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**Policy Exploration of the South African Exclusive Economic  
Zone**

**THULILE KHANYILE**

**South Africa**

**A dissertation submitted to the world maritime University in partial  
fulfillment of the requirements for the award of the degree of**

**MASTER OF SCIENCE**

**IN MARITIME AFFAIRS**

**MARITIME LAW AND POLICY**

2016

## **DECLARATION**

I certify that all the material in this dissertation that is not my own work has been identified and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature)



(Date)

18-09-2016

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- Professor George Theocharidis

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Author

Thulile Zama Vuyo Khanyile

## Abstract

Title of dissertation: **The Policy Exploration of the South African Exclusive Economic Zone**

Degree: **MSc**

This dissertation is a study regarding the promoting and limiting factors on the policies/national legislation guiding the South African Maritime Sectors, sectors being: Marine Transport and Manufacturing, Offshore Oil and Gas Exploration, the aquaculture work stream as well as the Marine Protection Services.

A qualitative data collection method is performed for this study and an analysis will be done through the help of theoretical framework which defines and discusses the sustainability concept as well as legal framework in the national and international legislation; moreover Expert's views are gathered in a form of Interviews that are conducted as part of data collection in addition to literature review.

The scheduled oral interviews with the World Maritime University Professors- proceeded as scheduled; the results were collected and summarized for dissertation analysis purposes.

The Analysis of this dissertation is based under the scope of theoretical framework, empirical findings as well as interview results. Additionally, conclusions and recommendations are given on education and new ideas about establishment of the renewable energy sectors

**KEYWORDS:** Exclusive Economic Zone, Policy, Sustainable Development, Legal Framework

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## List of Abbreviations

BRICS	Brazil, Russia, India, China and South Africa
DoAFF	Department of Agriculture, Forestry and Fisheries
DoEA	Department of Environmental Affairs
DOL	Department of Labour
DoME	Department of Minerals and Energy
DoT	Department of Transport
DTI	Department of Trade and Industry
EEZ	Exclusive Economic Zone
FAO	Food Agriculture Organization
GDP	Gross Domestic Product
IMO	International Maritime Organization
IPAP	Industrial Policy Action Plan
MPA	Marine Protected Area
NDP	National Development Plan
RSA	Republic of South Africa
SAIMI	South African International Maritime Institute
SDG	Sustainability Development Goals
SMME	Small Medium and Micro Enterprise Sector
UN	United Nations
UNCLOS	United Nations Convention Law of the Sea
UNEP	United Nations Environmental Program
UNMDG	United Nations Millennium Development Goals
WCED	World Commission on Environment and Development
WMU	World Maritime University

# 1 Introduction

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Accounting for over 80% of the global trade in volume, the maritime industry has experienced significant growth over the past four decades. This is largely attributed to its large economy of scale as well as its friendly environmental image which make it attractive for shippers of cargoes. As a result of this development, in a search to maintain competitive advantage, players seek continuously for innovation. Ships continue to get bigger and bigger, ports are constantly expanding to allow for bigger ships and creation of alliances by various players are perpetually taking place to remain relevant in the industry. In recent times, owing to its large multiplier effect, the Maritime Industry has increasingly been widely recognized as a major catalyst to economic development of any region, (Department of Transport, 2013). Offshore oil and gas exploration; aquaculture, marine protection services and ocean governance are activities that occur within the country's boundary of 200 nautical miles (370 kilometers) off the coast towards the sea. Within this area, nations claim and exercise sovereign rights given to by the United Nations Convention on the Law of the Sea (UNCLOS), this distance from the coastline is referred to as Exclusive the Economic Zone (EEZ) and is defined as an area beyond and adjacent to the territorial sea, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention (Article 55, UNCLOS)

According to South African (Maritime Zones Act, 1994). South Africa declared an Exclusive Economic Zone (EEZ) out for 200 nautical miles to seaward from the coastal baselines of both South Africa and its possessions in the Southern Ocean, the Marion and Prince Edward Islands, with this declaration South Africa holds rights and obligations to Fisheries, Oil and Gas Exploration and Exploitation as well as Marine Scientific Research. As supported by Article 56, UNCLOS under Rights, jurisdiction and duties of the coastal State in the exclusive economic zone in the exclusive economic zone, the coastal State has: sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or nonliving, of the waters superjacent to the seabed and of the seabed and its subsoil, 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; jurisdiction as provided for in the relevant provisions of this Convention with regard to: the establishment and use of artificial

islands, installations and structures; marine scientific research; the protection and preservation of the marine environment, (UNCLOS).

As the major role player of the National Development Plan, an overview of four sectors is given below. Four sectors being:

- Marine Transport and Manufacturing
- Off shore oil and Gas
- Aquaculture
- Marine Protection

### **1.1 Marine Transport and Manufacturing.**

The Marine Sector involves boat-building, oil and gas sector, as well as the shipbuilding and ship repair division. The income of the boat-building industry is estimated to R1, 2billionn, with 85% of manufactured goods being distributed to different parts of the world, counting the United States and the Caribbean. South Africa is the second-biggest producers of catamarans (multi-hulled watercraft featuring two parallel hulls of equal size) globally and manufactures 29% of the 30 to 40 feet catamarans. Traded products comprise kayaks, rigid inflatable boats, and sail and power catamarans, (Republic of South Africa Department of Trade and Industry, 2016).

The Marine Transport industry in South Africa embraces cargo handling, national registry and flagging, while marine manufacturing saw the building of maritime vessels, rig and ship repair, as well as offshore oil and gas services, (RSA. DTI, 2016).

South Africa is preferably situated to attend the East-West cargo traffic and the growing African offshore oil and gas industry, through marine manufacturing, which embraces ship and rig repair, refurbishment and boatbuilding. Marine Transport and Manufacturing has not been exploited South Africa's strategic location, infrastructure and skills base are essential to fast-track development of this sector, (Republic of South Africa Department of Transport, 2016).

The representatives of Marine Transport and Manufacturing Sector have emphasized a concern for the low number of ships that are registered in South Africa. This is regardless of the statistic that annually, three hundred million (300 million) tons of cargo exchanges through our ports in imports and exports. Moreover, 1.2 million tons of watery fuels pass along our coast, while the

hurriedly growing offshore oil and gas undertakings need an assistance fleet of vessels, (Republic of South Africa Department of Transport, 2016).

Apart from this competitive advantage, Marine Transport and Manufacturing captures only one/1 % of the international market of ship repair and refurbishment. Of the eighty oil rigs projected to be in the range of the Western Cape, only four rigs are repaired per year, indicating substantial potential for growth. As a solution, the marine transport work stream has developed eighteen initiatives across three categories, infrastructure and operations, skills and capacity building as well as market growth to accelerate sector growth, ( RSADoT, 2016).

## **1.2 Off shore Oil and Gas**

South African coasts have been proven to have offshore oil and gas that can amount to nine billions of barrels, that amount of oil is almost equivalent to 40 years of South Africa's oil utilization, (Department of Environmental Affairs, 2016).The South African Government is sentient that it has to make the allowing atmosphere to give industry the assurance to invest in this capital- demanding sector. The workflow has outlined some primary goals towards this initiative. Government needs to provide transparency and firmness in the legislative framework governing offshore oil and gas, guaranteeing an equal benefit outcome for government, industry, and society and to include together in one place a broad service offering –one stop shop, (Department of Environmental Affairs, 2016).

According to (Shirley Miller, 2005). The South African industries, specifically the oil sector have been molded by a nation's history. Development of oil industrialization in South Africa emanated from product requirement from mining and agricultural sectors, the succeeding growth has basically supported the nation's trade industrialization policy. The oil sector was defined by its high controversy and a high level of national regulations, (Miller, 2005). The oil refinery systems were appointed specifically under the national key point's act of 1980, and the accessibility was closely monitored. Soon after democracy, the investments were directed to the oil sector through the formation of Petro SA, (Miller, 2005).

Numerous Government departments' have contributions in the regulatory functions over the oil industry. These are the Department of Labour (DOL), the Department of Minerals and Energy, the Department of Environmental Affairs and Tourism, the Department of Water Affairs and

Forestry, the Department of Transport, and the Department of Trade and Industry. DOL is the regulatory intervention; in this position, it works with all structures of business affairs. None the less, other organizations advocate fundamental features of societal negotiation with regard to other socio-economic subjects. For instance, the Department of Minerals and Energy administered the development of the White Paper on Energy which guides the future of the oil sector, the Department of Environmental Affairs and Tourism supports conservational legislation which may entail technological modifications and thus restructuring at the workplace and the Department of Trade and Industry's Competitions Act work with affiliations and acquisitions that could distress occupation safety and conditions of work.

### **1.3 Aquaculture**

Etienne Hinrichsen 2013 defines aquaculture as the propagation, growth, trade or nurturing of aquatic organisms (plant and animal) in controlled or designated aquatic locations (fresh, sea or brackish waters) for any money-making, sustenance, recreational or other public or private reason. Aquaculture doesn't embrace capture fisheries which involves the gathering of aquatic creatures from an environment in which no attempt has been made to manage or in some way effect the organisms by control, feeding or application of any farming techniques, (Department of Environmental Affairs, 2013). The consequential fish supply gap in countries like United States of America, Spain, France, Italy, Japan and the Republic of Korea, has fallen in recent years has been one of the pushing factors motivating the accelerating growth in other countries with a strong focus on export-oriented types. World food fish aquaculture manufacture developed at a normal yearly rate of 6.2 percent during the year of 2000–2012, much slower than the year 1980–1990 (10.8 percent) and 1990–2000 (9.5 percent). Between 1980 and 2012, world aquaculture production volume improved at an ordinary rate of 8.6 percent annually. World food fish aquaculture production more than doubled up from 32.4 million tonnes in 2000 to 66.6 million tons in 2012, (Food and Agriculture Organization, 2012).

The importance in aquaculture has rapidly developed internationally; even though aquaculture is still a developing sector in South Africa, the enhanced worldwide development shows the likelihood that such development will occur locally, (Department of Environmental Affairs, 2013). As fisheries resources has become gradually exposed to over-exploitation and ecological degradation, the farming of aquatic creatures is becoming more essential to preserve provisions to a rising market. Thus, it is possible that aquaculture will continue to grow in South Africa and

it is therefore vital and policies are well developed to safeguard that the aquaculture development is carried out in a healthy environment, reliable and sustainable method. (Department of Environmental Affairs, 2013). Aquaculture contributes to nearly half of the worldwide fish stock; it contributes below 1% of South Africa's fish stock. The sector renders noteworthy potential for rural development, especially for relegated coastal societies, (Department of Environmental Affairs, 2013). If aquaculture in South Africa is guided by international trends, the recent attainable from government, the growing requirement for integrated use of resources such as water and the socio-economic necessities behind the modification of food production, then the rapid development of the aquaculture industry is inevitable.

