TOWARDS A NATIONAL OCEAN POLICY IN

SAO TOME AND PRINCIPE

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Abstract

The Oceans role to Earth's environment is broadly recognized and thus there is a growing awareness on environment issues in order to secure preservation of marine resources, food security, sustainability of life at sea and cope with the effects of climate change.

Considering that Sao Tome and Principe is a Small Island Developing State (SIDS), a attention will be given to the strategies, policies, legal and institutional approaches among the SIDS around the world and particularly in the Caribbean Region, paying special attention to Barbados experience. The report will consider too the strong pressure on coastal land for construction, tourism developments and other economic activities. The report addresses these issues with reference to the predictable constraint of limited human and financial resources typical of SIDS.

In addition, international cooperation among SIDS will be examined in order to understand the Regional integrated policies and strategies needed to tackle common concerns and improve efficiency in the application of resources to implement international instruments. The concept of a Large Marine Ecosystem approach is considered in this analysis of regional cooperation. The report will design and discuss strategies for Sao Tome and Principe, and draw short and long term scenarios. Nevertheless, we believe the present report summarizes a substantial body of work that, if carefully interpreted, may provide useful guidance to policymakers.

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Acronyms

CZM	Coastal Zone Management
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization
GNI	Gross National Income
ha	hectares
ICOM	Integrated Coastal and Ocean Management
ICZM	Integrated Coastal Zone Management
IUU	Illegal Unreported and Unregulated
LOSC	Law of the Sea Convention
MCS	Monitoring, Control and Surveillance
MHWM	Mean High Water Mark
MLWM	Mean Low Water Mark
MPAs	Marine Protected Areas
MSY	Maximum Sustainable Yield
TACs	Total Allowable Catches
UN	United Nations
UNCED	United Nations Conference on Environmental and Development
UNCLOS III	Third United Nations Conference on the Law of the Sea
USD	US Dollar

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1 Introduction

1.1 Background and Context

This research aims to discuss the development of a marine policy for Sao Tome and Principe (STP) given the current national context and the international framework on ocean policy. The research also considers the regional framework as relevant element for the development in the national level. This chapter gives the background for the research, describing general characteristics of Sao Tome and Principe, the economic and political context in which this research emerges and outlines the steps, general objectives and expected outcomes for this research.

1.1.1 Background: Sao Tome and Principe in the world

1.1.1.1Geographic and Historic Summary

The Democratic Republic of Sao Tome and Principe is an archipelagic State comprising two larger islands - Sao Tome the largest (875 sq. km) and Principe (180 sq. km) - and some islets which are mostly uninhabited due to their irregular size and morphology. The islands were discovered and claimed by the Portuguese in the late XV Century. Located off the Western Coast of Africa, in the Gulf of Guinea, straddling the Equator (1 00 N, 7 00 E), both islands are of volcanic origin and mountainous. The highest mountain is Pico Sao Tome (2024 m). The archipelago is part of a chain of extinct volcanoes called Cameroon Line, formed by the Mont Cameroon, Equatorial Guinea (island side), Sao Tome, Principe, Ano Bom (Equatorial Guinea) and St. Helena (United Kingdom).

Sao Tome and Principe remained a Portuguese colony for five centuries and became an independent Republic in 1975, at which time the country joined the United Nations (September 1st). In its first 15 years the new state had a single party system and a pro-socialist Government. This system ended after the adoption in 1991 of a new constitution

which installed a multiparty system. Since then, internal struggles for power have caused the dissolution of Government on several occasions followed by elections, resulting in political instability and starts and restarts in policy development. None government could get their constitutional term of four years completed.

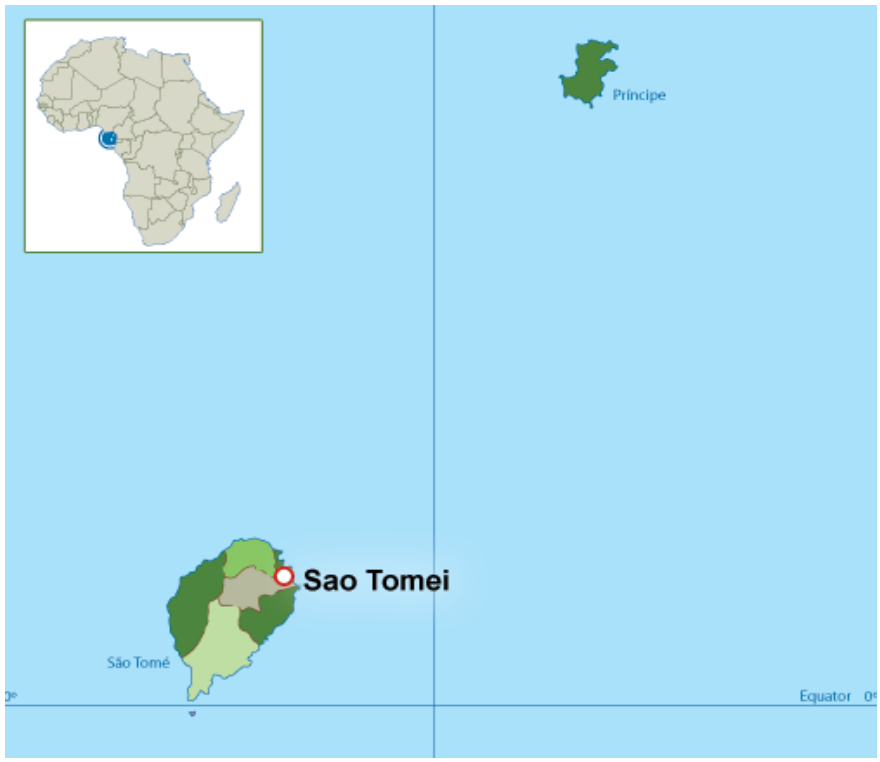


Figure 1: A distance of 150 km separates the two main islands of Sao Tome and Principe[1]

The closest point on the African mainland is Gabon at a distance of about 350 km. Just for references, a flight from Sao Tome (Capital) to Libreville is no longer than 45 minutes, under good weather conditions. Neighbours countries include Nigeria, Cameroon, Equatorial Guinea, Ghana and Angola. Principe Island is located about 150 km from Sao Tome. The local airport there is not equipped for night flights and the local harbour, Santo Antonio, cannot be used by large vessels because the waters in the area are too shallow. This affects the trade between the two islands and causes a double isolation

[1] Source: African Development Bank website URL: http://www.afdb.org/en/countries/west-africa/sao-tome-principe/

of Principe[2]. To tackle this problem the island is being governed by a local Government with its own executive and a local assembly with limited legislative power, both elected by the local people. This autonomy and self-government system is clearly defined in the most recent constitution which provides strongest legal foundations and mandates.

The current population of Sao Tome and Principe is 168.800[3] and comprises a diverse mix of people from many different ethnic groups - Mestico, Angolares (descendants of Angolan slaves), Foros (descendants of freed slaves), Serviçais (contract laborers from Angola, Mozambique, and Cape Verde) and Europeans (primarily Portuguese)[4].

1.1.1.2 Foreign relations

As stated earlier, Sao Tome and Principe is a member of the United Nations and the UN family of organizations, such as the International Maritime Organization (IMO), United Nations Educational Science and Culture Organization (UNESCO), International Labour Organization (ILO) and others. It participates actively on the major conventions concerning to the Environment and Law of the Sea like the United Nations Convention on Law of the Sea (UNCLOS), the Convention on Biological Diversity (CBD), the

[2] As an Island State, STP faces some remoteness from the rest of the World. In addition, the lack of infrastructures in Principe, such as appropriate port and airport facilities make things more complicated to the smaller island, hindering local development because that part of the country does not benefit of the same level of investments as for Sao Tome. For further reading in this topic see: the Region of Principe Strategic Development Plan (Plano Estrategico para o Desenvolvimento da Regiao Autonoma do Principe). URL: http://www.telanon.info/suplemento/investigacao/2008/10/13/472/primeiro-plano-de-desenvolvimento-regional-2009-2013/

[3] Santomean Statistics Institute (Instituto Nacional de Estatisticas-INE) Estimates the population for 2009. Information concerning STP's population is accessible at: http://www.ine.st/populacao/populacao.htm. Different estimates are provided by CIA World Fact Book https://www.cia.gov/library/publications/the-world-factbook (last visited in August 2009) - 212.679 inhabitants. The major concentration (approximately 60.000 people) occurs in the Capital, Sao Tome. See chapter 4 four geographic distribution.

[4] During the colonial period the urban population was mainly formed by freed indigenous persons, the Portuguese and other business persons of different nationalities. Angolares and serviçais were not integrated into the urban community. The Angolares usually lives in small beach communities.
Subsequent to independence and the political changes of the early 1990s STP had to move forward, and make some changes on the way the country used to direct his economy. So, some changes were implemented and the result was an extreme decline of the plantations and impoverishment of the rural areas. The outcome of these events was the increase of migration to the capital and the overpopulation of coastal lands.

MARPOL Convention, the United Nations Framework Convention on Climate Change (UNFCC) and the Kyoto Protocol. At the regional level, the country is part of almost all regional organizations and bodies and a permanent member of the African Union[5].

1.1.1.3 Economy

Nowadays, STP's main sources of income are agriculture (regular and organic cocoa, coconut, coffee, pepper, palm kernels, bananas and plantains, beans and vanilla), tourism, and fisheries. Given to the lack of income from taxation, the public budget is supported by international aid (loans, funds and donations)[6]. In 2007 the GDP was US $ 276,6 million and US $1,300 per capita, with an economic growth rate of 6%. According to the United Nations Office of the High Representative for Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS), Sao Tome and Principe is classified as a least developed country (LDC), and also small island developed state (SIDS)[7]. The public budget is limited and on partially supported by IDA (Official Development Aid). STP is an HIPIC (Heavily Indebted Poor Countries) and is qualified for the (Multilateral Debt Relief Initiative) due to its historic public debt[8].

Extremely dependent on imported goods, the economy struggles to survive with high inflation for several years (consumer price index rate 13.7 per cent in November 2009)[9]. Most of the goods consumed in Sao Tome are imported from Europe, particularly Portugal. The preference for this market contributes shortly for the deficit on the balance of payments that reaches so far US$ 75 million in 2007. The local currency (Dobras) exchange rate with the US dollar is 16.779,85 Dobras per 1 US dollar and 24.000,00 per

[5] More details about the regional cooperation and international organizations membership of Sao Tome and Principe will be provided in the following chapters.
[6] Official Development Assistance (IDA) plays a relevant role on the Santomean public budget. In 2005 the total aid reached 29.5 million US dollars. Ministry of Planning and Finances.
[7] http://www.unohrlls.org/en/orphan/294/
[8] For more developments about Sao Tome and Principe public debt see:
[9] Despite the currently high rate it so far lower than previous years when the same current period the rate was soaring around 24.8 per cent a year. For more information about this issue see: http://go.worldbank.org/RF2YCG7I50

Euro[10]. In order to break this currency barrier, the Government signed an agreement with the European Union, commissioned by Portugal establishing from January 2010 a fixed exchange rate for Euros in Sao Tome and Principe (currency pegging)[11].

The scenario of economic decline is related with the decline of cocoa cultures and the plantations system. After independence, the plantations were nationalized and restructured under the government's new decentralised policy for the economy. Cocoa plantations declined and the former colonial plantations became a focus of poverty and the source of migration for the distant crowded hometown, Sao Tome and its outskirts[12].

