Gas activities which shall include well digging, production, pipeline and decommissioning operations.

The Offshore Installations (Emergency Pollution Control) Regulations 2002 and The Merchant Shipping (Oil Pollution Preparedness, Response & Cooperation Convention) Regulations 1998 are the major legislative frameworks within which potential environmental incidents in the offshore are regulated.

In April 2010, a *Deep water Horizon incident* took place in the Gulf of Mexico which led to the European Commission concluding that the regulatory framework in Europe with regard to the safety of offshore oil and gas operations , and as a result the European Commission on 28th June 2013, published the Offshore Safety Directive which was also implemented in the Offshore Installations (Offshore Safety Directive) (Safety Case) Regulations 2015 by the Health and Safety Executive. These directives required the establishment of an offshore competent authority. The Offshore Safety Directive Regulator was thereby established.

iv. Waste Management

The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 have imposed the building of a permitting system for the purpose of controlling oil discharges from an offshore installation. The enforcement powers are available with the Department for Business Energy and Industrial Strategy (BEIS). It has the authority to recover costs and bring back the polluted area to the state in which it existed before.

Before discharging Oil and Gas a permit is required to be taken which is known as the Oil Discharge Permit and it can be obtained by way of an application which is made through the portal application process. It includes the details regarding the measures which are to be taken for the purpose of reducing pollution by way of conducting an assessment of the techniques which are available and choosing the best of them along with the best environmental practices. A permit holder is not allowed to make any such discharge for which he has not been authorized within the permit and shall be guilty of a criminal offence in case such an act takes place.

This permit is not required in case of discharge of hydrocarbons which are submit to any permit within the Offshore Chemicals Regulations 2002 and the amended regulations therewith which are responsible for controlling the use and discharge of the offshore chemicals.

II. Analysis

As it can be seen that United Kingdom has a comprehensive set of legislations which govern the Oil and Gas sector and the Offshore sector in particular. Also, the absence of public sector companies in the sector saves the industry from manipulation regarding the execution of laws and policies in any manner. The detailed provisions and procedures provide for a comprehensive set of rules guiding the officials and the parties involved in the operations. Also the criminal nature of the liability involved proves being a reason for the pro-activeness of the authorities as well as the companies which carry out the operations.

CHAPTER VIII

CONCLUSION AND SUGGESTIONS

One of the major issues with the upstream sector of Oil and Gas in India is that it does not have an independent body for its regulation and the offshore sector lacks laws and policies which are developed focusing upon the offshore sector in particular.

The Directorate General of Hydrocarbons (DGH), is the body for the technical governance of this sector and is the technical arm of The Ministry of Petroleum and Natural Gas, was formed in 1993.¹⁰⁹ The objective of the body as stated is “to promote exploration and sound management of the petroleum and natural gas resources as also non- conventional hydrocarbon energy resources having balanced regard for the environment, safety, technological and economic aspects”.

The DGH has been delegated the task of supervising the overall development of the Oil and Gas sector and has been given the responsibility for evolvement as the technical body for the same, however as it falls under the administration of MoPNG and lacks a status of statutory nature, this limits its powers and hence reduces the efficiency of the functioning of DGH.

Moreover, the structure and individuality of the members of DGH raises concerns as they are mostly appointed on delegation from the oil companies, the activities of these companies fall under the regulatory purview of DGH itself, thereby raising concerns. This is a matter which can lead to a conflict of interests between the DGH and these companies. The DGH is thereby limited to being a technical advisor for the industry.

Here the role of DGH is similar to that of the Norwegian Petroleum Directorate (NPD) in the Norwegian petroleum industry which is responsible for the regulatory functions of the industry. The NPD is authorized for stipulating regulations and making decisions in the sector, which is not the case with the DGH.¹¹⁰

¹⁰⁹ The resolution is available at <http://www.dghindia.org/pdf/Resolution.pdf>

¹¹⁰ For more details, refer to <http://npd.no/en/Publications/Facts/Facts-2013/Chapter-2/>

Moreover, the laws which govern the sector regarding the compliances are many and none focus particularly upon the Oil and Gas sector, let alone the Offshore segment of the sector which requires more and more application of precautionary principles and sustainable development.

In India, the various legislations which require to be complied with before commencing an exploration operation are The Water (Prevention and Control of Pollution) Act, 1974, amended in 1988, The Air (Prevention and Control of Pollution) Act, 1981 amended in 1987, The Environmental Protection Act, 1986, amended 1991, Forest (Conservation) Act, 1980, amended 1988, The Wildlife (Protection) Act, 1972 amended in 1993 and The Wild Life (Protection) Amendment Act, 2002 and 2006, The Merchant Shipping Act 1958 and subsequent amendments, The Coast Guard Act 1978 and subsequent amendments , The Public Liability Insurance Act, 1991 amended in 1992 and The Public Liability Insurance Rules, 1991 amended in 1993, Noise Pollution (Regulation and Control) Rules, 2000, The Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016, The Solid Waste Management Rules, 2016, E-Waste (Management) Rules, 2016, The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989, The Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, Notification on Coastal Regulation Zone, 2011.¹¹¹ Though the ambit is made to be very large by providing for compliance to be done within these legislations yet the lack of specific legislation in the offshore sector leaves a loophole. Also, a comprehensive regime which is focused on one sector can be a more profound manner of attracting investments in the sector.