#### **1.4 Marine Protection**

The variety and efficiency of the world's oceans is a significant interest for humankind. Our security, our economy, our very survival all necessitates healthy oceans, (marine conservation institute, 2016). Ocean governance refers to the management of numerous usages of the ocean and security of the marine environment, (Yoshifumi Tanaka 2008). Ocean governance is also well-defined as the process that is compulsory to sustain ecosystem arrangement and purposes. South Africa possess jurisdiction over a very large exclusive economic zone, over one and a half million square kilometers, (Department of Environmental Affairs, 2016). With such a large ocean jurisdiction, effective governance is critical but it is challenging based on the size and complexity of our oceans and development of an overarching, integrated ocean governance framework for the sustainable growth of the ocean economy. Ocean governance entails the protection of the ocean environment from all illegal activities and to promote its multiple socio-economic benefits, (Department of Environmental Affairs, 2016). National Marine Spatial Planning Framework is essential in order to enable a sustainable ocean economy. Marine protection services and governance objective is to develop an incremental and integrated approach to planning, monitoring and execution of ocean governance through execution of policy enforcement, (Department of Environmental Affairs, 2016).

The South African government has recognized the need to continuously balance the economic opportunities which the ocean space affords, while maintaining its environmental integrity management of South Africa's ocean space, improving the protection of South Africa's oceans particularly around critically endangered ecosystems, and addressing the skills gap, among others, (Department of Environmental Affairs, 2016). Effective ocean governance requires

internationally-approved international guidelines and techniques, regional action based on mutual principles, and national legal frameworks and integrated policies. Therefore, it would also require having suitable open financial resources and effectively-competent human resources, as well as frequently-updated information systems, (Department of Environmental Affairs, 2016). The formation of integrated approaches of the marine environment in maritime areas within the limits of coastal States and territories, where coastal States exercise independent rights linked with proficient and bendable instruments, allows a rational balance between the protection and conservation of the environment and the liberty to utilize the seas and oceans, (Department of Environmental Affairs, 2016).

## 2 Aims and Problem description

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Aim is to understand how different Policies can promote or limit exploitation of EEZ in South Africa

Based on the depreciating exports that South Africa is facing yet having what seems to a measurable amount of natural resources in the exclusive economic zone, it would be of a greater interest to look into the potential of the EEZ and how current policies are addressing the exploitation potential of the EEZ. This has been a motivation to discuss the specific question to be analyzed in this Thesis.

### **Question**

Within the four selected sectors: are the currently utilized policies promoting or limiting exploitation of the EEZ in terms of the economic development and environmental protection?

The selected sectors are:

- Transport
- Aquaculture
- Oil and gas extraction
- Marine protection



# 3 Operation Phakisa

---

This chapter aims to give a description on the recently adopted operation Phakisa, which is important to understand for the future development.

With an optimum goal of boosting the amplifying lucrative growth and job creation. The National Development plan South Africa has implemented an oceans economy programme called Operation Phakisa, this initiative is a National Socio Economic progress guidance plan to help the Nation at large by addressing the three major problems that South Africa is facing, i.e. Unemployment, poverty and inequality. Operation Phakisa is a framework for fast results that focuses on the accessibility and the economic growth through the oceans. (Sefaku, 2015)

Introduction of Operation Phakisa took place in the month of July 2014, the focal point was to execute a user friendly system that would help in the achievement of development goals and project management. The Operation Phakisa idea is derived from the Malaysian Government methodology which was set to improve the Malaysian economic status. South Africa is sharing the same goal and using the same method as Malaysia to enhance the economic status of the country, (Operation Phakisa lab, 2016).

Considerable amounts of progress on different spheres that are covered by Oceans Economy have been achieved. Job creation, ports infrastructure improvement, boats refurbishment and dry docking. The international Maritime Institute (SAIMI) has also been achieved through Operation Phakisa; this institution was aimed for the implementation of all skills and development initiatives of the Oceans Economy, (Operation Phakisa lab, 2016). High and secondary school education has been launched recently in this year 2016. There are important partnerships amongst the public and private sector, the involvement of extractive industries are a major indication of progress since the operation was formally launched in July 2014, The Operation Phakisa initiative focuses on four sectors:

- Marine Transport and Manufacturing
- Offshore Oil and Gas Exploration
- The Aquaculture work stream
- Marine Protection Services and Ocean Governance

The Methodology derived from the Malaysian Government has not been transformed yet into the policies since Operation Phakisa is still unfolding and some plans are still on the pipeline, however measurable achievements that come as a result of this operation like research consideration, compliance with the oceans economy enterprises, technology and innovation, all is important for success and sustainability, (Sefaku, 2015). The adoption and amendment of policies could be an advantage stride through the Operation Phakisa strategy implementation; moreover the policies should be aligned with the ocean governance protocol for the benefit of conservation and sustenance of the oceans resources during the exploitation process. The grey areas prior the implementation of Operation Phakisa were preventing the developments of the projects, these constraints and challenges were not specified in actual fact, And there hasn't been any change or amendments in policies since Operation Phakisa is merely a programme to realize South Africa's potential by utilizing oceans resources, only local legislations have been made flexible for the purposes of Operation Phakisa implementation, several interventions have been made regarding policy facilitation so as to execute a productive strategy accomplishment. Authorizations, official improvements for incentives in policies have been modified in order to accommodate this initiative.

All governmental departments are involved and participating especially for the implementation of the modified local legislation. Vague procedures, bureaucracy, delays in project funding, skills shortages, lack of infrastructure is being dealt away with or improved, (Operation Phakisa lab, 2016). South African coasts have been proven to have offshore oil and gas that can amount to nine billions of barrels, that amount of oil is almost equivalent to 40 years of South Africa's oil utilization, (Department of Environmental Affairs, 2016). The South African Government is sentient that it has to make the allowing atmosphere to give industry the assurance to invest in this capital- demanding sector. The workflow has outlined some primary goals towards this initiative. Government needs to:

- a) Provide transparency and firmness in the legislative framework governing offshore oil and gas, guaranteeing an equal benefit outcome for government, industry, and society.
- b) Put together in one place a broad service offering -stop shop inside the Department of Mineral Resources to rationalize and standardize the licensing procedure for offshore oil and gas exploration and production.

- c) Carry out emergency response drills also as an industry to initiate the establishment of a world-class oil spill response competence in South Africa.
- d) Make the International Oil Pollution and Compensation Fund operational.
- e) Utilize research opportunities offered by offshore oil and gas explorations that will release information ecosystems, marine resources, and ocean allied renewable energy.

The initial step of operation Phakisa is led by the Department of Environmental Affairs. This department is set to concentrate and release the oceans economy in South Africa. The oceans economy in South Africa has an approximate worth of one hundred and seventy billion Rands contributing to the Gross domestic product by the year 2033, (Jacob Zuma, 2014).

Operation Phakisa is stressed as the drastic transformation agent for prosperity and job formation in the budget vote address, this enterprise aims at hastening the implementation of the national development plan, (department of monitoring and evaluation, 2014). Nine sectors were considered to be a matter of agency as by order of their priority/ urgency:

- Marine Transport
- Off shore oil and Gas
- Construction
- Renewable Energy
- Fisheries and aquaculture
- Communication
- Desalinations
- Marine Protection Services

The criteria for selection was based on the total contribution to the Gross Domestic Product and job creation, Geopolitical effects, importance for marine ecosystem, environmental effects and security effects, (Department of Monitoring and evaluation, 2014). Operation Phakisa is the most important initiative by the government to bring private and public sector together, it is a wonderful opportunity for contributing towards South African prosperity, (Jacob Zuma, 2014).

# 4 Methodology

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This chapter aims to describe how the principle question of the thesis will be investigated, the kind of methods and materials that will be used. The chapter will be finalized with the discussions about de limitations.

## **4.1 Method for Data collection**

Qualitative data collection method will be used for this study because there will be descriptions, observations and no measurements.

Law is the framework for all the processes or formulation of National Legislation and adoption of policies. The department of Environmental Affairs has proposed an expanded legislation to revive and strengthen the country's oil and gas industry. However, the analysis will be done through the help of theoretical framework. For the purpose of this dissertation focus will be on policies for Marine Transport and Manufacturing, Offshore Oil and Gas Exploration, the aquaculture work stream as well as the Marine Protection Services.

## 4.2 Sectors selection criteria

The afore mentioned policy sectors will be chosen to be a focal point in this dissertation due to the order of priority in the South African Development Plan, and for a reasonable fact that it stimulates the trade industry in more than one way i.e. South Africa as a country and engineering skills and all the relevant skills the country doesn't have and again it will help South Africa not to be reliant too much on buying oil or requisition of maritime skills from other countries, so the afore mentioned sectors are the major sectors as they contribute significantly to the gross domestic product of the country.

“The reason for Marine Transport and Manufacturing to be analyzed in South Africa is that it might hurriedly get used to and settle permanently with the knowledge that theirs is a maritime country whose vast oceans remain central to its economic development into the future”, according to Department of Transport deputy Minister, Ms Sindisiwe Chikunga, 2016. South African coasts have been proven to have offshore oil and gas that can amount to nine billions of barrels, that amount of oil is almost equivalent to 40 years of South Africa's oil utilization, (Department of Environmental Affairs, 2016). The South African Government is sentient that it has to make the allowing atmosphere to give industry the assurance to invest in this capital-demanding sector. The importance in aquaculture has rapidly developed internationally; even though aquaculture is still a developing sector in South Africa, the enhanced worldwide development shows the likelihood that such development will occur locally, (Department of Environmental Affairs, 2013). Protecting the ocean environment from all illegal activities and promoting its multiple socio-economic benefits is essential. Marine protection significance includes a Marine Protected Area (MPA) representative network, reducing illegal activities and monitoring water quality

## 4.3 Gap Analysis

A gap analysis was established in 1985 by Parasunaman as a technique to hypothesize service quality necessities it matches how service performance measures up to client anticipations. Gap analysis is used in relation to the existing gap model, (Parasunaman et al, 1990). Gap analysis measures both tangible and intangible service components if there is a inconsistency between what is projected and what is delivered, this denotes a gap. Gap analysis can function as a highly elastic and broadly applied assessment instrument, as is apparent from its application to the

healthcare, environmental, tourism and hospitality sectors, (Lowa Gap, 1997). Gap analysis is broadly used as a scientific technique for pinpointing the degree to which nature animal species and natural communities are characterized in our present day mix of preservation domains, (Lowa Gap, 1997).