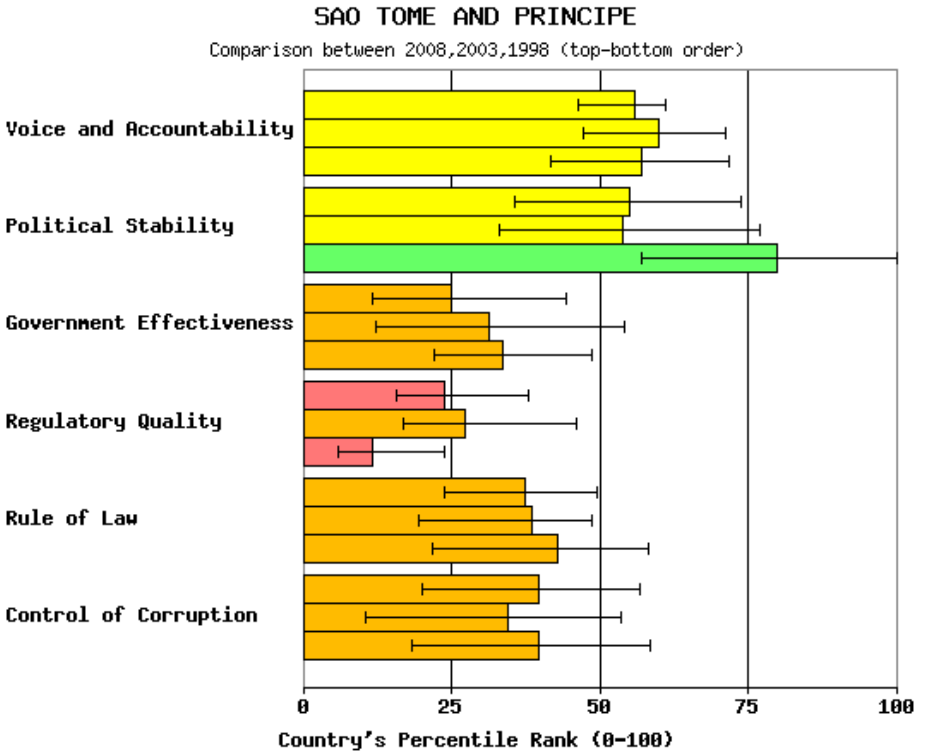
1.1.1.4 Government and administration

Sao Tome and Principe has a national Government and the Principe Island also has a Regional Government. The National Government is elected by direct vote in general elections to the National Assembly and is formed by the winning party or coalition. The Prime Minister is selected from the party with most seats and nominated by the President. Legislative branch is held by the National Assembly (unicameral parliament) and the Government. The constitution determines that certain issues can be regulated through decree-law by the Government. However, Government legislative mandate is limited by issue and if Parliament legislates about the same issue parliamentary law will prevail before the decree-law. All the principles mentioned above are applied with some exceptions to international conventions, treaties and bilateral agreements.

The President is the Head of State and the Prime Minister leads the Government and assumes the executive role regarding state tasks. However, the President has the political authority to dissolve the Government and the Parliament under certain circumstances but a recent constitutional emend has limited the authority of the President in these cases.

[10] Source: Central Bank of STP http://www.bcstp.st/Boletim/CambioMedio.aspx (last accessed in 17-09-2009).
[11] Information about the exchange rate agreement can be find at: http://www.bcstp.st/Informacoes/ACE.pdf
[12] See Map illustrating the urban development in the capital Sao Tome provided as Appendix III.

As the Executive, the national Government is the head of the Public Sector, headed by the Ministries and Agencies. The Government is still acting directly in the economy holding shares in the national telecommunications company, fuel and oil national company and having complete control of the postal service, electric company and the Airports Management Company. Since 1991 Sao Tome has established elected local councils with some level of autonomy. Principe Island is self-governed by regional elected bodies. They have a Regional Assembly and government with regulatory and executive mandates. Both levels of power face some weakness and limited capacity to fulfil their tasks, due to the scarce financial and qualified human resources. Besides, they always complain about Central Government's narrow perspective of decentralization.



Source: Kaufmann D., A. Kraay, and M. Mastruzzi 2009: Governance Matters VIII: Governance Indicators for 1996-2008
Note: The governance indicators presented here aggregate the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, and international organizations. The WGI do not reflect the official views of the World Bank, its Executive Directors, or the countries they represent. The WGI are not used by the World Bank Group to allocate resources.

Figure 2 – STP Governance indicators

1.1.2 Context

1.1.2.1 Marine and coastal Environment

Sao Tome has a rich fauna and flora due to its tropical location, frequent rainfall, and undeveloped coastal areas. There are some endemic species of fauna and flora in the terrestrial, coastal and marine ecosystems[13]. The islands are broadly irrigated by a radial network of rivers and water channels, crossing from the center to the coast, ranging between 7-50 km in length. Most of them are permanent but some are seasonal and flow only in the rainy season (September-June). There are also small coastal lagoons and wetlands in the North East and in the South (Rio Malanza Mangrove).

According with the National Biodiversity Strategy Action Plan (NBSAP), major environmental issues include deforestation for construction and charcoal; coastal erosion caused by sand mining for construction; desertification; unregulated construction and tourism development along the coastline due to the lack of town and country planning; land-based pollution from human sources (pesticides and sewage) in rivers; capture of endangered species (e.g. turtles); and marine pollution from ships and illegal dumping at sea).

1.1.2.2 Fisheries

STP presents an appreciable fish stock evaluated in approximately 8500 tones of pelagic resources, within 185 species of fishes from 67 families[14], Thanks to the vast jurisdictional waters of 160.000 km^2. Some valuable species of tunas had been identified in offshore cold water front zones[15]. Therefore, fisheries resources of the EEZ are extremely important for national economy and for the regional environment as well. Besides this marine fauna, the water of STP are attractive sea turtles (), seabirds and

[13] National Biodiversity Strategy Action Plan, p.
[14] Afonso et al.1999,
[15] FAO 1998

marine mammals[16]. According with the NBSAP, there are coral reefs all around the islands, which some of them are reportedly to be endemic species[17].

There are two types of fisheries in STP, the coastal small-scale fisheries and the large offshore fisheries operated by foreign fleets. Coastal fisheries are mainly traditional fisheries, using small boats and canoes of 5 to 10 meters long, as depicted in the figure below. Artisanal fisheries are the main source of animal protein for the Santomean population, supplying 60-70% of the protein consumed nationally[18]. This type of fishing provides livelihood for around 2800 fishermen and their families. Approximately half of the 2407 wooden canoes are not equipped with onboard motor engines[19]. Some of those equipped with motor engine fish out from Sao Tome, making a long trip to Principe, where there are more abundant resources. Few of these boats are equipped with even basic navigation systems like radios or compass far less with GPS devices.

Figure 3 – Some canoes are small and offer limited space and safety conditions

[16] Some beaches are nesting site for sea turtles. STP possibly serves as a breeding ground for humpback whales (Megaptera novaeangliae). NBSAP, p. 34

[17] NBSAP, p 26. See also: See http://islandbiodiversityrace.wildlifedirect.org/2009/02/10/the-race-return-of-the-marines/

[18] Ellen K. Pikitch, Ph.D., and Phaedra Doukakis, Ph.D., *Recommendations for fisheries reform for São Tomé and Príncipe*,p 2

[19] http://www.marapa.org/pages/pt/pesca/pesca.html

Foreign fleets operate under specific agreements with Japan and the European Union that allow them to catch tuna, shrimp, jellyfish, etc). The conditions and details about this type of fisheries will be discussed later in chapter 4.

1.1.2.3 Offshore Petroleum Resources

Since 1998 that STP and Principe realized the country's potential as oil producer it started the process towards the commercial exploitation of natural resources of the marine subsoil. Despite the existing potential for the development of petroleum resources in STP's territorial waters in the oil-rich Gulf of Guinea any actual production is at least several years off.

There are three provinces of petroleum resources management STP: the Joint Development Zone (JDZ) the EEZ and the onshore territory of STP. The JDZ is being jointly administrated by STP and the Federal Republic of Nigeria. The EEZ is an undisputed zone and is currently under jurisdiction of STP Government. All zones presents oil potential but the JDZ is the most searched and which commercial contracts progressed so far[20].

The JDZ is a specific zone for joint development between STP and Nigeria resulted from the common maritime boundary dispute by a bilateral agreement signed in 2001[21], which states that 40% of the benefits and obligations for STP and 60% for Nigeria. The JDZ) opened for bids by oil firms in April 2003. The winning bid for the first of nine blocks was made by a consortium including ChevronTexaco (51% stake), ExxonMobil (40% stake), and the Norwegian firm Equity Energy (9% stake), with STP to receive 40%

[20] The onshore zone was the first to draw attention on the oil potential of STP. In the past there have been drillings which proved the existence but the investors involved in the process abandoned eventually due to lack of commercial interest in the time. Recently more attention is being given to offshore resources. However, the costs associated with drilling and commercial exploitation of offshore Deep Sea petroleum are hindering and contributing to a slower process of oil production. For details about the onshore exploration and the history of petroleum resources in STP see: http://anp-stp.gov.st/port/default.htm

[21] The legal framework and details of the agreement are developed later in the chapter 4.

of the USD 123 million bid. Five more blocks were allocated in June 2005 and Chevron began exploratory drilling in January 2006[22].

Chevron announced in May 2006 that it had discovered hydrocarbons in Block 1, and subsequently stated that the amounts found were not commercially exploitable (Chevron, 2006). This dampened some of the earlier enthusiasm both within STP and outside it. Nevertheless, it is generally agreed that STP has considerable oil reserves, even if not the billions of barrels once expected. The operators of blocks 2 and 3, Canada-based Addax Energy, and of block 4, the China Petroleum & Chemical Corporation (SINOPEC), remain optimistic about finding oil. The two companies plan to drill five definite and five optional wells not before 2009 (EIU, July 2007).

Anticipating the potentially destructive impact of these oil receipts, the government has adopted an Oil Revenue Management Law that is widely regarded as a model of its kind. The law was developed by advisors from The Earth Institute at Columbia University in cooperation with the World Bank and local advisors. It calls for i) the establishment of a single national oil account (Conta Nacional de Petróleo) with a custodian foreign bank (the U.S. Federal Reserve) to collect all oil revenue; ii) the creation of a Permanent Fund (Fundo Permanente) where a percentage of oil revenues will be kept for future generations; iii) the regular auditing of oil revenue accounts by a reputable international accounting firm; and iv) the setting up of a Petroleum Oversight Commission (Comissão de Fiscalização do Petróleo) to monitor oil revenues and a Public Registration and Information Office (Gabinete de Registro e Informação Pública) that would store all documents and information related to the hydrocarbon sector and make them available to the public.

The law also prohibits the investment of oil receipts in assets within the country as well as any government borrowing with oil revenues as collateral. Finally, the law places

[22] www.nigeriasaotomejda.com

various restrictions on the use of oil revenues by the government. The general idea is to avoid the common problems associated with such a bonanza: the sudden appreciation of the local currency, the loss of competitiveness by non-oil tradable products, inflation, corruption and so forth. Much will depend on the implementation of this enlightened legislation. Oil licensing in STP has already led to some controversy. In particular, alleged irregularities in the Nigeria-STP Joint Development Zone have caused delays in the final awarding of blocks[23]. ERHC Energy announced in December 2009 that Addax Petroleum, the operator of Block 4, has commenced drilling the Oki East well this week. ERHC Energy has a 19.5 percent interest in the Block[24]. The EEZ oil fields remain unexplored but the Santomean Government expects start oil bids in that area, since the appropriate legislation is approved and new commercial partnerships developed[25].

1.1.2.4 A New vision for STP's the economic development

The new vision for the economic development of STP sets targets of economic growth promoting the diversification of its economy, replacing the traditional single crop agriculture by a marine based economy in the attempt to secure more advantages from the rich marine resources. Therefore, a national policy framework is required to balance tensions between development and environment, creating a framework for well informed decisions, through transparent processes.