¹¹¹ Information retrieved through an application within Right To Information to Oil and Natural Gas Corporation Ltd.

BIBLIOGRAPHY

Legislations

- The Oilfields (Regulation and Development) Act, 1948,
- The Oil Mines Regulation, 1984
- The Offshore Areas Mineral (Development & Regulation) Act, 2002
- The Territorial Waters, Continental Shelf, Exclusive Economic Zones and other maritime Zones Act, 1976
- Environmental Impact Assessment Notification of 2006
- United Nations Convention on Law of Sea 1982
- The London Convention 1972
- The International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73/78)
- International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990
- International Convention for the Safety of Life at Sea (SOLAS), 1974

Articles

- Amran et.al., *Business strategy for climate change: An ASEAN perspective*, Corporate Social Responsibility and Environmental Management, 23, 213–227 (2016) (<https://doi.org/10.1002/csr.1371>)
- Bach, *Is the oil and gas industry serious about climate action?*, Environment, Science and Policy for Sustainable Development, 59(2), 4–15 (2017) (<https://doi.org/10.1080/00139157.2017.1274579>)
- Piven, *Paris targets: Oil majors must cut output 35 percent through 2040*, Al Jazeera News,(2019) (<https://www.aljazeera.com/ajimpact/paris-targets-oil-majors-cut-output-35-percent-2040-191031150056357.html>)
- Milne & Gray, *W(h)ither ecology? The triple bottom line, the global reporting initiative, and corporate sustainability reporting*. Journal of Business Ethics, 118(1), 13–29 (2013) (<https://doi.org/10.1007/s10551-012-1543-8>)

- Danilovic et. al., *Exploring diffusion and dynamics of corporate social responsibility*, Corporate Social Responsibility and Environmental Management, 22(3),129–141 (2015)
- Dobers, Corporate social responsibility: Management and methods. Corporate Social Responsibility and Environmental Management, 16(4), 185–191 (2009)
- Antolín-López et. al., *Deconstructing corporate sustainability: A comparison of different stakeholder metrics*, Journal of Cleaner Production, 136, 5–17 (2016)
- Shane Bosma, *The Regulation Of Marine Pollution Arising From Offshore Oil And Gas Facilities – An Evaluation Of The Adequacy Of Current Regulatory Regimes And The Responsibility Of States To Implement A New Liability Regime* ((2012) 26 A&NZ Mar LJ)
- Anmol Soni & Anomiro Chatterjee, *Governance of Petroleum and Natural Gas Sector in India: A Status Note*, The Energy and Resource Institute
- Sergei Vinogradov, *Environmental Protection in the Petroleum Industry*, Hydrocarbons: Economics, Policies and Legislation, Volume IV
- Elostia F et. al., *Oil and Gas Industrial and Ecosystem Mechanism Impact on environment*, Journal of Geology & Geophysics
- S.O. Aghalino & B. Eyinla, *Oil Exploitation and Marine Pollution from the Niger Delta, Nigeria*, Journal of Human Ecology (Volume 28, 2009)
- H.T.N.I. Piyadasa, *Marine environment protection from offshore Oil and Gas: Activities in Sri Lanka*, World Maritime University
- Eric et. al., *Environmental Impacts of the deep water oil and gas industry: A Review to guide management strategies*, Frontiers in Environmental Science (Volume 4 2016)
- Pulak Das, *Environmental Management in Oil and Gas Upstream Industry in India*, JOURNAL OF INDUSTRIAL POLLUTION CONTROL (2013)

Books

- Donald & Nancy, LONG TERM ENVIRONMENTAL EFFECTS OF OFFSHORE OIL AND GAS DEVELOPMENT (Taylor & Francis Publication)

- Jill & Richard, LAW OF THE SEA: UNCLOS AS A LIVING TREATY, British Institute of International and Comparative Law
- Anthony Jennings, OIL AND GAS EXPLORATION CONTRACT (Sweet & Maxwell)
- John et. al., CASES AND MATERIALS ON OIL AND GAS LAW (West Group Publication,4 ed.)
- D. D. Seth, ENCYCLOPEDIA OF MINING LAWS (Delhi Law House Publication, 6 ed.)
- Dr. Neeraj Anand, CONTEMPORARY ISSUES IN ENERGY SECTOR (Technology Publications)
- Simon Baughen, SHIPPING LAW (Routledge 6 ed.)
- Bhat, NATURAL RESOURCES CONSERVATION LAW (Sage Law Publication)
- Satyendra Kr. Sharma, LAW OF SEA AND EXCLUSIVE ECONOMIC ZONE (Taxmann Publication)