South African maritime sector policies was chosen for the exercise of gap-analysis against the theoretical framework which discusses the issues of sustainability, development and legal framework on international and national legislation. The vital factor is to collect expert's views about successful maritime policies and regulations and to suggest possible insight for the pending challenges and ideas to meet constraints on the South African Exclusive Economic Zone operation. The assumption would be the recommendations made towards the maritime policies that will benefit the country's trade balance at the same time preserving the resources on the EEZ.

Literature review will be based on maritime policies for the Exclusive Economic Zone Exploitation for a purpose to analyze and to see constraints and challenges. For the purposes of this research and within the time frame to conduct this study, the focus and the analysis of this study will be based on the promoting and limiting factors for policies on the Marine transport and Manufacturing, Oil and Gas Exploration Sector, Aquaculture and Marine Protection Services.

Since 2012, South Africa has been posting trade deficits mainly due to higher imports of fuel and high value added goods while exports have been hurt by several strikes in key mining sectors in 2013 (Trading Economics, 2016). Nonetheless the oceans have the potential to contribute up to 177 billion rand to the gross domestic product (GDP) and create just over one million jobs by 2033. Offshore Oil and Gas Exploration has indicated that South Africa's coast and adjoining waters have possible resources of approximately nine billion barrels of oil. This is equivalent to 40 years of South African oil consumption (South African Maritime Safety Authority, 2016).

#### **4.4 Material**

Internet, Government Gazettes for maritime policies, books and journals will be used as sources of information.

Recommendations will be given based on the results collected and as well as implemented maritime policies, regulations and the country's legislation

## **4.5 Interviews**

Structured interviews with the maritime experts from World Maritime University (WMU) - Malmo Sweden will be carried out. The selection of experts have been conducted in a very subjective manner through a request to indicate experts that will be immediately available for interviews and the interviewees were chosen because they are neutral and have no link with the topic hence South African interviewees were not chosen. Interviews will be conducted with the maritime experts from the World Maritime University (WMU) in Malmo

- Professor Larry Hildebrand
- Professor Neil Bellefontain
- Professor Dong Wook Song
- Professor George Theodrichis
- Professor Michael Manuel

## **4.6 Limitations**

- Time and could be a limitation in this study due to the amount of data that needs to be analyzed.
- Restricted sources of information could be a limitation in this study.

# 3 Theory

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This theory chapter will give an overview of sustainability issues as well as the discussion on legal framework on International and National legislation and Abidjan Legal instrument; I have chosen to focus on these theoretical legal frameworks because they are core issues for the native development plan.

Theoretical framework is to help facilitate into understanding the case of South Africa's general policies not based on ecological or economic policies, theoretical framework will look at the sustainability over view issues internationally as well as the legal framework on the Abidjan Convention, 2011.

## 5.1 Sustainable Development

The idea of “sustainability” initiated from forestry and originally meant something like: consuming natural resources sensibly so that the source never runs dry. Nowadays, the sustainability theory is ill-defined; firstly because there are numerous theories of sustainability and secondly because the word has moved into inflationary practice. Hence, the experts now analyze what is actually meant by “sustainability” and pursue to articulate solid strategies for sustainable living and economic motion. Sustainability is a multifaceted issue. Economic growth simulations, the global food supply, nature preservation, poverty reduction or distributive justice. All these features contribute a part in the sustainability discussion, (World Ocean Review-page 10, Martin Visbeck, 2015).

### 5.1.1 Establishment of Sustainable development

Early in the year 1713, the head of mining in Germany named Hans Carl von Carlowitz, published the forest treaty which discussed the principle of sustainability for the first time, (Martin Visbeck, 2015). Von Carlowitz created the sustainability terminology during a period when many sections of Europe needed enormous amounts of wood for industrialization. Increasingly the environments of mining cities were being deforested. Wood deficiency was a pending threat. Even at the beginning of the 18th century, wood had to be shipped from far away through waterway, (Martin Visbeck, 2015). Von Carlowitz gave caution that, without wood, societies would “suffer great hardship”. In his publication treaty he motivated for the forests to be conserved. His discussion on the treaty was basically about the importance of saving wood



and the emphasis on people to save wood, preserve forests by seeding and implanting trees, and find alternatives/ substitutes to wood, (Martin Visbeck, 2015).

One of the survival strategies he placed on the platform was that generally, people should only harvest as much wood as could regrow. The intention of forest management was to accomplish the highest conceivable wood produce sustainably, which could be done steadily over time without vandalizing the forest. The sustainability importance that was discussed by Von Carlowitz three centuries ago is still crucial to the current sustainability debate. Although the theory of sustainability was initially but clear and narrowly defined, it provided a platform for stemming necessary rules, (Martin Visbeck, 2015).

According to John Elkington 1998, Sustainable development is a triple bottom line concept that brings balance to economic prosperity, environmental quality and social justice. Different governments have given support to this concept as well as Non-Government organizations (NGOs) and industries, Sustainability permits workability in balancing the triple intentions or targets based on the level of societal and fiscal maturity of communities, (Lyn Arscott, 2004). The significance of sustainable development is gradually emphasized in non-binding documents and also in agreements under international law regarding protection of marine living resources, as a reason sustainable development has been set to be some sort of a governing principle in International law within the oil and gas industry as well as a motivating guide promoting intra discipline integrations. Sustainable development is change procedure where extraction of resources, direction of investments, orientation of technologies development and institutional change are all in harmony to improve the current and future potentials, (Yoshifumi Tanaka, 2008). Most likely the eight principle of Rio declaration stipulates that, ‘to accomplish sustainable development and the best life quality for all people, the nations should do away with unsustainable methods of production and utilization and encourage suitable demographic policies bearing in mind that sustainable development is relatively connected to national policy of a state, (Tanaka, 2008).

Even though sustainability was initially only implemented only to forestry, it was later linked to features like population development, food, and preservation of environmental, (Martin Visbeck, 2015). Ever since the 1970s, characteristics of society have gradually come under the attention of the sustainability discussion – as an example, the concern of how diverse investors groups can contribute in societal and political resolutions, or as to what extent does the society today is

liable for the well-being of future generations, (Martin Visbeck, 2015). To fight the backdrop, in 1980 the United Nations (UN) summoned the World Commission on Environment and Development (WCED). It was given a task to find ways on how to accomplish numerous major objectives concurrently, namely:

- To fight poverty in developing countries;
- To support developing countries in development in keeping with their traditions;
- To master environmental challenges;
- To level out the contrast between Western market economics and state socialism.

The United Nations held a conference in 1972 in Stockholm, the first formal meeting concerning the International environment and development needs. In this conference held in Stockholm, the United Nations structured a commission referred to as world commission on Environment and Development, another name for this commission was *Brundtland Commission*. The Brundtland Commission produced a report in 1987 that was defining sustainable development, the report was given a title; “Our Common Future”. In this feature, sustainable development was defined as an obligation to meet and afford the necessities of the current generation without jeopardizing the future generations’ potential to afford their own needs.

The Brundtland definition of sustainability has been quoted as frequently, this wording comprises the significant requirement that affording human necessities should be kept within the carrying capability of the natural environment, (Brundtland Commission, 1987), The Commission decided to use the phrase “sustainable development” at least partially with an effort to draw together the different and in particular cases opposite objectives of environmental protection, poverty reduction and economic development, (Brundtland Commission, 1987). The usage of this definition was an effort to incorporate some of the divergent notions on the long time that developing countries could take in future, (Brundtland Commission, 1987). The phrasing “sustainable development” was envisioned to help:

- To take account of the idea of the developing countries’ ownership of processes without veering too far towards socialist ideals;
- To draw attention to the ecological limits to growth;
- Not to lose sight of the old UN objective of fighting poverty;
- Not to fundamentally challenge Western lifestyles;
- To address the challenge of population growth.

Generally, the Commission was intending to define the basic and common denominator of sustainability that all its members could agree to. Further intention of the WCED report was to bring the subject of sustainability into the public domain, which was accomplished. The report was quite a motivating catalyst in igniting a new discussion about the implication of sustainability, (Brundtland Commission, 1987).

Given direction by the publication of the WCED report, many nations accepted the idea that sustainability could be attained by working towards the objectives framed by the Commission, objectives being: Poverty reduction, equitable economic growth and environmental protection—in equal measure, (WCED, 1970). In assuming those objectives as a common ground, theoreticians derived what is known as the “three pillars” model. As by this model, sustainability is placed equally on the three pillars of the environment, the economy and society, all three of which amount equally in stature. However no strong judgment is given as to whether this equal ranking is the case given, or whether it first has to be attained. Some theoretic also oppose that the sustainability notion integrates a normative measurement. In their view, sustainability is more than a philosophical theoretical model because eventually, such a theory ought to make it probable to derive clear guidelines for action and to instrument suitable methods, (WECD, 1970).

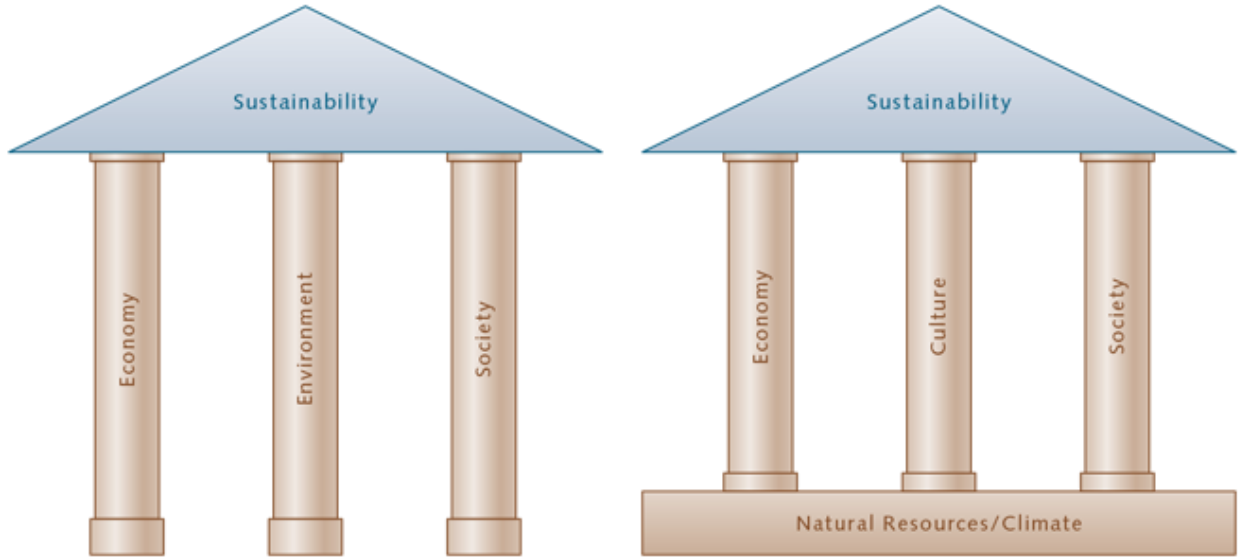


Figure 1- Source: World Ocean Review, 2015

This figure elaborates how the model of sustainability is placed equally on the three pillars which are the environment, the economy and society.