Projects		Expected implementation	Budget and Funding
Deep Water Port	First deep water port of the country destined to serve as regional hub	2010-2017	USD 400 million (Public-Private Partnership – Built Operate and Transfer)
Oil development	In both EEZ and JDZ	2010-2013	Private
Tourism and	New Tourism Developments in the North East side of the Island of Sao Tome	In progress	Private

[23] Sao Tome and Principe Investment Guide, p. ** . This guide is accessible for consultation at the URL: http://vcc.columbia.edu/pubs/documents/SaoTome-sept11eng.pdf

[24] For details on this recent drilling and about ERHC, see http://finance.yahoo.com/news/ERHC-Energy-Inc-Announces-iw-1154297107.html?x=0&.v=1 and www.erhc.com

[25] http://anp-stp.gov.st/port/default.htm

Residential	2 main projects luxury residential: Pestana Sao Tome, Lagoa Azul North of Sao Tome	Pestana is finished Lagoa Azul is Suspended	Private Private

Table 1 – Key projects for the development of a coastal and marine focused economy in STP

ESTABLISHMENT OF FREE TRADE ACTIVITIES IN S. TOME AND PRÍNCIPE
Since the 1990s that Sao Tome is working towards the creation of the legal statute and institutional structures for the establishment of free trade activities. There were three attempts, but both projects are facing a stand by moment now. One of the most important, the Free Trade Parks of Principe Island, designed to be a place for service rendering to the oil production activities and maritime navigation in the Golf of Guinea which was to occupy 500 hectares of surface. The regional Government of Principe vetoed the project, disagreed with it, arguing that there were no benefits for the region, and considerable environmental impacts for an almost undeveloped island. For its extent of 500 hectares in a island of 180 Sq. Km, the project have been accused of threatening the coastal environment and was planned to be installed in a National Forestry Reserve. Source: Adapted from http://www.azf.gov.st/iintroducao.html

Table 2 – Free Trade Zones are also projected to be introduced in STP. The projects are linked with the creation of infra-structures like the Deep Water Port

In addition, the project of deep water port will contribute to create more marine traffic the water of the Gulf of Guinea. Thus, Sao Tome is urged improve internal capacity to deal with situations like marine pollution, alien invasive species, control and mitigate the effects of pollution from ships and oil spill. Meanwhile, the coastal inland areas require appropriate planning to prevent collateral effects of upcoming projects, such as unplanned development of the coastal communities. Another sector that is also being promoted is the offshore banking and services and industry, connecting to the port and airport projects[26]. Some legal reforms are also projected with the objective of attraction of foreign direct investment[27].

[26] Sao Tome and Principe Investment Guide: URL: http://vcc.columbia.edu/pubs/documents/SaoTome-sept11eng.pdf

[27] For a better understand of the current business environment in STP and the capacity of the country to attract foreign direct investment, see: http://www.doingbusiness.org/ExploreEconomies/?economyid=162

1.2 Scope and Objectives

This research paper attempts to provide a short guide for institutions responsible for marine environmental issues in Sao Tome and Principe. It is assumed that the country is not provided with a national ocean policy instrument or a legal framework to develop a marine policy according with the international framework.

So the main objective is design a paper able to approach the international context, regional framework and evaluate how the national framework responds to the existing problems/issues. According with this evaluation, the research will propose strategies the can contribute to the development of a national policy for STP.

To achieve this main objective it is projected to:

- Identify the general characteristics of the international framework.
- Understand how these characteristics are reflected at the regional level
- Identify the gaps and overlaps in at the national level in terms of policy and legislation
- And elaborate a set of proposals to implement a new policy in compliance with both international and regional contexts.

1.3 Overview of the research

This research paper is divided into three chapters plus the introduction and the conclusion will make five chapters. Chapter 2 will be dedicated to the topic of international regime on ocean policy. The third chapter will give us the regional on marine policy. The fourth chapter will focus on the national context on a national ocean policy for Sao Tome and Principe, including an evaluation of the current legal and institutional framework, in order to identify possible gaps and overlaps according with the issues that the country faces in the present. A general conclusion is provided with an overall analysis of the research.

2 International framework on ocean policy

Oceans resources and environment play a paramount importance for the life on Earth. Thus, the Oceans are now part of the International Agenda and the international community is committed on sustainable use of marine resources to assure food security, ecosystem equilibrium and access to resources. Moreover, this engaged effort gains more expression nowadays when Earth's environment and the Oceans struggles with problems of great impact at global level, such as climate change and sea level-rising, over fishing, high population density in coastal areas and so forth. The resolution of these issues cannot be considered a quick-fix task but a long process that requires cooperation and consensus. The issues and responses of the international community are summarized in this chapter.

2.1 Current situation of world oceans

2.1.1 Why oceans matter?

More than 70% of the planet is covered by water and more than 85% of biodiversity lives in the aquatic environment[28]. The importance of oceans resources for the humanity is immeasurable and encompasses different sectors and activities, such tourism, fisheries, energy resources (oil and gas), minerals, marine transportation and aquaculture[29]. In addition, coastal areas are the elected locations to installations with fundamental economic importance for coastal states, like port facilities, airports, even power plants. Moreover, a social and cultural importance is recognized to coastal lands for traditional and religious activities[30].

[28]

[29] Kildow JT, McIlgorm A. The importance of estimating the contribution of the oceans to national.... Marine Policy (2009), p. 1.

[30] In some islands of the South Pacific indigenous communities consider the sea as way to contact their ancestors.

Notwithstanding this economic, social and cultural dependence on oceans resources, the oceans face serious struggles, which threaten the marine resources, the maintenance of continuous provisions of animal protein, endangering food security and eventually the planet equilibrium to support life. And the degradation is global, occurring in marine ecosystems adjacent to developing and developed States as well. In addition after considerable degradation in the water of developed countries, demand is contributing to export unsustainable practices to developing countries[31]. Recent scientific research expresses the relevant role of the ocean ecosystems and its important role as carbon sink, contributing to reduce the concentration of CO2 in the atmosphere. Some issues that affects the oceans are developed in the following subsections.

2.2.1.1 Population Growth

Population growth is considered one of the major policy issues and poses serious concerns to the international community. The current Worlds' population is around 7 billion[32], and is expected to reach the mark of 10.7 billion by 2050. The immediate consequence on the increase on population is the soaring demand for food, energy and space for construction, transportation and infra-structures in general. In fact almost all those resources are from the oceans.

When global population distribution trends are analyzed it can be easily observed that world's population is mostly concentrated on the coast. The coastal zone constitutes less than 15% of land surface but is the location of more than 40% of world's population. Presently, the population living in coastal areas (approx. 3.2 billion) occupies a coastal area roughly 2 km wide. The current coastal population is so far bigger than the entire

[31] A.M. Duda, K. Sherman / Ocean & Coastal Management 45, 2002, p. 798

[32] See: http://www.un.org/esa/population/publications/sixbillion/sixbilpart1.pdf (last visited on December 2009)

global population of the 1950s. According to UNCED's[33] Agenda 21, almost 75% of world's population will be living at or near the coast by 2020[34].

Rank	City	Population (millions)	Annual Growth Rate (%)
1	Dhaka	5,88	6,2
2	Lagos	7,74	5,8
3	Karachi	7,96	4,7
4	Jakarta	9,29	4,4
5	Bombay	12,22	4,2
6	Instambul	6,51	4,0

Table 3 – World most populated cities [35]

This factor increases the pressure on coastal areas from human activities. The potential for economic opportunities in coastal cities is a strong attractive force, fuelling immigration, often from economically depressed rural areas. As a result, in the future much larger, younger populations can be expected in the coastal areas of developing countries. These future coastal residents will demand employment, housing, energy, food, water and other goods and services, thus presenting a substantial development challenge. Against this demographic backdrop, coastal areas are extremely important for the social and economic welfare of current and future generations, as coastal resources support key economic and subsistence activities[36].

[33] United Nations Conference on Environment and Development - Rio de Janeiro 1992. Agenda 21 is an strategic program adopted in the Conference.
[34] Reference
[35] QD**, p, 66
[36] The economies of most developing countries are currently very dependent on natural resources, for agriculture, fisheries and forestry sub-sectors, mining, oil and gas extraction, marine tourism and ocean transport. Many of the world's most productive agricultural areas are located in river deltas and coastal plains. In particular, the deltas' food productivity exceeds local consumption needs and eventual delta disturbance can result in national economic shock waves that reach far beyond the delta.

2.2.1.2Population Growth

As for people, the coastal areas are very attractive for most economic activities as well. Among diverse sectors, coastal tourism and marine transportation represent the largest sectors of the ocean economy, and rely on a huge number of suppliers as well as users, all of which are fed by the ocean. The pressure for industrial development drives the demand for land which leads to land reclamation in some regions of the world where the land is a like Asia. Coastal areas are replaced with coastal infra-structures ports, connected with industrial parks an logistic hubs. As stated by Kim, 1991; Lim & Oh, 1991[37], these development projects are often not even subjected to benefit/ cost evaluations beforehand and, if they are, the costs rarely include consideration of the environmental effects. Most of them determine the destruction of the original landscape jeopardizing the equilibrium of coastal ecosystems. Adverse environmental effects include loss of productivity and declining biological diversity as well.

2.2.1.3 Climate Change and Sea-level rising

Global Warming and Climate Change are issues that arises concerns on ocean matters. First of all for the direct effects of climate change to the oceans, such as ocean acidification, sea level rise, changes in oceans surface temperature, with seasons shifting and extreme weather events, are destroying coastal infra-structures. Secondly, there effects of climate change in the marine ecosystem with environmental degradation and habitat destruction. All effects are summarized in the figure below and in the following chapters.

2.2.1.4 Marine Pollution

Notwithstanding the paramount importance of the coast as indicated above, the world's coasts are threatened by development-related activities. The intense pressures put on

[37] As cited by ***

these coastal systems require serious commitment and preventive action at all levels – local, national and global.

Pollution from the land affects the marine and coastal environment, including estuaries and inshore coastal waters, which are highly productive areas. The environment is also threatened by physical alterations of the coastal zone and activities such as dam construction further upstream. Both are destroying habitats of vital importance for ecosystem health. At the same time, the health, well-being and, in some cases, the very survival of coastal populations depend largely upon the health and the maintenance of ecological functioning of the coastal ecosystems: estuaries and wetlands, as well as their associated watersheds, drainage basins, near-shore coastal waters, wetlands, mangrove forests and coral reefs.

Rights, responsibilities and obligations of States and regional and international organisations with regard to the protection and sustainable development of the marine and coastal environment and resources contained therein are clearly set forth in the United Nations Convention on the Law of the Sea (UNCLOS) and other international agreements including Agenda 21 and the Convention on Conservation of Biodiversity. The duty of the States and regional and international organisations to protect the marine environment from land-based activities was clearly defined in the context of sustainable development by the United Nations Conference on Environment and Development in 1992.

2.1.2 International responses – the emergence of Ocean Governance

2.1.2.1 Summary

It was always recognized the importance of the oceans for the development but only in recent the oceans issues are part of international Agenda. It was a long process of learning, research, political discussions and management decisions in which several achievements were made. Ocean Governance is this evolving process of learning and developing a new approach to achieve sustainable use of marine resource and the

While most coastal countries have adopted sector-specific policies to manage ocean use, such as for fishing and oil development, it has only been since the early 1990s that some countries have started introducing an integrated approach to manage ocean and coastal areas in their jurisdictions[38].

During the 1960s, uses management were a response to the economic and social importance of that resource, focused on a single issue (ports, recreational areas, etc.) and covering a limited spatial area - the shoreline. However, there was a widespread recognition that coastal and marine resources constituted an important element of the global economic assets, and many countries, especially islands, were heavily dependent on these resources. In the 1970s some changes took place. It was the stage of implementation, characterized by the development of the early efforts to build up an effective coastal management framework. The objectives in this fase are *use* management and environmental protection. There were few uses but the geographical coverage varied in extent. However, the criteria to define this extension were arbitrary. The US Coastal Zone Management Act is one of the first official initiatives to foster coastal management. Despite this, at the federate states level, the programs and plans that implemented the Act focused mainly on land-use issues, rather than water related issues. But progressively gained expression and is not hard to say that the US experience was a significant beginning, and example followed by other countries, even developing.

The United Nations Conference on the Human Environment - Stockholm, 1972 contribute to raise some awareness and involvement the international community in this topic, because it took place in the moment of a strong realization of the seriousness of the environmental consequences of human actions, especially on the prevention of marine disasters. Such events[39] and the reports about the countries environmental situations

[38] DI***

[39] The incident of an oil spill offshore from Santa Barbara in California, in the United States of America cited by Biliana Cicin-Saint and Robert Knecht, Integrated Ocean and Coastal Management, Island Press, Washington DC, 1998, p. 72..

submitted by the participants helped to raise the concerns on the environmental issues in the early 1970s[40].

Another fact that is also linked to the Stockholm Conference is the creation the United Nations Environment Programme (UNEP). This new body was dedicated from that time to the coordination of the Regional Seas Programme, and other issues like, ozone depletion, biodiversity and maintaining the UNEP Islands Program[41]. The conference had a great impact on the international community and served as an excellent catalyst for the adoption of new legal binding conventions related to pollution prevention. The London Convention of 1972 (Convention on the Prevention of Pollution on Dumping of Waste and other Matter) and the International Convention on the Prevention of Pollution from Ships (MARPOL 1973 and 1978 protocol) are examples of indirect outcome from the Stockholm Conference. The Convention for the Prevention of Marine Pollution from Land-Based Sources" 1974 (Protocol adopted 1986) is also from the same[42] decade.