### **5.1.2 Future responsibility for sustainability**

Constructing an attentive use of resources over the term period so as to ensure that they will still be available in future is one of the fundamental ideas of sustainability. So sustainability links in very closely with the accountability of the current generations for the future. How far this responsibility goes has long been a matter of debate, (Martin Visbek, 2015). In the 1970s, a few scientists protected the opinion that the generation existing in the present day had absolutely no accountability for those born later. The argument was as follows: unborn persons do not exist, Therefore there are no legal entities to obtain or any rights of any kind whatsoever. On that note, the existing has no responsibility towards the unborn. Today, however, this extreme viewpoint has few supporters, (Visbek, 2015). For the reason that future persons will have rights, the critic's argument is enough to allow responsibilities to be derived for people living today. These responsibilities would not relate to particular unborn persons but in a general way to generations of human beings coming in the future, (Visbek, 2015). It follows that intergenerational distributive justice is a necessary element of sustainable development. What legacy, or how much resources are present today humankind should leave for future? Is nonetheless a arguable matter.

### **5.1.3 Weak against strong sustainability**

As to what extent certain forms of resources, particularly natural resources, should be preserved for future has long been a contentiously controversial subject. From the 1970s, the debate has been going around the following two opposing models: the model of weak sustainability and the model of strong sustainability, (World Ocean Review, 2015). According to the weak sustainability theory, specifically the sum total of a society's resource stocks needs to be held constant. By that standard, it is probable for capital resources that have been spent to be replaced with different types. In principle, then, there is a limitless scope for replacing natural capital with original and human capital, (World Ocean Review, 2015). Under the weak sustainability model, these replacement procedures are allowed almost without restriction. Even destroyed elements of natural resource, such as rivers that are biologically dead resulting from pollution, can be substituted under this model, (World Ocean Review, 2015). The recreational function of river bathing, for instance, can be replaced by creating open-air or indoor swimming pools; attaining drinking water not originally from groundwater but instead from detoxified seawater; or substituting the artistic quality of natural landscapes with artificial, simulated worlds, (World Ocean Review, 2015). According to the model of weak sustainability, all that necessary is to

satisfy the total amount of people's requirements, regardless of which type of capital is used. Particularly in the 1970s, a time of great environmental degradation, many economists assumed in the idea of weak sustainability, (World Ocean Review, 2015).

#### **5.1.4 Millennium goals**

In the year 2000 a working group summoned by the United Nations formulated eight Millennium Development Goals (UNMDGs) which were to be accomplished by the year 2015. These were projected to bring about clear developments in the living condition of people in developing countries and growing economies plus, at the same time, to preserve various forms of natural resource, (UNMDG, 2000). The MDGs undeniably gives attention to the reduction of poverty and poverty-linked sufferings, and on facets like health and education. Today it is apparent that these objectives have not yet been attained globally, (UNMDG, 2000). A further United Nations working cluster has therefore now clarified Sustainable Development Goals (SDGs) for the time period of 2015 to 2030 that frame intentions in more solid terms than the MDGs did. The SDGs are no longer limited to the developing nations but attends to the whole world. Furthermore, by taking the spheres of sustainable agriculture, energy and climate change and the oceans into consideration, they are intended to have a sturdier effort on the preservation of natural resource, (SDG, 2015). The following features are measured to be of vitality to the SDGs:

- Food security and sustainable agriculture,
- Water supply and improved hygiene,
- Energy,
- Education,
- Poverty reduction,
- Resources to conduct the SDG process,
- Health,
- Climate change,
- Environment and natural resource management,
- Employment.

These features are arranged by order of priority. Put together, they demonstrate evidently that the United Nations working cluster has strived to give balanced attention to all the features that make up the classic three-pillar model of sustainability, (SDG, 2015). Developments over the coming years will show whether countries really prosper in striking this balance.

## 5.2 Legal Framework

Abidjan Convention is a Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region; it protects a marine area from Mauritania to South Africa which has a coastal line of more than 14,000 km, (United Nations Environmental Programme, 2014).

The Convention offers a central legal context for all marine-relevant programs in West, Central and Southern Africa, (United Nations Environmental programme, 2014). The Convention entails the articles with the lists on sources of pollution that have a need of control such as: vessels, discarding, land-based actions, exploration and exploitation of the seabed, and atmospheric contamination, (United Nations Environmental programme, 2014). The Abidjan Convention recognizes environmental management matters from which collaboration obligations are fields, wetlands, barriers and lagoons. These well productive and varied ecosystems upkeep fisheries, coastline tourism, industries, natural resources such as limestone and sand, busy ports and oil extraction. Nevertheless, the region's hurried renovation has headed to the unsustainable usage of natural resources and to widespread contamination. As a consequence, crucial habitats are declining, (United Nations Environmental programme, 2014).

The Abidjan Conventions secretariat underlines its mission as to "Protect, Preserve and Develop the Abidjan Convention Region and its Resources for the Profit and Welfare of its Societies." This is a mission that the secretariat is strong-minded to accomplish, (United Nations Environmental programme, 2014). Recognizing the exclusivity of the coastline and marine environment of the area, as well as its fiscal and technical boundaries years ago, the states recognized the necessity for a regional methodology to meet transboundary marine ecological challenges, (United Nations Environmental programme, 2014). Therefore, after an investigative environmental evaluation operation to 14 regional states in 1976, United Nations Environment Programme (UNEP) commended the development of an Action Plan. The Plan is intended to connect evaluation of the value of the marine environment and the reasons of its weakening with accomplishments for the supervision and expansion of the marine and coastal environment of West, Central and, later, South Africa. The Strategy was accepted by 11 countries at a conference in Abidjan, March 1981 and came into force on 5 August 1984, after the sixth nation placed its appliance of ratification, (United Nations Environmental programme, 2014).

For ages, specifically from 1985 to 1999, the Abidjan Convention was in continual trouble by many problems and, as an effect, produced sluggish development, (United Nations Environmental programme, 2014). Currently, nonetheless, the Convention is strengthened, attaining an accumulative amount of approved states, more payments to its Trust Fund, holding consistent conferences and applying an amount of strategic activities, (United Nations Environmental programme, 2014).

### **5.2.1 Renewal of the convention has headed to the following:**

1. Adoption of a Regional Contingency Plans and other Means of Preventing and Combatting Pollution Incidents (2011)
2. Additional Protocol to the Abidjan Convention Concerning Cooperation in the Protection and Development of Marine and Coastal Environment from Land-based Sources and Activities in the Western, Central and Southern African Region (the LSBA Protocol - 2012)
3. The *Ad Hoc* Committee on Science and Technology (created 2014)
4. Regional Coordination Centre for Marine Pollution Emergency of the Abidjan Convention

(United Nations Environmental programme, 2014).

Blue Growth promotion in Africa towards Sustainable Management for Collaboration in the Protection, Management and Development of the Marine and Coastal of Marine Resources was the theme for the Abidjan 2014 convention. The blue growth promotion was for the 11th Conference of Parties of the Convention Environment of the Atlantic Coast of the West, Central and Southern Africa Region, commonly known as the Abidjan Convention, (Department of Environmental Affairs, 2014).

Socio-economic factors are an understandable pointer of the human activities in ocean governance, which include food security, finance, human health, livelihoods and other benefits. Socioeconomic factors will allow ocean governance managers to:

- Evaluate and supervise the impact of resolution on stakeholders
- Recognize stakeholder concern and welfare and integrate them into ocean governance
- Show the socio-economic value of ocean resources, together with the direct and

- Indirect societal costs and benefits
- Evaluate the cost benefits of using ocean spots and property
- Track long-term and short-term costs and benefits

The foundation of the socio-economic analysis must seek out to attain sustainable development, striking a balance between economic, social and environmental concern. It is the responsibility of ocean governance to evaluate up these aspects to settle on the best way onward for ocean governance, (Department of Environmental Affairs, 2016). It may not always be the case that sustainability is manageable, especially in the occasion of a non-renewable resource being exploited. In these occasions it will be the function of ocean governance to make a decision if the exploitation is reasonable, viable or up to standard and, based on these concerns, to take the decision on whether to exploit a resource or not.

### **5.2.2 United Nations Convention on the Law of the Sea, (UNCLOS)**

The law of the sea was established from the clashes among coastal states, who wanted to enlarge their regulation over marine zones next to to their shorelines. At the end of the 18th century, it was agreed that countries had control over their territorial sea, (United Nations Environmental Protection, 2014). The extreme breadth of the territorial sea was normally measured to be three miles - the distance that a shore-based cannon could grasp and that a sea state could consequently control, (United Nations Environmental Protection, 2014). Following the Second World War, the global community invited that the United Nations International law Commission consider organizing the standing laws concerning the oceans, (United Nations Environmental Protection, 2014). The commission initiated operating towards this in 1949 and arranged four draft conventions, which were accepted at the major United Nations Conference on the Law of the Sea, (United Nations Environmental Protection, 2014).

The First United Nations Conference on the Law of the Sea (UNCLOS I) which started in February 24 up until April 29, 1958. UNCLOS I agreed to the four conventions, which are universally known as the 1958 Geneva Conventions:

- The Convention on the Territorial Sea and Contiguous Zone;
- The Convention on the High Seas;
- The Convention on Fishing and Conservation of the Living Resources of the
- High Seas; and



- The Convention on the Continental Shelf.

While measured to be a step onward, the conventions did not find the extreme breadth of the territorial sea, (United Nations Environmental Protection, 2014). The Second United Nations Conference on the Law of the Sea (UNCLOS II) from March 17 until April 26, 1960. UNCLOS II did not conclude in any global settlements. The meeting once again was not successful to fix an even breadth for the territorial or form agreement on sovereign fishing rights, (United Nations Environmental Protection, 2014).

The Third United Nations Conference on the Law of the Sea (UNCLOS III), started from 1973 to 1982. UNCLOS III attended to the matters rising up from the former conferences. More than 160 states took part in the 9-year convention, which at lastly came into force on November 14, 1994, 21 years after the first conference of UNCLOS III and one year after agreement by the sixtieth state. The first sixty agreements were nearly all developing countries, (United Nations Environmental Protection, 2014). A major article of the convention involved the definition of maritime zones- the territorial sea, the contiguous zone, the exclusive economic zone, the continental shelf, the high sea, the international sea-bed area and archipelagic waters. The convention also made provision for the passage of ships, protection of the marine environment, freedom of scientific research, and exploitation of resources, (United Nations Environmental Protection, 2014).