The management of ocean resources gained more acceptance and clarification during the 1980s with the III United Nations Conference on the Law of the Sea, which culminated with the adoption of the United Nations Convention on the Law of the Sea (UNCLOS, also named LOSC)[43]. It was stressed the objectives to be achieved by marine policies. Although still being focused only on use management and environmental protection, the geographic coverage became more clearly defined, focusing under the state jurisdictional waters (territorial sea and EEZ).

The steps forward gained further expression in the late 1980s during the preparation of the Earth Summit and since then the importance of coastal environment is internationally

[40] Idem, p.
[41] References
[42] The RAMSAR Convention, 1971 - Convention on Wetlands of international Importance.
[43] See section 2.2 for more details on the impact of UNCLOS on ocean issues.

accepted[44]. This period is also considered the period of emergence and global acceptance of management concepts like: Carrying capacity; thresholds, transboundary nature of resources, ecological processes do not respect political/administrative boundaries, concept of 'multiple use', notion of the importance of stakeholder participation in management, and so forth[45].

Since UNCED, significant progress has been made in the development of legislation, agreements and programmes of action at the international level. The UN Convention on the Law of the Sea (UNCLOS) entered into force in 1994, providing an overall framework for governance of the ocean. Some of these contributions are listed below:

- The Convention on Biological Diversity's (CBD)
- The United Nations Environment Programme's Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)
- Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coastal Biological Diversity (Jakarta Mandate of 1995)
- United Nations Agreement on Straddling and Highly Migratory Fish Stocks (Fish Stocks Agreement) adopted in 1995.
- Barbados Programme of Action (BPOA) for the Sustainable Development of Small Island Developing States (SIDS) of 1994
- The Lisbon Principles adopted by in 1998 by the World Commission on the Oceans

[44] Vallega (1996), as cited by Cicin-Sain & Knecht, p. 32.

[45] In this period it was assumed that there was the need for an autonomous discipline for broad use management called integrated coastal area management (ICAM). Managers are now entitled to do comprehensive use management of the coastal ecosystem, covering a wider geographic area according to different criteria to the landward and with the states jurisdictional zones as a seaward limits. Vallega, 1996 - as cited in Cicin-Sain & Knecht, op cit. p. 32

2.1.2.2The Earth Summit

The United Nations Conference on Environment and Development (UNCED) – or "Rio Earth Summit" – held in 1992, addressed issues and challenges related to sustainable development at the global level. The Rio Conference brings a great input to develop the concept of ocean management. It called attention to the concept of sustainable development as the most appropriate principle to lead the use of natural resources. On the other hand, the Rio Conference highlighted the global dimension of the problems, their transboundary nature and reckons the need for stronger regional and global partnerships in order to achieve sustainable yields. Delegates adopted Agenda 21, a plan for achieving sustainable development in the 21st Century. Chapter 17 of Agenda 21 called for new and integrated approaches to the sustainable development of oceans and coasts. Rio Principles on environment and development endorsed the precautionary principle as a component of new approaches to ocean-related agreements.

The Rio Declaration is a non legal binding document. It provides the outline of international community commitment on Earth's environment future, establishing principles for a sustainable use of all natural resources, considering the link between the development and environment, upon the need to preserve the live and promote the economic growth. Significative importance was given to the cooperation among countries to tackle these issues, specially the technical and financial assistance from developed countries to reduce poverty and resources depletion effects mitigation. Notwithstanding the legal nature of this declaration given to the fact that it can be considered as a "soft law" under the International Law, its provisions can be part of future legal instruments or eventually become themselves part of international customary law, once they get the general acceptance and acquiescence[46].

[46] Cicin-Saint & Knecht, *Ocean and Coastal Zone Management*, pp 77-78. The authors suggest, following Caldwel (1990), as a comparison the example of the Principle 21 of the Stockholm Declaration of Principles that outlines the national responsibility for environmental damages to neighboring countries.

2.1.2.3Small Islands Developing States Agenda

Small islands developing States (SIDS) share similar sustainable development challenges, including small population, lack of resources, remoteness, susceptibility to natural disasters and sea-level rising, excessive dependence on international trade and vulnerability to global developments. In addition, they suffer from lack of economies of scale, high transportation and communication costs, and costly public administration and infrastructure[47]. In most cases, the marine jurisdictional areas are vast in comparison with the land mass, expanding sometimes thousand times than the land territory. The United Nations Department of Economic and Social Affairs maintains a list of fifty-one small island developing States and territories, monitoring the sustainable development of SIDS. These countries are often categorized by their three regions; the Caribbean, the Pacific, and the AIMS (Africa, Indian Ocean, Mediterranean and South China Sea)[48]. A summarized list of small islands states is presented in the table below.

SIDS economies tend to rely on the exploitation of their natural resources, through extractive industries (oil and gas), tourism and fisheries that makes ocean and coastal environment of strategic importance and constitutes a valuable development resource[49]. Therefore, SIDS' challenges are recognized as a priority and object of some international initiatives like the United Nations Conference on the Sustainable Development of small islands developing states, the WSSD and recalled in the Mauritius Strategy and several meetings worldwide. Is also of remarkable importance the focus on the linkages between sustainable development and achievement of Millennium Development Goals (MDGs).

[47] **

[48] See http://www.un.org/esa/sustdev/sids/sidslist.htm for further information.

[49] Agenda 21, 17.124.

Africa	Asia and the Pacific	Europe	Latin America and the Caribbean
Cape Verde Comoros Mauritius São Tome and Principe Seychelles	Bahrain, Cook Islands, Fiji, Kiribati, Maldives, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Singapore, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu	Cyprus, Malta	Antigua and Barbuda Aruba, Bahamas, Barbados, Cuba, Dominca, Domincan Republic, Grenada, Haiti, Jamaica, Netherlands Antilles, St Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, US Virgin Islands

Table 4 – Geographic distribution of SIDS by continents [50]

B) Barbados Programme of Action on sustainable development for SIDS

The United Nations Conference on the Sustainable Development of small islands developing states, held in Barbados in 1994 was organized in the implementation of the Chapter 17 of Agenda 21. The conference addressed issues related with the challenges faced by small islands developing states (SIDS), recognizing the specific circumstances and vulnerabilities of this group of states.

This Conference served as a forum of discussion and addressing common strategies to be implemented at international, regional and national levels which embodied the SIDS Programme of Action (hereinafter POA), adopted in the same date. Besides it was decided[51]:

- *The establishment and/or strengthening of programmes to assess the impact of planning and development on the coastal environment, including coastal communities, wetlands, coral reef habitats, and the areas under the national jurisdiction of SIDS;*

- *Preservation of diverse coastal ecosystem functions and services – often the 'life-support systems' of many small islands;*

[50] Adapted from http://www.un.org/esa/sustdev/sids/sidslist.htm (last accessed in July 2009)

[51] Source.

- *Control, management and monitoring of land-based sources of marine pollution;*

- *Urged the allocation of adequate resources to facilitate the achievement of ICAM goals and;*

- *Called on international the community and donor agencies to assist SIDS with funding & capacity building.*

2.1.2.4 UNEP Regional Seas Programme

UNEP Regional Seas Programme started it activities in 1974 just on the follow up of the 1972 United Nations Conference on the Human Environment held in Stockholm. The main objective of the Regional Seas Programme is to address the accelerating degradation of the world's oceans and coastal areas through the sustainable management and use of the marine and coastal environment, by engaging neighboring countries in comprehensive and specific actions to protect their shared marine environment[52].

The Regional Seas Programme (RSP) includes around 140 countries and covers 18 regions of the world, namely: Antarctic, Arctic, Baltic, Black Sea, Caspian, Eastern Africa, East Asian Seas, Mediterranean, North-East Atlantic, North-East Pacific, North-West Pacific, Pacific, Red Sea and Gulf of Aden, ROPME Sea Area, South Asian Seas, South-East Pacific, Western Africa and the Wider Caribbean. This fact makes the RSP one of the most globally comprehensive initiatives for the protection of marine and coastal environments[53].

UNEP administrates directly 8 of the 18 RSPs while the remaining are administered by the states involved, through action plans which are adopted by member governments in order to establish a comprehensive strategy and framework for protecting the

[52] UNEP
[53] http://www.unep.org/regionalseas/programmes/default.asp. (last accessed in December 2009).

environment and promote sustainable development. Action plan outlines the strategy and substance of the programme, based on the region's particular environmental challenges as well as its socio-economic and political situation. The actions plans are complemented by a strong legal framework of regional conventions and associated protocols[54].

2.1.2.5World Summit on Sustainable Development

The World Summit on Sustainable Development (WSSD) in 2002 was held in Johannesburg, South Africa. The WSSD addressed ocean management, building on input from various recent meetings, including the November 2001 GPA Intergovernmental Review Meeting held in Montreal, and the Global Conference on Oceans and Coasts at Rio+10, held in Paris, France in December 2001.

The WSSD adopted two negotiated outcomes - the Johannesburg Plan of Implementation and the Johannesburg Declaration on Sustainable Development. The Plan of implementation contained a number of commitments on oceans, coasts and islands, including: controlling illegal fishing by 2004; managing fishery capacity by 2005; applying the ecosystem approach to marine areas by 2010; and establishing a network of marine protected areas (MPAs) by 2012. In addition, several relevant non-negotiated partnerships and voluntary initiatives were announced by governments, the private sector and civil society.

Contemporary to the WSSD is the establishment of the Global Forum on Oceans, Coasts, and Islands. The Forum was created during the WSSD by an informal coordinating group and is comprised of individuals from governments, intergovernmental organizations and non-governmental organizations. It seeks to provide a platform for cross-sectoral information sharing and dialogue on issues affecting oceans, coasts and islands, with the goal of attaining sustainable development in these areas. The Forum

[54] http://www.unep.org/regionalseas/about/strategy/default.asp

organized the Global Conference on Oceans, Coasts and Islands, which sought to follow-up on the WSSD outcomes, in November 2003[55].

2.1.2.6 Agenda 21

Agenda 21 is an important document despite its nature of mere declaration of principles. This document was also adopted at the Rio Conference. Is a forty seven chapter declaration of principles that covers a wide range of issues, from human development, women and youth empowerment, poverty reduction, and several environment issues. Chapter 17 of Agenda 21 focuses on the importance of coastal resources, in particular section 17.5: Coastal States committed themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction.

**Agenda 21 like sustainable development principles, integration, precautionary approach and other relevant for a better management of Earth's resources. Key Objectives stated in Agenda 21 are listed bellow:

(a) Provide for an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses;

(b) Identify existing and projected uses of coastal areas and their interactions;

(c) Apply preventive and precautionary approaches in project planning and implementation, including prior assessment and systematic observation of the impacts of major projects;

(d) Promote the development and application of methods, such as national resource and environmental accounting, that reflect changes in value resulting from uses of coastal and marine areas, including pollution, marine erosion, loss of resources and habitat destruction;

55

(e) Provide access, as far as possible, for concerned individuals, groups and organizations to relevant information and opportunities for consultation and participation in planning and decision-making at appropriate levels.

(f) Design and implementation of integrated management plans and programmes, to ensure the sustainable development of the world's coastal areas, including on-going collection, analysis, storage and retrieval of scientific and technical data; capacity building and training.

2.2 Legal and institutional framework on marine policy

2.2.2 Institutional Framework

There is a wide range entities dedicated with oceans affairs, comprising from international organizations, inter-governmental organizations, NGOs, national governments and its agencies, regional organizations, academic and research institutions, foundations and so on. The nature and forms of action that drives these entities is diverse too and depends on its mandates, the task or action that is taken. Despite each organization is committed with its own objectives, the individual contribution to the whole is welcome. However, the evolution of ocean governance asks for a coalition of efforts towards a sound and integrated approach to oceans issues, what means more cooperation, sharing of information and creativity to create new structures with ability to give reliable responses. This is the idea behind the need of institutional arrangements that will be clarified in the section dedicated to Ocean Governance, as long as we take the institutional structures as one of the key elements of the international ocean governance system.