### **5.2.3 Maritime legislation**

The requirement to present and implement Marine Spatial Planning in South Africa is consequential from the Constitution of the Republic of South Africa, however it is not limited to it. The South Africa's international conventions, treaties and protocols and the applicable ocean-related sector legislation involves:

- The National Environmental Management Act, 1998 (Act No. 107 of 1998)
- The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
- The National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)
- The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
- The Marine Living Resources Act, 1998 (Act No.18 of 1998)
- The Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)

- The Maritime Traffic Act , 1981 (Act No.2 of 1981)
- The Marine Pollution (Intervention) Act, 1987 (Act No. 64 of 1987)
- The Maritime Zones Act , 1994 (Act No.15 of 1994) Section 24 of the Constitution states that: everybody has the right:
  - To an environment that is not harmful to their health or well-being; and
  - To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:
  - To prevent pollution and ecological degradation
  - To promote conservation

# South African Exclusive Economic Zone Potential

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This chapter will focus to describe the South African Exclusive Economic Zone, its natural resources as well as current activities, further on -the focus on this chapter will be on description of relevant maritime policies and structures.

The existing scope of South Africa's Exclusive Economic Zone is about 1 553 000 km<sup>2</sup> and South Africa has submitted requests for additional entitlements under international law to lengthen its sea bed rights to specific parts of the continental shelf, (Government Gazette, 2014). It is predicted that the success of these claims will further the continental shelf to 137 000 km<sup>2</sup> of sea bed privileges to South Africa's inland EEZ and 1 108 000 km<sup>2</sup> to the EEZ nearby the Prince Edward Islands, (RSA DoEA Government Gazette, 2014). As a moderate degree as compared to other countries South Africa possesses 1 200 000 km<sup>2</sup> of land authority. The ocean atmosphere in South Africa is one of the most diverse globally, the resilient oceanographic diversity and specifically the differences in temperature, production and dissolved oxygen content of the sea are mirrored in the general partition of South African marine biodiversity into three wide-ranging biogeographic regions apart from the Prince Edward Islands namely: the cool temperate West Coast, the warm temperate South Coast and the subtropical East Coast, (RSA DoEA Government Gazette, 2014). South Africa is encircled by the sea on three sides - to the west, south and east, (RSA DoEA Government Gazette, 2014). The South African Navy reckons South Africa's coastline to be around 3 924km. The South African Navy's calculation embraces South Africa's sovereign domination of the comparatively small Prince Edward and Marion Islands which are both known as the "Prince Edward Islands" in the sub-Antarctic Indian Ocean, (RSA DoEA Government Gazette, 2014). Normally many documents refer to South Africa's mainland coastline to be 3 000 km, (RSA DoEA Government Gazette, 2014).

South Africa has the surrounding oceans with the potential to contribute up to R177 billion to the Gross Domestic Product and generate at least over one million jobs by 2033 (Jacob G Zuma 2014). The working group for offshore oil and gas exploration has estimated a target of drilling thirty exploration wells in the upcoming ten years it is probable that this work this work could result to the production of 370 000 barrels of oil and gas each day in 20 years to come (Zuma,

2014). The production outcome would result to be 130 000 jobs plus a contribution of 2.2 billion USD to GDP. South Africa's coast and attached waters have potential resources of nearly nine billion barrels of oil; the aquaculture sector emphasized the high development potential of South Africa's aquaculture sector due to an accumulating demand for fish, (Zuma, 2014).

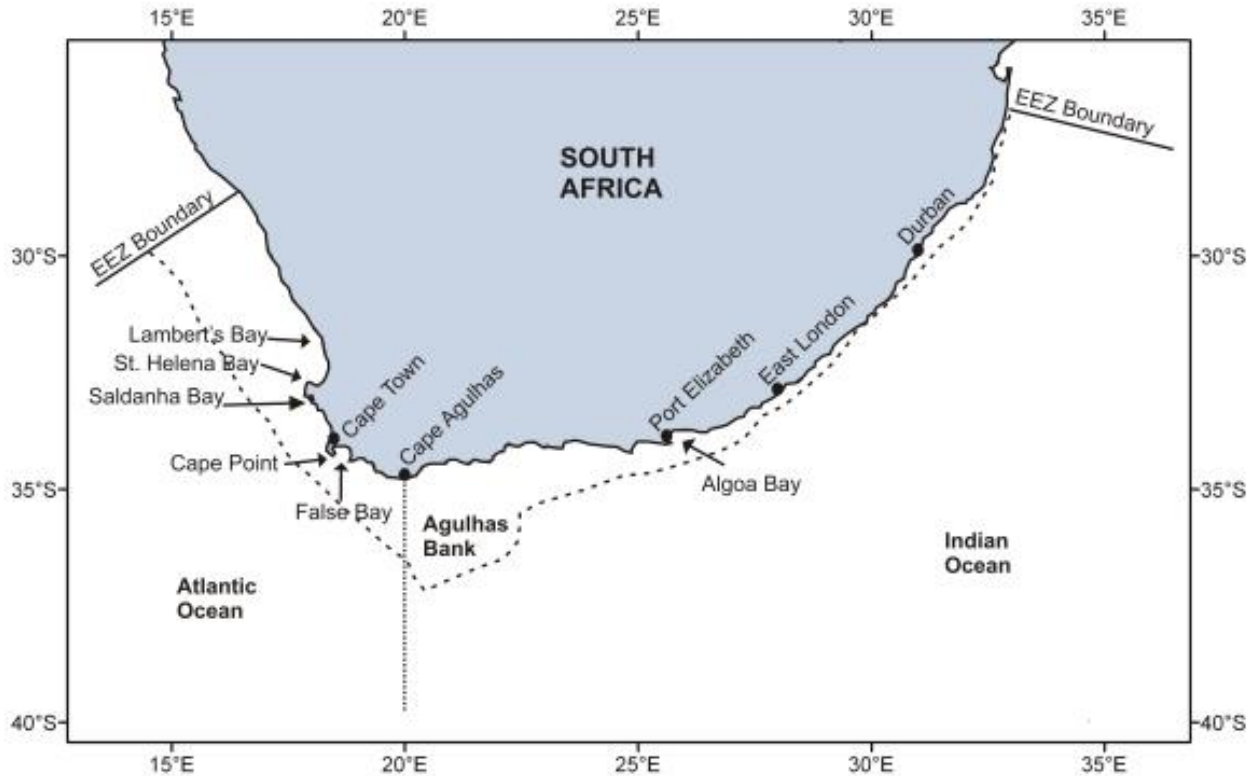


Figure 2: South African EEZ

Figure 2 above elaborates the South African Exclusive Zone location and Boundaries

### 5.3 Natural resources

Oil and gas capitals and other mineral sources counting diamonds off the western and South-Western African coast, are a surplus and an essential economic capitals for coastline countries. For example, in Benin, Ghana, Nigeria, Sierra Leone and Togo the majority of industries and oil and mineral mining activities are located in the coastal zone. (Africa environment outlook 2002)

### 5.3.1 Oil and Gas

The South African Geographical Examination of South Africa carried out the first structured exploration for fossil fuels during the year 1940; all searches were originally land based, (Department of Environmental Affairs, 2016). The initial drill for an off-shore well was in 1969 and gas and condensate was revealed in the Pletmos basin between Plettenberg Bay and Mossel Bay. Presently the Pletmos basin holds 2 unripe gas fields and an additional 6 gas findings. The Bredasdorp basin has been the center of most seismic and drilling action since 1980. The South African portion of the Orange bank and shelf also hold oil and gas sources that have not yet been industrialized, (Department of Environmental Affairs, 2016).

### 5.3.2 Diamonds

In 1908 along the coastal line of Southern Namibia diamonds were discovered following that was the year 1925, during which the discovery of diamonds was near Port Nolloth and also another discovery in 1926 where rich sources were exposed next to Alexander Bay and then the South African government started mining processes along this coast line, (Department of Environmental Affairs, 2016). In the beginning of the year 1950, hunting for off-shore diamonds initiated, currently off-shore mining of diamonds along the South African West Coast is a significant business. Alluvial and marine diamonds contributed at least 10% of South Africa's overall diamond harvest with oceanic diamonds precisely contributing 0.35 during the year 1997, (Department of Environmental Affairs, 2016). Marine diamond extraction provide 0.0026% to South Africa's yearly GDP, during the year of 1994, the South African Department of Minerals and Energy started a grid network of marine mineral concession zones on the West Coast of South Africa spreading from the high-water mark inward sea to 500 m deep, (Department of Environmental Affairs, 2016). There is an increase for solid minerals globally and the expectation is that the exploitation of South Africa's non-living marine resources will also escalate, sources of 2 minerals that is essential for the creation of fertilizer (potassium and glauconite) are commonly found in South Africa's Exclusive Economic Zone, (Department of Environmental Affairs, 2016). Currently the costs of extraction continue to be expensive in the perspective of obtainable terrestrial resources, however, as terrestrial resources weaken and technology advances these sources may become economically sustainable, (Department of Environmental Affairs, 2016).

### 5.3.3 Fisheries

South Africa presents a higher level of both land and marine biodiversity within a small area; ten thousand species types of marine plants and animals have been noted in South Africa, which amounts to nearly 15% of the recognized worldwide marine species variety, (Department of Environmental Affairs, 2014). Generally, plants and animals are scattered based on the distinguishing physical features of the different provinces. The oceanic environment alongside the West Coast is described by cold upwelled waters and has low species variety and huge populaces of some species, (RSA DoEA Government Gazette, 2014). The great production of the West Coast permits for bulky volume offshore profit-making fisheries and inshore survival and leisure fishing, (RSA DoEA Government Gazette, 2014). The South Coast is a transition section among the cool and the warm West Coast, (RSA DoEA Government Gazette, 2014).

The East Coast environment shows characteristics for both warm and cool areas. The marine environment in East coast region has a great biological variety and adequate production, (RSA DoEA Government Gazette, 2014). The East Coast gradually becomes warm, humid and tropical northwards the marine biodiversity on the East Coast is described by growing species variety and smaller species inhabitants; this area allows for survival and leisure fishing but it is not appropriate for large offshore profitable fishing excluding prawns, (RSA DoEA Government Gazette, 2014). South Africa has severely complementary currents on the West and East Coasts. On the West Coast, is the Benguela Current System ocean and wind contacts carry nutrients from deep waters to the outward where sunlight stimulates photosynthesis and the productivity of phytoplankton, thus accumulating the total volume of animal and plant production, (RSA DoEA Government Gazette, 2014). The areas of upwelling are established where the airstream is robust and where the continental shelf is slimmer and deeper, this formulates the foundation of a complex food web dominated by a collection of planktivorous fish, counting sardines and anchovies, (RSA DoEA Government Gazette, 2014). Main predators on the minor species include mackerel and hake, other predators on the small fish comprise squid, tuna, snoek, seabirds, the Cape fur seal, dolphins and whales, (RSA DoEA Government Gazette, 2014). Seabirds in the Benguela Current system comprise of the African penguin, Cape gannet and 3 endemic cormorants. Sea exterior temperatures in the Benguela ecosystem are naturally between 13 °C and 15 °C which is calmer than the East Coast, on the East Coast, the Agulhas Current System becomes established between southern Mozambique and Durban, (RSA DoEA Government Gazette, 2014).

Coral reefs, mangroves and great river contribution from springs along the East Coast illustrate the shelf waters, two types of turtle kind in Northern KwaZulu-Natal and connecting coastal states in Mozambique and are spread broadly into the South West Indian Ocean, (Department of Environmental Affairs, 2014). The Agulhas Current holds numerous species of coral, tropical fish, game fish, sharks, seabirds, dolphins and whales. Along the narrow shelf on the East Coast, the Agulhas Current runs close to the edge of continental shelf, except off the Tugela Bank where the shelf is a bit broader, (Department of Environmental Affairs, 2014). The coastal line and connecting internal has a higher rainfall than the West Coast as warmth and humidity are transmitted from the oceanic to the atmosphere, the Agulhas Bank, off South Africa, is located in the midway setting between the cold Benguela Current in the west and the warm Agulhas Current in the east, (Department of Environmental Affairs, 2014). The Agulhas Bank is shallow than 150 m in the east and slightly slopes in the direction of the south. Sea topping temperatures in almost the whole Agulhas Bank are commonly 16-17 °C in winter seasons and 20-21 °C in summer seasons, (Department of Environmental Affairs, 2014). Absorptions of nutrients on the Agulhas Bank are not as great as on South Africa's west coast but are adequate to provide for a productive marine society, (Department of Environmental Affairs, 2014). The Agulhas Bank situation is basically less wild as compared to South Africa's west coast, giving an additional steady and striking background for fish that broods in the water column, as a reason, many fish migrate to this section counting anchovy, sardine (pilchard), horse mackerel, hakes and line fish. Eggs and larvae of small pelagic fish are moved westwards and northwards onto the West Coast shelf, which baby fish use as a fruitful nursery area before returning to brood on the Agulhas Bank, Seabirds producing in this zone consist of some of those that are produced on the West Coast as well as more tropical species, (Department of Environmental Affairs, 2014). This breeding area is an essential nursery and transfer area for whales, counting the southern right and humpback whales, which migrate to South Africa from the Southern Ocean, (Department of Environmental Affairs, 2014). The Prince Edward Islands are the most western of the islands that form the Kerguelen Region, which also consist of Iles Crozet, lies Kerguelen (France) and Heard and McDonald Islands (Australia). Both Marion Island and Prince Edward Island are protection volcanoes that increased from lowest point of almost 5000 m, they are connected by a lumber where the water is about 200 m dee, (Department of Environmental Affairs, 2014).

Ocean topping temperatures over the islands are between 4-7 °C, South Africa has control over a substantial EEZ on these Islands which is amounted to 473 380 km, (Department of

Environmental Affairs, 2014). The Prince Edward Islands region functions as a harbor for great sums of mixing seabirds and seals, some of which are measured internationally endangered, (Department of Environmental Affairs, 2014). There are four different kinds of penguin, counting the macaroni and the king penguin which are the most plenty, five kinds of albatross, contributing to 44% of the global populace of roving albatrosses, and groups of digging petrels are existing in this region, (Department of Environmental Affairs, 2014). There are three kinds of seals: the southern elephant seal, sub-Antarctic and Antarctic fur seals, (Department of Environmental Affairs, 2014). Fish contain the Patagonian tooth fish and different affiliates of the family of antifreeze fish, shellfish, particularly krill, provide greatly to the diets of some of the seabirds and some whales, (Department of Environmental Affairs, 2014).

The present ocean systems around South Africa comprise of a biodiversity balance and a range that is unique and necessitates management and preservation prioritization, (Department of Environmental Affairs, 2014). The external environment provides South Africa with numerous commercial prospects such as mining, fishing, shipping and tourism, (Department of Environmental Affairs, 2014). The national and global significance of the South African ocean additionally attends as a center for national and international scientific research opportunities which offers a chance for South Africa to develop national capabilities in a range of Particular Ocean and coastal research and management uses, (Department of Environmental Affairs, 2014).



## 5.4 Current Activities

### 5.4.1 Offshore Oil and Gas

There are more than 300 off-shore exploration wells in the South African Exclusive Economic Zone presently and the advancements in off-shore drilling knowledge increase the probability of production progress, (Department of Environmental Affairs, 2016). The focused exploration work off the South Coast stemmed to oil and gas locations and therefore the initiation of production processes by Soekor who is now known as Petro SA in 5 fields; counting FA-EM, Oriibi-Oryx, Sable, South Coast Gas and FO Production Fields in Block 9. Of these fields, FA-EM, South Coast and FO fields that are primarily active gas turfs and generating gas, (Department of Environmental Affairs, 2016).

Gas obtained is sent to the Petro SA's Gas-to-Liquids plant in Mossel-Bay, apart from the discoveries made off the South Coast, gas discovery was also made off the West Coast in Ibhubesi Gas Turf, no production processes and/or expansions of the field have begun so far, (Department of Environmental Affairs, 2016). Exploration effort involves the geophysical reviews, assessment and recovering of historical information, environmental influence calculation studies for probable drilling work and production procedures, etc. are ongoing for numerous blocks where there are approved rights or permits, (Department of Environmental Affairs, 2016).

### 5.4.2 Marine Transport

580 vessels are assessed to be in South Africa's waters every day of which majority are laden tankers carrying in excess of thirty million tons of crude oil, moreover, about over 11 000 ships visit South Africa's ports yearly, (Department of Environmental Affairs, 2016). 98% of South Africa's exports are transported by sea; the revenue from South Africa's harbor activities in the 2009/10 financial year was R12.6 billion. South Africa recently developed and mounted 19 new container control cranes in its ports, (Department of Environmental Affairs, 2016). South Africa's profit-making ports grip more than 430 million tonnes of various cargo kinds each year, Richard's Bay is South Africa's major cargo capacity port handling additional of 80 million tonnes of cargo yearly, (Department of Environmental Affairs, 2016). The port in Durban is South Africa's biggest port when it comes to the value of cargo handled as well as the amount of

vessels docking per annually. Twenty six percent Container traffic is basically channeled through Durban, with 2.5 million 20 foot comparable units transiting through the port, (Department of Environmental Affairs, 2016).

### **5.4.3 Fisheries**

The Department of Agriculture, Forestry and Fisheries has an obligation to manage the growth and sustainable utilization of marine and coastal resources; to make best use of the economic capacity of the fisheries sector; and preserving the reliability and quality of the nation's marine and coastal ecologies, (department of agriculture, forestry and fisheries, 2013). Marine life that is not collected, like whales, dolphins and seabirds, is being identified as a treasured source for nature-grounded tourism, the encountered difficulty in fisheries sector is the balance creation between capitalizing on the social and economic probability of the fisheries sector or preserving the reliability and quality of the nation's oceanic resource and coastal ecologies and focusing on transformation in the industry, (department of agriculture, forestry and fisheries, 2013). Along with global trends, the department identifies fisheries as a commercial activity as compared to a purely ecological or environmental issue, (department of agriculture, forestry and fisheries, 2013). The South African government has extended the obligation for fisheries management by including fresh water and inland fisheries, as well as aquaculture, to the department's current accountabilities, (department of agriculture, forestry and fisheries, 2013). South Africa is amongst the international fishing countries which have recognized the difficulties inside their fishing sector, (department of agriculture, forestry and fisheries, 2013). There are twenty two profitable fisheries industries and new fisheries being discovered and tested with, South Africa has 2 fisheries industry divisions, wild capture fisheries comprise of 3 different segments namely: commercial, recreational and subsistence fisheries, each of which call for particular research and management mediations, (department of agriculture, forestry and fisheries, 2013).

### **5.4.4 Aquaculture**

The aquaculture sector does not take place in the EEZ, however it forms part of the current activities that contribute to the growth and development of the country it is also assumed to have bigger potential to grow and develop the nation economically.

The importance in aquaculture has rapidly developed internationally; even though aquaculture is still a developing sector in South Africa, the enhanced worldwide development shows the likelihood that such development will occur locally, (Department of Environmental Affairs, 2013). As fisheries resources has become gradually exposed to over-exploitation and ecological degradation, the farming of aquatic creatures is becoming more essential to preserve provisions to a rising market. Thus, it is possible that aquaculture will continue to grow in South Africa and it is therefore vital and policies are well developed to safeguard that the aquaculture development is carried out in a healthy environment, reliable and sustainable method. (Department of Environmental Affairs, 2013). Aquaculture contributes to nearly half of the worldwide fish stock; it contributes below 1% of South Africa's fish stock.

The sector renders noteworthy potential for rural development, especially for relegated coastal societies, (Department of Environmental Affairs, 2013). The aquaculture industry is measured to be immature and as a consequence, it has been given priority as a result of deteriorating wild stocks, the department extended its potential to fight illegal, unpermitted and private fishing, and initiated an anti-poaching mission in the Western Cape which is supported by the Working for Fisheries Programme. This programme empowered the fisheries department to set out sixty army veterans in the Overberg region to work as the "eyes and ears" of government. The fishing sector covers the big-scale workers and minimal and leisure fishermen and women, (Department of Agriculture, Forestry and Fisheries).

#### **5.4.5 Marine Protected Areas**

There is presently 23% of the South African coastal line on which less than 1% of the country's EEZ is contained within marine protected areas (MPAs) , (Department of Environmental Affairs, 2016). Although the quantity of coastal line in confirmed MPAs is high, there is unease that only 9% of coastal secure areas receive total protection, moreover, current MPAs are unequally spread among the 5 coastal bioregions, (Department of Environmental Affairs, 2016). The whole of Namaqua Bioregion is at present moment not part of MPAs, even though the suggested declaration of a Namaqualand MPA, lengthening from the coast is to embrace offshore habitats and would increase the part for protection, (Department of Environmental Affairs, 2016).

By distinction the Delagoa Bioregion on the east coast obtains 20% security in no-take MPAs. This spatial difference affects a great percentage of South Africa's coastal marine biodiversity

left over insecure, (Department of Environmental Affairs, 2016). The preservation position of offshore areas is of even bigger worry, since 0.2% obtains full security, (Department of Environmental Affairs, 2016). The latest spatial evaluation of South African marine biodiversity discovered that the fish fauna as the most misused and endangered main element of the marine biota, while high-profile reefs and pinnacles, soft-bottom trawling floors, and coastal and sub tidal areas open to mining on the west coast were recognized as the most vulnerable habitats, (Department of Environmental Affairs, 2016).