2.2.3 Legal Framework

2.2.3.1 Law of the Sea Convention

The United Nations Convention on the Law of the Sea (UNCLOS, or Law of the Sea Convention, LOSC) constitutes the legal basis for the protection of natural resources in coastal and marine environments. UNCLOS is the umbrella convention on the Law of the

Sea, marine pollution prevention and natural resources management, is the Constitution of the Sea, as commonly named. The 1982 convention came into force on 16 November 1994, and provides the basic framework for the establishment of maritime zones, and for regulation of fishing, marine scientific research, and marine pollution within national jurisdictional zone and areas outside national jurisdiction[56].

The LOSC defined a comprehensive regime for the Seas, creating the baselines for the Governance of Worlds oceans. The convention is complemented by the Agreement relating to the implementation of Part XI of the Convention of December 10, 1994, and presents deliberate attempt to design a comprehensive, integrated package containing a balance of interests between coastal states and the international community, including landlocked and geographically disadvantaged states[57]. The convention defined:

- *coastal state sovereign rights over resources and economic activities in the EEZ*
- *and on the continental margin;*
- *the notion of transit passage and archipelagic sealanes passage, i.e., protections for international navigation;*
- *the status of the EEZ as a zone sui generis;*
- *state responsibility for acts of marine pollution;*
- *coastal state control of marine scientific research in the EEZ;*
- *the balance of jurisdictions vis-à-vis control of ship-generated marine pollution,*
- *i.e., flag-state jurisdiction vs. port-state control;*
- *protection for high seas freedoms;*
- *dispute settlement procedures, including the exceptions as promulgated in Art. 297;*
- *and the notion of the "common heritage of mankind," originally defined in Part XI and its Annexes but as modified in Resolution II and the Memorandum of Understanding[58].*

[56] E. Miles, p 1***
[57] E. Miles, p 2**
[58] E. Miles, p 2**

2.2.3.2Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was adopted in 1992, simultaneously with the Rio Declaration on Sustainable Development and Agenda 21, thanks to the work of the International Negotiation Committee on Biological Diversity (INC/BIODIV)[59].

This convention contributes to mobilize states to implement new policies for protection of fauna and flora. CBD is legal binding instrument. By ratifying the convention, states parties committed themselves to a number of actions. These actions include coastal biodiversity as well.

2.2.3.3UNFCC

The objective of the Framework Convention on Climate Change is to achieve "stabilization of the greenhouse gases concentration on the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The countries parties to convention defined this objective guided upon the link between the soaring level of Greenhouse Gases (GHG) and the climate behavior, in other words, keep a certain level of emissions in order to prevent the degradation of climate system. The preparation work and negotiation was carried out by the Inter-governamental Negotiation Committee for a Framework Convention on Climate Change (INC/FCCC) [60] and the International Panel on Climate Change (IPCC)[61].

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[59]The INC/BIODIV was created by United Nations Environmental Programme (UNEP) to tackle issues related with biological diversity. All the preparation process was held by this UN body jointing experts whose discussions contributed to the emergency of new questions and concerns like the protection of intellectual property upon the research on biotechnology - for e.g sharing of the financial benefits with the host nation.

[60] Established under the resolution 45/1212 of the UN General Assembly, in December 1990. This committee was divided in to two groups: 1- Sources and sinks of greenhouse gases; 2 - institutional responses.

[61] Also created by UNEP, Word Meteorological Organization with assistance of the International Council on Scientific Unions (ICSU) in 1988. It was a scientific body which developed a assessment and advisement to the INC/FCCC. They produced two reports predicting the general effects of climate change and the assessment of the vulnerability of low-lying coastal states to the sea level rise. See Sicin-Sain and Knecht, op cit. p 77.

Greenhouse gases work[62] as climate drives, the increase of the concentration of these gases on the atmosphere, due to human activities - human induced climate change- will endanger the climate. In spite of certain skepticism about the previsions at the early 1992, warnings about the risk of global warming were take into consideration at the Rio Conference. Global warming will affect the glaciers melting them which will contribute to sea-level rise, and as sea temperatures rises too the frequency and intensity of extreme events, such as tropical cyclones (hurricanes and typhoons assumes particular relevance), floods and droughts will increase. If confirmed, all these effects will bring economic and social concerns. Agriculture can be severely affected by changing in rainfall cycle. Bad weather conditions will damage human infrastructures, block transportation and communications and threat for human health[63].

International community found here a great challenge because we can not stop economic growth but it shall not be done at cost of destroying the Planet. On the other hand, we have the differences of growth needs among both developed and developing countries. Hence, that reaction to prevent climate degradation must respect the interests of developing and developed countries. However, developed countries must held some responsibility for their historical contribution of anthropogenic emissions and commit themselves to help developing countries on the adaptation for climate change.

States parties to the convention committed themselves to a series of obligations set forth in the art. 4. These obligations includes the inventory of greenhouse gases (article 4.1, a); the need for a international cooperation and clean technology transfer (article 4.1, c); specific concerns about low-lying coastal states and small islands. The convention focused as a response for climate change that adaptation for climate change only can be

[62] GHG are generally name as carbon because are mainly constitute by carbon dioxide, CO2. However, this is not the most dangerous for the climate system but is far the most commonly produced to fulfill the need of energy. Others greenhouse gases are Methane, Nitrous Oxide, Perfluorcarbons, Hydrofluorcarbons, Suphur Hexafluoride. Source: http://unfccc.int/ghg_data).

[63] Since then, many facts occurred. The elimination of some uncertainties by scientific research and the climate behavior itself is pushing the international community to new grounds and agreements. The limited success of the Kyoto Protocol to the UNFCCC reduced its strength, however, the preparation of the next meeting after Kyoto reveals new expectations.

effective if the oceans and coastal resources are managed in a integrated manner (article 4.1, e). This precise mention to ICM is a result of the work developed by the coastal zone management subgroup[64] which suggested that a reliable response to climate change challenges for low-lying coastal states and small islands requires an integrated approach in order to be successful. Is a recognition that any isolated discipline can draw the responses for this kind of problems without gathering contribution from other fields, include stakeholders and decide based on science-based and mutual consensus (manage heterogeneous interests). Then, considering the growing awareness about sea-level rise effects for this particular group of states, this challenge was clearly assumed by the international community, as we can see in years ahead to the Rio Conference.

2.3 The future of Worlds' Ocean – Ocean Governance

2.3.1 A Principled Ocean Governance

The recent evolution on international Ocean Policy is leading to a *Principled Ocean Governance (POG),* which means a new approach for the management of ocean resources that is based on application of principles[65], rules and science. This approach is the result of all international commitment on behalf of a sound management of world marine heritage and the principles constitutes the first of its dimensions.

The principles can be divided principles into two categories: (1) Substantial, based on deep beliefs that guide our vision for the future and thus the way that we approach governance; (2) Procedural, that guide the way we interact, make decisions and do business on a daily basis.

Ecosystem-Based Management (EBM) is and evolving concept emerging that is based on the consideration of the ecosystem to address issues concerning with

[64] Created in 1990 by the IPCC group responses for the threats put by climate change to coastal states. This team also developed a methodology to assess the vulnerability to climate change.

[65] According with the article 38 of the Statute of the International Court of Justice (ICJ), the judicial body established under the United Nations Chart, there are three major sources of international law: treaty, custom and general principles recognized by civilized nations. However, the list is merely indicative and open to the consideration of other sources, as recognized by the ICJ itself. Marie-Claire Cordonier Segger and Ashfaq Khalfan, International Sustainable Development Law, pp. 8-11 and note 15 for the page 8.

management of natural resources. This concept is gaining importance when the topic is the management of natural, mainly living resources. The main characteristic of EBM is that it poses the importance on ecosystem component rather than the social and economic dimensions are of equal importance to conservation, without disregarding the those ones. The idea is to consider 'ecosystem first'. Another characteristic associated with the concept of EBM is the idea of the need to think in terms of governance rather than government, consider entire ecosystems rather than their separate parts, and promote resilience through self-organization. In the context of fisheries, EBM means Ecosystem Approach to Fisheries (EAF) (FAO 1995).

EBM cannot be well understand if not involved in the context of a principle ocean Governance (POG) because it is a key component – instrument – to achieve Policy goals. The policy context in with policy issues are identified require certain instrument and paradigm to work within.

2.3.2 Ecosystem-based management in the international context

LMEs are regions of ocean space encompassing coastal areas from river basins and estuaries to the seaward boundaries of continental shelves, enclosed and semi-enclosed seas, and the outer margins of the major current systems as shown in Fig. 1[66]. They are relatively large regions on the order of 200,00 0 km2 or greater, characterized by distinct bathymetry, hydrography, productivity, and trophically dependent population. Within the 64 LMEs, 95% ofthe global marine capture fisheries are found as well as most of the ocean pollution and coastal habitat alteration

[66] A.M. Duda, K. Sherman, idem., p. 799

2.3.3 Case Studies of Canada and Australia

Canada and Australia are considered the most mature and developed cases of implementation of ocean policies at the national level. They are also taken as reference cases given the two different approaches adopted by each country, making as an important reference for this research. Canada adopted the “Oceans Act” in 1998, as the first step to the implementation a national ocean policy.

2.4 Conclusion

In this chapter it was discussed the problems that affect marine environment and bring oceans to the political agenda. These issues are present and represent serious concerns taking into account the importance of marine resources for mankind. Despite this, the measures and actions of the international community are still far to achieve its goals, and are part of a long process that constitutes the core of Ocean Governance.

A call for new approach for natural resources and ecosystem management under the concept of LME is also emerging as the most suitable mode to cope with trans-boundary issues, when the issues assumes international and regional scale. The same principle behind LME, the ecosystem-based management (ecosystem approach) is being widely recognized as the key principles for national ocean policies, which had already been implemented with some success so far, as did by Canada and Australia.

3 Regional Marine Policy Framework

Sao Tome and Principe is located off the Western Coast of Africa in the Gulf of Guinea, in the Sub-Region of Central Africa. The regional framework plays a relevant importance to development of the policy at the national level. On the other hand, the principled ocean governance based on the application of the concept of Large Marine Ecosystems also urges the adoption of regional governance frameworks. This chapter analyses the regional framework on marine policy.

3.1 Regional Context

The Region of West and Central Africa constitutes the long coastal strip from from Mauritania to Namibia, encompassing diverse national jurisdictions. Countries part of this region are: Angola, Benin, Cameroon, Cape Verde, Democratic Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, guinea, Guinea-Bissau, Liberia, Mauritania, Namibia, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, Togo, Congo and South Africa. Is a region with economic potential and a wide range of activities highly dependent on marine resources, such as fisheries, coastal tourism, industries and ports, and so forth, taking advantage from the highly productive and diverse ecosystems.

As for other regions in Africa, West and Central Africa has seen terrible conflicts resulting in immense poverty, political instability and continuous policy interruptions. This fact also contributes to the degradation of the marine environment. It is reported that coastal ecosystems have suffered greatly from rapid development, improper use of resources and extensive pollution. Main problems are coastal erosion and floods, which can assume serious proportions with the growing effects of climate change.

Along a coastline of Approximately 13.553 km this region comprises three different LMEs: the Canary current, Guinea current and Benguela current. The Canary Current

Large Marine Ecosystem (CCLME) current is associated with the current with the same name which flows south-westward along the coast in the northern part of Africa. The Guinea Current Large Marine Ecosystem (GCLME) includes the Guinea current and constitutes the continuation of the Equatorial counter current. It feeds both the Guinea current and the North Equatorial current. The Benguela Current Large Marine Ecosystem is driven associated with the Benguela current which flows along the South West African coastal zone Guinea current, flowing eastward and south eastward, which carries warm waters along the coast of the Gulf of Guinea, near the Equator.

4 Sao Tome and Principe Ocean Policy

Considering the international and regional frameworks on ocean policy detailed in the previous chapters and the mindset on changing the scope of santomean economy, diversifying the sources of income through the promotion of new economic model focused on marine resources, is assumed at this point that is the right opportunity for the development of a national policy for this island state.

This chapter details the current policy context in STP aiming to identify the gaps and overlaps in the legal and institutional framework and discuss about possible issues that can constitute in the trigger to the inception of the national policy for the ocean. For operative reasons, this chapter is divided in three sections. The first one analyses the present policy context, the second presents the proposed model for the national policy and the third discuss the challenges and opportunities to be considered.

4.1 National Policy Context

4.1.1 Institutional and Legal Framework

The management of natural resources and environment in STP is shared by different institutions and Ministries on sectorial basis. The legal framework follows the same logic, with mandates separated within public institutions at national and local level. All these institutions contribute to the overall policy on resources management and environment, exercising mandates, according with the legal framework.

4.1.1.1 Institutional Framework

The institutional organisms that hold direct responsibilities on marine and coastal issues, urban planning, maritime law, fisheries, biodiversity and conservation are:

- The *Ministry of Natural Resources Energy and Environment*: is the responsible for questions related with natural resources management,

biodiversity, conservation and environment. The mandates are shared by two different institutions:

- *Directorate*[67] *(Department)of Natural Resources*

  Organism directly dependent on the Ministry responsible for the management of Plans and execute Government's policy on natural resources and is responsible for permits related with the use of resources, such minerals, sand and gravel, industrial licensing, and intellectual property.

- *Directorate of Environment*

  This Directorate is focused on environment issues, like conservation, biodiversity and natural resources preservation. Its main functions involves: the execution of the government policy for the environment, including the preparation, submission and updating information concerning carbon dioxide emissions, adaptation for climate change and the National Biodiversity Strategy Action Plan.

- *National Petroleum Agency*

  Independent public agency in charge of issues related with oil resources management at national level and with the implementation of the objectives set forth by the Government for petroleum resources management, in both EEZ and JDZ. The Agency assists the Government on petroleum issues, giving

[67] The Directorates are directly dependent on the Minister and executes tasks his behalf. They are the administrative and technical level, which prepares studies, programs and policies that are approved at the political or legislative level.

regulatory and policy recommendations to promote investment and sustainable development in this sector.

- The *Ministry of Agriculture Rural Development and Fisheries*:

  - *Directorate General of fisheries (DGP- Direcção Geral das Pescas)*: directly dependent on the ministry; hold issues related with fisheries, management of artisanal fisheries projects, registration of artisanal or industrial fisherman, surveillance and statistic registration of industrial vessel. DGF is also mandated to carry inspections and monitor captures of foreign fishing fleets operating under access agreements.

- The *Ministry of Public Works, Infra-structures Transports and Communication*s:

  - *Directorate of Land Survey and Planning*: Known as "Cadastro" or Directorate of Geodesy Cadastral and Services (DSGC), this service holds the functions of boundaries and delimitation in the geographic and mapping aspect. The DSGC is the entity responsible for mapping and planning of terrestrial territory for such tourism, commercial and industrial usually leased by the Government. Given the limited financial resources, the mapping and geographic information available is very poor, lasting from the colonial period.

  - *ENAPORT* – Empresa Nacional de Admnistração dos Portos: State owned Ports Administration Company that is responsible for the management of both port facilities of Sao Tome and Principle islands. In the ports of Sao Tome ENAPORT is responsible for Port Security. The new Deep Water Port will be

managed by a private consortium (model Built Operate and Transfer - BOT).

- ❖ *Instituto Marítimo e Portuário - IMAP (Maritime and Ports Administration):* established under the Maritime Safety and Pollution Prevention Act, main responsibilities are registration and certification of vessels, regulation of shipping, seafarers certification, implementation of IMO conventions, and all other maritime issues define by the Law;

- The *Ministry of Defense (MDN):*
  - ❖ *Coast Guard (STP-CG)*: Defense Force Division with the task of surveillance of jurisdictional waters. In the past limited financial resources had strong negative impact in the way the STCG enforcement the law within national jurisdictional waters but with the input from international cooperation is helping to create more surveillance means. Despite this, the STP-CG still struggles with problems of equipment to reach illegal actions captured electronically even to patrol the beaches.

- The *Ministry of Foreign Affairs*: Is the branch of Government that held all international issues and coordinates the process of ratification of bilateral and multilateral agreements. As for other countries, the MFA coordinates national cooperation in both legal and political aspects, at regional and international levels.

- The *Ministry of Planning and Finance*:

- The *Regional Government of Principe*: Is the Governing body of the Principe Island. Exercises jurisdiction over issues that are not exclusive of the national Government, such as defense and Coast Guard jurisdiction. The limited human and financial resources and decentralization affects its performance. However, every issue with regard to the region or that is projected to the region's territory is also matter of the Regional Government, that is called to participate and contribute on behalf of the interests of the smaller island.

- The *Municipalities (Districts)*: All the Districts of Sao Tome are coastal districts. Municipalities of STP have a wide range of activities.

		Natural Resources Environment and Energy	**Agriculture Rural Development and Fisheries**	**Public Works and Infra-structures**	**Defens e**	**Foreign Affairs**
Living Resources	Fisheries management		**L**			
	Fisheries development					
	Aquaculture					
Non-living resources	Marine boundary delimitation			**L,O**	**O**	**P**
	Energy	**L**			**O**	**P**
	Natural resources	**L**			**O**	**P**
Environment protection	Ecosystem protection	**L,O**				
	Bio-security					
Science & Technology	Ocean process					

		Natural Resources Environment and Energy	Agriculture Rural Development and Fisheries	Public Works and Infra-structures	Defens e	Foreign Affairs
Shipping	Marine pollution	**L,O**		**L**	**O**	
	Marine transport	**O**		**L**	**O**	
	Marine safety and security			**L**	**O**	

4.1.1.2 Legal Framework

A list of national legislation concerning marine issues treated in this report and international conventions that STP is part is provided in Appendix[68] to this paper. This analysis of the legal framework is focused on the diplomas that have direct impact to the current regime and open paths for the future.

- *Framework Law on the Environment* (Law no. 10/99): defines the basis for national environment policy, adopting in the internal legal system the principles established in most international instruments such as sustainable development.

- *Law on the Preservation of Fauna, Flora and Protected Areas (Law no.11/99)*

  Defines the regime of preservation of fauna, flora and establishment of protected areas as national and world heritage, sustainable social and economic use, and establishes lists of protected species, allocating areas of national territory to the preservation of habitats and biodiversity (NBSAP).

[68] See Appendixes 3 and 4.

This law disregarded the marine environment in what is concerning the establishment of marine protected areas (MPAs).

- *Maritime Security and Pollution Prevention Act* (Law nr. 13/2007)

- *Regulation on sand mining - Decree no. 35/99*: approves the regulation on extraction of aggregates, defining sand, shingle, limestone and reefs as natural resources of the state and therefore setting the conditions for grants of extraction throughout coastal areas and rivers of the Democratic Republic of São Tomé and Príncipe (NBSAP).

- *Land Management Act - Law on the Management of State Land Property* (Law no. 3/91)

  This Law defines the framework regime for government owned law ownership, identifying public and private property of the state. Besides it defines basis for private use lands under public regime, especially for distribution for investment purposes. The regime established under this law dictates that public (state) property corresponds with riverbeds and maritime waters, islets by the shore, those grounds reserved for military and paramilitary objectives and those occupied by roads, public thoroughfares, harbors and airports. Private property of the state includes public buildings; state-run agricultural facilities; nationalized buildings or facilities; abandoned buildings and all others not owned by private citizens or corporations.

- *Regulation of sand mining* Dispatch no. 1457, August 7, 1950, approves the Regulation on S. Tomé and Príncipe Port Captain's Office, given authority to inspect fishing activities and status as Coast Guard, based on Beach Chief action, whose duties and privileges are also established

therein. Currently, this dispatch needs to be updated and adjusted; there must be a redistribution of duties between the Fishery Board and the Port Captain's Office, given the new organizational and management

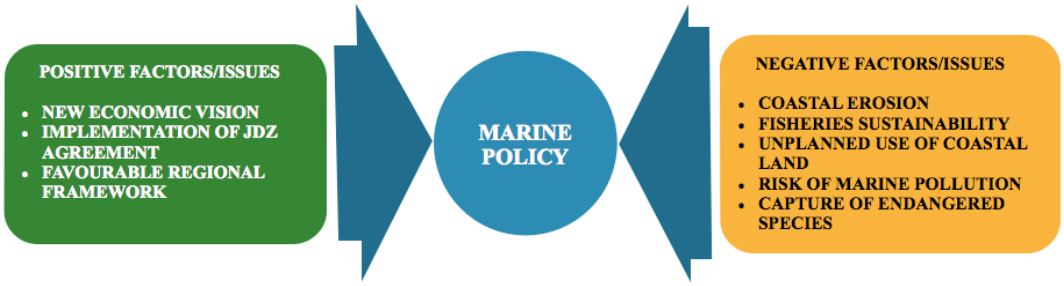
	Sectors	Political	Legal	Operational
Living Resources	Fisheries management		X	
	Fisheries development		X	
	Aquaculture			
Non-living resources	Marine boundary delimitation	X	X	
	Energy		X	
	Natural resources	+/-	X	
Environment protection	Ecosystem protection		X	+/-
	Bio-security			
Science & Technology	Ocean process			
Shipping	Marine pollution		X	
	Marine transport		X	X
	Marine safety and security		X	X

4.1.2 Catalysts for a marine policy in STP

As aforementioned Sao Tome and Principe is a small island state which national economy relies mainly in cocoa single crop agriculture but is progressing towards a new economic paradigm, focused on the use of national marine resources in different sectors, such as coastal tourism, offshore oil and gas and marine transport.

Having in mind these economic prospects, adding the fact that the country is almost unexplored, it is desirable that the country be prepared for new challenges. On the other hand, there are certain environmental issues that are also expected to contribute as triggers to implementation of a national ocean policy.

Hence the identification of factors that can contribute as triggers to the marine policy in STP is an important component of this research. The selection of issues is based on the seriousness of the problem, the direct and indirect effects to the national economy, specially those which are in contradiction with the new economic vision for the country.



4.1.2.1Marine Resources Management: the Joint Development Zone

Sao Tome and Principe marine potential is considerable, thanks to the large marine jurisdictions the country benefits if compared with the terrestrial territory. The country established by the article 2 of the *Maritime Delimitation Act* (Law no. 1/98, of March 30) a 12M (nautical miles) territorial sea based in archipelagic baselines, in accordance with the principles established in LOSC art. ***. Under the same baselines, STP claimed a jurisdiction for around 160000 Km2 of marine territory with 200M EEZ. To achieve it in peaceful situation, STP maintain bilateral agreements with neighboring countries, like Nigeria, Equatorial Guinea and Gabon, signed in 2001[69]. The case of Nigeria includes an

[69] The agreement with the Republic Gabonese and the Republic Democratic of Sao Tome and Principe was signed in Sao Tome in 22.

overlapping area that is governed under the Joint Development Agreement, signed in 23 April 2001 and valid for forty five years.

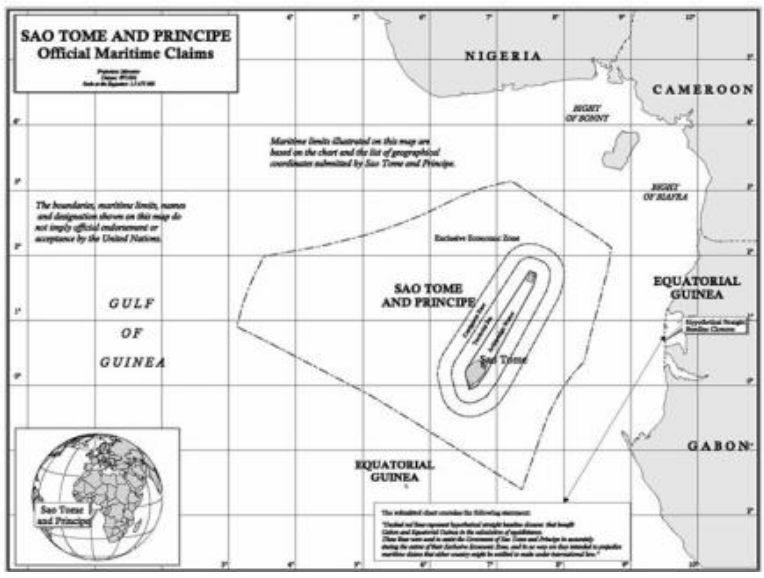


Figure 4: Archipelagic baselines and the EEZ of STP

As recognized previously, the Gulf of Guinea is a oil rich region and offshore petroleum is one of the main sources of income for countries like Nigeria and Equatorial Guinea. However, STP find evidence of offshore resources in the late 1990s, with studies realized under sponsorship of ERHC, a Houston (Texas, US) oil company. Since then, the urge to promote oil industry in the country was felt with more pressure, given the economic decline in the agriculture and the currency depreciation. Hence, the rich offshore assets became a key element on the development strategy and it gave some impulse on the delimitation of maritime jurisdictions in accordance with the provisions of UNCLOS, specially the advantages from claiming the 200 nautical miles EEZ and the rights of the coastal states over seabed and subsoil resources. The most complicated case was the overlapping EEZ lines with Nigeria and the dispute was settled by the bilateral agreement by which the countries obliged themselves to establish a Joint Development Zone[70] for the joint management of resources in the overlapping claims area, as depicted in the figure below.