#### **5.4.6 Tourism**

The Tourism sector does not take place in the EEZ, however it forms part of the current activities that contribute to the growth and development of the country it is also assumed to have bigger potential to grow and develop the nation economically.

There are indications of significant growth in the South African Tourism industry, ever since the country's major independent elections in 1994, the tourism sector are not only multidimensional industries that add to a range of economic industries, but also a labor-intensive industry with the ability to generate jobs, (Department of Tourism, 2010). Tourism is an important economic industry in the government's Medium-Term Strategic Framework (MTSF) which recognizes the following inclusive urgencies:

- Creating decent work and sustainable livelihoods
- Education
- Health
- Rural development, food security and land reform
- The fight against crime and corruption,

And building cohesive and sustainable communities, the Industrial Policy Action Plan (IPAP2) specifies that tourism is one of the areas projected to subsidize to the growth and development of matters like rural areas and culture (craft) by developing the economy and generating jobs, (Department of Tourism, 2012).

The IPAP2 document also emphasizes the great potential of increased local consumption due to internal tourism, more over it indicates that the state has not yet fully established the potential

input of the entertainment and media industries, which are developing at an estimated rate which is roughly 9% and 6%, (Department of Tourism, 2012). Entertainment media could grasp bigger tourism market customers as compared to particular aimed for promoting campaigns; they inform and bring about socialization as well as the conservation of cultural heritage, and have generated income of more than USD1 trillion in 2003, (Department of Tourism, 2012). The IPAP2 openly specifies that tourism brings about foreign investment, customer expenditure and foreign incomes. Tourism industry is justifiably easy for businesspersons to pursue, it is a sector established on viable resources, and provides for a huge-mass employment force. It is also vital to know that tourism stages a part in strategically crafting and firming global relations in order to formulate valuable socioeconomic and political linkages, (Department of Tourism, 2012).

#### **5.4.7 Ocean Cultural and Social Use**

South Africans are involved in a wide diversity of consumptive and non-consumptive uses of marine resources and the marine environment. Coastal line tourism has been estimated as producing nearly 13.5 billion rand to the South African economy yearly, (Charles L Griffiths, Tamara B Robinson, Louise Lange and Angela Mead, 2010). The particular value to South African people of appreciating access to and usage of thousands of kilometers of original coastal line is incompetent of calculation, (Griffiths et al, 2010). Leisure fishing is a common activity in South Africa with almost 500 000 active sports fishermen, the value of leisure fishing is hard to measure but it gives extensively to the South African economy, (Griffiths et al, 2010). Boat-based whale watching only is assessed to be contributing at least R37 million to Gross Domestic Product, diving is additional prevalent entertaining activity, as are sun-bathing, swimming and picnicking, (Griffiths et al, 2010). Some religious groups use the coastal location for performance of activities and rituals. Many South Africans also utilize sea water for healing reasons; the description of the sea is deeply rooted in the philosophies, poetry and songs of coastal line societies, (Griffiths et al 2010).

### **5.5 Maritime Policies**

South Africa has the legislation, policies, the institutional structures and now the marine spatial planning framework. The marine spatial planning programme is an integration of marine policies in a context for all the current developments, policies are not review in a fragmented approach since there is a holistic approach.

The South African government has gathered an all-encompassing policy document that permits and wires the Marine Spatial Planning progress; firstly,

South Africa's National Development Plan 2030 recognizes particular urgencies important to the maritime atmosphere, (Department of Environmental Affairs, 2016). These urgencies embrace the growth and development policies to extend off-shore renewable energy bases, off-shore oil and gas and capitalizing in marine engineering advantages, (Department of Environmental Affairs, 2016). The new development route is placed beside the National Development Plan and offers the framework for South Africa's commercial policy and is the conductor of the country's employment approach, these policies seek to encourage growth and employment from new prospects such as the green economy, trades of merchandises and services to emerging African marketplaces, offshore oil and gas and the recognition of reliable and sustainable preferences for broadening of the economy, (Department of Environmental Affairs, 2016).

Secondly, South African National Environmental Management of the Ocean Policy clarifies how South Africa has resulted into moving from sectoral ocean management and headed for organized sectoral ocean management, this transference is made successful by constructing better considerations between shareholders of the profits of enhanced material and information to enlighten ocean planning, (Department of Environmental Affairs, 2016).

The Marine Protection Services and Authority shareholders are pursuing apply an central, unified ocean governance outline for viable development of the ocean economy to make best use of socio-economic profits while guaranteeing sufficient ocean environmental preservation, (Department of Environmental Affairs, 2016). Marine Spatial Planning is regarded as a fundamental innovation in this regard and assumed as an allowing practice supporting South African ocean governance creativities, (Department of Environmental Affairs, 2016). The South African Government has in recent times announced a nine point strategy carrying out urgencies for the stability of the democratic cycle; this is in straight reaction to the slow economic development stages presently experienced by the South African economy, (Department of Environmental Affairs, 2016).

The 9 point plan is intended at advancing economic development and playing a role to job formation. The identified priorities are: Renewal of agriculture and agro-processing value chain, an advancing beneficiation, accumulating worth to our mineral capitals, more operational

Application of sectoral Policy Action Plan, revealing the probability of SMMEs, Co-ops, township and rural enterprises, solving the energy difficulty, stabilizing the labor market, scaling-up private industries investment, developing the Ocean Economy, cross cutting modification to lift and expand the economy through investment in science & technology, water & sanitation, transport infrastructure, broadband connectivity & state owned companies, (Department of Environmental Affairs, 2016).

### **5.5.1 Marine spatial planning**

Purpose of the South African Marine Spatial Planning Framework is the coast-to-coast conduction for Marine Spatial Planning in South Africa's ocean environment; it affords a high-level of direction for undertaking Marine Spatial Planning in the perspective of the South African legislation and policies as well as current planning systems, (Department of Environmental Affairs, 2016). It defines the manner for the groundwork of Marine Area plans and their application, so as to guarantee stability in Marine Spatial Planning throughout the South African oceanic environment, (Department of Environmental Affairs, 2016). The marine framework will simplify the expansion, application, assessment and modification of Marine Area plans, with this Marine Spatial Planning structure, the sustainable growth of South Africa's oceanic environment will be empowered, (Department of Environmental Affairs, 2016).

South Africa's Marine Spatial Planning goals focus on the desired outcomes of the Marine Spatial Planning process, along with the vision and principles, they will guide the entire Marine Spatial Planning process, and provide the umbrella for developing the Marine Area Plan objectives, the goals are shared by all organs of state responsible for regulating human use in South Africa's ocean space, (Department of Environmental Affairs, 2016). There are four South African goals for Marine Spatial Planning, which are:

#### ***Goal 1 Unlocking the ocean economy***

This goal intends to encourage the sustainable economic development of South Africa's marine industry to accumulate the ocean side provision to the states Gross Domestic Product, to generate employment and in due course, eliminate poverty, this is achieved by certifying more assurance certainty of admission to required parts for different investments, (Department of Environmental Affairs, 2016). It pursues to recognize well-suited usages and decrease clashes among unsuited usages; it encourages the proficient use of ocean capitals and space and recovers the capability to plan for new and varying human activities, counting evolving technologies and their related

effects, it also encourages reshuffling and enhanced transparency in permit and licensing processes for oceanic resources, (Department of Environmental Affairs, 2016).

### ***Goal 2 Engaging with the ocean***

This goal constructs the South African marine culture and is seeking to build up the marine character, it intends to develop and inform on value awareness, prospects and social welfares of South African oceanic environment, (Department of Environmental Affairs, 2016). This goal motivates all society's and nationals to be involved and be engaged in sea education, good stewardship, and partaking in marine managing, the goal promotes the identification and upgraded preservation of traditional heritage and societal and spiritual morals associated to sea use, (Department of Environmental Affairs, 2016).

### ***Goal 3 Ensuring healthy marine ecosystems***

This goal is focused at preserving, conservation and reinstating South Africa's wealthy marine biodiversity by rendering a close management service to its living and non-living oceanic resources in a collective manner, (Department of Environmental Affairs, 2016). This is achieved by recognizing environmentally and biologically significant zones and by incorporating biodiversity intentions into policymaking. It agree for the recognition and lessening of battles between human usages and environment, the distribution of space for biodiversity and environment preservation and the lessening of the increasing effects of human activities on oceanic environments, (Department of Environmental Affairs, 2016).

### ***Goal 4 Contributing to good ocean governance***

This goal entails a cooperative tactic amongst parties of the state involved with the ocean issues, with the formation of official and informal associations, it obliges that resolution done and supported by comprehensive facts and adaptive managing, (Department of Environmental Affairs, 2016). It also calls for relationships to be built with non-state governments and societies that should be motivated and allowed to take part and contribute to planning procedures as part of the methodology to allow operative ocean governance, (Department of Environmental Affairs, 2016).



# 6 Analysis

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This chapter will focus on the data analysis being influenced by the key questions as well as the interview results, empirical findings and theory. Interviewees are not exposed since there was no agreement to expose them during interviews.

Based on the first interview question which was how can policies and international or national legal framework promote or limit exploitation of Exclusive Economic Zone/ Marine natural resources in terms of the economic development and Environmental protection?

With the evolution of the UNCLOS many countries have developed the framework to develop and protect the economic and territorial zone; they have done so in order to create a stronger policy and legal framework to develop the resources sustainably, (UNCLOS, 1982).

According to the interview session that was held at WMU on 28/09/2016 with interviewee 1, “The country needs to be aware of the full ownership, potential and the kinds of resources they can exploit from them in the context of oil, however- taken to the next level the resources are available and the country must know its rights in the respect of the EEZ and they need to police and use it. When looking into the policies we must see if South Africa does have problems with delimitation issues and look at the policy that will give direction into maintaining the right and also extract optimally what you need in a sustainable manner in other countries may be a need to establish the issues of the EEZ to make sure there are no boundary issues.” South Africa doesn’t have boundary issues so it is safe to think that everything is related to capacity building and the ability to optimally or sustainably exploit that resource.

Interviewee 2 further elaborated that “than have to be geared towards this or in a way that a country is able to benefit and what is necessary for building that capacity which is the knowledge and awareness of that particular resource, it could be technology or human capacity and it is where policies need to be shared. We could obviously look at best practices around the world within international legislation on what can be done or not. As well as best practices as to how people optimize the use of their own EEZ. The policy should evolve around awareness creation, education, capacity building, and legal norms for what can be done or not and of course issues of sustainability”.