[70] Preamble and article 4 of the Agreement.

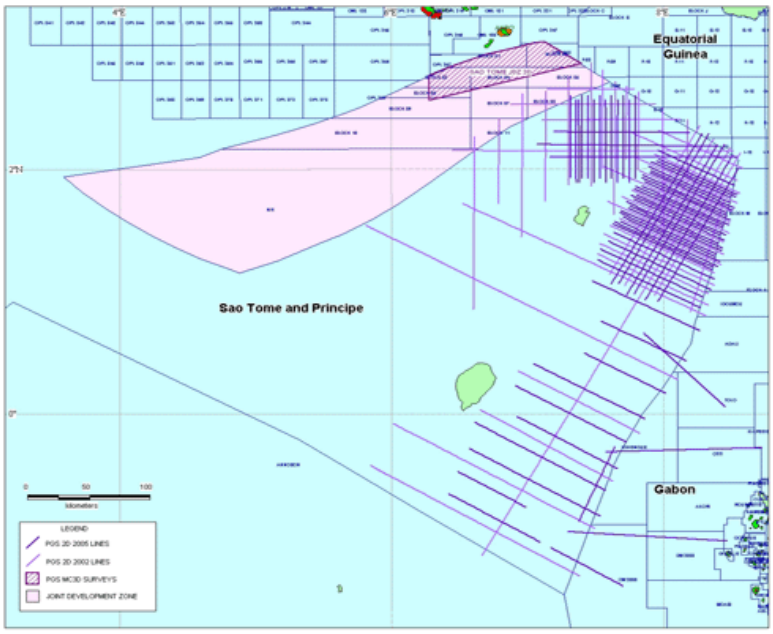


Figure 5 - The JDZ of Nigeria and STP (rose). Lines of seismic survey

The benefits and obligations resulting from the management of the resources present in the JDZ are shared in the proportion of Nigeria[60] per cent and STP 40 per cent. The institutional structure of the agreement is composed by two bodies: the Joint Ministerial Council (JMC) and the Joint Development Authority (JDA)[71].

4.1.2.2 Coastal Erosion

The effects of Coastal erosion in the low-lying coastal areas of the North and North East sides of the island of Sao Tome are already visible. In some sites, like the Beach of Diogo Nunes, that has retreated 100 meters in a period of 20 years, a rate of around 5.2 meters per year[72]. This problem is associated with the illegal mining of sand from the

[71] art. XX http://www.nigeriasaotomejda.com/

[72] Santana, Aderito - Presentation to the UNFCCC African Regional Workshop, Accra, Ghana, September 2006 – URL: http://unfccc.int/adaptation/adverse_effects_and_response_measures_art_48/items/3743.php (last accessed in September 2009).

beaches for construction[73]. Sand is the most common construction material in STP besides timber[74].

The illegal mining is prohibited and the sand is provided by the unique marine sand dredging facility but the problem persists, considering limited ability for surveillance and law enforcement[75] (institutional aspects also). The fact is that some locations of the island of Sao Tome are facing struggles to remain untouched by severe storms surges. There have been reports of structural damages in the urban areas, roads and flooding events in poorly protected areas like fishing villages (Ribeira Afonso, Santa Catarina).

It is also reported the cutting of coastal trees, mainly tamarind trees that lays in the North and North East rocked coasts slopes of Sao Tome, for charcoal which leads to a destruction of the natural protection against the waves. Charcoal is an additional source of income for certain poor families in these communities. Unprotected coastal land becomes more vulnerable for the energy of the waves and wind. Traditional houses are made in wood-based materials. But as long the income of the population is increasing there is a trend to replace wood by cement and then with sand from beaches nearby. There are not available data about the quantity of sand used. However, the effects are visible in certain beaches that simply vanished after intense period of mining. Diogo Nunes and Praia Pomba are the most obvious cases, among half a dozen identified in the NAPA[76].

Furthermore, coastal erosion is considered a serious issue because it is not part of any existing program, expect the National Adaptation Program of Action on climate change (NAPA). On the other hand, since the colonial era that all works in the coastal zone are done only after the occurrence of some event, rather than act to prevent it. Most coastal

[73] National Biodiversity Strategy and Action Plan, pxx
[74] NBSAP, pX
[75] Source: Boya Busquet, Mireia Aran, Rapport à la nature et stratégies intégrées de conservation et développement : le cas de São Tomé et Principe, p. 164 URL: http://hdl.handle.net/1866/2838
[76] NAPA, p15-16

works are developed with road maintenance works, which are not regular, due to the lack of financial resources. Therefore, the marine side benefits only when works are done at the land side and without the specific coastal engineering expertise.

4.1.2.3 Fisheries Sustainability

The reasons that make STP fisheries sustainability has to be considered a potential catalyst to a national oceans policy are twofold: (1) the development of national Artisanal and industrial fisheries and (2) the impacts of industrial offshore fisheries from foreign fleets to the archipelago's marine ecosystem.

As stated before, the development of national fisheries is part of national priorities.[77] STP does not own national fleets with capacity to operate industrial fisheries in the EEZ, despite the vast ocean territory of 160.000 km^2. In addition, the islands' fisheries productivity is limited by the small continental shelf of 1455 km^2 (which approximately 1000 Km^2 is in Principe), absence of upwelling, and paucity of zooplankton and phytoplankton[78]. Living resources are important for the Santomean population diet, which consumes around 25kg per capita annually[79]. Therefore, the maintenance of a sustainable fish stock is a key issue and urges the need of strong management strategy that can assure national development and food security.

Considering the inexistence of national fleets and the considerable stock of attractive species of tuna, crab and others, STP allows the access to its resources under fisheries access agreements with the European Union, Japan and Taiwan, against a financial compensation and technical assistance for the promotion of national fisheries. For a country with limited financial resources, the financial compensation represents an important contribution of almost 4% of the public budget[80]. Challenges emerging from

[77] Government Program.
[78] Pikitch and Doukakis, p2. Main tradition dishes and cultural activities are also connected with this dependence and relation with marine resources.
[79] FAO, as cited by Pikitch and Doukakis, p2
[80] Idem, p. 5

the exercise of rights of access permitted under these agreements are diverse and it is not clear the capacity of STP to acknowledge and deal with these potential problems. Some of these challenges are listed below:

a) The first aspect of the FAA is the importation of unsustainable fisheries practices from developed countries to developing countries, such as over-fishing, by-catch and habitat destruction.

b) Secondly, in most of the cases the financial compensation is not enough or not just in the point of view of the developing State. For example, the compensation from the European Union remained unaltered for more than ten years[81]. Adding to this is the lack of qualified human resources to perform observations or inspect possible illegal practices. So, if there is a variable component to the agreement, the additional catch cannot be counted if national authorities are unable to go onboard of the vessels.

c) In third place is the fact that the development of national offshore industrial is likely to increase the pressure on the existing resources if sustainable management measures are not adopted to adapt the ecosystems to the increase in the demand.

d) Last but not least, artisanal fishermen need to go further in the sea to find fish, due to the pressure created by foreign fleets. Considering the safety conditions offered by canoes or boats used in STP, the further they go more risky they create for themselves.

[81] Idem, p. 5. See also table 2 of Appendix 5.

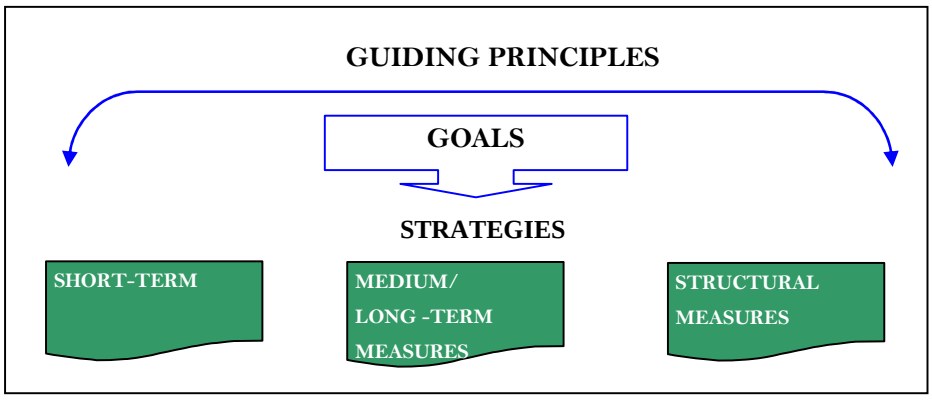
4.1.2.4 Unregulated use of coastal land

Among other impacts, the unregulated use of coastal land creates serious concern on the prevention of diseases which the vector is water. Deficient solid waste disposal affects water quality and the non-existence of sewage systems contributes seriously for water contamination and malaria propagation. Thus, poor urban planning also contributes as source of marine pollution from land based sources. Practices like solid and liquid waste disposal, washing of agricultural tools and vehicles are often reported[82].

4.2 A vision for STP's Ocean Policy

4.2.1 Basis for the Santomean Ocean Policy

The proposal presented here constitutes a discussion over relevant aspects of marine policy in the given the international and regional frameworks. Is a project for the future based on the current effective conditions of the island state of STP, legal and institutional frameworks its challenges in both economic social and politic aspects. For this purpose, the proposal folded in three categories: guiding principles, goals or principal objectives and strategic measures, as represented graphically below.



[82] The ENPAB also identified as another source of pollution of the coastal environment by land-based effluent emissions in the power of the capital Sao Tome, directly into waterways. They lay waste oils and other liquid wastes associated with the operation of the plant. Nevertheless, there is no reference to measures to prevent such pollution or even punish the company for illegal practice.

4.2.2 Guiding Principles

In order to design a model of national policy that respects the international law a policy, essentially built under the perspective of principled ocean governance, STP should recognize, incorporate and implement principles. Thus, the future national ocean policy of STP will be based on those principles and checked against then. For the purpose of this research, and save other principles generally recognized and already part of Santomean legal system, seven principles are proposed as key principles to guide the national ocean policy: *sustainability, integration, public participation and access to information, ecosystem-based management, and precautionary approach.*

- *Sustainable development*

  Ocean policy should be designed to meet the needs of the present generation without in a way that cannot jeopardize the opportunities of development of the future generation.

- *Integration*

  Ocean policies should be based on the recognition that the oceans, land, and atmosphere are inextricably intertwined. Management should promote sectorial integration and multicultural integration in order to avoid conflicts among sectors. This principle call for more cooperation (cooperation principle), that means more articulation and cooperation between institutions at national, regional and global levels to ensure effective conservation and protection of living aquatic resources throughout their range of distribution, sustainable use of non-living resources, environmental protection and so on.

- *Public participation and access to information*

  All stakeholders should be engaged in the formulation and implementation of decisions concerning environmental resources. All those who have a legitimate

interest are involved prior to any decisions about management being taken. This principle also imposes the need for all interest groups understand the objectives of the participatory process and have adequate and timely access to relevant information. All interest groups (women and men) are capable of actively participating in decision-making in a non-dominated environment. Laws governing uses of ocean and coastal resources should be clear, coordinated, and accessible to the nation's citizens to facilitate compliance. Another dimension of this principle is transparency. Everyone should see how decisions are made and who makes them. Without access to information is impossible to exercise participation.

- *Ecosystem-based management*

  As stated earlier, ecosystem based management constitutes an emerging approach to natural resources management, mainly living resources. This principle prioritizes ecosystem considerations first than sociological, economic, in the management of living resources, without disregard to other dimensions.

- *Precautionary approach*

  According with this principle, the decision on whether to carry or not certain activity which is not certain to damage the environment should not be taken if uncertainty remains, meaning that in the face of uncertainty about potentially irreversible environmental impacts, decisions concerning their use should err on the side of caution and the burden of proof should shift to those whose activities potentially damage the environment. Precaution appeals to the acknowledgement of uncertainty and risk and the consequent exercise of care to avoid undesirable outcomes. Management should not postpone or fail to take action due to absence of adequate scientific information.

- *Use of science*

  Ocean policy decisions should be based on the best available understanding of the natural, social, and economic processes that affect ocean and coastal environments. Use of best scientific evidence available, including traditional knowledge

- *Subsidiarity*

  Management should be decentralized to the lowest appropriate level. In this particular case of STP, it is required that the country take actions promoting decentralization as far as possible, e.g. allowing and including the municipalities in projects with local implications.

4.2.3 Principal Goals

The marine policy in STP should be conceived on the basis of the importance of the coastal and marine environment for national economy, society and culture. It urges the suggestion of seven goals to be achieved through the implementation of the national ocean policy:

a) Implement an integrated ocean policy and legislation;
b) Institutional articulation & integration;
c) Improve national capacity for adaptation to the effects of climate change;
d) Promote regional and international cooperation;
e) Create internal capacity to understand national ecosystem and manage resources within jurisdictional waters;

4.2.4 Strategies

The vision for an ocean policy in STP proposed herein includes a set of actions and initiatives that can be useful for future works. It is assuming as common ground that marine resources and environment are important for the country, as fuel for economic

development but important for the regional and the Planet as well. It is possible to conceive two types of strategies: short-term strategies and long-term strategies. In order to ease the process it is suggested also some structural measures too.

- **Short-term strategies**

- **Long-term strategies**

- **Structural measures**

4.2.5 Challenges and Opportunities

Limited human and financial resources: The lack of qualified human resources is a problem that affects developing countries in general and is a constant obstacle to policy processes in STP. Thus it requires attention, actions and incentives from the Government to promote capacity building, not to mention more advanced incentives to promote the maintenance of the personnel, considering the low salaries in the public service. The second component of limited financial resources is seen as negative factor to the inception initiatives to promote an integrated marine policy in STP. It was demonstrated in the past that States struggling with basic problems of health, sanitary issues even salaries to

public servants are kin to prioritize other sectors in prejudice of environmental issues and projects that does not raise political interest.

The inception of the deep water port: The project of the Deep Water Port was several times called in this paper as a landmark for the development of a marine economy for the small archipelagic state of STP. In fact the investments that can be attracted by this project are far from the US $400 million dollars estimated by the consortium that will built and operate the port. In fact, the results of the investment for the rest of the economy are no evaluated but will contribute to create jobs internally and boost the construction and tourism sectors. So, if the results expected by the Government and other investors are effective the importance of the project is an opportunity that can not be missed. Hence, the rigor and by which STP takes marine issues like marine planning, maritime security are key factors for national development and constitute elements to be considered not in individual basis but with and holistic perspective, encompassing other relevant marine an coastal issues.

Enhancement of cooperation on the JDZ: The particular framework provided under the regime of the JDZ is considered an opportunity for development of national cooperation. For example, fisheries regimes needs to consider impacts of offshore oil exploitation and tourism activities.

Oil revenues: Oil revenues can contribute to invest in the preservation of the environment and help to enhance the effectiveness of national policies.

5 Conclusion

5.1 Summary

The emergency of Ocean Governance Only a marine policy can define a national strategy to manage efficiently our natural resources and promote sustainable development;

This is a long process and requires strong political will, more financial resources and more investment in capacity building as well

Institutional reform is a key factor through the definition of the leading /coordination agency with clear legal mandates;

Fostering regional structures will help STP to overcome current difficulties (financial and human resources, even the inexistent of research institutions).

5.2 Evaluation / Recommendations

The marine policy in STP should be conceived on the basis of the importance of the coastal and marine environment for national economy, society and culture. It urges the suggestion of seven goals to be achieved through the implementation of the national ocean policy:

5.3 Future Work

A) Submission of the paper to the national Government;

B) Provide contribution development to the review of existing marine legislation;

C) Advocacy of the principle of integrated policy for STP;

References

Use the *Reference* paragraph style to enter and cross-reference document references. Books [1], standards [2], reports [4], journal articles [4], conference papers [5], and web pages [6] are conventionally presented in slightly different ways.

Regardless your referencing style, the keyword here is consistent.

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[11]

Appendix 1 –

Appendix 2 –

Appendix 3 –

	National	Regional	International
Policy Creation And Implementation	Establish and/or strengthen, where appropriate, institutional, administrative and legislative arrangements for developing and implementing integrated coastal zone management plans and strategies for coastal watersheds and EEZs, including integrating them within national development plans. Ratify and/or adhere to regional and international conventions concerning the protection of coastal and marine resources and combat unsustainable fishing and related practices.	Harmonize policies and strategies for the coordination of the sustainable management and utilization of coastal and marine resources. Develop a methodology for integrated coastal zone management appropriate to SIDS, particularly very small, low elevation and coral islands.	Cooperate in facilitating mutually advantageous fishing agreements between SIDS and foreign fishing groups; take account of the concerns and characteristics of those States within the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks; and encourage and facilitate the full participation of small island developing States in the Conference and in the implementation of the Conference outcomes.
Analyses		Develop and/or strengthen regional clearinghouses for coastal and marine environmental information to facilitate the collection, synthesis and sharing of relevant information, knowledge and experience among SIDS in a structured and systematic way.	Use the relevant results of the World Coast Conference, held at Noordwijk, the Netherlands, from 1 to 5 November 1993 as well as the ongoing work within the UNEP Regional Seas Programme to assist SIDS with the development and implementation of integrated coastal zone management plans, to improve international coordination in that field and to develop strategies to prevent further marine and coastal degradation. Monitor the results of the Meeting of Government-designated Experts Focusing on the 1985 Montreal Guidelines for the Protection of the Marine Environment Against Pollution from Land-Based Sources, held in Montreal from 6 to 10 June 1994.
Monitoring Plans	Design comprehensive monitoring programmes for coastal and marine resources, including wetlands, in order to determine shoreline and ecosystem stability, and also document and apply, as a basis for integrated coastal zone planning and decision-making, traditional knowledge and management practices that are ecologically sound and include the participation of local communities.	Develop and/or strengthen regional capabilities for the effective surveillance and monitoring of activities in the EEZs of SIDS.	Develop mechanisms for the gathering and sharing of information and expertise, particularly interregionally among SIDS, including geographic information systems (GIS) techniques and facilities for the assessment of coastal and marine resources, including the regional nodes of the UNEP Global Resource Information Database. Support SIDS in establishing national and regional capabilities for the effective surveillance and monitoring of activities within their EEZs, setting up regional and other joint-venture fishing enterprises, developing inventories of marine resources and regional approaches to the sustainable management of their EEZs, and strengthening regional marine research centres.

Capacity Building	Develop and/or strengthen national capabilities for the sustainable harvesting and processing of fishery resources and provide training and awareness programmes for the managers (government and local communities) of coastal and marine resources.	Develop and/or strengthen the capacity of regional organizations to undertake activities in coastal and marine areas, including research into commercial and non-commercial fisheries with a view to sustainable harvesting and utilization, as well as surveys on reef, estuary, wetland and lagoon resources. Also monitor and promote innovative ways to sustainably develop territorial waters and EEZs, including providing support for aquaculture, mariculture, coral reef and mangrove programmes. Develop programmes to enhance negotiating and related skills for the management and exploitation of coastal and marine resources, including the negotiation of fisheries agreements.	Improve means of building capacity for integrated coastal zone management planning and implementation, strengthening regional and international networks, including South-South relationships; increasing public awareness and participation; enhancing relevant education and increasing training activities; ensuring the involvement and participation of non-governmental organizations and other major groups; supporting the development of concepts, methodologies and tools; and supporting and strengthening international research and improvements in monitoring, the results of which should be integrated into policy development, planning and decision -making.
Assistance			Assist with the establishment and/or strengthening, where necessary, of new institutional and administrative arrangements for the development of integrated coastal zone management plans and their implementation.

Appendix 4 – National Legislation on Ocean Issues

Framework Law on the Environment (Law no. 10/99)	Defines the basis for national environment policy, adopting in the internal legal system the principles established in most international instruments such as sustainable development.
Law on the Preservation of Fauna, Flora and Protected Areas (Law no.11/99)	Defines the regime of preservation of fauna, flora and establishment of protected areas as national and world heritage, sustainable social and economic use, and establishes lists of protected species, allocating areas of national territory to the preservation of habitats and biodiversity (NBSAP). This law disregarded the marine environment in what is concerning the establishment of marine protected areas (MPAs).
Legal regime of environmental impact assessment (Decree Law no. 37/99)	Defines the rules and principles applicable on environmental impact assessment.
Maritime Security and Pollution Prevention Act (Law nr. 13/2007)	
Land Management Act - Law on the Management of State Land Property (Law no. 3/91)	This Law defines the framework regime for government owned law ownership, identifying public and private property of the state. Besides it defines basis for private use lands under public regime, especially for distribution for investment purposes.
Regulation of sand mining Dispatch no. 1457, August 7, 1950, approves the Regulation on S. Tomé and Príncipe Port Captain's Office,	given authority to inspect fishing activities and status as Coast Guard, based on Beach Chief action, whose duties and privileges are also established therein. Currently, this dispatch needs to be updated and adjusted; there must be a redistribution of duties between the Fishery Board and the Port Captain's Office, given the new organizational and management
Decree Law no. 36/99:	Defines rules for the statistic registry of solid waste and the entities responsible to keep this registry. Considering the limited scope of this regulation and capacity on the side of municipalities this regulation is not applied by then either enforced by the central government either[83].
	that imposes fees (payable at customs) on imported packages and goods containing or/and made by materials that are likely to became waste or contribute to pollute the environment, such plastics, glass bottles, tires, batteries, etc[84].
Regulation on sand mining - Decree no. 35/99:	Approves the regulation on extraction of aggregates, defining sand, shingle, limestone and reefs as natural resources of the state and therefore setting the conditions for grants of extraction throughout coastal areas and rivers of the Democratic Republic of São Tomé and Príncipe (NBSAP).

[83] The same resulted with the recently adopted the Decree Law no. 4/2003

[84] In fact the result of a non application of this DL by the central Government is affecting the national capacity to reduce solid waste incidence and the capacity of local authorities to del with package waste. For example with the additional revenues the municipalities could develop improvements in the collection system and preventing litter and water diseases.

Appendix 5 – Fisheries Statistics

Table 1. Species occurring in the artisanal fisheries harvest in São Tomé (information presented is taken from d'Almeida et al. 1995 and Boletim Estatistico 1997)

Species	Common Name
Ablennes hians	Flat needlefish
Acanthocybium solandri	Wahoo
Auxis thazard	Frigate tuna
Caranx crysos	Blue runner
Cheilopogon melanurus	Atlantic flyingfish
Coryphaena equiselis	Pompano dolphinfish
Dactylopterus volitans	Flying gurnard
Euthynnus alletteratus	Little tunny
Hemiramphus balao	Balao halfbeak
Istiophorus albicans	Atlantic sailfish
Katsuwonus pelamis	Skipjack tuna
Pagrus caeruleostictus	Bluespotted seabream
Sphyraena spp.	Barracuda
Thunnus obesus	Bigeye tuna

Table 2. Number of fishing vessels issued licenses 1999-2003 (Data obtained in STP).

		1999	2000	2001	2002	2003
EU	Palangre	7	9	11	14	17
	Cerquerio	27	29	29	27	28
	Total	34	38	40	41	45
Non EU	Palangre	0	2	3	11	12
	Cerquerio	0	0	2	0	0
	Total	0	2	4	11	12
	Total	34	39	44	53	57

Table 3. Number of vessels permitted and payment made for EU-STP fishing access agreements.

Year of Agreement	Maximum #/type vessels permitted	Total #	Compensation
1990-1993	46 seiners, 5 pole-and-line	51	$2,175,000.00
1993-1996	40 seiners, 8 surface longliners or pole-and-line	48	$2,175,000.00
1996-1999	37 seiners, 25 surface longliners,7 pole-and-line	69	$2,175,000.00
1999-2002	36 seiners, 33 surface longliners,7 pole-and-line	76	$1,912,500.00
2002-2005	38 seiners, 5 surface longliners, 2 pole-and-line, 3 experimental crab fishing vessels	68	$2,200,000.00