A second interview was held at WMU on 29/08/2016. This is how interviewee 2 responded “We must consider policy directions as to what are relevant policies what some of the ways other countries have done with their policies to exploit EEZ sustainably.” In the literature you may find maritime literatures of Europe and compare. After a derived question on Sustainable development, interviewee 2 responded “When you think about national policy you should think about education, general education in terms of awareness creation and also in terms of specific competences, in terms of what we have and what we can do. But also a comparison can be done with policy that relates to security. The resource which is basically a kind of military approach so there is security approach for any resource thought to be valuable, a number of frameworks can be drawn when thinking about this, education about resource, exploitation of a resource as to know how to do it and technology associated to it. You may have exclusive economic zone but very limited technology, so technology framework for financing the relevant resource is important, sustainability legal framework, education and cultural aspect of it also form out these policies from that direction.”

### **6.1 Marine transport And Manufacturing**

Interviewee 2 commented that “marine transport and manufacturing is important for a developing country like because development comes through the growth of shipping and movement of goods expanding the country’s economy, coastal communities make it more resilient, it calls for investments on ports infrastructure and harbors along the coast which is already happening but can be further developed to take advantage of its position between Asia, Europe and North America, there is a good potential for marine transport and manufacturing in SA

### **6.2 Oil and Gas Exploitation**

“Manufacturing of oil and gas is destructive even under best environmental practices is, South Africa has the greatest potential on the development of renewable energy sources since all sources are free and the technology to exploit is economically feasible. If South Africa develops its energy sector in an aggressive way it would not depend on oil and gas development, marine mining huge industrial scales or the need to impact oil and gas from other areas for that matter. So South Africa will become sustainable and self-sustaining which is where it should be to be safe.” (Interviewee 3, 31/ 08/2016).

Interviewee 3 additionally shared an opinion that “From a policy perspective, the development of a renewable energy source is probably the best way to go, it can be mounted and restored. The marine ecosystem supplies create jobs and all the energy needed which will earn South Africa a sustainable ocean economy. Prioritizing, aquaculture, renewable energy and tourism instead of focusing on oil and gas which has a short term benefit and are basically a traditional way of economy for many countries.” I assume that since SA has free and harmless energies’ it could be a wise plan to start working towards renewable energy because the sources are always available to be exploited and harmless to the environment. The oil and gas which seems to be more exploited- December was a turning point for the world to move to the less carbon economy which means no continual usage of oil and gas as a primary source of energy, (United Nations Convention on Climate change. 2015)

### **6.3 Aquaculture**

There could be more development on the current aquaculture strategy for South Africa. More strategies, proper planning strategically environment impact assessment that looks at areas of coastline where aquaculture will be most suited and not conflict with the local fisheries or other activities in that area, (Etienne Hinrichsen, 2013). According to interviewee 3 “developments that some developed countries used to avoid the complex and potential users such as shipping industry avoiding navigation area and places with tourists. It all has to be brought into a planning process where in a coastal zone it requires community based discussions and involvement of people living around the coast to have a strong say and how industry may develop in their door step.”

### **6.4 Marine Protection Services**

The important thing is to ensure clear strategies on how and what to protect on marine resources which could be a fishery, aquaculture or coastal planning strategies in it with environmental response for instance if something happens to it how do you deal with it .e.g. oil spill accidents that may occur in a particular area. The knowledge of waves, currents directions which require a lot of science modeling and take years of workout if you have resources that are dedicated permanently you’ll end up with stronger strategy over time.” (Interviewee 3)

International Maritime Organization is engaged in promoting the III (IMO Implementation Code) although there is legislation for member states, it is not implemented correctly and there is

no proper enforcement on that. So the IMO with the mandatory scheme in a period of 7 years all states will go under scrutiny and there is a good hope that Marine Protection Service is taken into consideration, ([www.traceca-org](http://www.traceca-org)).

According to UNCLOS IMO does not deal with national legislation and the policy conflicts sometimes occur within international provisions so IMO has recently adopted a resolution in which WMU has a mandate to deliver certain presentations to states especially developing states in relation to the formulation of the national transport policy to ensure that the states have ability to distinguish what is for them to do in order to be able to pursue their strategy and plan, there is hope that there won't be any conflicting policies at an international level in the near future ([www.imo.org](http://www.imo.org)).

# 7 Conclusion

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The essential goal of this thesis was to find out if the current policies promote or limit the exploitation of the Exclusive Economic Zone in South Africa.

Based on the theory and data collected in this thesis, it can be assumed that policies/ national legislation regarding the major sectors mentioned afore, do promote the exploitation of the Exclusive economic Zone in South Africa. It can also be articulated that the goals for marine spatial planning promote licensing procedures – those promotions seem to be a green light for exploitation on anything that might generate income. Saying the right things but going down the exploitation path that will have short term benefits and long term negative impacts and the loss of natural resources natural resources, destruction of marine resources, more shipping onshore even though it may have some contributions on the country's GDP, as member of South African society. I would not want our coastlines to be further industrialized or our natural areas to be paved over; I think the government should consider powering South Africa independently

SA strength is on natural renewable energy SA can either damage their resources and climate during development stage or possibly skip that stage by going straight to renewable energy which will mean avoiding the development of oil and gas, SA can use what it has for the benefit of the people, that should be part of the policy decisions taken, If BRICS is looking to invest in SA it's not going to be for the benefit of SA, South Africa should start thinking long term and be aware of the loss in GDP but a guaranteed and steady growth, There are always political imperatives that are challenging and powerful for every country. It would be ideal to get political systems to think beyond political time frames since they change timeously and the political momentum with the new operation Phakisa because they have commonality within the group on many issues politically and economically that the movement or direction taken by other country within the group is almost a forgone conclusion that the same thinking within the group prevail amongst all members and as such in varying degrees any other effects will affect them all. This is evident in the weakened oil prices which have taken out a huge chunk out on Russian revenues, such undermines the collective strength.

There could be more development on the current aquaculture strategy for South Africa. More strategies, proper planning strategically environment impact assessment that looks at areas of

coastline where aquaculture will be most suited and not conflict with the local fisheries or other activities in that area. This is one of the developments that some developed countries used to avoid the complex and potential users such as shipping industry avoiding navigation area and places with tourists. It all has to be brought into a planning process where in a coastal zone it requires community based discussions and involvement of people living around the coast to have a strong say and how industry may develop in their door step. The untapped resources which our government feels the need to develop the resources for SAs benefit as well, it is suspicious that the national benefits will not be as great as needed or anticipated because they will go to china and the south African Government will not refuse that but accept the investment.

Within national commitments for MPA the marine spatial Planning talks about all the activities and space allocation, but the determination of governments resolve is a hard decision and weighing of options between beautiful coastal lines with enjoyment perspective or sense of well-being , social sides, recreational areas/ beaches for tourists and residents- comprised to industries , spiritual renewal, the government really struggles with these issues even though they are an important value to all of our wellbeing and not equivalent to economic gains. There is a need for enforcement rather than having the government dealing with pressure to erode coastal areas as they are getting more crowded, there is more demand to use and exploit – so setting aside an area that could bring all sorts of economic benefits like jobs, money and national income is difficult, the idea of exploiting in a short term is tempting rather than a long term planning. The exploitative activities require development planning where they can be set and given new and special protection based on their level of development

## **7 Recommendations**

### **7.1 Further Education**

Community education is essential to ensure that information about the ocean and ecology environment is well known which could be reached by including ocean education in schools. South Africa needs to understand ocean ecology of its country and it has a huge coastline. Looking at a sustainable point of view one must know and understand the potential growth of SA and how they could conflict with something else like oceans and all the activities that occur in it e.g. mining impact on living resources.

The government should support the coastal community networks, scientists providing information about ocean status and coastal action plans to fund education programs about ocean resources, understanding and gathering information from communities about their coastal areas and mapping out the natural resources and manmade resources. Like development which is among the sustainability principle to involve society in taking decisions about developments. That can be achieved through workshops presentations from scientists as well as environmental impact assessment are essential technically in a marine coastal area because it's difficult to see what the effect of mining, oil and gas development activity would be to the ocean bottom, legal structures are needed to do so.

When you think about national policy you should think about education, general education in terms of awareness creation and also in terms of specific competences, in terms of what we have and what we can do. But also a comparison can be done with policy that relates to security. The resource which is basically a kind of military approach so there is security approach for any resource thought to be valuable, a number of frameworks can be drawn when thinking about this, education about resource, exploitation of a resource as to know how to do it and technology associated to it. You may have exclusive economic zone but very limited technology, so technology framework for financing the relevant resource is important, sustainability legal framework, education and cultural aspect of it also form out these policies from that direction.

You can have good science but leaders do not listen to scientists because political leaders are concerned about the impact on coastal communities based on exploited resources being reduced for the benefit of the long term sustainability. It is safer to avoid exploitation by using cautious strategies in an organized and structured way, and benefits are well known which is what sustainable development is all about

## **7.2 Renewable Energies**

There many forms of new energies we don't even know about but in the context of South Africa it calls to step out of the oil box and give a thought on what else can be done e.g. solar or similar policies. Sweden is a very good example as it puts higher taxation on oil products and lower tax on clean energy. So the policies could run parallel to consider sustainability of the environment and by extension even in 40 years you may have all sorts of oil rigs which itself affects the environment or the other resources like mining and fisheries so that is the context that one needs

to think about from the sustainability point of view, for a nations sustainability point of view every country should be looking at obtaining sources of energy

The use of natural and harmless renewable energy sources is an option for South Africa; this development can come from sun, wind, waves and tides which all have so much potential. South Africa can take a decision to either stick to oil and gas manufacturing or start the development of renewable energies sector. There is a chance for foreign investment which can come with lasting benefits and will not damage but protect the marine environment. There is not enough discussion about renewable energy exploitation since the focus is on oil and gas exploitation.



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## Appendices

### Questionnaire

Based on the depreciating exports that South Africa is facing yet having what seems to a measurable amount of natural resources in the exclusive economic zone, it would be of a greater interest to look into the potential of the EEZ and how current policies are addressing the exploitation potential of the EEZ. This has been a motivation to discuss the specific question to be analyzed in this Thesis.

Expert's views are gathered in a form of Interviews that are conducted as part of data collection in addition to literature review.

A recording device will be used as means of data collection and to avoid incomplete or faulty data collection.

### Interview Questions

1. How can policies and international or national legal frameworks promote or limit exploitation of Exclusive Economic Zone/ Marine Natural resources in terms of the economic development and environmental protection. Please consider the following sectors:
  - Marine transport and manufacturing
  - Oil and gas exploitation
  - Aquaculture
  - Marine protection services
2. From a sustainable development point of view how can the exploitation of the Exclusive Economic zone be developed within the above mentioned sectors?